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The trend and growth implications of bank recapitalization in Nigeria

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One of the major macroeconomic variables that compliment bank performances is availability of capital. Economic theories show that inadequate capital contributes to bank failures and retards economic growth. This study however, 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 mean 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 findings showed that there is a significant difference between the two means and hence 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. The study strongly supported the need for the government to sustain the recapitalization policy.

Key words: Bank, recapitalization, economic growth, basle agreement, globalization.

INTRODUCTION

Globally, the activities of banks reflect their unique roles as the engine of growth in any economy. Ths role which comes from both banks and non-banks financial inter-mediaries and the regulatory framework in stimulating economic growth is widely recognized especially in developmental economies. Uboh (2005) set the pace for the landslide of other works on the interdependent and the relationship between banks and economic growth. Stressing further, the pioneering work of Gurley and Shaw (1956) on the relationship between real and finan-cial developments shows that financial intermediaries, monetization and capital formation determine the path and pace of economic growth and development of any country. Nevertheless these pivotal roles have not been highly noticeable in Nigeria. The scenario arises as a result of poor performances of Nigerian commercial banks. According to Soludo (2004), "The Nigeria banking system today is fragile and marginal. The system faces enormous challenges which if not addresses urgently, could snowball into a crisis in the near future". Soludo

identified the problems of the banks, especially those seen as feeble, as persistent illiquidity, unprofitable operations and poor asset base.

Imala (2005) posited that the objectives of banking system are to ensure pure stability and facilitate sus-tained rapid economic development. Regrettably, these objectives have remained largely unattained in Nigeria as a result of some deficiencies in the banking system. This phenomenon has necessitated continuous financial sector reforms globally. In 1988, an international agree-ment among the banking authorities known as Basle agreement was reached. The main objective of this international agreement is to apply a common set of rules for capital adequacy in order to minimize the risk of bank failures. In compliance with the Basle agreement, the former governor of Central Bank of Nigeria Professor Charles Soludo announced on July 6, 2004 that the ban-king sector should increase their capital base with about 100% (from initial capital base of ₦2 million to a whop-ping ₦25 billion). The policy directives of this

initiative according to the C.B.N governor are ita alia:

(i) To strengthen the commercial banks there by intensifying the growth of the economy.
(ii) To be tuned with the global requirement of minimize capitalization of $500 million
(iii) To encourage competition locally and internationally in conformity with the new trend of globalization.

The kernel of this argument is that with this new policy of recapitalization, banks that cannot meet the required amount will have to merge with the bigger or stronger ones. Following the implementation of the policy, an unprecedented process of recapitalization has taken place in Nigerian banking sector shrinking the number of commercial banks from 89 - 25 banks. No other event is more challenging as this recapitalization policy in the history of Nigeria banking. Prior to the reformation, the state of the Nigerian banking sector was very weak. It was fragile and marginal being plagued by persistent illiquidity, unprofitable operations, poor asset base and intermittent failures. It was expected that the reform should promote efficiency, better banking performance, operational stability, profitability and reduce bank failures. According to Amala (2005), the current structure of the banking system has prompted tendencies towards banking effectiveness and efficiency particularly at the retail level. But the questions to ask for which answers should be sought are: Has recapitalization achieved its stated objectives? Has it encouraged competition locally and internationally with the new trend of globalization? Has it strengthened the commercial banks and stimulated the growth of Nigerian economy? This study was inspired to investigate these hypotheses and determine the effectiveness of recapitalization policy on the operational performances of commercial banks and the magnitude of its impact on the growth of Nigerian economy. The rest of this paper is organized as follow. The study reviews the literatures covering origin, determinants, trends, impor-tance and economic implications of bank recapitalization in Nigeria, after which it briefly introduces and discusses the research methodology. Furthermore, it shows the data analysis, interpretation of result and discussions. Finally, it summarizes the findings, draws policy recommendations and concludes the paper.

LITERATURE REVIEW

The origin, determinants, trends, importance and implications of bank recapitalizations has been scantly discussed in the literature. Soyinbo and Adekanye (1992) and Adam (2003), traced recapitalization to take its roots from bank failures. According to them, most banks in Nigeria failed as a result of inadequate capital base, mismanagement of funds, overtrading, lack of regulation and control; and unfair competition from the foreign

banks. Thus, recapitalization is one of the banking reforms to tackle these problems. According to Omoruyi (1991), recapitalization appears to be the main driving force of bank reforms. It focuses mainly on restructuring, rebranding and refurbishing the banking system to accommodate the challenges of bank liquidation. Obviously, adequate capital base is very crucial to the success of any bank. Apart from its multiplier effect on the economy as a whole; it acts as a buffer and security for banks. As Spong (1990) put it, "commercial bank must have enough capital to provide a cushion for absorbing possible loan losses, funds for its internal needs, and expansion and added security for depositors. Adequate capital increases the confidence and financial state of stock holders. Bank regulators view it as an important element in holding government banking risks to an acceptable level.

Demirguc-kunt and Levine (2003) argued that recapitalization drives bank consolidation (mergers and acquisitions) so that increased concentration goes hand-in-hand with efficiency improvements, Boyd and Runkle (1993), Sulaiman (2004) and Imala (2005) buttressed this argument. They stressed further that consolidated banking system enhances profits efficiency, and lower bank fragility. More importantly, high profits arising from this provides a buffer against adverse shocks and increases the franchise value of the banks.

Turning to the effectiveness of recapitalization and its over all economic implications, authors like Boyd and Runkle (1993), Peek and Nosengree (1998), Allen and Gale (2000), Gelos and Roldos (2002), Sani (2004), Adetiloye (2006), Onaolapo (2008) and Adegbayi et al. (2008) have made some empirical contributions. In his analysis Onaolapo (2008) employed CAMEL rating system to examine the effectiveness of recapitalization. Onaolapo found that recapitalization has improved the financial health of the banks. Onaolapo discovered that the percentage of sound bank has reached the highest point of 70% as at 2006. This finding was collaborated by Sani (2004). Using a regression model, Sani discovered a positive and significant relationship between recapi-talization policy and economic growth in Nigeria. To the contrary, Adegbaju (2008) examined the effectiveness of recapitalization on the performances of 20 Nigerian banks. He discovered that while few banks recorded appreciable improvements in their performances, majority of the banks remain the same or even worse off.

So far, the nexus among recapitalization policy, finan-cial stability and economic growth has been examined by two polar schools of thoughts. The proponents of bank recapitalization believe that increased capital base has potentially increased bank returns through revenue and cost efficiency gains. On the other hand, the opponents argued that recapitalization has increased bank's pro-pensity toward risk taking through increases in leverage and off balance sheet operations. There is therefore a divergence views on the effectiveness and growth

Table 1. Minimum paid-up capital banks in Nigeria (1952 - 2005).

Year	Type of bank	Minimum account (£)
1952	Commercial Banks	12,500.00
1969	Commercial Banks	300,000.00
		(₦)
1979	Commercial Banks	600,000.00
	Merchant Banks	2,000,000.00
1988 (February)	Commercial Banks	5,000,000.00
	Merchant Banks	3,000,000.00
1988 (October)	Commercial Banks	10,000,000.00
	Merchant Banks	6,000,000.00
1989	Commercial Banks	20,000,000.00
	Merchant Banks	12,000,000.00
1991	Commercial Banks	50,000,000.00
	Merchant Banks	40,000,000.00
1997	Commercial Banks	500,000,000.00
	Merchant Banks	500,000,000.00
2000	Commercial Banks	1,000,000,000.00
	Merchant Banks	1,000,000,000.00
2001	Commercial Banks	2,000,000,000.00
	Merchant Banks	2,000,000,000.00
2005	Commercial Banks	25,000,000,000.00

Source: Admimorah, C. I. (1988); FBN Business Report, June 2005.

implications of recapitalization policy. The empirical evidences are equally not unanimous on the matter. However, this study attempts to clarify the arguments and determine using appropriate tools of economic analysis the pre and post recapitalization performance of the banks as well as the direction, extent and magnitude of the impact of recapitalization on the overall economic performance in Nigeria.

Historical literature of bank recapitalization in Nigeria

Table 1 shows the trend of bank recapitalization in Nigeria. It demonstrated the minimum paid up capital in Nigeria historically since 1952, when the first "banking ordinance" was passed.

The first round of recapitalization was in 1952, when the colonial government then raised the capital require-ment for banks especially the foreign commercial banks t9 12,500 pounds. Ever since then, the issue of banks recapitalization has been a continuous occurrence not only in Nigeria, but generally around the world especially as the world continues national economies.

In 1969, the paid-up capital was increased from £12,500 - £300,000.00. In 1979 when Merchant bank came on board the Nigeria banking authority set the capital base for Merchant banks at N2 million and N600,000.00 for commercial bank. As from 1988, there had been further increase in the capital base, particularly coupled with the liberalization of the financial system and introduction of structural adjustment programme in 1986. In February 1988, the capital base for commercial banks was increased to ₦5 million while that of Merchant banks was increased to ₦3 million. In 1989, there was a further increase to N20 m for commercial banks and N12 m for Merchant banks.

In recognition of the fact that well-capitalized banks would strengthen the banking system for effective monetary management, the monetary authority increased the minimum paid-up capital of commercial and merchant banks in February 1991 - N50 and N40 million from N20 million, respectively. In 31st March, 1997 twenty-six banks comprising 13 each of commercial and merchant banks were liquidated as a result of bank failures. In January, 1998 the minimum paid-up capital of merchant and commercial banks was consequently raised to a

uniform level of N500 million. Finally in year 2005, the central bank of Nigeria brought into force the risk-weighted measure of capital adequacy recommended by the Basle Committee of the Bank for international settlement and raised the paid-capital to N25 billion.

METHODOLOGY

Here the methodology and theoretical significance of the study are discussed. Issues relating to the choice of research design and strategies, model specification, data requirements and sources, the nature and scope of data collected, the data processing technique and the theoretical significance of parameter estimate are discussed. The models were adjudged reliable before they were used. The components of the model were defined and a prior expectation of the relationship among the variables explained for the purpose of giving the reviewers and users a deep insight into the phenomenon under study.

Research design and strategies

The study used quasi-experimental research design approach for the data analysis. This approach combines theoretical considera-tion (a prior criterion) with the empirical observation and extracts maximum information from the available data. It enables us therefore, to observe the effects of explanatory variables on the dependent variables.

Data requirement and sources

Given the nature of the model, it is imperative that the data that will permit the estimation of the stochastic equations representing the implications of bank recapitalization on bank performances and economic growth can be collected. These include: Gross domestic output growth rate, bank capitalization; volume of bank asset; aggregate savings; investment, capital to risk-weighted asset ratio; profit before tax; liquidity ratio and ratio of non-performing loans to total loans. Time series data were used for the study. The data were obtained from Central Bank of Nigeria (CBN) annual statistical bulletin and National Bureau for statistics (NBS).

Data processing techniques

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 equality of mean helps us to compare mean of the variables before and after recapi-talization to see if there is any significant difference between the two means. The decision rule is to reject Ho (that there is no significant difference) and accept H_1 if the calculated "t*" is greater than the table value at 5% significant level. Where t* is less than the 5% critical region, the study accepts Ho and reject H_1. The E-view for windows electronic packages helps us to test the implications of bank recapitalization on economic growth. This package is suitable because it is time efficient in terms of output and adequacy of statistics generated.

Model specification

Recapitalization and bank performance model

Sample test technique for difference between two means shall be used in modeling the first hypothesis. The test is to ascertain whether the means of the two populations are different from each other. The bank performance ratios shall be divided into two samples A and B. Comparative analysis of the ratios in each sample is then made coupled with a test of equality of mean for the periods before and after recapitalization. The means for capital to risk-weighted asset ratio (CRAR); profits before Tax (PBT); liquidity ratio (LIQ) and ratio of non-performing loans to total loans (NPL) are tested for the periods before and after recapitalization using T-test .

$$t^* = \frac{X_1 - X_2}{\sqrt{\dfrac{\sigma_1{}^2 + \sigma_2{}^2}{N_1 \quad N_2}}}$$

Where: X_1 = Mean of ratio in sample A, X_2 = Mean of ratio in sample B, σ = Variance
N = Number of observations**.**

Recapitalization and economic growth model

This model is set to examine the growth implication of bank recapitalization. It attempts to establish a linkage between increase in bank capitals, volume of asset, aggregate savings and invest-ment. It also showed how these variables impact on economic growth. The model is expressed mathematically as:

GDP = f(CAP, AST, SAV, INV)   (1)

Where: GDP = Real gross domestic product (dependent variable), CAP = Bank capitalization, AST = Volume of Bank Asset, SAV = Aggregate Savings, INV = investment.
     Putting in a linear and stochastic form, Equation (1) can be written explicitly as:

$GDP_t = \theta_o + \theta_1 CAP_t + \theta_2 AST_t + \theta_3 SAV_t + \theta_4 INV_t + u_i$ (2)

The variables remain as previously defined, u_i is the white noise term with the usual stochastic assumption. Parameter θ_o is the con-stant intercept and the θ_1's (where I = 1, 2, 3, 4) are the regression coefficients to be estimated.

DATA ANALYSIS, INTERPRETATION OF RESULTS AND DISCUSSION

Table 2 shows the pre and post situation for the various bank performances ratios in Nigeria, following three years before 2001 to 2003, and three years after 2005 to 2007, using Reinhart and Tokatlidis (2000) and Rose and Hudgins (2005) approaches.
     Table 3 shows the paired sample T test, while appendix shows the computation of capital adequacy, profit before tax (PBT), liquidity (LIQ) and asset quality
     Table 3 presents the estimates of the t-test model. As shown by the statistics in the table, the explanatory power of the estimate is very high judging from statistical significance of the mean-value and the associated stan-dard deviations. The capital to risk asset ratio (CRAR) for post recapitalization mean which stood at 21.58 is higher than the pre recapitalization mean of15.09, implying that banks are more adequately capitalized and less risky after the 2005. The critical region under two-tail test is

Table 2. Banking industry performance (2001 to 2007).

Year	Capital to risk asset ratio (CRAR)	Profit before tax (PBT)	Liquidity ratio (LIQ)	Non performing loan (NPL)
2001	n.a	96	63.9	16.9
2002	14.78	86	56.7	21.27
2003	15.41	74	64.6	20.45
2005	21.25	81	66.5	18.12
2006	22.6	108	75.1	7.92
2007	20.9	407	70.8	7.39

Source: CBN and NDIC bank supervision annual reports (2001 to 2007). Year 2004 was used as the recapitalization base year). Tables 2 show the pre and post situation for the various bank performances ratios in Nigeria following three years before (2001 to 2003) and three years after (2005 to 2007) and using Reinhart and Tokatlidis (2000) and Rose and Hudgins (2005) approaches.

2.77 (that is t (0.05) = 2.77) and the calculated t* value is 11.32. Since the calculated t* is greater than the table value at 5%, the study concluded that, there is a significant difference between the means of the two populations. The implication of the result is that banks after recapitalization are more credit worthy and reliable. The probability of liquidation and collapsing is very low.

For profit before tax (PBT) ,the pre recapitalization mean is 85.33 with a standard deviation of 11.0 while the post capitalization mean is higher at 198.66 but with poor standard deviation of 180.9. The implication of the result is that banks earned higher profit after recapitalization than the pre earning strength. However, the differences are not statistically significant due to the high standard error. The critical region t (0.05) = 2.77 under two tail test and calculated t* value is 1.08.Since the calculated t* falls within the acceptance region we conclude that the difference is not significant at 5%. The case of liquidity ratio follows the same trend with the capital to risk asset ratio (CRAR) .The post recapitalization mean 70.84 is greater than the pre capitalization mean of 61.73 and the t* show that the difference between the two mean at 0.5 level is significant. This implies that the bank after recapitalization find it much easier to convert asset into ready cash and meet their obligation to customer at call. The critical region t (0.05) = 2.77 under two tail test and Calculated t* value is 3.36. Since the calculated t* is greater than the table value at 5%, we conclude that, there is a significant difference between the means of the two populations.

Finally for asset quality ratios, the post recapitalization mean which stood at 11.77 is lower than pre capitalization mean of 19.54, the ratio of non performing asset to total loan reduce by 7.77 indicating a 40% decrease in the quality of bank asset. The implication of the result is that there is a significant deterioration in the quality of asset after recapitalization. Nevertheless the critical region t (0.05) = 2.77 under two tail test and the calculated t* value is 2.87. Since the calculated t* is greater than the table value at 5%, the study concluded that, there is a significant difference between the means of

the two populations.

Recapitalization and economic growth model

The purpose of this subsection is to establish relationship that exists between recapitalization and economic growth as well as testing the significant of the relationship. This study enabled us to validate the second hypothesis using the variables in the Table 4 we shall model the impact of pre recapitalization.

The coefficient of the multiple determination R^2

The coefficient of the multiple determination stood at 0.96 (96%). This means that the explanatory variables: Bank capitalization, asset, saving and investment accounted for 96% of the total changes in the dependent variable (GDP). This is a good fit.

The standard error

The values of the standard error for the entire variables in the model show that the parameters estimate were statistically significant. These values were less than half of the values of the coefficient of the variables.

The F-statistics

The F-statistics test was also carried out to test for stability in the regression parameter coefficient when sample size increases, as well as the overall significance of the estimated regression model. Thus, we compare the calculated F with the critical value at 5% level (0.05) at K – I, (that is (4 – 1 =3) and N – K = 28 -4 =24 degree of freedom) for the model.

Where K = the number of parameter estimated, and N = the number of the observed years. If F > $F_{0.05}$, we reject the null and accept the alternative hypothesis, and if

Table 3. Paired sample t-test.

Pair	Sample A		Sample B		Mean difference	Calculated t*	Critical region t (0.05)
	Mean	**Std. Dev**	**Mean**	**Std. Dev**			
CRAR	15.09	0.44	21.58	0.89	6.49	11.34.	2.77
PBT	85.33	11.01	198.66	180.92	113.33	1.08	2.77
LIQ	61.73	3.37	70.84	3.27	9.11	3.36	2.77
NPL	19.54	2.32	11.14	4.49	8.4	2.87.	2.77

Source: Result obtained from author's computation.

Table 4. Data Estimation result dependent variable: GDP, Method: Least Squares, Date: 04/11/10, Time: 03:36, Sample (adjusted): 1990, 2008, Included observations: 19 after adjusting endpoints.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	266698.9	8979.128	29.70209	0.0000
CAP	0.005769	0.001760	3.278148	0.0055
AST	0.100489	0.023122	4.346050	0.0007
SAV	-0.159994	0.041130	-3.889985	0.0016
INV	0.026943	0.003559	7.570881	0.0000
R^2	0.973456	Mean dependent var		391905.7
Adjusted R^2	0.965874	S.D. dependent var		141030.2
S.E of regression	26052.82	Akaike info criterion		23.39457
Sum squared resid	9.50E+09	Schwarz criterion		23.64311
Log likelihood	-217.2485	F-statistic		128.36644
Durbin-Watson stat	1.837536	Prob(F-statistic)		0.000000

Source: Author's computation.

if otherwise we accept the null hypothesis and reject the alternative hypothesis. From the statistical table, $F_{0.05}$ at (4, 21) degree of freedom is 3.01 while estimated F* is 128. Obliviously $F* > F_{0.05.}$ This shows that variation in the gross domestic output in Nigeria could be attributed to changes in the independent variable.

The Durbin–Watson statistics

The test for the presence of autocorrelation was performed by making use of the Durbin Watson statistics. The Durbin Watson statistics is 1.8. This was found to be within the normal region which falls within the determinate region of the study that is (1.5 <DW<2.5) and imply that there is negative first order serial autocorrelation among the explanatory variables.

The error correction term (ECM)

It was included in the model to capture the long run dynamics between the co-integrating series is correctly signed (negative) and statistically significant. The coefficients indicated adjustment of 95% for the model. These adjustments imply that errors are corrected within one

year with a high speed. The ECM also reveals a long run relationship between explanatory and dependent variables in each model.

Bank capitalization

It was correctly and positively signed. It is also statistically significant. The expected outcome of this coefficient is a positive one. The implication of this result is that, 1% rise in bank capitalization will cause as much as 5% growth in the gross domestic output. Some author found a negative relationship between the growth in economy's output and bank capitalization.

Savings variable

It was negatively signed, but statistically significant. The implication of this result is that though a negative relationship exists between savings and GDP growth rates, it does contribute significantly to the long run of output growth in Nigeria.

Bank asset

It was positively signed and statistically significant. It is

seen as contributing more to national output than other variables. The implication of this result is that, 1% rise in bank asset will cause as much as 10% growth in the gross domestic output.

Investment

It was correctly and positively signed. It is also statistically significant. The expected outcome of this coefficient is a positive one. The implication of this result is that, 1% rise in domestic investment will cause as much as 2% growth in the gross domestic output.

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

This paper investigated the growth implications of bank recapitalization in Nigeria. Stochastic economic model was used on Nigeria time series data. The long run stability of the variable was tested and it was found that the data were stationary and co integrated. The study carried out comprehensive literature reviews and found that there was no consensus among the researchers on the impact of bank capitalization on the growth of Nigerian economy. While some agree with short run positive implications, some other submitted entire negative growth implications. An error correction test was performed to detect the speed of adjustment to equilibrium in case of sudden chock. The outcome of the test showed that bank capitalization has a positive relationship with output growth in Nigeria. The impact is of a low magnitude. Among other variables included in the model, bank capitalization accounted for just 5% of the total variation in the output growth.

The implementation of the recapitalization policy has cause an unprecedented process of revival and resuscitation of the Nigerian banking sector shrinking the number of commercial banks from 89 - 25 banks. No other event is more challenging as this recapitalization policy in the history of Nigeria banking. Our conclusion therefore, is that recapitalization is good for Nigerian banking sector. What remains however, is how the country should maintain and review the capitalization upward from time to time in order to sustain the tempo of the revival and stability in the banking sector? In other words, the banking sector together with its complementary institutions should be strengthened and bank failures should be adequately tackled.

The monetary authority has a lot of roles to play in order to maximize the benefits of recapitalization. Primarily, the Central Bank should demonstrate sincerity and transparency in the enforcement of the recapitalization code of conduct. Furthermore, efforts should be made with more vigor at ensuring consistency in policy objectives and instrument through a good implementation strategy as well as good sense of discipline, understanding and cooperation between the Central Bank and the Federal Government.

Furthermore, thorough supervision and control along with firm disciplines by the Central Bank over the commercial is required for the effectiveness of the policy initiatives. In addition to this, policy framework should be put in place to improve the quality of bank management, bank security along with reduction in fraudulent and sharp practices in the banking sector.

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APPENDIX

Capital adequacy

$$t^* = \frac{15.09 - 21.58}{\frac{\sqrt{(0.44)^2}}{3} + \frac{(0.89)^2}{3}} = \frac{6.49}{\frac{\sqrt{0.1936}}{3} + \frac{\sqrt{0.79212}}{3}}$$

$t^* = 11.34$

Profit before tax (PBT)

$$t^* = \frac{85.33 - 198.66}{\frac{\sqrt{11.01)^2}}{3} + \frac{(180.92)^2}{3}} = \frac{113.33}{\frac{\sqrt{121.2}}{3} + \frac{\sqrt{3273.2}}{3}}$$

$t^* = 1.08$

Liquidity (LIQ)

$$t^* = \frac{61.73 - 70.84}{\frac{\sqrt{3.37)^2}}{3} + \frac{(3.27)^2}{3}} = \frac{9.11}{\frac{\sqrt{11.35}}{3} + \frac{\sqrt{10.67}}{3}}$$

Asset quality

$$t^* = \frac{19.54 - 11.14}{\frac{\sqrt{2.32)^2}}{3} + \frac{(4.49)^2}{3}} = \frac{8.4}{\frac{\sqrt{5.38}}{3} + \frac{\sqrt{20.2}}{3}}$$

$t^* = 2.87.$