

## EMPIRICAL ANALYSIS OF BANK RECAPITALISATION IN NIGERIA (1986-2011)

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### ABSTRACT

In 1986, Nigeria introduced a structural adjustment programme (SAP) and one of the policy implications of the programme was the deregulation of the economy. And so the banking sector was also deregulated. This led to sudden increase in the number of banks. However, distress soon hit the financial sector of the economy. In order to avoid the bitter consequences of bank failure, the government established the Nigeria Deposit Insurance Corporation (NDIC) to augment the regulatory power of Central Bank of Nigeria (CBN) as a watch dog over banks and ensure stable, safe and sound system of the banking sector. Various attempts aimed at revamping the banking sector, ranging from recapitalization to outright liquidation failed. In July 2004, a new method aimed at salvaging the banking sector was announced by the CBN. This method includes banking sector reform and bank consolidation. The main thrust of this study is to examine the impact of consolidation on Nigeria economy. To achieve this, SPSS Version 19 econometric software package regression method was adopted. The ordinary least squares (OLS) analytical technique was applied to estimate the empirical relationship between the dependent and independent variables. The study also carried out chow test in order to determine the structural stability of the regression. The study revealed that Nigeria bank consolidation has not impacted significantly on Nigeria's economic growth under the study period. The study therefore recommended that banking regulations such as bank consolidation needs to be a component of total reform framework of monetary authority to ensure effectiveness in Nigeria banking sector performance.

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## 1. INTRODUCTION

The banking sector is the nerve Centre of any modern economy, being the repository of people's wealth and supplier of credit which lubricates the engine of growth of the entire economic system. However, the lingering problem of bank distress and its attendant effects had remain one of the most disturbing features of the Nigeria banking sector in recent times. While concerted efforts are being made to address the menace, the magnitude and depth of distress in the system has remained an issue of concern to the government, the regulatory authorities, bankers as well as the general public.

Although these reforms efforts in the banking sector have been acclaimed to be necessary for Nigeria's economic growth, the Nigerian financial sector is still being characterized by low mobilization of savings to the real sector of the economy (Balogun, 2007). However, this study intends to examine the impact of bank consolidation on the Nigerian economy.

### **Conceptual issues**

It is pertinent at this juncture to explore the relevant concepts which underpin this study in what follows below. This is with a view to clearly demonstrating their referents in the study.

#### **(a) Bank Recapitalization**

Several methods had been prescribed for the arrest of the distress syndrome that pervaded the Nigerian banking industry. In 1997, Federal Government budget seemed to have directed that every commercial and merchant banks to beef up its paid up share capital to N500 million not later than 31<sup>st</sup> December 1998, the objective was to achieve recapitulation of banks as one of the method prescribed for the arrest of widespread distress in the Nigeria banking industries. Maduka and Onwuka (2013) opined that financial reforms in Nigeria dates back to 1952, when the Banking Ordinances was enacted. At the inception of the 1987 financial reforms, the banking system was highly repressed. According to Emenuga (2005) interest rate controls, selective credit guidelines, exchange rate regulations, ceiling on credit expansion and use of reserve requirements and other direct monetary control instruments characterized the reforms. Entry into the banking system was also restricted.

Consequently, the reform package of this era was to dismantle the regulation of interest rates, introduce liberalization and the establishment of a market based autonomous foreign exchange market, among others.

Maduka and Onwuka (2013) asserted that this reform was also introduced to enable Nigerian banks to become active domestic and global players in the financial markets.

#### **(b) Consolidation and Convergence**

To consolidate is to make solid or strong. According to new English Oxford dictionary, it means solidification, making solid or strong. According to Iganiga and France (2006), consolidation and convergence are interrelated since they are both achieved through mergers and acquisition. A merger is the combination of two or more separate firms into a simple firm, the resulting firm taking either acquire or new identity; while acquisition on the other hand takes place where a company takes over the controlling shareholding interests of another with two separate companies evolving at the end. The target company either becomes a division or subsidiary of the acquiring company. Bank consolidation is viewed as the reduction in the number of banks and other deposit taking institutions with a simultaneous increase in size and concentration of the consolidated entities in the sector (BIS 2001). It is mostly motivated by technological innovations, deregulation of financial services enhancing

intermediation and increase emphasis on shareholders' value, privatization and international competition (Berger et al 1999 and De Nicolo et al 2003). Berger (1998) differentiated consolidation from convergence, while consolidation involves mergers and acquisition between/among 'same' forms e.g. banks, convergence involve the consolidation of similar firms like banks and other financial institutions. A "newer" concept of consolidation views bank merger as not just about adjusting inputs to affect costs but also involves adjusting input (product mixes) to enhance revenues.

### **(c) Conclusion**

This study is carried out to assess the impact of bank consolidation on a developing economy. That is to examine whether bank consolidation has worsened competition in Nigeria.

## **2. METHOD OF DATA ANALYSIS**

The research techniques adopted for this study is the ordinary least squares (OLS) analytical techniques which was used to estimate the empirical relationship between the dependent and independent variables. The stability of the parameter was also carried out using Chow test.

### **Model Specification:**

The model of the study considering pre consolidation (1986-2003), consolidation (2004-2008) and the pool period (1986-2011) bearing in mind the objectives of the study, we specify our model thus:

$$LGDP = a_0 + a_1 \text{Log M2/GDP} + a_2 \text{LogINR} + a_3 \text{LogCRR} + a_4 \text{LogTNB} + a_5 \text{LogBC} + a_6 \text{LogCPS} + U.$$

A prior expectation:  $a_1 > 0$ ,  $a_2 < 0$ ,  $a_3 < 0$ ,  $a_4 > 0$ ,  $a_5 > 0$ , and  $a_6 > 0$ .

Where:

GDP = Growth in real gross domestic products

M2/GDP = Ratio of broad money to gross domestic product (Financial deepening)

INR = Interest rate margin

CRR = Cash reserve ratio

TNB = Total numbers of Banks

BC = Bank Consolidation (proxy by financial bank capitalization)

CPS = Credit to private sectors

U = Error term

### 3. DATA PRESENTATION

Annual time series data for the period 1986 to 2011 were employed for the empirical analysis. The time frame is divided into three periods that is pre – bank consolidation 1986 to 2003, bank consolidation period 2004 to 2008 and the pool period 1986 to 2011. These data reflect the variables in the model specified in chapter three. The data fitted into the model are shown in the table below.

**Table 4.1:** GDP and Financial Indicators

YEARS	GDP N'M	INT (%)	CPS N'M	M2/GDP (%)	TNB	CRR (%)	BC N'M
1986	69147	10.5	18299.9	39.6	29	1.7	6794.8
1987	105222.8	17.5	21892.5	32	34	1.4	8297.6
1988	139085.3	16.5	25472.5	32.7	42	2.1	10020.8
1989	216797.5	26.8	29643.9	21.7	47	2.9	12848.6
1990	267550	25.5	35436.6	25.7	58	2.9	16358.4
1991	312139.7	20.01	42079	28	65	2.9	23125.0
1992	532613.8	29.8	79958.9	24.2	65	4.4	31272.6
1993	683869.8	18.32	95529.7	29	66	6	47436.1
1994	899863.2	21	151000.3	29.7	65	5.7	663680
1995	1933212	20.81	211358.6	16.5	64	5.8	180305.1
1996	2702719	19.74	260613.5	13.7	64	7.5	281815.8
1997	2,801,973	13.54	319512.2	15.3	64	7.8	281887.2
1998	2708430	18.29	372574.1	19.4	54	8.3	262517.3
1999	3194015	21.32	455205.2	21.9	54	11.7	300041.1
2000	4582127	17.98	596001.5	22.6	54	9.8	472290.0
2001	4725086	18.29	854999.3	27.8	90	10.8	662561.3
2002	6912381	24.4	955765.1	23.1	90	10.6	764975.8
2003	8487032	20.48	1211993	23.4	90	10	1359274.2
2004	11411067	19.15	1534448	19.8	89	8.6	2112549.6
2005	14572239	17.85	20073356	19.3	25	9.7	2900062.1
2006	18564595	17.95	2650822	21.7	25	2.6	5120000
2007	2065,251	16.94	5056721	28.1	25	2.8	13294059

2008	23842126	15.94	8059549	37.7	24	2.3	9562970
2009	24712670	16.7	10206087	43.6	21	3.2	7030.8
2010	33184394	16.5	9703701	35.11	21	4	8781258
<i>2011</i>	<i>38965123</i>	<i>15.7</i>	<i>14183592</i>	<i>37.6</i>	<i>21</i>	<i>8</i>	<i>6589123</i>

Sources:

CBN: Annual Report and statement of Accounts (Various issues)

CBN: Statistical Bulletin (Various issues)

NDIC: Annual Report and Statement of Account (Various issues)

World Bank: World Development indicators

#### 4. DATA ANALYSIS

Using the data and the period 1986 to 2011, the researcher estimated the equations and analyzed the prediction equation results of the model, which was specified in chapter three, using SPSS Version 19 econometrics software package to run the OLS. Gross Domestic Product (GDP) was used as a proxy for economic growth, which is the dependent variable and the independent variables are market capitalization (BC), credit to the private sectors (CPS), interest rate (INT), cash reserve ratio (CRR), total number of banks (TNB) and financial deepening ( $M_2/GDP$ ).

Simple regression analysis was carried out between the dependent and independent variables. All the variables were in logarithms form. The results obtained from the estimation equation for pre-bank consolidation are depicted on the table below.

**Table 4.2: Regression results (1986 to 2003).**

Dependent variables is LGDP

Explanatory Variables (Regressors)	Coefficient	Std Error	T - Statistic	P - Value
C	3.954	0.238	16.586	0.000
LBC	-0.296	0.034	-1.073	0.306
LCPS	1.391	0.059	3.777	0.003
LCRR	-0.424	0.095	-1.465	0.171
LINT	0.080	0.89	0.840	0.419
$LM_2/GDP$	0.090	0.076	0.969	0.353

LTNB	0.345	0.105	2.429	0.033
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R – Squard	=	0.939
Adjusted R – squard	=	0.906
F – Statistic	=	28.399
Prob. (F-Statistics)	=	0.000
Durbin – Watson statistic	=	1.659
RSS <sub>1</sub>	=	0.10
DF	=	11

The regression results show a negative relationship between Gross Domestic Product and market capitalization. The result does not conform to the a priori expectation. The value of the coefficient LBC is -0.296. This implies that 1 percent increase in Bank consolidation will lead to 0.296 percent decrease in economic growth when other factors are held constant. The variable was not statistically significant at 10 percent level since the T – statistic calculated value of 1.073 is less than the T – statistic value of 1.796. Therefore, we accept the null hypothesis that market capitalization has no significant impact on economic growth in Nigeria. Under capitalization has not promotes economic growth during the pre-banking consolidation.

The coefficient of credit to the private sector (LCPS) is positively signed. This indicates that a direct relationship exists between credit to the private sector and economic growth. This is in line with the a priori expectation. The value of the coefficient is 1.391. This implies that 1 percent increase in credit to the private sector will lead to 1.391 percent increase in economic growth, when other factors are held constant. The variable LCPs was also statistically significant at 1 percent level of significant, since the T – statistic calculated value of 3.777 is greater than the T-statistic table value of 3.106. Therefore, we accept the alternate hypothesis that financial bank credit to the private sector has a significant impact on economic growth during the pre-consolidation period. This implies that credit to the private sector has the potential to grow the Nigeria economy during the pre-consolidation all things being equal.

The coefficient of cash reserve ratio (LCRR) is -0.424. This implies that an inverse relationship exists between cash reserve ratio and economic growth. This is in line with the a priori expectation such that 1 percent increase in CRR will lead to 0.424 percent decrease in economic growth, when other factors are held constant. The variable CRR was not statistically significant at any level. So, we accept the null hypothesis that cash reserve ratio has no significant impact on economic growth in Nigeria under the reference period. This result indicates that increase in cash reserve ratio is used by the monetary authority to curtail the amount of loans that the banks can make and hence negatively affects economic growth during the pre-consolidation period.

The coefficient of interest rate (LINT) is 0.080. This indicates that direct relationship exists between interest rate and economic growth. This is not consistent to the a priori expectation hence 1 percent increase in interest rate will lead to 0.080 percent increase in economic growth when other variables are held constant. The variable LINT was not statistically significant at any level. Hence, we accept the null hypothesis that interest rate has no significant impact on economic growth in Nigeria during the pre-consolidation. The non-significance of this variable is as a result of structural inefficiencies, market imperfections or government interference in the interaction of market forces that characterized the Nigerian money market during the pre-consolidation period.

The regression result shows that positive relationship exists between financial deepening and economic growth. This is consistent to the a priori expectation. The value of the coefficient of financial deepening ( $LM_2/GDP$ ) is 0.090. This implies that 1 percent increase in financial deepening will lead to 0.090 percent increase in economic growth. The variable was not statistically significant at level of significance with t-statistic calculated value of 0.969 which is less than t-statistic table of 1.796. Therefore, we accept the null hypothesis that financial deepening has no significant impact on economic growth in Nigeria during the pre-consolidation period. This result indicates that financial development does not enhance growth in the Nigerian economy pro the consolidation.

The regression result shows that a positive relationship exists between total number of banks and economic growth. This is consistent to the a priori expectation. The coefficient of total number of bank (LTNB) is 0.345. This implies that 1 percent increase in LTNB will lead to 0.345 percent increase in economic growth when other factors are held constant. The variable was also statistically significant 5% percent level of significance with a t – statistic calculated value of 2.429 which is greater than t-statistic table value of 2.201. Thus, we accept the alternate hypothesis that total number of banks has a significant impact on economic growth in Nigeria.

The coefficient of determination ( $R^2$ ) from our results is given as 0.939. This implies that 94 percent of the variation in Nigeria economic growth is accounted for by the included explanatory variables during pre-bank consolidation while 6 percent is unexplained due to error terms. The adjusted coefficient of determination ( $R^2$ ) is given as 0.906. The means that precisely 91 percent of the variations in economic growth of Nigeria are accounted for by the included variables after the co-efficient of determination is been adjusted to make it intensive to the number of included variables while 9 percent is unaccounted for due to error terms.

Also the statistical test for joint significance of the parameter estimate (i.e. F statistic) using 95% confidence interval and 6, 11 degree of freedom gives the figure 3.09 from the statistical table. And since the calculated F – statistics from our result gives 28.393, which is higher than that from the table, we reject the null hypothesis and accept the alternate hypothesis, concluding that the joint influence of all included explanatory variables is significant and therefore cannot be ignored in explaining economic growth in Nigeria.

The D.W statistic value 1.659 indicates absence of auto-correlation in the analysis, which means that the estimate is unbiased, consistent and reliable for prediction and policy formulation.

In summary, based on the above, it can be deducted that consistent with the hypothesized relations, credit to the private sector and total number of banks are some of the significant financial indicators that determine economic growth in Nigeria during the pre-bank consolidation period.

The results obtained from the estimation equation for bank consolidation are depicted in the table below.

**Table 4.3: Regression results (1986-2011).**

Dependent variables is LGDP

Explanatory Variables (Regressor)	Coefficient	Std Error	T – Statistics	P – Value
C	30.375	44.681	0.680	0.567
LBC	0.231	0.353	0.571	0.626
LCPS	1.024	1.936	1.073	0.396
LCRR	1.067	1.966	1.771	0.219
LINT	-0.379	24.559	-0.356	0.756
LM <sub>2</sub> /GDP	0.655	4.064	1.041	0.407
LTNB	1.289	3.321	1.295	0.325

- R – Squared = 0.857
- Adjusted R – Squared = 0.426
- F – Statistic = 1.990
- Prob. (F - Statistics) = 0.370
- Durbin – Watson statistic = 2.356
- RSS<sub>2</sub> = 0.876

DF = 2 (DF = N – K, Where N = No of observation and K explanatory variable).

The regression results show a positive relationship between Gross Domestic Product and market capitalization. The result conforms to the a priori expectation. The value of the coefficient LBC is 0.231. This implies that 1 percent increase in Bank consolidation will lead to 0.231 percent increase in economic growth when other factors are held constant. The variable was not statistically significant at 10 percent level of significant since the T – statistic calculated value of 0.571 is less than the T – statistic value of 1.796. Therefore, we accept the null hypothesis that market capitalization has no significant impact on economic growth in Nigeria under the bank consolidation period. The result indicates that increased in market capitalization has not promotes economic growth during the banking consolidation but the positive nature of the variable means that it has the tendency to grow the Nigeria economy.

The coefficient of credit to the private sector (LCPS) is positively signed. This indicates that a direct relationship exists between credit to the private sector and economic growth. This is in line with the a priori expectation. The value of the coefficient is 1.024. This implies that 1 percent increase in credit to the private sector will lead to 1.024 percent increase in economic growth, when other factors are held constant. The variable was not statistically significant at 10 percent level of significance since the T-statistic calculated value

of 1.073 is less than the T – statistic value of 1.796. Therefore, we accept the null hypothesis that credit to the private sector has no significant impact on economic growth in Nigeria under the bank consolidation period. This implies that credit to the private sector has no potential to grow the Nigeria economy during the bank consolidation all things being equal.

The coefficient of cash reserve ratio (LCRR) is 1.067. This implies that direct relationship exists between cash reserve ration and economic growth. This is not in line with the a priori expectation such that 1 percent increase in CRR will lead to 1.067 percent increase in economic growth, when other factors are held constant. The variable CRR was not statistically significant at any level. So, we accept the null hypothesis that cash reserve ratio has no significant impact on economic growth in Nigeria under the reference period. This result indicates that increase in cash reserve ratio is used by the monetary authority to curtail the amount of loans that the banks can make and hence positively affects economic growth during the bank consolidation period.

The coefficient of interest rate (LINT) is -0.379. This indicates that indirect relationship exists between interest rate and economic growth. This is consistent to the a priori expectation hence 1 percent increase in interest rate will lead to 0.379 percent decrease in economic growth when other variables are held constant. The variable LINT was not statistically significant at any level. Hence, we accept the null hypothesis that interest rate has no significant impact on economic growth in Nigeria during the bank consolidation. The consistent of this variable is as a result of structural efficiencies, market perfections or no government interference in the interaction of market forces that characterized the Nigerian money market during the bank consolidation period.

The regression result shows that positive relationship exists between financial deepening and economic growth. This is consistent to the a priori expectation. The value of the coefficient of financial deepening ( $LM_2/GDP$ ) is 0.566. This implies that 1 percent increase in financial deepening will lead to 0.566 percent increase in economic growth. The variable was not statistically significance at level of significance with t-statistic calculated value of 1.041 which is less than t-statistic table value of 1.796. Therefore, we accept the null hypothesis that financial deepening has no significant impact on economic growth in Nigeria during the consolidation period. This result indicates that financial development does not enhance growth in the Nigerian economy during the bank consolidation.

The regression result shows that a positive relationship exists between total number of banks and economic growth. This is consistent to the a priori expectation. The coefficient of total number of bank (LTNB) is 1.289. This implies that 1 percent increase in LTNB will lead to 1.289 percent increase in economic growth when other factors are held constant. The variable was not statistically significance at level of significance with t-statistic calculated value of 1.295 which is less than t-statistic table value of 1.796. Therefore, we accept the null hypothesis that total number of bank has no significant impact on economic growth in Nigeria during the consolidation period.

The coefficient of determination ( $R^2$ ) from our result is given as 0.857. This implies that 86 percent of the variation in Nigeria economic growth is accounted for by the included explanatory variables during bank consolidation while 14 percent is unexplained due to error

terms. The adjusted coefficient of determination ( $R^2$ ) is given as 0.426. This means that precisely 43 percent of the variations in economic growth of Nigeria are accounted for by the included variables after the co-efficient of determination is been adjusted to make it intensive to the number of included variables while 57 percent is unaccounted for due to error terms.

Also the statistical test for joint significance of the parameter estimate (i.e. F statistic) using 95% confidence interval and 6, 2 degree of freedom gives the figure 19.2 from the statistical table. And since the calculated F-statistics from our result gives 1.990, which is lesser than that from the table, we accept the null hypothesis and reject explanatory variable since is not significant. This implies that the financial indicator perform poorly to Nigeria's economic growth during the consolidation era in the Nigerian financial sector.

The D.W statistic value 2.356 indicates absence of auto-correlation in the analysis, which means that the estimate is unbiased, consistent and reliable for prediction and policy formulation.

In summary, based on the above, it can be deduced that consistent with the hypothesized relations that the entire variables were consistent to the a priori expectation but none was significant at any level. The F statistic shows that bank consolidation has not impacted significantly on Nigeria economic growth under the study period.

The results obtained from the estimation equation are depicted in the table below.

Table 4.4: Regression results (1986 - 2011)

Dependent variables is LGDP

Explanatory Variables (Regressors)	Coefficient	Std Error	T – Statistic	P – Value
C	2.108	2.303	0.915	0.371
LBC	0.284	0.133	1.307	0.207
LCPS	0.638	0.214	2.063	0.053
LCRR	-0.282	0.576	-1.150	0.265
LINT	0.092	1.018	0.644	0.527
LM <sub>2</sub> /GDP	0.362	0.825	2.234	0.037
LTNB	0.360	0.788	1.371	0.186

R – Squared = 0.724

Adjusted R – squared = 0.636

F – Statistic = 8.295

Prob. (F-Statistics) = 0.0000

Durbin – Watson statistic	=	2.136
SSR <sub>3</sub>	=	3.015
DF	=	19

The regression results show a positive relationship between Gross Domestic Product and market capitalization. The result conforms to the a priori expectation. The value of the coefficient LBC is 0.284. This implies that 1 percent increase in Bank consolidation will lead to 0.284 percent increase in economic growth when other factors are held constant. The variable was not statistically significant at any level of significance. Therefore, we accept the null hypothesis that capital market capitalization has no significant impact on economic growth in Nigeria under the study period. The result indicates that increased market capitalization promotes economic growth. This finding is consistent with Fadare (2010), Iganiga (2010) and Ofanson (2010).

The coefficient of credit to the private sector (LCPS) is positively signed. This indicates that a direct relationship exists between credit to the private sector and economic growth. This is in line with the a priori expectation. The value of the coefficient is 0.638 percent increase in economic growth, when other factors are held constant. The variable LCPs was also statistically significant at 10 percent level of significant, since the T-statistic table value of 1.729. Therefore, we accept the alternate hypothesis that financial bank credit to the private sector has a significant impact on economic growth indicates that credit to the private sector if properly channeled to productive sectors such as agriculture and manufacturing sectors, will lead to economic growth in the country.

The coefficient of cash reserve ratio (LCRR) is -0.282. This implies that an inverse relationship exists between cash reserve ratio and economic growth. This is in line with the a priori expectation such 1 percent increase in CRR will lead to 0.282 percent decrease in economic growth, when other factors are held constant. The variable CRR was not statistically significant at any level. So, we accept the null hypothesis that cash reserve ratio has no significant impact on economic growth in Nigeria under the reference period. This result indicates that increase in cash reserve ratio is used by the monetary authority to curtail the amount of loans that the banks can make and hence negatively affects economic growth. In this way, the Central Bank could be said to be pursuing a contractionary monetary policy. When investors cannot get new loans to expand their investments, it reduces the level of total output in the economy. Fadare (2010) noted that a reduction in output affects the level of employment and prices, as less money is available for purchasing goods.

The coefficient of interest rate (LINT) is 0.092. This indicates that direct relationship exists between interest rate and economic growth. This does not conform to the a priori expectation hence 1 percent increase in interest rate will lead to 0.092 percent increase in economic growth when other variables are held constant. The variable LINT was not statistically significant at any level. Hence, we accept the null hypothesis that interest rate has no significant impact on economic growth in Nigeria. The non-significance of this variable is as a result of structural inefficiencies, market imperfections or government interference in the interaction of market forces that characterized the Nigerian money market during the period.

The regression result shows that positive relationship exists between financial deepening and economic growth. This is consistent to the a priori expectation. The value of the coefficient of financial deepening ( $LM_2/GDP$ ) is 0.362. This implies that 1 percent increase in financial deepening will lead to 0.362 percent increase in economic growth. The variable was also statistically significance at 5 percent level of significance with t-statistic calculated value of 2.238 which is greater than t-statistic table value of 2.093. Therefore, we accept the alternate hypothesis that financial deepening has a significant impact on economic growth in Nigeria. This result indicates that financial development is as a result of persistent policies initiated by the monetary authority to liberalized the financial sector in order to enhancing growth in the economy.

The regression result shows that a positive relationship exists between total number of banks and economic growth. This is consistent to the a priori expectation. The coefficient of total number of bank (LTNB) is 0.360. This implies that 1 percent increase in LTNB will lead to 0.360 percent increase in economic growth when other factors are held constant. The variable was not statistically significant at 10 percent level of significance with a t-statistic calculated value of 1.371 which is less than t-statistic table value of 1.729. Thus, we accept the null hypothesis that total number of banks has no significant impact on economic growth in Nigeria. However, the non-significance nature of the variable indicate that the number of banks services to various economic units and hence insignificant in Nigerian economic growth.

The coefficient of determination ( $R^2$ ) from our result is given as 0.724. This implies that 72 percent of the variation in Nigeria economic growth is accounted for by the included explanatory variables while 28 percent is unexplained due to error terms. The adjusted coefficient of determination ( $R^2$ ) is given as 0.636. This means that precisely 64 percent of the variations in economic growth of Nigeria are accounted for by the included variables after the co-efficient of determination is been adjusted to make it intensive to the number of included variables while 36 is unaccounted for due to error terms.

Also the statistical test for joint significance of the parameter estimate (i.e. F statistic) using 95% confidence interval and 6, 19 degree of freedom gives the figure 2.60 from the statistical table. And since the calculated F- statistics from our result gives 8.295, which is higher than that from the table, we reject the null hypothesis and accept the alternate hypothesis, concluding that the joint influence of all included explanatory variables is significant and therefore cannot be ignored in explaining economic growth in Nigeria.

The D.W statistic value 2.136 indicates absence of auto-correlation in the analysis, which means that the estimate is unbiased, consistent and reliable for prediction and policy formulation.

In summary, based on the above, it can be deduced that consistent with the hypothesized relations, credit to the private sector and financial deepening are some of the significant financial indicators that determine economic growth in Nigeria under the reference period.

## 5. THE CHOW TEST

When we use a regression model involving time series data, it may happen that there is a structural change, we mean that the values of the parameter of the model do not remain the same through the entire time period (Gujarati 2006). Sometime, structural change may be due to external force or due to policy change. In order to carry out this test in our study, our regression was divided in two samples and obtained the residual sum of square from the various sample i.e. pre-bank consolidation and consolidation and pool period.

However, for our sample from regression result  $RSS_3 = 3.01$  and  $DF = 19$

$RSS_1 = 0.10$  and  $DF = 11$

$RSS_2 = 0.876$  and  $DF = 12$

Where

$RSS_3$  is the restricted residual sum of squares (pool period)

$RSS_1$  is the residual sum of squares of pre-bank consolidation

$RSS_2$  is the residual sum of squares of bank consolidation

Since the two sets of samples are deemed independent, we can add  $RSS_1$  and  $RSS_2$  to obtain unrestricted residual sum of squares ( $RSS_{UR}$ ) i.e.

$RSS_{UR} = RSS_1 + RSS_2$  with  $DF (n_1 + n_2 - 2k)$

$RSS_{UR} = 0.010 + 0.876 = 0.886$

Therefore, the chow test F ratio =  $\frac{(RSS_R + RSS_{RU})/K}{RSS_{UR}/(n_1 + n_2 - 2k)}$

$RSS_{UR}/(n_1 + n_2 - 2k)$

Where, K is number of parameters estimated

$= (3.015 - 0.886)/6$

$= 0.886/13$

$= \underline{0.3773}$

$0.0683 = 5.500$

From the F statistic tables, we find that for 6 and 19 DF the 5 percent critical F value is 2.63. This is less than the calculated value of 5.50. This implies that banking sector in Nigeria has under gone structural change within the study period. The implication of this result is that the regression for pre bank consolidation is different from consolidation period and the result obtained from the pooled period is dubious. It cannot be relied upon.

## 6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

### Summary

From the findings of the study, the following can be inferred.

- i. Bank consolidation has no significant impact on economic growth in Nigeria under the study period.
- ii. Credit to private sector has direct and significant impact on economic growth during pre-bank consolidation period but it was insignificant during consolidation
- iii. Cash reserved ratio has an inverse, but insignificant impact on economic growth during pre-bank consolidation but has a direct impact on economic growth during bank consolidation. This is an indication that the central bank is pursuing a contractionary monetary policy.
- iv. The interest rate has an insignificant influence on Nigeria economic growth under the pre and bank consolidation period
- v. The financial deepening has positive and significant effect on Nigeria economic growth during the pre-consolidation period but is insignificant during bank consolidation. This finding indicates that there is a financial development in the country which enhances her economic growth under the pre-bank consolidation period.
- vi. The total number of bank has direct and significant impact on economic growth in Nigeria during pre-bank consolidation but insignificant during bank consolidation period.
- vii. The chow test indicates that there was a structural change during the study period. This structural shift is due to the recapitalization of bank in the Nigerian economy.

## Conclusion

The general conclusion that emerges from this study is that financial market capitalization, financial deepening and reforms on the provision of bank credit to the private sectors have the potential to induce Nigeria's economic growth and development during the study period.

## Recommendations

Based on findings of the study, the following recommendations are suggested.

- i. Banking regulations such as bank consolidation needs to be a component of total reform framework of monetary authority to ensure effectiveness.

In particular, other parameters of bank financial health like the quality of corporate governance, ethics, product development and return rendition should be included in any banking reform for significant result.

- ii. Apart from infrastructural deficit, other problems retarding economic growth in Nigeria are the stunted real sector development. With the rising volume of financial resources at the disposal of Nigeria banks as a result of consolidation, necessary strategies should be perfected to design enabling credit facilities whose tenor and terms will provide a symbolic benefit to both the sector business and the banks.

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