Abstract

The study examines the impact of capitalization on bank performance of some selected commercial banks in Nigeria using econometric analysis on annual time series data of ten banks over the period of 2006 to 2014. The results from a Levin, Lin & Chu unit root test show that all the variables were non-stationary. The results from a Panel Least Square (PLS) estimate found that operating expenses, bank size and bank loan are negatively related to profitability but only bank loans are significant. On the other hand, bank deposit and bank liquidity are positively related to profitability but not significant. This conclusion has important policy implications for emerging countries like Nigeria as it suggests that capitalisation and total assets of a bank should be periodically evaluated. The regulatory authorities will therefore need to put in place appropriate machinery that will address issues of bank liquidity and assure asset quality in the industry.

JEL classification: G21; L25; O55

Keywords: Capitalization; Bank Performance; Commercial Bank; Nigeria

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**Introduction**

The recent financial crisis has raised fundamental issues about the role of bank equity capital. Various proposals have been put forth which argue that banks should hold more capital (Kashyap, Rajan & Stein, 2009, Hart & Zingales, 2009, Acharya, Mehran & Thakor, 2010, Basel III, 2010). An underlying premise in all of these proposals is that there are externalities due to the safety net provided to banks and thus social efficiency can be improved by requiring banks to operate with more capital, especially during financial crises. Bankers, however, have typically argued that being forced to hold more capital would jeopardize their performance, especially profitability, and the argument that higher capital need not be beneficial has found some support in the academic literature as well (Calomiris & Kahn, 1991). The issue of what effects capital has on bank performance, and how these effects might differ between crises and normal times, thus boils down to an empirical question, and one that we confront in this study.

Shrievs and Dahl (1992) and Jacques and Nigro (1995) suggest that changes in bank capital and risk positioning by bank management are simultaneously determined and are affected by both exogenous and endogenous factors. According to Ajekigbe (2009), from the classical and historical perspective, “several factors led to the failure of banks between 1977 and earlier 2000. Some of the reasons advanced are poor asset quality, under capitalization, inexperienced personnel, illiquidity, inconsistent regulatory policies and supervision”. The evolving competition in the banking industry as a result of globalization has made it difficult for Nigerian banks to play their major role of financing economic activities arising from inadequate capital.

This study proves that there are measurable links among a bank’s size, bank liquidity, bank deposit, bank loan and advances, the operational efficiency, and the financial performance. The current capitalization critical situations have affected the performance of many financial institutions globally. Thus, institutions that adopt strategies to compete better are more likely to survive in the long run. The capitalization critical situations pose a grave threat to the economics of the developed and developing world. The global banking industry which was by far the most profitable sector in 2006 is in severe difficulties and the threat that this poses to the real economy is profound.

The banking industry is recently seeing capitalization as a means surviving in the industry. Bank profitability can be measured by the level of their lending, it is believed that the higher the lending rate the higher the bank profit and the amount of loanable funds available to customers as well as borrowers is a function of the capitalization base of such banks. The level of economic growth of a country can be determined by the level of credit given out for investment purposes by the banks. An increase in loanable funds brings about increase in bank profitability, hence increase in economic growth of the country. This study contributes significantly to the development of the banking industry which plays a pivotal role in the development of the economy. It seeks to identify effects of capitalization in banks and recommend some measure that can be used to solve difficulties. The findings would also enable management of financial institutions to come out with pragmatic polices for capitalized management aimed at improving their financial portfolios. This study also explains the challenges of liquidity and profitability of banks. It would also establish the fact that capitalization is a sine-qua-non to bank survival.

**Review of Relevant Literature**

**Conceptual Framework**

**History of Capitalization**

Elumilade (2010), has asserted that the Nigerian banking system has undergone remarkable changes over the years, in terms of the number of institutions, ownership structure as well as depth and breadth of operations. He observed that these changes have been influenced largely by challenges posed by deregulation of the financial sector, globalization of operations, technological innovations and adoption of supervisory and prudential requirements that conform to international standards. Capitalization is an important component of reforms in the Nigerian banking industry, owing to the fact that a bank with a strong capital base has the ability to absorb losses arising from non-performing liabilities. Capitalization requirements may be achieved through consolidation of existing banks or raising additional funds through the capital market (Ajayi, et. al. 2005).

According to Adegbaju and Olokoyo (2008), while stating that the recapitalization of banks is not a new
phenomenon, he stressed that right from 1958 after the first banking ordinance in 1952, the colonial government then raised the capital requirement for banks especially the foreign commercial bank from 200,000 pounds to 400,000 pounds. Also, in 1969, capitalization of banks was N1.5 million for foreign banks and N600,000 for indigenous commercial banks. In 1979 when the merchant banks came on board the Nigeria banking scene, the capital base was N2 million. Since the 1980s, there have been further increases in the capital base, particularly coupled with the liberalization of the financial system and the introduction of Structural Adjustment Programme (SAP) in 1986. In February 1988, the capital base for commercial banks was increased to N5 million while that of merchant banks was pegged at N3 million. In October that same year, it was raised to N10 million for commercial banks and N6 million for merchant banks. In 1989 there was further increase to N20 million for commercial banks and N12 million for merchant banks.

Similarly, Ayaji et al. (2005), opined that in recognition of the fact that well-capitalized banks would strengthen the banking system for effective monetary management, the regulatory authority increased the minimum paid-up capital of commercial and merchant banks in February 1990 to N50 and N40 millions from N20 and N12 millions respectively. Distressed banks whose capital fell below this were expected to comply by 31st March, 1997 or face liquidation. Twenty-six of such banks comprising 13 each of commercial and merchant banks were liquidated in January 1998.

The minimum paid up capital of merchant and commercial banks was subsequently raised to a uniform level of N500 million with effect from 1st January 1999. In 2001, when universal banking was adopted in principle, the capital base was increased to N1 billion for existing banks and N2 billion for new ones. However, in July 2004 the new governor of the Central Bank of Nigeria (CBN) announced the need for banks to increase their capital base to N25 billion, and all banks were expected to comply by December 2005. At the end of the recapitalization exercise, only 25 banks survived out of the formerly existing 89 banks before the mergers and acquisitions.

**Challenges of Bank Capitalization**

According to Adegbaju (2008), the Nigerian banking system has undergone remarkable changes over the years, in terms of the number of institutions, ownership structure, as well as depth and breadth of operations. These changes have been influenced largely by challenges posed by deregulation of the financial sector, globalization of operations, technological innovations and adoption of supervisory and prudential requirements that conform to international standards. Prior to the recent reforms, the state of the Nigerian banking sector was very weak. According to Soludo (2004), “The Nigerian banking system today is fragile and marginal. The system faces enormous challenges which, if not addressed urgently, could snowball into a crisis in the near future. He identified the problems of the banks, especially those seen as feeble, as persistent illiquidity, unprofitable operations and having a poor assets base”.

Imala (2005) posited that the objectives of the banking system are to ensure price stability and facilitate rapid economic development. Regrettably these objectives have remained largely unattained in Nigeria as a result of some deficiencies in our banking system which include: a low capital base, as the average capital base of Nigerian banks was $10 million which is very low, a large number of small banks with relatively few branches, the dominance of a few banks, poor rating of a number of banks, weak corporate governance evidenced by inaccurate reporting and non-compliance with regulatory requirements, insolvency as evidenced by negative capital adequacy ratios of some banks, eroded shareholder funds caused by operating losses, over dependence on public sector deposits, and foreign exchange trading and the neglect of small and medium scale private savers. The Nigerian banking sector plays a marginal role in the development of the real sector.

Soludo (2004) observed that many banks appear to have abandoned their essential intermediation role of mobilizing savings and inculcating banking habits at the household and micro enterprise levels. The indifference of banks towards small savers, particularly at the grassroots level, has not only compounded the problems of low domestic savings and high bank lending rates in the country, it has also reduced access to relatively cheap and stable funds that could provide a reliable source of credit to the productive sectors at affordable rates of interest.

Imala (2005) also commented that the current structure of the banking system has promoted tendencies towards a rather sticky behaviour of deposit rates, particularly at the retail level, such that, while banks’ lending rates remain high and positive in real terms, most deposit rates, especially those on savings, are low.
and negative. In addition, savings mobilization at the grass-roots level has been discouraged by the unrealistic requirements, by many banks, for opening accounts with them.

The issue of recapitalization is a major reform objective; recapitalization literally means increasing the amount of long term finances used in financing the organization. Recapitalization entails increasing the debt stock of the company or issuing additional shares through existing shareholders or new shareholders or a combination of the two. It could even take the form of merger and acquisition or foreign direct investment. Whichever form it takes the end result is that the long term capital stock of the organization is increased substantially to sustain the current economy trend in the global world.

In his comment, Soludo (2004) said that low capitalization of the banks has made them less able to finance the economy, and more prone to unethical and unprofessional practices. These include poor loan quality of up to 1–2 percent in Europe and America; overtrading, abandoning the true function of banking to focus on quick profit ventures such as trading in forex and tilting their funding support in favour of import-export trade instead of manufacturing; reliance on unstable public sector funds for their deposit base; forcing their female marketing staff to engage in unwholesome conduct to meet unjustifiable targets in deposit mobilization; and high cost of funds.

Empirical Evidence

The Implication of Capitalization in the Financial Institutions (Commercial Banks) in Nigeria

Some studies of the Nigerian banking industry have linked characteristics of individual bank companies to profitability. These studies include Nwosu and Nwosu (1998), Uche and Ehikwe (2001), Beck, Cull and Jerome (2005) and Brownbridge (2005).

Their studies link capital base (Nwosu & Nwosu, 1998), lending activities (Beck et. al., 2005, Brownbridge, 2005), information technology (Uche & Ehikwe, 2001), management quality (Nwosu & Nwosu, 1998) and bank size (Brownbridge, 2005) to the profitability of banks in Nigeria. However, among all these studies, only Beck et. al. (2005) employed the intricacies of econometrics in deriving their conclusions. The majority of studies on bank performance, such as Short (1979), Bourke (1989), Molyneux and Thornt (1992), Demirguc-Kunt and Huizinga (2001), Goddard, Molyneux and Wilson (2004) and Athanasoglou, Brissimis and Delis (2005) use linear models to estimate the impact of various factors that may be important in explaining bank performance.

Aburime (2008) in his study of the determinants of bank profitability: company-level evidence from Nigeria; elicited his data from the public financial statement of an unbalanced panel (Athanasoglou et. al., 2005 and Baltagi, 2001) of 33 commercial and merchant banks in 91 observations over the 2000-2004 period. Osinubi (2006) in his study of the effects of recapitalization on financial performance in selected banks 2001-2005, found that the asset quality of the Nigerian banking industry does not depend on its capital base. The study calculated the CAMEL ratios for each of the selected banks and relates these to their capital base. Data was collected on shareholder funds, which constitutes the bank’s capital base; data was also collected on the total asset, classified loans, Earning before interest Taxes (EBIT) and Gross Loans and Advances. Using the CAMEL indicators, the study found that the asset quality of the Nigerian banking industry does not depend on its capital base. However, the study shows that the more the capital base the higher the liquidity and capital adequacy of the banking industry. The return on assets also increases as the firm’s capital base increases (Ikpefan, 2006).

Yudistira (2003) in his study of bank capital requirement in Indonesia found that there is a strong positive relationship between bank capital and the growth rate of bank deposits. Secondly, the results from the effect of deposits and loans showed that poorly capitalized banks operated with low net worth relative to assets.

Methodology and Model Specification

This study examines the relationship between capitalization and bank performance of some selected commercial banks in Nigeria using an econometric analysis method for the period 2006-2014. Data for the study are obtained from secondary sources such as various editions of annual reports and accounts of selected commercial banks listed on the Nigeria Stock Exchange, as well as review of existing literature. The problem of stationarity has been solved through the use of the Levin,
Lin and Chu unit root test. The population of interest of this study is the five deposit banks that survived the N25 billion recapitalization exercise. These include: First Bank of Nigeria Plc; Access Bank; Zenith Bank Plc; Guaranty Trust Bank Plc; and United Bank of Nigeria. Through the use of the Panel Least Square Method (PLS), the model is specified thus:

\[
\text{Model:} \\
\text{PROF} = f(CAP) \\
\text{PROF} = f(BALIQ, BADEP, BALOA, OPEXP, SASIZ) \\
\text{ROA} = \alpha_0 + \beta_1 \text{BALIQ} + \beta_2 \text{BADEP} + \beta_3 \text{BALOA} + \beta_4 \text{OPEXP} + \beta_5 \text{BASIZ} + \mu
\]

Where:
- \(\alpha_0\) = Autonomous incomes
- \(\beta_1, \beta_2, \beta_3, \beta_4\) and \(\beta_5\) are parameters
- ROA = Return on Assets (Proxy for Profitability)
- BALIQ = Bank Liquidity
- BADEP = Bank Deposit
- BASIZ = Bank Size
- OPEXP = Operating Expenses
- BALOA = Bank Loan and Advances
- \(\mu\) = Error Term

### Data Presentation and Interpretation

#### Levin, Lin & Chu Unit Root Test

The study employs the E-view package to carry out unit root tests (Levin, Lin & Chu) in order to determine the stationarity of the variables used. All the variables were stationary.

The unit root test is conducted on the variables used in this study in order to avoid a spurious regression. From the above results, it shows that all the variables (ROA, BALIQ, BADEP, BALOA, OPEXP and BASIZ) are all stationary. Moreover, it considers the low probability value and critical values that are significant at 99% confidence level when compared to the Levin, Lin & Chu test statistics.

#### Descriptive Statistics

The table below shows the descriptive statistics of all the variables used in this research.

The summary of the statistics used in this empirical study is presented in the Table above. As can be observed from the table, the lowest mean value is the Bank Deposit as 0.635017 while the highest mean value of Operating Expenses is 2627594. Whereas the mean value of Return on asset, Bank Size, Bank Loan, and Bank Liquidity are 0.021220, 17.54649, 66.43429, 51.42857 respectively. The standard deviation measures how concentrated the data are around the mean, hence it can be observed

<table>
<thead>
<tr>
<th>Variables</th>
<th>LLC</th>
<th>Order of Integration</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>4.0633</td>
<td>I(0)</td>
<td>0.0098</td>
</tr>
<tr>
<td>BALIQ</td>
<td>-13.3896</td>
<td>I(0)</td>
<td>0.0000</td>
</tr>
<tr>
<td>BADEP</td>
<td>4.25136</td>
<td>I(0)</td>
<td>0.0059</td>
</tr>
<tr>
<td>BALOA</td>
<td>2.96018</td>
<td>I(0)</td>
<td>0.0015</td>
</tr>
<tr>
<td>OPEXP</td>
<td>2669.64</td>
<td>I(0)</td>
<td>0.0000</td>
</tr>
<tr>
<td>BASIZ</td>
<td>-8.2844</td>
<td>I(0)</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

*Source: Computed by the Researcher, 2015*

**NOTE:** The null Hypothesis is the presence of unit root above in ROA, BALIQ, BADEP, BALOA, OPEXP and BASIZ. Levin, Lin & Chu test includes a constant, Akaike Information Criterion was used to select lags automatically.
that operating expenses is the largest while the return on assets is the lowest giving the implication that the values for the operational data values are further from the mean on averages. The measure of how asymmetric a distribution can be is called skewness. It is also observed that bank loan (BALOA), return on asset (ROA), bank size (BASIZ) and bank deposit (BADEP) are negatively skewed while operating expenses (OPEXP) and bank liquidity (BALIQ) are positively skewed. The implication of this is that the skewness tends to say more on the mean value of the distribution being higher or lower than the median. Hence, positively skewed value indicates a higher mean value over the median value. On the part of Kurtosis, all the variables used present positive values which means that the distribution is leptokurtic (too tall).

Table 2: Summary Statistics of the variables used in the Model

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>OPEXP</th>
<th>BASIZ</th>
<th>BALOA</th>
<th>BADEP</th>
<th>BALIQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.021220</td>
<td>2627594.</td>
<td>17.54649</td>
<td>66.43429</td>
<td>0.635017</td>
<td>51.42857</td>
</tr>
<tr>
<td>Median</td>
<td>0.020050</td>
<td>100765.0</td>
<td>19.38710</td>
<td>66.90000</td>
<td>0.659400</td>
<td>48.50000</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.052600</td>
<td>31298175</td>
<td>20.97660</td>
<td>84.60000</td>
<td>0.845200</td>
<td>94.50000</td>
</tr>
<tr>
<td>Maximum</td>
<td>-0.009900</td>
<td>23542.00</td>
<td>13.01250</td>
<td>42.90000</td>
<td>0.066100</td>
<td>29.10000</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>0.011639</td>
<td>6502230.</td>
<td>3.186699</td>
<td>10.81040</td>
<td>0.134755</td>
<td>13.36496</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.071953</td>
<td>3.122033</td>
<td>-0.358499</td>
<td>-0.237643</td>
<td>-2.099630</td>
<td>0.951022</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>4.067129</td>
<td>12.76903</td>
<td>1.254840</td>
<td>2.337360</td>
<td>10.32870</td>
<td>4.278915</td>
</tr>
<tr>
<td>Probability</td>
<td>0.429364</td>
<td>0.000000</td>
<td>0.074602</td>
<td>0.615767</td>
<td>0.000000</td>
<td>0.021697</td>
</tr>
<tr>
<td>No of Obs</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: Computed by the Researcher, 2015

Model Estimation Issues and Discussion of Results

Regression Results and Discussion

The table above shows the result of the bank performance measure (ROA). Not all the independent variables made a significant effect on the dependent variable, that is, return on asset. The result shows that bank liquidity is positive and has no significant effect on return on asset; bank deposit was observed to be positive and has no significant effect on the return on asset; bank loan was negative and has a significant effect on the return on asset; operating expenses was observed to have a negative effect on return on asset but does not
make a significant effect on return on asset. Bank size was negative and does not have a significant effect on the return on asset. Therefore, this research shows that all the variables used to capture capitalization (bank liquidity, bank deposit, bank loan, operating expenses and bank size) followed the theoretical a’priori expectation in relation to the profitability captured by return on asset.

The studies of capitalization and bank performance enables us provide answers to the soundness, safety, profitability, quality of loan portfolio, asset, and deposits in the Nigerian banking industry. The selection of bank management has not been taken seriously and the performance is a function of the inputs. The study also provides answers to the impact of cost of operation on bank capital.

**Test of Hypotheses**

Going to specifics and testing the stated hypothesis in our model which captures the buffer theory of capital adequacy, the result in the Table 4.3 containing the hypothesis that operating expenses as a reflection for capitalization has no significance effect on profitability. The result shows that the null hypothesis cannot be rejected. This is because the probability value of 0.5340 is greater than 0.10. Thus, the operating expenses, though negatively related to return on asset are not significant in influence. This conforms to a priori expectation that efficiency of bank management measured by operating expenses is expected to be negatively related to ROA.

The real issue in the Nigeria case has been that of mismanagement of funds which is aptly explained by our expense theory. A good explanation may be found with management expertise, which presupposes that a high capital requirement as stipulated by the buffer theory of capital adequacy may not curtail reckless spending by managers who may indulge in reckless spending of bank capital. In other words a bank without good management may worsen the position it was in before the injection of new funds. In the Pre and Post consolidation era in the Nigerian banking industry what we have seen is bank management establishing more bogus bank branches everywhere rather than using bank capital for worthwhile projects that will enhance shareholder wealth and the economy.

**Conclusion**

The analysis in Table 4.3 shows the null hypothesis of no significant relationship between capitalisation and profitability. Thus, operating expenses is negatively related to return on assets and also, its impact is not significant in its influence. This can be viewed from the fact that the energy crisis in the Nigerian nation has had a contrary effect on adequacy of bank capital and consequently performance of banks. Hence, operational expenses which are affected by absence of electricity and accessible roads had affected banking performance while overall profitability of the impact is not significant. The negative and insignificant coefficient in our operating expenses, suggests that banks are able to pass on most of the high overhead costs to customers through higher spreads in order to keep profits unaffected. To the extent that banks’ ability to overcharge is a function of their market power, this outcome presents evidence of market power incidence in the banking sector.

We also find that there is significant relationship between return on assets and bank loans. This also conforms to a priori expectation that bank capitalization will be affected positively by bank loans. On the basis of the empirical findings of this study, and considering the fact that the days of armchair banking have been overtaken with intense competition in the Nigerian banking industry, this research work therefore recommends the following below.

**Recommendations**

The study recommends the following:

1) A bank without good management (input) may worsen the position it was in before the injection of new funds. Where managers prefer prestige, power and status, it would be reflected in the amount they receive in form of expense accounts and luxuries. Management capability should be better supported, for the best of assets can be overturned in a short period by management. It is a known fact that CBN plays an important role in the selection of bank executives at the directorate level. The policy for the selection of this class of bank workers should emphasize strict consideration of good track records and sequential growth through the ranks as some of the imperatives.

2) Shareholder funds and total assets of the
bank should be periodically evaluated. The regulatory authorities will need to put in place appropriate machinery or tools that will address issues of bank liquidity and assure asset quality in the industry. Bank management in conjunction with the regulatory authorities should at all times address causes of illiquidity rather than the systems. In this way, lost confidence can once again be restored in the Nigerian banking industry. It is important to carry out routine checks, and periodic examinations of bank returns.

3) We strongly suggest that apart from capital, technology, customer care, aggressive marketing and efficient service delivery are tools that can be used to attract more customers to shore up bank deposits. This will also help to reduce market concentration and also break the monopoly power of the big banks.

4) Where there exist viable financial infrastructures, bank management should lobby governments for the provision of an enabling environment for banks to thrive. This will help to minimize the operation expenses (OPEXP) of the banks.

5) Government should provide an enabling environment and also control interest rate on credit in the short term to enable customers such as corporate bodies, manufacturers, and industrialists to obtain loans in order to stimulate economic growth.

6) Bank management should strengthen their supervisory units in credit administration, that is, from loan application to drawdown of such facilities so as to avoid bad loans.

7) For Nigerian banks to be major players in domestic and international financial markets, capital must be kept above the minimum regulatory requirement at all times.

8) The Central Bank of Nigeria should ensure that bank management/managers apply customer deposits to worthwhile projects instead of using them for prestige, power and status, luxurious offices and buildings, company cars and other perquisites of the office.

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