An Investigation into the Effects of Capitalization of Banks on Credit Creation in Nigeria

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Abstract
This study investigates the impact of capitalisation on the ability of Deposit Money Banks (DMBs) to create credit in Nigeria. Since aggregate capitalisation of banks is not the only influencing factor of credit creation, other determining factors such as the number of banks, lending rate, volume of deposits and gross domestic products are taken into consideration as explanatory variables. Secondary time series data from the yearly CBN statistical bulletin covering a period of 26 years (1985:01-2010:04) were used for the OLS method of econometrics. The reason for the choice of this time frame is that apart from the recapitalisation of 2004, there has not been any other major one. The reorganisation of banks into international, national and regional by the CBN in 2010 marks the beginning of a new banking era which is out of the scope of the study. Three of the expressed explanatory variables-interest rate, bank capitalisation and volume of deposits- were found to be significant at explaining the credit creation ability of DMBs in Nigeria while GDP shows an inverse relationship. It was therefore suggested that periodic recapitalisation of banks by CBN would be a right policy not only by setting the banks on a solid capital base but also enhance their ability to advance credit to the economy.

Keywords: Capitalization, credit creation, deposit money banks, ols method

1. Introduction
The concept of capitalization and recapitalization of banks have become a global issue especially after the global financial and economic crises of 2007-2009. From the Basle 1 Accord of 1988 to the Basle 3 Report of 2010, the need for banks to have solid capital base was emphasized among other things. In order to be part of this financial regulations, the then Governor of Central Bank of Nigeria (Professor Charles Soludo - the Governor 2004-2009) took a giant step by directing all Deposit Money Banks in Nigeria to shore up their capital base from N2bn (about $14m) to N25bn (almost $173m). This step according to him is not only meant to safe the banks from imminent collapse but also to boost their capital base so as to increase their ability to effectively and efficiently perform their lending activities with its attendant multiplier effect on the economy as a whole. According to Ogege et al (2012) one major achievement in the financial sector in 2005 was the recapitalization exercise. They asserted that it was a landmark achievement which reduced Nigeria’s motley group of 89 banks to 25 stronger and viable institutions.

In modern day banking business, DMBs are responsible for the channeling of credits/funds from the surplus unit of the economy to the deficit unit i.e. in any economy they are expected to serve not only as lubricants but also as recycling mechanisms. In order to effectively and efficiently perform this function of credit allocation, DMBs must be strong and virile in terms of their assets and capital base. A poorly capitalized bank runs the risk of losing market confidence and reputation, Kjersti-Gro Lindquist (2004). Ogjuuiba et al (2004) posited that capital base of commercial banks matters for the way their supply reacts to output shocks. They further argued that a well-capitalized bank is better positioned to create credit than a poorly capitalized one. This was corroborated by Bakare (2011) that well capitalized banks would strengthen the banking system for effective monetary management. In a similar way, Ajilore et al (2012) concluded that capitalization makes a bank less prone to moral hazard and asymmetric information problems vis-à-vis its suppliers. The DMBs therefore seems to be the most regulated by government and its agencies in order to be able to perform the developmental function through effective and efficient allocation of credit to the various sectors of the economy and also to ensure their soundness.

It has been conjectured in the literature that the determinants of banking system credit to the economy of Nigeria include aggregate capital base of banks, Gross Domestic Product, lending rate, number of banks in operation, volume of banks deposit among others (Adeniran, 2010; Olokoyo, 2011; Bakare, 2011; Ogjuuiba et al, 2004 and Sani, 2004.). For example, the importance of capital towards the enhancement of banks to adequately lubricate the economy was researched by (Sani, 2004). However many of the researches showed a high degree of relationship between capitalization and bank lending/ credit, an indication that capitalization plays an important role toward the ability of banks to create credit.

From the foregoing, one can infer that the various financial reforms especially the 2004 capitalization exercise might have changed the structure and operations of DMBs in their intermediation role in Nigeria. Consequently an empirical investigation of the influence of capitalization on banks’ ability to create credit is of utmost relevance for academic and policy formulation purposes. Not only that, there exists dissenting views on the effect of capitalization of banks on credit creation in the literature. While some researches revealed positive
relationship between capital base of banks and credit creation, (see Demirguc-kunt and Levine 2008, Adegbaju and Olokoyo 2008), others did not find much significant evidence to support any relationship (Onaolapo 2008). Yet others submitted that the relationship is neither here nor there (Dogarawa 2008).

Apparently there seems to be divided opinions and this study stands to shed more lights on this area of study. Consequently, the general objective of this study is to investigate the extent to which capitalization influences banks activities in the area of credit creation. This is intended to appraise the relevance of capital in the banking business and also provide directions to subsequent policy actions as being proposed by the CBN. Other associated determinants such as lending rate, number of banks, volume of deposits and GDP as observed by Olokoyo (2011) are taken into consideration as part of the explanatory variables of interest.

The study is therefore organized into five sections with statement of the problem and the study objectives following this introduction. Next to that is a review of relevant literature with model specification in section four while section five concludes the study with conclusion and recommendations.

2. STATEMENT OF THE PROBLEM

The directive by the Central Bank of Nigeria that DMBs recapitalize to the tune of N25bn has led to a development of inquisition and interest as to how much their capital base can influence their performance especially their credit creation capability. This directive has no doubt posed a big challenge to DMBs as financial intermediaries.

The productive sector is acknowledged to have great potentials for employment generation, wealth creation and economic growth and development. In Nigeria this sector has largely remained sluggish especially in terms of its contribution to GDP or employment generation with output and capacity utilization on a steady decline. According to Soludo (2004) banks in Nigeria are characterized by insolvency, low capital base and illiquidity before the financial reform of 2004. He further submitted that Nigerian banks could hardly effectively support the real sector of the economy with credit to the domestic economy at 24% of the GDP compared to 87% for Africa on the average and 272%for developed economies. Undoubtedly the real sector which has the potentials to spur economic growth and development has quite a number of constraints, principal among which is inadequate or in some instances a complete lack of funds (credit). This obviously places great hindrance on the expansion aspirations of the sector; thereby undermining its role in economic growth and development.

According to Stiglitz and Weis (1981), business with the opportunities to invest in positive net present value projects may be hindered from doing so as a result of insufficient or absolute lack of capital. Berger and Udell (1994) observed that shocks to the economic environment in which commercial banks exist can significantly affect the capacity and willingness of banks to lend to businesses. These shocks come in a number of ways principal of which is the development of stringent lending rules that do not avail them of full investment in such a firm is guaranteed both in the short and the long runs.

A significant way through which DMBs can cope with the above mentioned shocks is adequate capitalization. The capital base of DMBs serves as a buffer to such economic shocks and can indeed have implications for their credit creating capability. In the words of Ogujuiba et al (2004) the capital of banks plays a vital role in their ability to withstand any shocks that may impair their lending function. This is an indication that large capital base serve as a buffer to banks in time of any financial crises such that their ability to create credit will not be much eroded.

2.1 Objectives of the Study

The broad objective of this study is to empirically investigate the effectiveness of the capital base of Deposit Money Banks on their ability to create credit in Nigeria. This can be decomposed to the following specific objectives:

- Identify and highlight the trends of credit created by DMBs during the period 1985-2010.
- Assess the relationship between the capital base of DMBs and their credit creating capability.
- Assess the relationship between other influencing factors such as lending rate, number of banks in Nigeria, aggregate capital base of DMBs, GDP and aggregate banking system deposit.

3. Literature Review

The nexus between bank capitalization and their ability to create credit has been a subject of discussion in the literature. In Soyibo and Adekanye (1992) and Adam (2003), the history of capitalization was traced to take its roots from banks failures to perform their intermediation role and by extension credit creation. They posited that most banks in Nigeria failed to perform their credit creation function because of inadequate capital base, absence of regulation and control coupled with overtrading. Using the sample test technique for difference between two means and the E-view for windows electronic packages to compare the means of variables before and after the capitalization exercise of 2004-2005, Bakare (2011) confirms a clear difference between the two means of before and after consolidation. This suggests that banks are more adequately capitalized and less risky after the exercise.
Employing a CAMEL-ratings and Granger causality test to appraise the importance of capitalization on bank performance in Nigeria, Onaolapo (2008) revealed that capitalization of banks has improved their financial health. Furthermore the study shows that banks’ financial health increased to a high level of 70% in 2006 as a result of capitalization. However the Granger test shows that capitalization has not significantly affected economic growth and hence the GDP.

In 2010, the CBN and the NDIC investigated the effect of the global economic and financial crises on the soundness of DMBs in Nigeria. The findings revealed an acute liquidity problem in the banking system which undermined their ability to perform their create creation function. Bakare (2011) opined that the objectives of banking system are to ensure pure stability and facilitate sustained rapid economic development. This rapid economic development can only be achieved through effective mobilization and availability of capital to the productive sectors of the economy. Unfortunately, these objectives, he noticed are somehow a mirage in Nigeria due to some deficiencies in the banking system prominent of which is capital deficiency.

The result of Olokoyo (2011) on the determinants of bank lending behaviour revealed that DMBs deposits have significant influence on their credit creation behaviour. Adegbaju and Olokoyo (2008) submitted that capitalization is an important component of reform in the Nigeria banking industry because a strong capital base has the ability to absorb losses arising from non-performing liabilities.

Aseigbuj, B.O. (2010) developed a model with banks credit creation as the dependent variable and bank deposit, liquidity ratio, lending rate, number of banks, and savings rate as the explanatory variables. The study adopted a multiple regression model with the use of Software Package for Social Statistics (SPSS) and the result shows a positive relationship between the banking system deposits and the credit creation function. Furthermore the findings of the study also reveal significant positive effects between the dependent variable and number of banks, bank lending rates, GDP and savings rate.

Usman, Abdulateef and Waheed (2012) conducted a study on the impact of capital regulation on banks behaviour and the economy in Nigeria. Time series data covering a period of 1970 and 2004 were fitted into the regression model and OLS and Vector Error Correction methods of estimate were used. The result indicated GDP to be a major determining factor of change in deposit and loans. Their findings further reveal that banks always shrink their financial account during the period of capital inadequacy. This shows that banks in Nigeria are undercapitalised and the need for a solid capital base was suggested.

Oluitan, R. (2012) analyzed how credit creation by commercial banks can stimulate the growth of GDP in Nigeria with the use of bivariate and multivariate models. The result reveals that financial development which is brought about by credit creation influence GDP.

Diamond and Rajan (2000) related the role of capital to the functions of banks and concluded that a bank’s capital structure affects its liquidity and credit creation function in addition to its stability. Berger and Bouwman (2009) show that for large banks in the US, there was a positive relationship between capital and credit creation and negative relationship for small banks. Luis Peydro (2010) was quick to note that in the macro literature, there has not been much emphasis on the implications of bank capital and of credit supply in general.

In a related study, Voutsinas and Werner (2011) examined how financial constraints, especially fluctuations in the supply of credit, affect the capital structure of publicly quoted companies in Japan between 1980 and 2007. The result of their panel data study shows that financial policy decisions are indeed influenced by monetary conditions and the supply of credit.

Berger et al (2011) tested hypotheses of the effects of regulatory intervention in the form of equity capital requirement and restriction on lending via interest rate and capital support on bank risk taking cum liquidity creation. A unique database from the Deutsche Bundesbank i.e. the German Bank CB which covers the entire banks in Germany for the period 1999-2009 was adopted. Part of the result showed a negative relationship between liquidity and capitalization and regulatory interventions. Another dimension to the relationship between credit creating banks and capital requirement was provided by Skander J.Van den Heuvel (2005). His study was in tandem with the study of Diamond and Rajan (2000) that showed how capitalization may have what they called “social cost” since it reduces banks’ ability to create credit.

4. Model Specification and Analysis
For this study, the statistical techniques of Ordinary Least Square used by Olokoyo (2011) and (Adeniran) (2010) as follows:

\[ Y_t = f(X_t) + \varepsilon \]

Where:
\[ Y_t = \text{Dependent Variable} \]
\[ X_t = \text{Independent Variable} \]

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\[ Y_t = f(X_t) + \varepsilon \]

Where:
\[ Y_t = \text{Dependent Variable} \]
\[ X_t = \text{Independent Variable} \]
Y_t = Credit Creation and
X_t = Aggregate capital base of banks.
t = time.

The model is hereby specified in line with the hypothesis that:

H_0: Bank capital has no impact on their credit creation capability.
H_1: Bank capital has impact on their credit creation capability.

H_0: Lending rate, number of banks in Nigeria, aggregate capital base of DMBs, Gross Domestic Product and aggregate banking system deposit have no impact on credit creation capability of banks.
H_1: Lending rate, number of banks in Nigeria, aggregate capital base of DMBs, Gross Domestic Product and aggregate banking system deposit have impact on credit creation capability banks.

\[ \text{Ccredit} = f(\text{rate, aggcap, dmbdepo, nosofbks, gdp, } \mu) \] .............................................. (3)

where \( \mu \) is the error term.

The explicit form of equation (3) above is represented thus:

\[ \text{ccredit} = f(\beta_0 + \beta_1 \text{rate} + \beta_2 \text{aggcap} + \beta_3 \text{dmbdepo} + \beta_4 \text{nosofbks} + \beta_5 \text{gdp} + \mu) \] ............. (4)

ccredit = Aggregate Credit created by banks in the economy.

Where:
rate = lending rate that is the prime lending rate in percentage.
aggcap = the aggregate capital base of banks.
dmbdepo = aggregate deposit of banks.
nosofbks = the number of DMBs in operation within the period of the research study.
gdp = gross domestic product which is measured at its current basic prices in million Naira(N). It is the money value of goods and services produced in the economy during a period of time irrespective of the nationality of those who produced them. It is calculated without making deductions for depreciation.

The implication of Equation (4) above is to estimate the effects of the coefficients of lending rate, aggregate capital base of banks, deposits of DMBs, number of banks and gross domestic products represented by the beta parameters of \( \beta_1, \beta_2, \beta_3, \beta_4 \) and \( \beta_5 \) respectively on the dependent variable.

By log linearizing, the model becomes:

\[ \ln(\text{credit}) = \beta_0 + \beta_1 \ln(\text{rate}) + \beta_2 \ln(\text{nosofbks}) + \beta_3 \ln(\text{aggcap}) + \beta_4 \ln(\text{dmbdepo}) + \beta_5 \ln(\text{gdp}) + \mu \] ......................................................... (5)

The \( \beta_i \) (i=1-5) are the coefficients to be estimated which shows their effects on the dependent variable and their a priori expectations are: \( \beta_1, \beta_4, \beta_5 > 0 \) while \( \beta_1, \beta_2, < 0 \).

Presentation and Explanation of Data Used (1985-2010)
Table 1. The Central Bank of Nigeria statistics on credit creation, GDP, DMBs capital base, lending rate and the number of banks

<table>
<thead>
<tr>
<th>YEAR</th>
<th>LENDING RATE (%)</th>
<th>NUMBER OF BANKS (N’m)</th>
<th>AGGREGATE CAPITAL BASE (N’m)</th>
<th>AGGREGATE DMBs DEPOSITS (N’m)</th>
<th>GDP (N’m)</th>
<th>CREDIT CREATED (N’m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>9.25</td>
<td>28</td>
<td>31,997.90</td>
<td>17,597.1</td>
<td>67,908.55</td>
<td>18,125.2</td>
</tr>
<tr>
<td>1986</td>
<td>12.5</td>
<td>29</td>
<td>39,678.8</td>
<td>18,137.6</td>
<td>69,146.99</td>
<td>21,659.6</td>
</tr>
<tr>
<td>1987</td>
<td>17</td>
<td>34</td>
<td>49,828.4</td>
<td>23,086.7</td>
<td>105,222.84</td>
<td>23,492.9</td>
</tr>
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<td>1988</td>
<td>17</td>
<td>42</td>
<td>58,027.2</td>
<td>29,067.1</td>
<td>139,085.3</td>
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<td>25.5</td>
<td>47</td>
<td>64,874</td>
<td>27,164.9</td>
<td>216,797.54</td>
<td>27,925</td>
</tr>
<tr>
<td>1990</td>
<td>25.5</td>
<td>58</td>
<td>82,957.8</td>
<td>38,777.3</td>
<td>267,549.99</td>
<td>39,70.1</td>
</tr>
<tr>
<td>1991</td>
<td>22</td>
<td>65</td>
<td>117,511.9</td>
<td>52,408.7</td>
<td>312,139.74</td>
<td>37,279.2</td>
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<tr>
<td>1992</td>
<td>29.8</td>
<td>65</td>
<td>159,190.8</td>
<td>75,047.7</td>
<td>532,613.83</td>
<td>48,712.8</td>
</tr>
<tr>
<td>1993</td>
<td>36.10</td>
<td>66</td>
<td>226,162.8</td>
<td>110,453.6</td>
<td>683,869.79</td>
<td>71,644.3</td>
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<tr>
<td>1994</td>
<td>20</td>
<td>65</td>
<td>295,033.2</td>
<td>140,839.3</td>
<td>899,863.22</td>
<td>66,127.6</td>
</tr>
<tr>
<td>1995</td>
<td>20.2</td>
<td>64</td>
<td>385,141.8</td>
<td>171,569.8</td>
<td>1,932,211.55</td>
<td>120,868.9</td>
</tr>
<tr>
<td>1996</td>
<td>19.12</td>
<td>64</td>
<td>458,775.5</td>
<td>208,680.7</td>
<td>2,702,719.13</td>
<td>175,425.1</td>
</tr>
<tr>
<td>1997</td>
<td>17.86</td>
<td>64</td>
<td>584,375</td>
<td>264,339.9</td>
<td>2,801,972.58</td>
<td>391,541.5</td>
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<tr>
<td>1998</td>
<td>17.98</td>
<td>54</td>
<td>694,615.1</td>
<td>304,888.8</td>
<td>2,708,430.86</td>
<td>278,889.5</td>
</tr>
<tr>
<td>1999</td>
<td>21.3</td>
<td>54</td>
<td>1,070,019.8</td>
<td>441,283</td>
<td>3,194,014.97</td>
<td>1,265,984.5</td>
</tr>
<tr>
<td>2000</td>
<td>21.33</td>
<td>54</td>
<td>1,568,838.7</td>
<td>664,031.6</td>
<td>4,582,127.29</td>
<td>1,795,768.5</td>
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<tr>
<td>2001</td>
<td>25.98</td>
<td>90</td>
<td>2,247,039.9</td>
<td>899,984.5</td>
<td>4,725,086</td>
<td>2,796,112.2</td>
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<tr>
<td>2002</td>
<td>20.59</td>
<td>90</td>
<td>2,769,880.3</td>
<td>1,048,074.6</td>
<td>6,912,381.25</td>
<td>3,586,229.1</td>
</tr>
<tr>
<td>2003</td>
<td>19.58</td>
<td>90</td>
<td>3,047,856.3</td>
<td>1,214,709</td>
<td>8,487,031.57</td>
<td>4,339,443</td>
</tr>
<tr>
<td>2004</td>
<td>18.91</td>
<td>89</td>
<td>3,753,277.8</td>
<td>1,488,943.8</td>
<td>11,411,066.91</td>
<td>5,459,221.2</td>
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<tr>
<td>2005</td>
<td>17.78</td>
<td>25</td>
<td>4,515,117.6</td>
<td>1,847,578.8</td>
<td>14,572,239.12</td>
<td>6,559,222.3</td>
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<tr>
<td>2006</td>
<td>17.33</td>
<td>25</td>
<td>7,172,932.1</td>
<td>2,942,776.5</td>
<td>18,564,594.73</td>
<td>7,779,444.4</td>
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<tr>
<td>2007</td>
<td>16.46</td>
<td>25</td>
<td>10,981,693.6</td>
<td>4,527,066.5</td>
<td>20,657,317.66</td>
<td>8,722,111.2</td>
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<tr>
<td>2008</td>
<td>15.26</td>
<td>25</td>
<td>15,919,559.8</td>
<td>7,036,061.9</td>
<td>24,296,329.29</td>
<td>9,212,133.1</td>
</tr>
<tr>
<td>2009</td>
<td>19.55</td>
<td>25</td>
<td>17,522,858.2</td>
<td>7,705,710.8</td>
<td>24,794,238.66</td>
<td>11,548,957.8</td>
</tr>
<tr>
<td>2010</td>
<td>15.74</td>
<td>25</td>
<td>17,331,559</td>
<td>8,098,125.1</td>
<td>29,205,782.96</td>
<td>11,786,017.3</td>
</tr>
</tbody>
</table>

Source: Central Bank of Nigeria Statistical Bulletin 2010 and Author’s computation.

This table is represented by the graph in fig. (1) below.

Above is the data for the study, it was sourced from the Central Bank of Nigeria’s statistical bulletin. This table is represented by the graph in fig. (1) below. They both show the trend of the movement in the variables of interest of the study between 1985 and 2010.

It can be observed from the graph that noticeable events started unfolding in the year 1999. This period coincided with the beginning of democratic rule in Nigeria. Before the transition to civil rule in 1999, many of the trading partners of Nigeria had shut their doors against the country. This was as a result of the military dictatorship rule which is widely regarded as aberration of governance Nwokedi (1994). Coupled with this was the annulment of the 1992 presidential election which resulted into loss of confidence in the country by investors both at home and abroad.

Furthermore, there were sharp increases in most of the variables from 2005. The value of GDP increased from N14.6bn to N24.3bn between 2005 and 2008; a period of four years. Also the value of capital base of banks jumped from N4.5bn to N25bn as against N2.2bn to N3.7bn between 2001 and 2004 for the same period. This was the period of bank consolidation when the capital base of banks was increased from N2bn to N25bn. The GDP equally jumped from N14.6bn to N24.3bn within the same period under consideration as shown in the table. The corresponding change in the credit created banks was N6.6bn to N9.2bn which was a very much less than the corresponding increase in value of the GDP.
4.1 Result of Unit Root Test

The likelihood of macroeconomic time series having unit root had been established in econometric studies (Engle and Granger 1987, Olokoyo 2011). This suggests the possibility that OLS regression conducted at levels may lack reliability. Since the estimate may not be BLUE- Best Linear Unbiased Estimator- the results of the study may not be sensible since time series data used in this study may not be stationary at levels. Therefore to give credence to the use of OLS in this study demands that a unit root test be carried out. Result of the unit root is presented in table 2 below:

Table 2. Summary of unit root tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>T-Statistics (ADF Values)</th>
<th>Critical Values</th>
<th>Order of Integration</th>
<th>Decisions at 10% Sig. Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log(rate)</td>
<td>-3.539</td>
<td>-3.240</td>
<td>I(0)</td>
<td>No unit root among the residuals</td>
</tr>
<tr>
<td>Log(aggcap)</td>
<td>-5.077</td>
<td>-3.240</td>
<td>I(0)</td>
<td></td>
</tr>
<tr>
<td>Log(dmbdepo)</td>
<td>-3.589</td>
<td>-3.240</td>
<td>I(0)</td>
<td></td>
</tr>
<tr>
<td>Log(gdp)</td>
<td>-3.780</td>
<td>-3.240</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>Log(ccreated)</td>
<td>-6.389</td>
<td>-3.240</td>
<td>I(2)</td>
<td></td>
</tr>
</tbody>
</table>

A variable is stationary when the Augmented Dickey Fuller Value (Actual Value) is greater than the Critical Value. The above figures show that all the Dickey Fuller (ADF) values are greater than their Critical Values after correcting for the presence of unit roots. Since the number of observation of the study is few, a ten per cent significant level is considered for the rejection or otherwise decision of the various hypotheses.

Since the number of observation of the study is few, a ten per cent significant level is considered for the rejection or otherwise decision. The results in the table above revealed that all the variables are stationary at lag(1) trend except the log(gdp) and log (creditcreated) which are stationary at first and second differences respectively. In summary the results pointed out that the null hypothesis of no unit roots among the variables cannot be rejected since the computed Actual Values are greater than their Critical Values.
4.2 Interpretation of results

The results of the estimated coefficients are formatted and presented in table (3) below. R-Squared of 98.1 percent shows that the regression has goodness of fit. This is an indication of a very high reliability of the independent variables at explaining the dependent variable of credit creation.

Table 3. OLS and Quantile Empirical Results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1.gdp</td>
<td>-0.24869</td>
<td>-0.65915</td>
<td>-0.26228</td>
<td>-0.21901</td>
</tr>
<tr>
<td></td>
<td>(0.242)</td>
<td>(0.791)</td>
<td>(0.385)</td>
<td>(0.444)</td>
</tr>
<tr>
<td>l_voldmbsdep</td>
<td>-4.31917***</td>
<td>-4.65740</td>
<td>-2.11488</td>
<td>-4.81282**</td>
</tr>
<tr>
<td></td>
<td>(1.225)</td>
<td>(3.219)</td>
<td>(1.541)</td>
<td>(2.147)</td>
</tr>
<tr>
<td>l_agrcapbase</td>
<td>5.61331***</td>
<td>6.33427*</td>
<td>3.43757**</td>
<td>6.02976***</td>
</tr>
<tr>
<td></td>
<td>(1.183)</td>
<td>(3.222)</td>
<td>(1.626)</td>
<td>(2.061)</td>
</tr>
<tr>
<td>l_lending</td>
<td>-0.74058**</td>
<td>-0.47418</td>
<td>-0.95055**</td>
<td>-0.69667</td>
</tr>
<tr>
<td></td>
<td>(0.312)</td>
<td>(0.690)</td>
<td>(0.416)</td>
<td>(0.603)</td>
</tr>
<tr>
<td>Numberofbanks</td>
<td>0.00387</td>
<td>0.00625</td>
<td>0.01303**</td>
<td>0.00357</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.010)</td>
<td>(0.006)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.37889</td>
<td>-3.05656</td>
<td>-0.57073</td>
<td>-2.06790</td>
</tr>
<tr>
<td></td>
<td>(1.396)</td>
<td>(2.486)</td>
<td>(1.617)</td>
<td>(3.025)</td>
</tr>
<tr>
<td>Observations</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.98098</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
</tr>
<tr>
<td>Adj. R-squared</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Note: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Standard errors are calculated with whites correction technique.

From the results of the OLS regression equation, some of the variables appeared with the expected signs except aggregate deposit of banks and the GDP that show negative relationships. GDP doesn’t appear to have impact on credit creation. This is contrary to major beliefs that these variables impact positively on the credit creation ability of banks in Nigeria (Acha, 2011). There may be different reasons to explain this. It might be because this data has only a limited number of observations. It might also be that the GDP in previous year, rather than the current one, that may affect the credit creation. This was however checked by running the same regression, but instead of using gdp variable we use its lagged value. The result now shows a positive value of 0.529, but still not significant at explaining the relationship between credit creation and GDP.

The lending rate is significant at 10% level with an absolute value of 0.310. i.e. every 1% increase in lending rate of DMBs (lrate) will decrease the amount of credit that can be created by 0.74%. This is in tandem with the functional relationship between credit creation and the level of interest rate that says the higher the level of interest rate, the less will be the motivation for borrowers to borrow from the banks. Aggregate capitalization test is significant at 1% level; the coefficient of 5.504 indicates that if the aggregate capital of banks is increased by 1%, credit created by DMBs will increase by 5.504%. However, the coefficients of GDP (measured as 0.529) and the number of banks (0.004) is not significant at explaining any effects on credit creation by DMBs in Nigeria (Azeez and Oke, 2012).

4.3 Test for the Validity of OLS

The Breusch-Godfrey LM test for autocorrelation shows that we cannot reject the null hypothesis that there is no serial correlation among residuals at 10% significant level.

After correcting for the presence of unit roots in the two variables of log (gdp) and log (credit created) the study went further to test for the reliability of OLS and the results are presented as follows:

The test for the residuals being homoscedastic shows that we cannot reject the null hypothesis of constant variance but conclude that we do not have heteroscedasticity of residuals at 10% level of significance. The Ramsey RESET test for omitted variables using the powers of the fitted values of lnccredit equally shows that we cannot reject the null hypothesis of no omitted variables at level of 10% significance. This suggests that the residuals are not biased.

Furthermore, the skewness/kurtosis test shows a non rejection of the null hypothesis of normally distributed residuals at 10% significant level.

The test for omitted variables using the model of Adeniran shows that the null hypothesis of no omitted variables among the residual cannot be accepted, hence the presence of omitted variables in this model gives a better signal and hence the superiority in the use of our model and confirms the better reliability of our results.
5. Conclusion and Recommendation

In conclusion, three explanatory variables i.e. bank capitalization, lending rate and bank deposits were affirmed to exert influence on credit creation by DMBs in Nigeria. The study recommended that:

In the first place, a step-wise process that will ensure periodic increase in the minimum capital base requirement of DMBs should be put in place by the regulatory authorities such that banks are better positioned to face the challenge of credit creation that may arise in the future as the economy grows. This should however be done with a pinch of salt as suggested by Saifullahi et al (2012).

The time has come for the Central Bank of Nigeria to improve on their off shore bank supervision. This is to further ensure that banks do comply with the yearly monetary policy guidelines. Banks should not only be seen but also be made to finance the real sectors of the economy for productive purposes. An economy whose financial sector is devoid of unnecessary bureaucracy, corruption and rent seeking activities will serve as a proper intermediary for the channeling of funds from the surplus to the deficit unit for economic growth.

DMBs should map out strategies on how to attract and retain more deposits so as to further improve on their credit creation role in the economy.

The branch banking policy of the ’80s should be revisited. This is because what matters is not the number of banks in the economy but the need for the existing ones to dig deep into the areas where banking services are not made available.

Finally, there should be closer consultation and cooperation between DMBs and the regulatory authorities such that the effect of regulatory measures on banks will be taken into consideration during the process of policy formulation. Where banks are not cooperating, the instrument of moral suasion can be employed.

References


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Central Bank of Nigeria Statistical Bulletin for the Year ended 31st December, 2010


