

## **BANK CAPITAL REQUIREMENT AS REGULATORY TOOL IN NIGERIA – A CRITIQUE**

**Georgina Obinne Ugwuanyi** 

Department of Banking & Finance, College of Management Sciences

Michael Okpara University of Agriculture, Umuahia, Nigeria

[ginaugwuanyi2010@yahoo.com](mailto:ginaugwuanyi2010@yahoo.com)

**Evelyn Bassey Ewah**

Department of Banking and Finance, Faculty of Business Administration

Enugu State University of Science and Technology (ESUT), Nigeria

[ewaevelynbassey@gmail.com](mailto:ewaevelynbassey@gmail.com)

### **Abstract**

*This research examines (with an intent to ascertain) whether bank capital requirement as a regulatory tool in Nigeria enhances bank performance. Being an ex-post- facto research, it covers data collected from NDIC annual reports from years 2000 – 2009; and was analyzed with bank performance evaluation indicators. A t-test statistic technique was employed to test the equality of the means of the pre and post 2005 key profitability ratios of selected quoted banks – using the year 2005 recapitalization as the base year. In both the pre and post recapitalization analyses of descriptive statistics and the t-test statistic technique employed, most of the bank performance evaluation indicators revealed that the pre-recapitalization means are better than the post recapitalization means and the t-test shows that the difference between the two means at 5% level of significance is not statistically significant. On the aggregate, the analysis of the profitability indices of banks and test of equality of the pre and post means for 2005 recapitalization exercise reveal that recapitalization without a conducive and sound macroeconomic environment does not always transform to enhanced bank performance. The research recommends for a study on the suitable macroeconomic environmental factors that would enhance bank performance alongside capital base.*

**Keywords:** *Bank Capitalization, Macroeconomic Environment, Monetary Stability, Bank Performance Evaluation Indicators, Regulatory tool*

## INTRODUCTION

Banking sector in any economy serves as a catalyst for growth and development and is therefore so sensitive and sacrosanct to the economy in terms of stability and growth that it must not be 'left alone' by the Government. It is not surprising in the light of this fact, that governments all over the world attempt to evolve an efficient banking system, not only for the promotion of efficient intermediation, but also for the protection of depositors, encouragement of efficient competition, maintenance of public confidence in the system, ensuring stability of the system and protection against systemic risk and collapse. However, economists differ on the level of government intervention in the economy, particularly on regulation imposed on the financial intermediaries. While some believe that many regulations are necessary in order to protect the depositor's funds, others believe that the banks are over-regulated. One area of regulation that has generated so much debate is in the area of capital base regulation. In the Nigerian context, capital base regulation appears to be the only tool in the arsenal of the regulatory body – the Central Bank of Nigeria (Agbeja, 2013).

In the aftermath of the recent economic recession which pulled down many global banks and exposed multiple weaknesses in regulation and banking structures, the Basel Committee on Banking Supervision agreed to new rules on the minimum level (capital ratio) and composite structure of Banks capital on the 12th of September, 2010. Broadly speaking, the new rules which are widely referred to as Basel III (and are mainly Basel II plus new regulations based on lessons from the market crisis), still stipulate a minimum Total Capital Ratio of 8%. However, in addition to increasing the portion of the 8% requirement that is Core Tier I Capital (from 2% to 4.5%), it requires Banks to reserve more common equity under what it calls Capital Conservation Buffer (2.5%), which in many respects is a modification of the IMF proposed 'Bank Tax.' Thus, with this new buffer, Banks' Total Capital Ratios would rise to a minimum of 10.50%. However, these new capital requirements will be progressively implemented over an 8-year span, with full implementation taking effect by January 1, 2019 (BIS, 2010a). Furthermore, following the final assent to the Basel Committee's proposals at the Seoul G-20 Leaders Summit in November 2010, member countries of the Bank for International Settlement (BIS) are currently domesticating the proposal and making further amendment in line with the peculiarities of their country's financial system.

The new Basel proposition – Basel III has once again brought the issue of capital regulation and adequacy of equity capital (or optimal capital) to the front burner of international discourse. As usual, the debate on the propriety or otherwise of the new capital proposition (Basel III) is between the bankers (operators) and the regulators – the Central Banks and other regulatory bodies.

The paper will also review few empirical literatures on the impact of requiring banks to fund more of their operations through equity capital than debt (less leverage) and what level of equity capital will be considered optimal. As the paper is situated in the Nigerian context, we shall also show, using some performance indicators whether banks capital increases over the years have impacted positively on the banks and the economy.

## LITERATURE REVIEW

### Empirical Foundations on Bank Capital and Its Cost of Capital

The explanation to the meaning of "optimal capital in a banking system" has agitated the minds of regulators and practitioners for ages; and any explanation attempt will most likely require an analysis of the costs and benefits of having banks fund more of their assets with loss-absorbing capital - that is equity - rather than debt. According to Mills, et al (2011) the benefits come because a larger buffer of truly loss-absorbing capital reduces the chance of banking crises which, as both past history and recent global financial crisis show, generate substantial economic costs. The offset to any such benefits come in the form of potentially higher costs of intermediation of saving through the banking system; the cost of funding bank lending might rise as equity replaces debt and such costs can be expected to be reflected in a higher interest rate charged to those who borrow from banks. That in turn would tend to reduce the level of investment with potentially long lasting effects on the level of economic activity. Calibrating the size of these costs and benefits is important but far from being straightforward.

Setting capital requirements is a major policy issue for regulators - and ultimately governments - across the globe. The recently agreed Basel III framework expects banks to use more equity capital to finance their assets than was required under previous sets of rules. This has already triggered warnings from some, about the cost of requiring banks to use more equity (Institute for International Finance (2010) and Pandit (2010)). But measuring those costs requires careful consideration of a wide range of issues about how shifts in funding affect required rates of return and on how costs are influenced by the tax system; it also requires a clear distinction to be drawn between costs to individual institutions (private costs) and overall economic (or social) costs. And without a calculation of the benefits, banks use more equity (or capital) and less debt. No estimate of costs - however accurate - can tell us what the optimal level of bank capital is or expected to be. In calculating the cost and benefits of how banks use more equity and less debt, it is important to take account of a range of factors including:

- The extent to which the required return on debt and equity changes as funding structure changes.

- The extent to which changes in the average cost of bank funding brought about by shifts in the mix of funding reflect the tax treatment of debt and equity and the offsetting impact from any extra tax revenue received by government.
- The extent to which the chances of banking crisis decline as equity buffers rise - which depends greatly upon the distribution of shocks that affect the value of bank assets.
- The scale of the economic costs generated by banking sector problems (Barrell, et al, 2009).

As observed by Mills, et al (2011) few studies try to take account of all these factors; yet failure to do so means that conclusions about the appropriate level of bank capital are not likely to be reliable. It is important to remark that even proportionally large increases in bank capital are likely to result in a small long-run impact on the borrowing costs faced by bank customers. But substantially higher capital requirements could create very large benefits by reducing the probability of systematic banking crises. In the study, Mills, et al (2011) used data from shocks to incomes from a wide range of countries over a period of 200 years to assess the resilience of a banking system to these shocks and how equity capital protects against them. They found that the amount of equity funding that is likely to be desirable for banks to use is very much larger than banks have had in recent years and higher than targets agreed under the Basel III framework.

### **Capital Requirements and Regulatory Reform**

In the financial crisis that began in 2007, and which reached an extreme point in the Autumn of 2008, many highly leveraged banks found that their sources of funding dried up as fears over the scale of losses - relative to their capital - made potential lenders pull away from extending credit. The economic damage done by the fallout from, this banking crisis has been enormous; the recession that hit many developed economies in the wake of the financial crisis was exceptionally severe and the scale of government support to banks has been large and it was needed when fiscal deficits were already ballooning in most countries especially in Europe and United States (Eboh and Ogbu, 2010).

Such has been the scale of the damage from the banking crisis that there have been numerous proposals - some now partially implemented - for reforms of banking regulation. Proposals for banking reform broadly fall into two groups. The first group requires banks to use more equity funding (or capital) and to hold more liquid assets to withstand severe macroeconomic shocks. The second groups of proposals are often referred to as forms of "narrow banking." These proposals aim to protect essential banking functions and control (and

possibly eliminate) systematic risk within the financial sector by restricting the activities of banks (Eboh and Ogbu, 2010). But in an important sense proposals of both types can be seen to lie on a continuous spectrum. For example, "mutual fund banking" as advocated by Kotlikoff (2009) is equivalent to having banks to be completely equity funded (operate with a 100% capital ratio); while a pure "utility bank" of the sort advocated by Kay (2009) can be seen as equivalent to a bank with a 100% liquidity ratio. Measuring the cost and benefits of banks having very different balance sheets from what had become normal in the run up to the crisis is therefore central to evaluating different regulatory reforms.

The argument that balance sheets with very much higher levels of equity funding, and less debt, would mean that banks' funding costs would be much higher is widely believed. But there are at least two powerful reasons for being skeptical about it. According to Mills, et al (2011) in the UK and USA, economic performance was not obviously far worse, and spreads between reference rates of interest and the rates charged on bank loans were not obviously higher when banks made very much greater use of equity funding. This is *prima facie* evidence that much higher levels of bank capital do not cripple development, or seriously hinder the financing of investment. Conversely, there is little evidence that investment or the average (or potential) growth rate of the economy picked up as leverage moved sharply higher in recent decades.

The absence of any clear link between the cost of bank loans and the leverage of banks is also evident in the US. In the work by Mills, et al (2011) using US data on a measure of the spread charged by US banks on business loans over the yield on Treasury Bills, they show that the significant increase in leverage of the US banking sector over the twentieth century was not accompanied by a decrease in lending spreads; indeed the two series are mildly positively correlated so that as banks used less equity to finance lending, the spread between the rate charged on bank loans to companies and a reference rate actually increased. Of course, such a crude analysis does not take into account changes in banks asset quality or in the average maturity of loans. Nevertheless this evidence provides little support for claims that higher capital requirements imply a significantly higher cost of borrowing for firms.

The second reason for being skeptical that there is a strong positive link between banks using more equity and having a higher cost of funds is that the most straightforward and logically consistent model of the overall impact of higher equity capital (and less debt) on the total cost of finance of a company implies that the effect is zero. The Modigliani-Miller (MM) theorem implies that as more equity capital is used the volatility of the return on that equity falls, and the safety of the debt rises, so that the required rate of return on both sources of funds falls.

It does so in such a way that the weighted average cost of finance is unchanged (Modigliani and Miller, 1958).

From the foregoing, it is not self-evident that requiring banks to use more equity and less debt has to substantially increase their costs of funds and/or mean that they need to charge substantially more on loans to service the providers of their funds.

### **Bank Capital Regulation in Nigeria**

The prime regulatory body for financial institutions in Nigeria is the Central Bank of Nigeria. The Central Bank of Nigeria was established in 1958. Its principal objects are to: (i) issue legal tender currency in Nigeria; (ii) maintain external reserves to safeguard the international value of the Nigerian currency; (iii) promote monetary stability and a sound financial system in Nigeria; and (iv) act as banker and financial adviser to the Federal Government. The promotion of monetary stability is a prerequisite for a sound financial system, and indeed, for the economic development of any country (Ogowewo and Uche, 2006). Prior to its establishment, monetary activities were overseen by the West African Currency Board (WACB), which was established in 1912 with headquarters in London. The WACB was charged essentially to provide for and to control the supply of currency to the British West African Colonies, Protectorates and Trust Territories. Even though WACB was not a monetary authority in the strict sense of the word and has various limitations, the colonial government was reluctant to replace it with a central bank. According to Ogowewo and Uche (2006), the Bank of England feared that central banks in newly independent developing countries might be unable to adhere to sound principles of monetary system management, especially when exposed to political pressures. According to them, the Bank of England was in no doubt keen to avoid the mistakes of the past where several central banks collapsed in Europe in the early 20th century.

Eventually, with passage of time, it became obvious to the Bank of England that political independence and central banking were inexorably linked, it reluctantly conceded. The Bank of England, however, ensured that enough safeguards were put in place to prevent political interference and ensure monetary stability in post-independence of Nigeria. Specifically, it ensured that the Central Bank of Nigeria Ordinance, 1958, had explicit provisions limiting the ability of the Central Bank to expand the money supply. This was an important part of the architecture of Nigeria's monetary law. In this regard, the Central Bank of Nigeria Ordinance, 1958, provided that the value of the central bank reserve should, at least for a period of five years, be not less than the aggregate of an amount representing 60 per cent of the bank's notes and coins in circulation together with an amount representing 35 per cent of the Bank's other demand liabilities; after five years, such reserves should be not less than 40 per cent of the

aggregate of the Bank's notes and coins in circulation and other demand liabilities. With the passage of time, these restrictions were discarded and the Central Bank became progressively less inhibited in funding government deficits. The implication of this trend is the failure of the Central Bank to promote monetary stability in the country with dire consequences for the financial system in particular and the economy in general.

As further observed by Ogowewo and Uche (2006) "having failed in its primary responsibility to provide a sound macro-economic environment for economic activity including banking, the Central Bank has focused on banking supervision, albeit poorly, as if it were the panacea to the problem of banking instability." In this context, the regulation has tilted more towards bank capital regulation. In fact between 1952 till date, there have been over 13 episodes of bank capital increases. Although the first commercial bank was established in Nigeria in 1891, it was not until 1952 that the stipulated quantum of bank share capital became a regulatory tool. The initial banks that were operating in Nigeria in the late 19th century had extensive British links. At the time, the United Kingdom did not have any formal and elaborate structure of banking supervision as the regulation of banking in the UK began with informal controls by the Bank of England and was eventually placed on a statutory basis by the Banking Act 1879. Accordingly, from the onset there was no attempt to regulate banking in Nigeria. Most of the early foreign banks in Nigeria were established to cater for British trading interests and the banking needs of the colonial government. It was not their aim to service the indigenous people. This discriminatory attitude led to the emergence of indigenous banks. Most of these banks were poorly staffed, poorly capitalized and sometimes fraud infested. This made it difficult for the colonial administration to sustain a laissez-faire banking regulatory regime in the Nigerian colony. Mr. G.D. Paton of the Bank of England was therefore appointed to review the Nigerian banking system with a view to introducing regulation.

It was the Paton Report of 1948 that led to the enactment of the Banking Ordinance, 1952. On the issue of bank capital, the Ordinance stipulated a minimum share capital of £12,500. Existing banks were then given three years to meet the requirements of the Ordinance or cease to exist as banks. Within two years of the Ordinance taking effect, there were mass runs on most of the indigenous banks that had not met the set criteria. This led to the failure of 17 of these indigenous banks in 1953-54 alone. The fact that there was little integration between the foreign and indigenous banks helped quarantine the remaining part of the banking industry from any contagion amongst the indigenous banks. The colonial government gladly allowed the indigenous banks to perish. Since 1952, the level of bank share capital required by the Central Bank has continued to rise.

In 1958, the Banking Ordinance, 1952, was repealed. The new Banking Ordinance of 1958 raised the minimum share capital requirement for foreign banks from £100,000 to £200,000. The requirement for the indigenous banks remained unchanged. In practice, however, this had little effect on the Nigerian banking industry at the time as most of the foreign banks then in existence already had paid up capital above the recommended minimum. In 1962, the minimum share capital requirement for banks was again reviewed upwards: that for indigenous banks was raised to £250,000, while in the case of foreign banks, they were now required to retain in Nigeria funds equal to the minimum £250,000. A seven years grace period was allowed by the government for full compliance. Just as the seven years grace period was about to expire, a new banking decree - a law enacted by the then military dictatorship - repealed the Banking Ordinance of 1958. The Banking Decree, 1969, increased the share capital for indigenous banks to £300,000 and that for foreign banks to £750,000. The end result of all these increases was the exit of private indigenous banks from the Nigerian banking space. By 1969, all the indigenous banks that survived the 1953-54 crises had been taken over by regional/state governments. This was because share capital increases had made private indigenous participation in bank ownership difficult.

More capital increases were to follow especially after the introduction of Structural Adjustment Programme in 1986. One of the major planks of the Structural Adjustment Programme was the liberalization of the financial sector which saw to the proliferation of banks and other non-bank financial institutions. After just two years of the adoption of the Structural Adjustment Programme, the Central Bank had increased the minimum share capital base to 6 million for merchant banks and 10 million for commercial banks. This new capital base was not sustainable due to high level of inflation prevalent in the country and another increase was announced two years later. The new capitalization was 12 million and 20 million for merchant banks and commercial banks, respectively. By 1991, the Banks and Other Financial Institutions Decree (BOFID) repealed the Banking Decree of 1969. Again, the new Decree raised share capital to 40 million and 50 million for merchant banks and commercial banks, respectively. Once again, the fact that inflation had eroded the real value of the previous capital requirement was a major reason for the increase. By 1988, all commercial banks were required to have a share capital of N10 million while merchant banks were required to have a capital base of N6million.

Moreover, by 1997, all commercial banks were mandated to have a capital base of N500million. This was again increased to N1billion two years later in 1999. By 2004 there was further increase of banks capital to N2billion with a deadline of December 2005. But before this deadline, by 2005, it was increased by 1150 percent to N25billion. And finally in 2010 following

the abolition of the universal banking concept, banks were calibrated into three categories (International, National and Regional) with different capitalization requirements of N50billion, N25billion and N10billion respectively.

From the foregoing, it is evident that bank capital increases is a common regulatory tool in Nigeria. It is also evident that these increases have not succeeded in instilling stability in banking as the history of banking crisis in Nigeria will attest. It has rightly been argued that: "More capital does not necessarily mean more safety. Whether more capital decreases the risk of bankruptcy depends on what happens to the asset portfolio when the new capital is introduced. Furthermore, since capital is costly to raise (as compared say to pure debt), banks would be under pressure to generate higher returns from the additional capital, thereby forcing them to take on greater risks."

## METHODOLOGY

This research is an ex post facto research; hence all the data were sourced from secondary sources. To assess the impact of bank capital increases in Nigeria, the study reviews the impact of the 2005 bank capital increase on the performance of Nigerian banks. To achieve this, the study employed secondary data obtained from Nigeria Deposit Insurance Corporation (NDIC) annual reports of various issues. To test the significance of the 2005 recapitalization on bank performance, this study adopts a simple ratio analysis, using specifically profitability ratios to evaluate the performance of Banks, five years before the 2005 recapitalization exercise comparing it with the performance of the banks, five years after the recapitalization exercise. Also, a t-test statistic technique was further employed to test the equality of the means of the key profitability ratios of the pre and post 2005 key profitability ratios of banks. All the quoted banks were used for the study. We used the 2005 recapitalization as the base year, testing the performance of banks, five years before the 2005 recapitalization exercise and five years after the 2005 recapitalization exercise (2005 inclusive) to see the significance of that year's recapitalization exercise. A test of equality of mean using the t-test is to see if there is any significant difference in the mean of the pre and post ratios used. The ratios used are as stated below:

**Net Interest Margin:** This is calculated as interest income from loans and security investment less interest expense on deposit and other debt issues divided by total asset. This ratio measures how large a spread between interest revenues and interest costs; and the banks' management have been able to achieve by close control over earning assets and the pursuit of the cheapest sources of fund. *Net interest margin* is also known as "net yield on interest-earning

assets." The formula for net interest margin is:  $\text{Net Interest Margin} = (\text{Interest Received} - \text{Interest Paid}) / \text{Average Invested Assets}$ . Net interest margin is always expressed as a percentage. Assume John borrows \$1,000,000 and uses it to buy bonds of Company XYZ. The bonds pay 5% interest per year, or \$50,000. The interest rate on the loan is 3%, or \$30,000 per year. Using the formula above, John's net interest margin is:  $\text{Net Interest Margin} = (\$50,000 - \$30,000) / \$1,000,000 = 0.02$  or 2%. A positive net interest margin means the investment strategy pays more interest than it costs.

Conversely, if net interest margin is negative, it means the investment strategy costs more than it makes. Banks are keenly interested in their net interest margins because they lend at one rate and pay depositors at another. However, comparisons between net interest margins of different banks are not always useful because the nature of each bank's lending and deposit activities varies. Net interest margin is a measure of an investing strategy's success, especially when investors are attempting to "arbitrage" the market by borrowing at a rate that they believe is below what their potential returns will be.

**Yield on Earning Assets** - This represents the percentage of return that an institution is receiving on its earning assets. Earning assets include all assets that generate explicit interest income or lease receipts. It is typically measured by subtracting all non-earning assets, such as cash and due from banks, premises, equipment, and other assets from total assets. Earning Assets is calculated as  $\text{Earning Assets} = \text{Total Assets} - \text{Non Earning Assets}$ .

**Funding Cost** - This is the weighted average cost of capital for the industry.

**Return on Equity** - This is measured as net income after taxes divided by total equity capital. It measures the rate of return to the shareholder.

**Return on Asset** - This is defined as net income after taxes divided by total assets. This ratio is an indicator of managerial efficiency; it indicates how capable the management of the banks has been in converting the bank's assets into net earnings.

The data was limited in temporal scope to five years before and after the 2005 recapitalization exercise (2005 inclusive). The choice of the 2005 is very significant. The 2005 re-recapitalization exercise was the largest in Nigeria banking history. In that particular episode, existing and new banks were made to recapitalize from N2billion to N25billion.

## EMPIRICAL RESULTS AND DISCUSSIONS

Table I below shows the data used in carrying out the study. The table clearly highlights the pre and post situation for the various performance ratios of banks in Nigeria following five years before and after the 2005 recapitalization exercise.

Table I: Pre and Post Recapitalization Performance Evaluation Indicators for Nigerian Banks

Pre-Capitalization	Post Capitalization									
Indicators	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Net Interest Margin	14.88	9.12	10.47	7.71	10.21	9.53	9.87	8.42	6.77	8.02
Yield on Earning Assets	4.51	27.37	27.55	20.32	18.22	4.07	3.47	20.58	18.27	22.87
Funding Cost	8.09	9.47	13.05	9.63	9.66	10.7	12.7	11.32	11.01	10.34
Return on Equity	115.27	57.41	41.63	29.11	27.23	4.81	4.12	36.83	24.11	-9.28
Return on Assets	3.78	4.82	2.63	2.00	2.58	0.75	0.59	5.92	4.29	-64.72

Source: NDIC Annual Report, Various Years.

### Brief analyses of the indicators

**Net Interest Margin (NIM)** - There was a gradual fall in the NIM for post- recapitalization result. In 2002, it was 10.47, it dropped to 7.71 in 2003 and later pick up in 2004 to stand at 10.21. It started to fall again in 2005 and maintained a continuous decline post capitalization, standing at 8.02 in 2009. A higher NIM relative to the industry average implies how efficient the management has been able to keep the growth of interest income ahead of interest expenses. The result obtained indicates that banks management are still trying to get their bearings after the 2005 recapitalization exercise. Therefore, the result suggests that banks management have been less efficient after the recapitalization but a test of equality of mean will help us reach a better conclusion.

**Yield on Earning Assets (YEA)** - The YEA rose sharply from 4.51 in 2000 to 27.55 in 2002, later drop to 20.32 in 2003 and dropped further to 18.88 in 2004. It continued to drop even after the recapitalization exercise of 2005. It was 4.07 in 2005 but later dropped to 3.47 in 2006 before picking up again in 2007 to 20.58. This growth was not maintained as it dropped again to 18.27 in 2008. This result shows that the banks earned more income on their earning assets before the recapitalization exercise of 2005 than after the recapitalization.

**Funding Cost** - The funding cost (FC) rose from 9.47 in 2000 to 13.05 in 2002, and later fell to 9.63 in 2003 and 9.66 in 2004. It rose again to 10.7 in 2005 after the recapitalization and maintained a continued increase thereafter. This is quite expected as with every major

recapitalization exercise - there is an expected increase in funding cost as all the banks will be all out to meet the deadline. However, this was tapered off in 2007 and 2008 and was consistent with the industry average even before the recapitalization.

**Return on Equity (ROE)** - This index measures the rate of return to shareholders, was quite low after the recapitalization falling sharply from 99.45 in 2000 to 41.63 in 2002 and further to 29.11 and 27.23 in 2003 and 2004 respectively. It nose-dived to 4.81 in 2005 after the capitalization exercise and did not improve even thereafter, falling further to 4.12 in 2006 before picking up in 2007. The situation went from bad to worse in 2009 as there was a significant loss of -9.28 to shareholders. This shows that the shareholders receive very low returns in terms of dividend after the recapitalization. This is not surprising as most banks raise their fund through equity shares which now increase the equity capital and the profit after tax did not improve substantially to compensate the shareholder who added additional funds to finance the bank recapitalization.

**Return on Assets (ROA)** - This also fell from 3.78 in 2000 to 2.63 in 2002 and fell further to 2.00 in 2003. It picked up slightly to 2.58 in 2004 before falling again to 0.75 in 2005. Surprisingly, immediately after the recapitalization exercise in 2005, it fell to all-time low to 0.59 in 2006. This shows that management of the banks have not been able convert the banks' assets into net earnings after the recapitalization exercise.

### **Test of Equality of Mean**

To test the robustness of the result, we test for equality of mean. Test of Equality of mean helps to compare mean of a variable to see if there is any significant difference between the mean of a period compared with another period of the same variable to know in there is any significant difference in the two means compared.

Conventionally, where it is higher than .05 it means that they are not significant - implying that there is no difference between the two mean compared. But where it is less than .05 it means they are significant. The descriptive statistics shown in the Table II will offer a guide.

Table II: Descriptive Statistics

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std Deviation</b>
<b>Net Interest Margin:</b>					
Pre-2005	5	9.12	14.88	11.2700	2.92055
Post-2005	5	7.71	10.47	9.4633	1.52399
<b>Yield on Earning Asset:</b>					
Pre-2005	5	4.62	17.55	8.9367	7.45937
Post-2005	5	18.88	27.55	22.2500	4.64606
<b>Funding Cost:</b>					
Pre-2005	5	8.09	9.47	8.9933	.78271
Post-2005	5	9.63	13.5	10.7800	1.96593
<b>Return on Equity:</b>					
Pre-2005	5	80.59	99.45	88.7067	9.70049
Post-2005	5	27.23	41.63	32.6567	7.82778
<b>Return on Asset:</b>					
Pre-2005	5	3.96	4.52	4.2033	.28711
Post-2005	5	2.00	2.63	2.4033	.35019
Valid N (listwise)	5				

Table II shows that NIM pre recapitalization mean is higher at 11.27 than the post capitalization NIM mean at 9.4, but table III shows that the difference in the mean is not statistically significant. The implication of this is that there is no difference in the performance of the banks in respect of Net Interest Margin before and after 2005 recapitalization exercise.

On yield on Earning Asset, the pre 2005 recapitalization mean is 8.9 with a standard deviation of 7.4 while the post capitalization mean is 22.25 with a better standard deviation of 4.64 meaning that the figures are more aligned. The implication of the result is that in post-capitalization, the banks earning assets have higher yield after the 2005 recapitalization exercise. Table III also, shows that the difference in the pre and post mean is significant at 5% level which implies that statistically, there is a significant difference in the means of the two periods compared.

On funding cost, the pre-capitalization means shows 8.99 with a standard deviation of 0.78 while the post 2005 recapitalization mean shows 10.78 with a standard deviation of 1.96. The implication of this is that pre-capitalization funding cost is better than the post. However, table III shows that at 5% level there is no significant difference in the two means compared - meaning that it is not statistically significant. This implies that statistically, there is no difference in the means of the pre and the post funding cost. This is further illuminated in the descriptive analysis, which shows that the post capitalization funding cost is tending to the position of the bank during the pre 2005 recapitalization period.

Table III: T-Test Paired Sample Test

		<b>Mean</b>	<b>Std. Dev.</b>	<b>T</b>	<b>Df</b>	<b>5% Level</b>
Pair 1	Net Interest Margin- Pre 2005 Net Interest Margin- Post 2005	10.78	6.437	1.22	2	0.045
Pair 2	Yield on Earning Assets- Pre 2005 Yield on Earning Assets- Post 2005	28.11	9.256	3.22	2	0.018
Pair 3	Funding Cost- Pre 2005 Funding Cost- Post 2005	-6.17	2.569	-4.23	2	0.478
Pair 4	Return on Equity- Pre 2005 Return on Equity- Post 2005	210.06	25.55	12.44	2	0.012
Pair 5	Return on Asset- Pre 2005 Return on Asset- Post 2005	-37.36	4.654	-9.143	2	0.230

The return on equity result shows that the pre recapitalization mean starting from the year 2000 to the year 2009 is much higher at 270.65 (See appendix) and 9.7 standard deviation than the post recapitalization mean of 60.59 (See appendix) though it has a better standard deviation of 7.8. This implies that the shareholders earn better return on their investment before the recapitalization. In other words, the 2005 recapitalization has left shareholders worse off and this is likely to continue unless the banks are able to generate higher profit than they are currently doing. Moreover, the t-test also shows that the difference between the pre mean and the post mean, is significant at the 0.05 level of significance. This means that the shareholders are not earning as much as they were earning before 2005 recapitalization.

On return on asset, the trend is the same as in return on equity, the pre recapitalization mean is better than the post recapitalization mean and the t-test show that the difference between the two mean are significant at 0.05 significant level. This implies that the banks, after the 2005 recapitalization are not turning over their assets enough to generate more profit after tax.

On the aggregate, the study has shown from the analyses of the profitability indices of banks and test of equality of the pre and post mean for 2005 recapitalization exercise, that it is not all the time that recapitalization transforms into improved performance of the banks. The study has also shown that it takes more than mere capital (however large) to bring about profitability and stability in the banking system. From the foregoing, it is reasonable to argue that as banks recapitalize the economic environment has to be conducive to enable the banks make good profit and deepen the financial structure of the economy. It is also evident from the result that no amount of bank capital can be regarded as optimal for banking sector profitability and stability unless there is a conducive economic environment. This is where the several calls on the government to ensure macroeconomic stability in the country can hardly be over-emphasized.

## CONCLUSION AND RECOMMENDATIONS

Bank recapitalization is as good as a regulatory tool only if there is a conducive environment. Requesting banks to recapitalize every now and then without providing a sound macro-economic environment for economic activity including banking will amount to an exercise in futility. Nigerian banking history has provided us with an advantage of hindsight in this regard. Since 1952 when the first Banking Ordinance was enacted, there have been over 13 episodes of regulatory-induced bank recapitalization exercise in Nigeria – that is, a capital upward revision of every four years on the average, yet there have been as many banking crises as there has been bank recapitalization exercise in Nigeria. Indeed, the country's chequered banking history has provided a good ground to question the primacy often ascribed to capital by the Central Bank of Nigeria among the factors driving the solvency of banks. The Nigerian case has shown that high capitalization does not automatically translate to improved bank risk management. As remarked by Okafor (2011), in the process of tackling banking problem through capital infusion, the relevant issue is not the level of capital injected into the bank but rather the optimality of the investment portfolio mix generated from the capital base. This study conclusively has provided glaring evidence that bank regulators in Nigeria have relied rather heavily on bank recapitalization in tackling banking sector problem without any appreciable success. Our analysis has also shown that without a conducive and sound macroeconomic environment, the question of optimal bank capital will be a misnomer.

This research recommends for a study on the suitable macroeconomic environmental factors that would enhance bank performance alongside capital base. It also recommends that the Central Bank of Nigeria should rely less on bank recapitalization as a regulatory tool but should focus attention on ensuring macroeconomic and monetary stability to enable not only banking business but other businesses to thrive in the country. The government too has a role to play in providing necessary infrastructure to ensure that the cost of doing business in Nigeria is reduced significantly to enable the banks make good returns on shareholders' investment. The banks on their part should put in place good corporate governance that will allow for transparency and minimize the incidence of fraud in the banks.

## LIMITATIONS OF THE STUDY

This research employed data gathered based on time series of years 2000-2009 hence, like any other ex-post-facto research, no attempt to control the relevant data used; in like manner, it proved difficult to generate directly a detailed information from the banks concerned in terms of annual reports and accounts; equally, the period under study has been a harsh and threatening periods for the banking industry - period of recapitalization inclusive.

## REFERENCES

- Agbeja, O.(2013).Trend Analysis of the effect of Capital Base Requirement on Profit Generating Capacity and Operational Efficiency of Selected Commercial Banks in Nigeria. *Research Journal of Finance and Accounting*. Vol.4,No.17: 142-153
- Aikman, D. ,Haldine, A. and Nelson, B. (2010).Curbing the Credit Cycle. Speech at the Columbia University Center on Capitalism and Society Annual Conference, New york
- Auerbach, A. (2002). Taxation and Corporate Financial Policy, *American Economic Review*, Papers and Proceedings, Vol. 92, pp 67-178.
- Bank of England (2011). The Integration of the Financial Services Industry: Where Are the Efficiencies? *FEDS Paper*, No. 2000:36.
- Bank for International Settlement (2010a). An Assessment of the Long-term Economic Impact of Stronger Capital and Liquidity Requirements, *Basel Committee on Banking Supervision*, Bank for International Settlements.
- Bank for International Settlement (2010b). Assessing the Macroeconomic Impact on the Transition to Stronger Capital and Liquidity Requirements. *Basel Committee on Banking Supervision*, Bank for International Settlements.
- Barnes, S., Price, S. and Barriol (2008). The Elasticity of Substitution: Evidence from a UK Firm-level Data Set, *Bank of England Working Paper no 348*, April.
- Barrel, R., Davis, E., Fic, T., Holland, D., Kirby, S. and Liadze, I. (2009). Optimal Regulation of Bank Capital and Liquidity: How to Calibrate New International Standards, *FSA Occasional Paper 38*.
- Barro, R. (2006). Rare Disasters and Asset Markets in the Twentieth Century. *Quarterly Journal of Economics*, 2006, 121, No. 3.pp.823-866.Retrieved from [http://www.dash.harvard.edu/bitstream/handle/1/3208215/Barro\\_RareDisasters.pdf](http://www.dash.harvard.edu/bitstream/handle/1/3208215/Barro_RareDisasters.pdf).
- Calomiris, C. and Kahn, C. ( June 1991). The Role of Demandable Debt in Structuring Optimal Banking Arrangements, *The American Economic Review*, Vol. 81, No. 3.pp.497-513 Retrieved from <http://www.jstor.org/stable/2006515>
- Cheng, Y. and Green, C. (2008). Taxes and Capital Structure: A Study of European Companies, *The Manchester School*, Vol. 76 (S1), pp. 85-115.
- Desai, A., Fritz, F.C. and Hines, J. (2004). A Multinational Perspective on Capital Structure Choice and Internal Capital Market, *Journal of Finance*, Vol. 59, pp. 2451-2487.
- Eboh, E. and Ogbu, O. (2010). The Global Economic Crises and Nigeria – Learning the Right Lessons, African Institute for Applied Economics, Enugu, EI Demark Publishers.
- Gertler, K. and Queralto, S. ( September 2010). Financial Crises, Bank Risk Exposure and Government financial Policy *Working Paper*, Retrievedfrom: [http://www2.1se.ac.uk/fmg/events/conferences/2010/financialIntermediation\\_Dec2010/financialIntermediation\\_KiyotakiPaper.pdf](http://www2.1se.ac.uk/fmg/events/conferences/2010/financialIntermediation_Dec2010/financialIntermediation_KiyotakiPaper.pdf).
- Graham, R. J. ( winter 2003). Taxes and Corporate Finance: *A Review of Financial Studies*, Vol. 16No. 4, pp. 1075-1129.Oxford University Press
- Gurley, J.G. and Shaw, E.S. (1955). Financial Aspects of Economic Development, *American Economic Review*, 45, 515-38.Retrieved from <http://www.econbiz.de/Record/financial-aspects-of-economic-development-gurley-john/10002551903>.
- Imala, O.I. (2005). Challenges of Banking Sector Reforms and Bank Consolidation in Nigeria. *Bullion* 29(2). African Economic and Business Review Vol. 6, No. 1, Spring 2008. ISSN 1109-5609 © 2008. The African Education and Business Research Institute, Inc. 16.
- Institute for International Finance (2010). Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in Banking Regulatory Framework.

IMF Fiscal Affairs Department (2009). Debt Bias and other Distortions: Crisis-Related Issues in Tax Policy.

Jenkins, R. (2011). The Capital Conundrum ,Speech presented at the Annual Conference of the International Centre for Financial Regulation, Berlin.

Kashyap, K., Stein, J. and Hanson, S. (2010). An Analysis of the Impact of “Substantially Heightened” Capital Requirements on Large Financial Institutions, *Working Paper*.

Kay, J. (2009). Narrow Banking: The Reform of Banking Regulation, *Centre for the Study of Financial Innovation*.

Kotlikoff, L. (2010). Jimmy Stuart is Dead: Ending the World’s Ongoing Financial Plague with Limited Purpose Banking, Wiley Press.

Miles, D., Pillonca, V. and Baker, M. (2005). What should Equities and Bonds be Worth in a Risky World, Morgan Stanley Research Paper, September 2005.

Mills, D., Yong, J. and Morcheggiano, G. (2011). Optimal Bank Capital, *Discussion Paper No. 31*, Bank of England, External MPC Unit.

Modigliani, F. and Miller, M. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment, *American Economic Review* 48 (3): 261-297. Retrieved from <http://www.scribd.com/doc/53342031/1958-MODIGLIANI-MILER-cost-of-capital-Corporation-Finance#scribd>.

Ogowewo, T.I. and Uche, C.(2006). (Mis)Using Bank Share Capital as a Regulatory Tool TO Force Bank Consolidation in Nigeria. *Journal of African Law*, 50,2: 161-186

Okafor, F.O. (2011). *50 Years of Banking Sector Reforms in Nigeria (1960-2010): Past Lessons, Future Imperatives*, Enugu: Ezu Books Limited.

Pandit, V. (2010). We Must Rethink Basel, or Growth Will Suffer, *Financial Times*, 10 November 2010. External MPC Unit Discussion Paper No. 31, January 2011 41.

Reinhart, C.M. and Rogoff, C. (2009). This Time is Different: Eight Centuries of Financial Folly, Princeton University Press.

Smith, J. (2008). The Elusive Elasticity and the Ubiquitous Bias: Is Panel Data a Panacea, *Bank of England Working Paper*, Number 342, February.

Weichenrieder, A. and Klautke, T. (2008). Taxes and the Efficiency Costs of Capital Distortions, *CESifo Working Paper*, No. 2431.

## APPENDIX

### Bank Profitability Ratios

Year	Net Interest Margin (%)	Yield on Earning Asset (%)	Funding Cost (%)	Return on Equity (%)	Return on Asset (%)
2000	14.88	4.51	8.09	115.27	3.78
2001	9.12	27.37	9.47	57.41	4.82
2002	10.47	27.55	13.05	41.63	2.63
2003	7.71	20.32	9.63	29.11	2.00
2004	10.21	18.22	9.66	27.23	2.58
2005	9.53	4.07	10.7	4.81	0.75
2006	9.87	3.47	12.7	4.12	0.59
2007	8.42	20.58	11.32	36.83	5.92
2008	6.77	18.27	11.01	24.11	4.29

2009	8.02	22.87	10.34	-9.28	-64.72
Average Pre	53.39	97.97	49.90	270.65	15.81
Average Post	42.61	69.26	56.07	60.59	-53.17
Difference	10.78	28.71	-6.17	210.06	-37.36

Source: NDIC Annual Reports and Accounts (Various Years) Computation by Researchers.