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Abstract: This study investigated the impact of bank recapitalisation on bank performance. The Ordinary Least Square (OLS) regression analysis was used for the analysis. The results showed that bank capitalization has no significant effect on bank profitability and asset quality, whereas liquidity and financial deepening were significantly influenced by the recapitalization. The study posits that profits maximization drives of Nigerian banks have had counterproductive effect on bank capitalization. Also, efforts of banks to maintain quality assets and remain in business normally erode their capital. Strategies to increasing bank capitalization can be used to boost loans and advances to the productive sector of the economy.

Keywords: CAMEL, recapitalisation, bank liquidity, financial deepening, Nigeria.

1 INTRODUCTION

The financial sector is one of the dominant economic sectors in Nigeria, and banks are key players in any country’s financial sector. The banks occupy a delicate position in the economic equation of any country such that their (good or bad) performance invariably affects the economy of the country (Wilson, 2006). Hence, reforms to modernize and strengthen the financial sector have continued in recent years. The Nigerian financial system, which represents the congeries of financial markets, intermediaries, instruments, regulatory agencies and the body of rules, norms and regulations that govern interaction in the system, has evolved from a rudimentary to a more sophisticated one over the past few decades.

According to Soludo (2004) before the 2004 consolidation, Nigerian banking system was generally characterized by small-sized and marginal players with very high overhead cost. He posited that the primary objective of the reform was to guarantee an efficient and sound financial system. This view was supported by (Lemo, 2005) when he pointed out that reforms are designed to enable the banking system develop the required resilience to support the economic development of the nation by efficiently performing its functions as the fulcrum of financial intermediation. Thus, the reforms were to ensure the safety of depositors’ money, position banks to play active developmental roles in the Nigerian economy, and become major players in the sub-regional, regional and global financial markets (Adeyemi, 2007).

Studies have shown that the 2004 policy-driven bank consolidation has been the major process adopted by most developing economies in solving systemic distresses in the banking sector (Somoye, 2008). For instance, what was termed “government guided” merger was a unique banking sector reform implemented in 2002 by the Central Bank of Malaysia BNM (Bank Negara Malaysia) guiding 54 depository institutions to form 10 large banks (Rub, Mohamed & Michael, 2007). The Central Bank of Nigeria in 2004, announced a 13-point reform agenda designed to enable the banking system develop the required flexibility to support the economic development of the nation by efficiently performing its function as the pivot of financial intermediation. Thus, the reforms were to ensure the safety of depositors’ money, position banks to play active developmental roles in the Nigerian economy, and become major players in the sub-regional, regional and global financial markets (Adeyemi, 2007).

This study is motivated by the need to look into the Central Bank of Nigeria’s reform strategy of 2004 that drastically increased the minimum capital requirement from 2 billion Nigerian naira to
NGN25 billion ($US 190 million). The policy resulted in a noticeable rate of increase in the capital base of the banks: as high as 1150% increase in the minimum capitalisation to be achieved within 18 months (Okafor, 2011). One prime question remains whether the reform has lived up to its expectations. Studies oversea have shown that progress in banking reform is the sine qua non of banking development (see Angelini and Cetorelli, 2003; García-Herrero and Santabárbara, 2006; Edirisuriya, (2007; Brissimis, Delis, and Papanikolaou, (2008).

In Nigeria Ningi and Dutse, (2008), shows that CBN reform has changed the market structure of the banking sector, increased the efficiency and reliability of the banks, created opportunities for financial institutions and market participants, and raised their intermediation potentials but studies of (Okpara, 2011) shows that while some reforms are beneficial and improved the Nigerian economy others left it worse than it were before such reforms.  Okpara, 2011 posited that the 2004 consolidation exercise is one of those failed reforms. Somoye (2008) disagree with Okpara as he found that the intermediation activities of an average bank improved significantly in 2006. To cushion for methodology and times factors, this study aims to re-examine the effect of the 2004 recapitalization on the banks using multiple regression technique the time serial bank capital is the dependent variable regressed against a selected (profitability, asset quality and liquidity) bank performance measures.

2 REVIEW OF RELATED LITERATURE

2.1 Theoretical Framework

The basis of this study is hinged on reforms as a necessity for repositioning the bank for sound economic support. Reform is a mechanism used to drive a desired change; a shift from one normative course of action to another in a social or economic system so as to control the operations and operators of the system and enhance system performance. Banking reforms, according to Okafor (2011:5), “refer to changes or shift in banking processes and practices imposed on banks by banking system regulators”. Banking reform can be categorized into systemic and big-bang banking reforms.

The systemic banking reforms refer to a reform designed to resolve a combination of banking sector or economy wide problem(s). This normally takes the forms of liberalisation, recapitalisation, and deregulation of interest and credit operations (Okafor, 2011). The big-bang reform is targeted to achieve a particular course (for example: increase capital base of banks). The 2004/2005 bank recapitalisation exercise (which this study investigated its impact) is a good example of the big-bang reform. The research is informed by the phenomenal rate of increase in the capital base of the banks: as high as 1150% increase in the minimum capitalisation to be achieved within 18 months (Okafor, 2011).

A good number of theories exist for modelling banking sector reforms. The issue is whether banks should be subjected to direct bank regulation or not (i.e. market based regulation). One of the theories is based on the doctrine of necessity. It posits that banks are the hub of every economy and as such plays a vital role to the survival of the entire economic system. The larger economy therefore depends on the banking system. For this reason, it becomes necessary to regulate the activities of the banks to fit into the economic policies of the government. As a result, banking regulations and control as well as banking reforms appear to be unavoidable instruments not only of banking sector management but of national macroeconomic management (Fries and Taci, 2002, cited in Okafor, 2011).

Counter argument derives from the modern market economy. This theory argues that self-regulation through the market mechanism is the ideal. The argument posits that control engendered by effective market competition is more reliable and more sustainable instrument of banking sector reforms (Okafor, 2011).

2.2 Empirical Evidences

In Nigeria, ample of studies been done to explain the impact of the 2005 bank recapitalization on Nigerian economy. Ningi, and Dutse, (2008), through review of literature explores the impact of the reform on the Nigerian economy and found that, the CBN decision has changed the market structure of the banking sector, increased the efficiency and reliability of the banks, created
opportunities for financial institutions and market participants, and raised their intermediation potentials.

Somoye (2008) noted that the asset size of an average bank within a year after consolidation exercise had a growth rate of 534.27 percent, the level of capitalization of an average bank recorded a growth rate of 404 percent while the leverage ratio measured in terms equity to total asset also declined from 18.28 percent in 2004 to 14.52 percent in 2006 for an average bank coming closer to the CBN minimum level of 10 percent. He also noted that the post consolidated ratio is better in terms of its distribution among the banks compared with the pre consolidation ratio where more than 70 percent of the equity and assets were concentrated in the largest five banks that constitute less than 5 percent of the existing banks. Thus, the intermediation activities of an average bank improved significantly in 2006.

Adegbaju and Olokoye (2008) figured out that the return on Equity (ROE), which measures the rate of return to shareholders, was quite low falling sharply from 99.45 in 2000 to 41.63 in 2002 and further to 29.11 and 27.23 in 2003 and 2004 respectively. This shows that the shareholders receive very low returns in terms of dividend during this period. The return on assets (ROA) also fell from 3.96 in 2000 to 2.63 in 2002 showing that management of the banks has not been able to convert the bank’s assets into net earnings in this period. The return on assets declined further in 2003 to 2.0 but then picked up again in 2004 to 2.58.

Okpara (2011) examined the impact of banking sector reforms on the performance of the banking system in Nigeria. The researcher adopted a one sample t statistics using the population average as the test value. The findings revealed that apart from the reform period of financial liberalization which affected significantly virtually all the banking sector performance indicators and the financial deepening, the rest of the reforms made no significant impact on the performance variables. However, with the exception of the recapitalization reform exercise that started in 2004 which deteriorated financial deepening and made insignificant impact in all but return on equity which is drastically reduced, all other reforms exerted significantly on financial deepening.

Bakare (2011) examined the trend and the growth implications of bank capitalization in Nigeria. The secondary data used for the study were processed using sample test technique for difference between two means and the E-view for windows electronic packages. The test of difference of means helped us to compare the means of the variables before and after recapitalization to see if there is any significant difference between the two periods. The result indicated that post recapitalization mean at 21.58 is higher than the pre recapitalization mean of 15.09, implying that banks are more adequately capitalized and less risky after the programme. This result also indicated that recapitalization has low but significant influence on the growth of Nigerian economy compare to other variables in the model.

Yauri,Musa and Kaoje (2012) studied the effect of bank recapitalisation in Nigeria and its implications in resuscitating Liquidity and Forestalling Distress. The study investigated whether capital regulation merely addresses the immediate and short-term problem of illiquidity or it has a far-reaching effect of forestalling distress amongst banks in Nigeria. Data collected from the Central Bank of Nigeria and the Nigeria Deposit Insurance Corporation for the period 1997-2006 was used to test the research hypotheses using correlation analysis. Results show that there exists a relationship between increase in minimum capital base of the commercial banks and asset quality/liquidity as asset quality and liquidity tend to improve with recapitalisation.

3 METHODOLOGY

The study adopted an ex-post-facto research design. An ex-post facto research uses historical information in studying existing phenomenon with the intent to using the result to understand the current trend in the issues under study. Thus, past data on the banking sector performance indicators were used to study the impact of bank capitalisation on the performance of commercial banks in Nigeria.

3.1 Description of Variables

Credit agencies, researchers, and bank regulators tend to evaluate banks’ performance on the basis of a formal approach called CAMELS bank assessment system. According to Cousin
(2007), CAMELS system mainly comprises six performance measures: capital adequacy, asset quality, management administration efficiency, profitability, liquidity and sensitivity to market risk. This study settled for only profitability, asset quality, and liquidity. Loans and advances were included to examine the interplay between capital base and credit extension among Nigerian commercial banks. Financial deepening was also added to examine the effect of the 2004 reform on the process of pulling idle financial resources from surplus economic entities into productive investment opportunities.

The variables are hereunder explained:

i. **Earnings (Profitability) Indicators:** Earnings are critical to a bank because they contribute to internal growth, affect the bank’s ability to raise external capital, as well as shape the bank’s image in the market place. Various measures of earning and profitability available for use include: (a) net margin, (b) interest margin, (c) return on assets, (d) return on equity and yield on earning assets. This study adopted only three of them, as; Return on Asset Ratio (ROA); Return on Equity Ratio (ROE) and Yield on Earning Assets (YEA).

ii. **Asset Quality Indicators:** In order to examine the asset quality of the banking sector, we considered various proxies of banks’ asset quality. This included both provisions for loan losses and the write-offs of bad loans. These two indicators have the potential to negatively affect the banking sector’s earnings and the asset base. They are Ratio of Non-performing Loan to Total Loan (Non-PL/TL) and Ratio of Non-performing Loan to Shareholders’ Funds (Non.-PL/SHF).

iv. **Liquidity Indicators:** Liquidity management serves various purposes: (a) to ensure the availability of funds to meet withdrawals on demand, (b) to meet reserve requirement needs of banks, and (c) to meet short-term expenses of the bank. However, since cash holdings have zero interest yields, it prevents the banks from increasing their earnings potential. As a result, liquidity management is essential to strike a balance between maintaining enough cash on hand to meet those needs cited above and the reallocation of idle cash to earning assets.

In order to measure the banking sector’s liquidity management, CAMEL examines the following proxies: (a) cash as a ratio of demand deposits, (b) liquid funds/total deposits, and (c) liquid funds as a ratio of total assets. This study adopted two, as; Average Liquidity Ratio (LQR and Loan to Deposit Ratio (LDR).

v. **Financial Deepening:** This indicator captures the extent to which economic activities are financed by available funds in the real sector. We used two measures which include:

- CPS/GDP is the ratio of credit to private sector to GDP which as proxy for commercial bank financing of the economy; captures the ability of the banking system to extend credit to private sector of the economy.
- M2/GDP is the measure of the depth of the financial sector, as measured by the ratio of M2 to GDP - financial deepening. It indicates the capacity of the banking system to provide liquidity for the exchange of goods and services.

### 3.2 Sources of Data

The data on this study were obtained from Central Bank of Nigeria Statistical Bulletin, 2011 and Nigeria Deposit Insurance Corporation (NDIC) annual report and statement of accounts, various issues. The study covered 2000 to 2009 for variables generated from NDIC documents and 2000 to 2011 for variables from CBN document. The choice of 2000 to 2011 for analysis of bank capitalization is informed by the availability of data and to capture the influence of the variables on bank performance within the period of bank consolidation discourse.

### 3.3 Model Specifications

This study outlined the hypotheses drawn from the research objectives into four different models. Each model therefore aimed to achieve each objective. The four models are thus shown below based on the research hypotheses formulated in this study.

1. **Effect of bank capitalisation on the profitability of commercial banks**

\[
\text{LnCAP} = \alpha_0 + \alpha_1\text{ROE} + \alpha_2\text{ROA} + \alpha_3\text{YEA} + \mu 
\]  

(1)
2. Effect of bank capitalisation on the asset quality of commercial banks

\[ \ln(CAP) = \alpha_0 + \alpha_1 \frac{NPL}{TL} + \alpha_2 \frac{NPL}{SHF} + \mu \]  \hspace{1cm} (2)

3. Effect of bank capitalisation on the liquidity of commercial banks

\[ \ln(CAP) = \alpha_0 + \alpha_1 LQR + \alpha_2 LDR + \mu \]  \hspace{1cm} (3)

4. Effect of bank capitalisation on the financial deepening of commercial banks

\[ \ln(CAP) = \alpha_0 + \alpha_1 \frac{M_2}{GDP} + \alpha_2 \frac{CPS}{GDP} + \mu \]  \hspace{1cm} (4)

Where: \( \alpha_0, \alpha_1, \alpha_2, \alpha_3 \) are regression parameters and are used to describe the relationship that exists between the dependent variable and independent variables. \( \mu \) is the error term. We introduced a random term \( \mu \) in the model to account for those factors that cannot be stated explicitly in the model which also influences the independent variables (disturbance stochastic). \( \ln \) is the natural log of the variable. It is used to reduce the level of stochastic effect of the variables.

3.4 Method of Data Analysis

The Ordinary Least Square technique was used to analyse the multiple variables. The Ordinary Least Squares Theorem, supported by Koutsoyiannis (1985), Wannocott and Wonnocott (1972) and Nyong (1993) as the Best Linear Unbiased Estimator (BLUE), thus this study adopted it. Tests done using OLS includes \( r^2 \), t-test, F-test and auto-correlation analysis. The Statistical Package for Social Sciences (SPSS) version 16 for windows is the computer software used for the analysis of our models above.

4 INTERPRETATION OF RESULTS

4.1 Effect of bank capitalisation on the profitability of commercial banks

Table 1. Analysis of the Relationship between Bank Capitalisation and Profitability

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>11.780</td>
<td>.377</td>
<td>31.271</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>-.010</td>
<td>.007</td>
<td>-.693</td>
</tr>
<tr>
<td></td>
<td>YEA</td>
<td>.006</td>
<td>.022</td>
<td>.117</td>
</tr>
<tr>
<td></td>
<td>ROA</td>
<td>.071</td>
<td>.136</td>
<td>.264</td>
</tr>
</tbody>
</table>

R Square = .362
Adjusted R Square = .021
Durbin-Watson = 1.539
F-statistics = .945
F-probability = .485\(^a\)

a. Predictors: (Constant), ROE, YEA, ROA
b. Dependent Variable: LnCAP

Table 1 addressed the relationship between bank capitalization and bank profitability. The coefficient of the explanatory variables are ROE (-.010), YEA (.006), ROA (.071). The results indicate that return on equity (ROE) has negative relationship with bank capital while, yield on earnings assets (YEA) and return on asset (ROA) has positive relationship. This means that capitalization is likely to improve assets returns.

The result of the coefficient of determination, \( R^2 \), is 0.36 and adjusted \( R^2 \) is -0.02. Since the sample time frame for the study is small, we used the Adjusted \( R^2 \). The result from the Adjusted \( R^2 \) indicate one percent change in profitability have counterproductive (-2%) effect on the growth of bank capitalization. This means that a percentage change improvement on profitability of banks can trigger other negative factors that can erode bank capitalization.

The F-value is used to determine the overall significance of the explanatory variables (ROE, YEA, ROA) on the dependent variable (Capitalization). The F-statistics is .945 with significance .485 (P > 0.05). Since the result of the F-probability is greater than 5%, we accept the null hypothesis and conclude that bank capitalization has no significant effect on bank profitability.
The t-test results from Table 1 indicate that all the profitability indicators (ROE, YEA, ROA) do not have significant contribution to capitalization. This implies that bank capitalization does not influence the profitability of banks in Nigeria. The results equally explained that efforts of Nigerian banks at improving profits have had counterproductive effect on bank capitalization.

4.2 Effect of bank capitalisation on the asset quality of commercial banks

The second hypothesis is addressed with results on Table 2. The results evaluated that effect of bank capitalization on asset quality of banks. The coefficient of the explanatory variables are NPL/SHF (-.029), NPL/TL (.159). The result indicates that bank capitalization has negative relationship with non-performing loans to shareholders fund (NPL/SHF) and positive relationship with non-performing loans to total loans (NPL/TL).

Using the Adjusted coefficient of determination (Adj R²) = .027 to explain the factors that account for changes in bank capitalization. The result showed that changes in asset quality indicators have about 3% counterproductive effect on bank capitalization in Nigeria. This implies that efforts of banks to maintain quality assets and remain in business normally erode their capital.

4.3 Effect of bank capitalisation on the liquidity of commercial banks

The effect of bank capitalisation on liquidity is shown on Table 3. The coefficient of the explanatory variables are LQR (-.083) and LDR (.005). The result showed that average liquidity ratio (LQR) is reduced with increased capital base while loan to deposit ratio (LDR) increases as capital increased. This suggests that more capital makes banks to have more liquid money at their disposal prompting the regulatory authority to reduce the average liquidity ratio for the banks.
This encourages banks to have more loanable funds. These funds have often led to increase to lending resulting to positive relationship between capital and loan to deposit ratio for the years. The adjusted coefficient of determination (AdjR²) = .920 has shown that about 92% of changes in bank capital is explained by liquidity indicators. The means that greater percent of variation in capital can be accounted for by liquidity needs. This implies that liquidity is a prime reason for improving capital base for banks.

The Durbin-Watson test for autocorrelation is 1.719. Since the value of the DW is approximately equal to 2, this indicates that there is no autocorrelation in the model. Thus the model is reliable.

The F-test examines the overall significance of the above assertion. The F-statistics as shown on Table 4.5 is 63.981 (probability = 0.000). This level of significance of the F-test is lower than 5% significance level. Thus, we reject the null hypothesis and conclude that liquidity has significant impact on bank capitalization.

To test for the individual significance influence of the explanatory variables, the t-test is used. The t-value for LQR = -10.829 (p.value = 0.000) indicate that average liquidity ratio has significant effect (P< 0.05) on capitalization while LDR = .641 (p.value = .537) has no significance (p. > 0.05) influence on capitalization.

4.4 Effect of bank capitalisation on the financial deepening of commercial banks

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
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<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>13.117</td>
<td>1.240</td>
<td>10.581</td>
</tr>
<tr>
<td>CPS/GDP</td>
<td>.261</td>
<td>.082</td>
<td>2.488</td>
<td>3.192</td>
</tr>
<tr>
<td>M2/GDP</td>
<td>.235</td>
<td>.104</td>
<td>1.760</td>
<td>-2.258</td>
</tr>
</tbody>
</table>

R Square = .740
Adjusted R Square = .682
Durbin-Watson = 1.092
F-statistics = 12.802
F-probability = .002

The relationship between bank capitalization and financial deepening is shown on Table 4.6. The results of the coefficient of the explanatory variables CPS/GDP (.261) and M2/GDP (.235) indicate that financial deepening indicators have positive relationship with banks capitalization. This means that increase in capitalization for banks will lead to more financial depth for the economy and financing of private sectors.

The adjusted coefficient of determination (AdjR²) is 0.682. This indicates that about 68% of changes in capitalization are accounted for by financial deepening indicators. This implies that financial deepening explains some of the reasons for improving capital base for banks. Besides, the Durbin-Watson statistics of 1.092 indicates that there is autocorrelation in the model.

The F-statistics 12.802 with probability of .002 tested for the overall statistical significance of the model. Since the F-value is less than 5%, the study rejected the null hypothesis and then conclude that financial deepening have significant impact on capitalization of banks.

The t-test value for both indicators are also statistically significant which implies that both indicators for financial deepening have significant individual influence on capitalization of banks in Nigeria.

5 SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study has investigated the influence bank recapitalisation exercise had on Nigerian banks and the economy in general. The results have shown that the bank recapitalization exercise did not have significant impact on profits and asset quality of banks in Nigeria. Moreover, the study showed that the banks had more liquid money at their disposal. This encouraged banks to have...
more loanable funds. These funds led to increase to lending resulting to positive relationship between capital and loan to deposit ratio for the years. On the other hand, that changes in bank capital were greatly (92%) explained by liquidity indicators implies that liquidity was a prime reason for improving capital base for banks. Hence, the study indicated the capital base had significant effect on liquidity. Finally, the study showed that financial deepening indicators had significant positive relationship with banks capitalization. This means that increase in capitalization for banks will lead to more financial depth for the economy and financial of private sectors.

The study thus concludes that profits maximization drives of Nigerian banks have had counterproductive effect on bank capitalization. Also, efforts of banks to maintain quality assets and remain in business normally erode their capital. Strategies to increasing bank capitalization can be used to boost loans and advances to the productive sector of the economy. More so, the need for liquidity can arouse banks to increase its capital base. Improved capital base often times prompt the regulatory authority to reduce the average liquidity ratio for the banks, which in turn encourages banks to have more loanable funds. Financial deepening significantly accounted for bank capitalization.

Based on the findings of this study, the researcher recommends that the regulatory authorities should beef-up its bank examination strategies to reduce the negative implications of banks profit drives on their capital bases. The monetary authorities should use banks recapitalisation as strategies for expanding the economic roles of banks to the entire economy. Bank liquidity positions should be closely monitored to strike a balance between liquidity and profitability. This recommendation is as a result of the fact that liquidity, according to this study has significant impact on recapitalisation.

REFERENCES


Nigeria Deposit Insurance Corporation (NDIC) www.ndic.org.ng


