

## THE IMPACT OF BANK CAPITALIZATION IN THE PERFORMANCE OF NIGERIAN BANKING INDUSTRY (1986-2006)

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### ABSTRACT

*This study investigates the impact of shareholders' fund on bank performance in the Nigerian deposit money banks (1986-2006). The study captured their performance indicators and employed cross sectional and time series of bank data obtained from Central Bank of Nigeria (CBN). The formulated models were estimated using ordinary least square regression method. The study identified a positive relationship between shareholders fund and bank loan. We also find that there is significant relationship between shareholders' fund and banks' liquidity, bank deposits, and bank loans. The efficiency of management measured by operating expenses is negatively related to return on capital. The implication of this study, among others, is that adequate shareholders fund can serve as a veritable stimulant in strengthening the performance of Nigeria deposit money banks and also heighten the confidence of customers especially in this era of global economic melt-down that has taken its toll in the Nigerian financial system.*

**Key words:** Buffer capital theory of capital adequacy, Deposit insurance theory, Expense theory, Central Bank of Nigeria.

**JEL classification:** E44, E5, G21.

### INTRODUCTION

The focus of this study is on Nigerian deposit money banks formerly called (commercial banks), and merchant banks which had been the target of recapitalization. With the implementation of Universal banking by the Central Bank of Nigeria (CBN) on January 2001 a level playing ground was created for all banks in Nigeria. The recapitalization policy is just one of about 13 issues announced in July 2004

by Central Bank of Nigeria (CBN) in order to sanitize the banking industry. Soludo, (2004) noted that the vision or prospect of the CBN and the Federal Government of Nigeria is a banking system that is part of the global change, and which is strong and reliable. It is a banking system which must be efficient, depositors can trust and investors can rely upon. Bank capitalization is the act of supplying long-term funds to a bank in order to place the bank on a good position to carry out the business of banking. Bank recapitalization is the act of beefing up the long-term capital of a bank to the level at least required by the monetary authorities and to ensure the security of shareholders fund (equity plus reserve).

On the other side, capital cannot perform without good management by those at the top echelon of the organization. Capitalization in this study refers to a number of variables of interest which are produced from the existence of funds for use in the process of intermediation. From these funds, obviously concepts such as Return on Capital (ROC) and Shareholders Fund (SHF) are derivatives from the use of funds. Management needs to employ the assets and capital of the bank judiciously for positive results. Absence of corporate governance has been attributed to the distress experienced in the banking industry in the past. The CBN Governor noted that the vision or prospect of the CBN and the Federal Government of Nigeria is a banking system that is part of the global change, and which is strong and reliable. It is a banking system which must be efficient, depositors can trust and investors can rely upon. This was the Consolidation era (2004- 2008). It was the era of "13-point Reform Agenda for Repositioning the CBN and the Financial System for the 21<sup>st</sup> Century". The issue of bank capitalization in most economies today has been how to resolve the problem of unsound bank, enhance efficient management of the banking system, provide better funding for banks lending activities, reduce non-performing loans and advances, increase profitability, reduce risk, to ensure quality asset management and to put banks in a strong liquid position to meet

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customers obligation at all times. For instance, the distress that was pervasive in the Nigerian banking system in the mid-1990's and early 2000 was due to amongst others, illiquidity in the banking system which led to the lost of customers confidence in the banking industry. The move by the CBN to raise the minimum paid up capital of banks to ₦25 billion in 2005 was aimed at strengthening the Nigerian banking industry. It is imperative that for banks to meet up the required level of capital for sound and safe banking. Capital adequacy is important for banks to absorb risks till banks are able to generate profit. However, banks that are able to exceed the capital requirement stand a better chance of luring customers and instilling confidence in the system. The Nigerian banking industry has been affected by inconsistent monetary policies, unstable macroeconomic variables such as exchange rate, interest rate and general inflation some of which have led to increase in prices of capital and consumer goods thus, lowering effective purchasing power of people and reduced aggregate demand. Like other sectors, this sub-sector is also faced with poor infrastructural facilities and poor performance of regulatory authorities. According to Ajekigbe (2009), from the classical and historical perspective, *"several factors led to the failure of banks between 1977 and earlier 2000. Some of the reasons advanced are poor asset quality, under capitalization, inexperienced personnel, illiquidity, inconsistent regulatory policies and supervision"*.

The evolving competition in the banking industry as a result of globalization has made it difficult for Nigerian banks to play their major role of financing economic activities arising from inadequate capital. Inadequate bank capital has led to a crisis of confidence in the banks to the extent that the original functions which is to support the volume, type and character of a bank's business, to provide for the possibilities of losses that may arise there from and to enable the bank to meet a reasonable credit need of the community have been eroded. Losses suffered by banks led to bank failure especially in the areas of lending. The soundness, safety and profitability of a bank affect the quality of its loan portfolio.

In the past, the Nigerian banking industry had been plagued with small size banks with low capital and high cost of operations. This

weakness inhibits bank management in the performance of its development roles in the economy, thus hindering the achievement of government objectives such as price stability, macroeconomic stability, provision of employment and increased output. It also affects the ability to compete effectively in the international market. Since the banking sector is the hub around which all other economic activities revolves, the health and prosperity of the bank is a major source of concern to Nigerians especially the regulators. According to the Governor of Central Bank of Nigeria cited in Egene (2009), of the ten (10) banks audited so far as at August 2009, the banks' balance sheets of five banks (Union bank, Finbank, Oceanic bank, Afrique bank and Intercontinental bank) had shrunken, shareholders' funds impaired and they now have liquidity problems. Their huge exposure to non-performing loans (margin loans) has affected the banks. These banks had spent length of time at the expanded discount window (EDW) introduced in September, 2008 by the apex bank. These five banks accounted for 90% of transactions at the EDW. The remaining banks accounted for 10%. According to the apex banks, these banks took money from the inter-bank to repay their exposure to the discount window. It is an indication that their balance sheets had shrunken. The management teams had acted in a manner that was detrimental to the interest of their depositors and creditors. According to the apex bank, the temporary capital injection of ₦420 billion into the banks in the form of Convertible Tier 11 Debt, is expected to be repaid to the CBN once the banks are recapitalized. Considering the fact that ownership of banks has moved from family to private, existing shareholders have not been informed how these funds would be converted when the bailout fund is fully repaid. The measure adopted by CBN to bail out the banks is adjudged as misuse of taxpayers' money and may eventually displace existing shareholders. The last few years have both been traumatic and revolutionary for the Nigerian banking system. According to Eke (1999): "Since the introduction of structural adjustment programme (SAP) and the deregulation of the nation's financial system, banking business has raised a variety of performance questions. Although some insured banks had recorded an appreciable increase in the volume of assets and deposits, their overall

financial condition had deteriorated tremendously". Performance indicators of banks such as capital adequacy, asset base, management capability, earnings (return on capital employed) and liquidity have been adversely affected while variants of bank performance such as bank deposit, bank loan, operating expenses have also deteriorated. Crisis of confidence has affected bank deposit mobilization and loan extension to customers. The situation is made worse by the adverse effect of macroeconomic variables such as exchange rate, interest rate and inflation. While there have been several studies on bank capitalization and performance very few of them have focused on bank capitalization and performance of the Nigerian banking industry. Several studies about bank capitalization exist in United Kingdom (UK), United States (US) and Asia, Africa, South Africa and Tunisia. However, the extent to which such research findings can be applied to Nigerian banking industry should be studied. Therefore, this study hopes to establish the relationship that exists between shareholders fund, bank deposit, bank loan and bank liquidity and macroeconomic variables. The empirical study that will be carried out on this study will fill the gap in the existing literature especially as it relates to variables that affects bank performance. Therefore, this study is an attempt to investigate the impact of shareholders fund on variants of bank performance in the Nigerian deposit money banks. The following dependent variables are used as indicators for gauging bank capitalization: return on capital (ROC) and shareholders fund (SHF). The questions being asked are: does capitalization reduce the operational expenses of the banks?. Increase capitalization reduces the operational risk and bank failure? To what extent does shareholders fund affect bank deposit, bank loan and liquidity? The objectives of this study are

- (i) To determine if bank capitalization has influenced the growth of bank deposit, bank loan and liquidity;
- (ii) The extent to which operation expenses have impacted on the return on capital;

- (iii) The extent to which macroeconomic variables such as interest, inflation and exchange rates have affected capitalization in the banks.

Section 1 above discusses the introduction; Section 2 examines the conceptual framework and literature while Section 3 discusses the method of analysis. Section 4 dwells on the estimation, model specification and discussion of results. Section 5 ends the paper with summary, findings and recommendations. We shall now proceed to examine some conceptual and theoretical underpinning of this paper.

## **THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

### **Buffer Theory of Capital Adequacy**

Banks may prefer to hold a 'buffer' of excess capital to reduce the probability of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile. Capital requirements constitute the main banking supervisory instrument in Nigeria. The Central Bank of Nigeria (CBN) intervenes little in banks' activities but does directly conduct on-site examination and at times delegating this task to external auditors. By contrast, a breach of the capital requirements is considered a major infringement of banking legislation and is not tolerated by the Central Bank of Nigeria (CBN). Banks remaining undercapitalized for prolonged periods are closed. The withdrawal of some banking licenses at the expiration of the recent recapitalization of banks in Nigeria in 2005 is a pointer to this fact. Banks will require more capital if deposits are not fully mobilize from the public. Capital is more reliable, dependable and can be used for long term planning. Ability of banks to mobilize enough deposits obviates the capital base from being eroded. The buffer theory of Calem and Rob (1996) predicts that a bank approaching the regulatory minimum capital ratio may have an incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirements. However, poorly capitalized banks may also be tempted to take more risk in the hope that higher expected returns will help them to increase their capital. This is one of the ways risks relating to lower

capital adequacy affects banking operations. In the event of bankruptcy of a bank, the risks are absorbed by the bank, customers and Nigeria Deposit Insurance Corporation (NDIC). At present NDIC pays a maximum of N200,000 to a customer in the event of bank failure. Hence, customers are concerned about capital position of banks at all time. Banks are expected to insure and pay 15/16 of customers deposit liabilities multiplied by 1% to NDIC to enable their customers benefit from the scheme. The above practice of NDIC in Nigeria is applicable to other countries but varies in amount.

In model 1 of this study, capital our dependent variable which is represented by shareholders fund (SHF) and explained by our buffer theory of capital adequacy helps us to test the propositions in hypothesis one. The higher the shareholders fund the better is bank liquidity and capital adequacy. The Deposit insurance scheme, which is compulsory in Nigeria, also exerts regulatory pressure on banks. In his study, Vojta (1980) opines that adequate capital provision against excess loss permits the bank to continue operations in periods of difficulty until a normal level of earning is restored. The benchmark set by regulators of bank capital sometimes differs from those of the bankers. These capital standards have led to questions on whether or not regulators have been able to bring about changes in bank capital when their standards of capital adequacy differed from those of bankers. Aggressive banks may try to extend the frontiers of "imprudent management policy" by operating with less capital base, often in violation of the regulatory guidelines. But the supervisory agencies usually stand their ground by resisting decline of capital to avoid bank failure with the concomitant high cost to the society.

### **Deposit Insurance Theory**

The deposit insurance theory also provides an insight into the behaviour of commercial banks (Flannery, 1989; Cham, Greenbaum and Thakor, 1992). In the context of this theory, banks are viewed as portfolio of risky claims. As insured banks increase their risk of failure without limit, there is an expected value transfer of wealth from government deposit Insurance Corporation to bank owners. Regulators are concerned about bank's soundness, particular with respect to solvency or the probability of

bank failure. Therefore, regulation of bank risks exposure is necessary to reduce the expected losses incurred by the deposit insurance corporation.

Deposits solicited from customers are not as dependable and reliable as the bank capital requirement. It cannot be used for long term planning. However, more deposits means banks can grant more loans and will not obviate the need for excessive capital. Where bank loans and advances are given out to customers without due process it might affect capital and liquidity position of a bank in the long run.

### **Expense Theory**

According to the expense theory of Williamson (1963) cited in Nyong (2001) otherwise called the theory of managerial discretion, managers have the option in pursuing policies, which maximize their own utility rather than profit maximization for shareholders. Such utility include the satisfaction which managers derive from certain types of expenditure. Managers' prestige, power and status are to some extent reflected in the amount of slack they receive in the form of expense account, luxurious offices and building, company cars and other perquisites of office. Operating efficiency attempts to capture this aspect of bank behaviour. Operating expenses captured by (EOM) is represented in model 2 as one of our control variables to explain the dependent/regressand that is return on capital (ROC). Operating expenses is derived from the use of resources and can have positive or negative implication on the dependent variable.

### **LITERATURE REVIEW**

Okazaki and Sawada (2006) investigated the effects of policy consolidation on the stability of the financial system. The study found that consolidations had a negative effect on ROA, which indicates that consolidations led to inefficiencies, and that this dominated the effect of increased market power, if any such increase occurred. The Nigerian Banker (2004) on 2004 monetary policy implementation observes that in fiscal 2004 and 2005 the CBN expected banks and other financial institutions to operate in such a way as to remain liquid at all times and avoid the spectre of overdrawn accounts and being sent of clearing. The CBN (2004) "rating of licensed banks using CAMEL parameters shows

that 10 banks were "sound", 51 were "satisfactory", 16 rated "marginal" while 10 were rated unsound as at the end of 2004. The report also showed deteriorating performance with 17 banks (18.89%) rated either marginal and /or unsound out of 90 banks in 2001, while 26 banks (29.89%) of the 87 banks in existence in 2004 rated either marginal and/or unsound. The marginal and unsound banks were considered to have exhibited such weaknesses as under-capitalization, illiquidity, weak/poor asset quality, poor rating", etc.

Nwude (2005) identified the imperatives for bank recapitalization in Nigeria to include too many banks with sizes being too small to support any sound banking business; stunted growth of the real sector arising from incapability of bank capital ratio and size to fund industrial development; high lending rate and shunning of real sector, and unprofessional and unethical practices. Others include the need to promote public confidence in the banking sector; curtailment of excessive risk taking by banks; reduction in the incidence of insolvency and distress and the need to dilute ownership structure giving rise to professionalism. All equity firms are characterized by greater liquidity positions than levered firms. Bank use a mix of debt but more of equity in their financing.

Some studies of the Nigerian banking industry have linked characteristics of individual bank companies to profitability. These studies include Nwosu and Nwosu (1998), Uche and Ehikwe (2001), Beck, Cull and Jerome (2005) and Brownbridge (2005). In the main, their studies link capital base (Nwosu and Nwosu, 1998), lending activities (Beck et al., 2005) and Brownbridge, 2005), information technology (Uche and Ehikwe, 2001), management quality (Nwosu and Nwosu, 1998) and Brownbridge, 2005) and Bank size (Brownbridge, 2005) to the profitability of banks in Nigeria. However, among all these studies, only Beck et al (2005) employed the intricacies of econometrics in deriving their conclusions. The majority of studies on bank performance, such as Short (1979), Bourke (1989), Molyneux and Thornton (1992), Demirguc-Kunt and Huizinga (2001), Goddard, Molyneux and Wilson (2004) and Athanasoglou, Brissimis and Delis (2005) use

linear models to estimate the impact of various factors that may be important in explaining bank performance. Aburime (2008) in his study of the determinants of bank profitability: company-level evidence from Nigeria; elicited his data from the public financial statement of an unbalanced panel (Athanasoglou et al., 2005 and Baltagi, 2001) of 33 commercial and merchant banks in 91 observations over the 200-2004 period.

Osinubi (2006) in his study of the effects of recapitalization on financial performance in selected banks 2001-2005, found that the asset quality of the Nigerian banking industry does not depend on its capital base. The study calculated the CAMEL ratios for each of the selected banks and relates these to their capital base. Data was collected on shareholders' fund, which constitutes the bank's capital base; data was also collected on the total asset, classified loans, Earning before interest Taxes (EBIT) and Gross Loans and Advances. Using the CAMEL indicators, the study found that the asset quality of the Nigerian banking industry does not depend on its capital base. However, the study shows that the more the capital base the higher the liquidity and capital adequacy of the banking industry. The return on assets also increases as the firm's capital base increases.

Empirical evidence from Naceur and Goaid (2001) indicate that the best performing banks are those who have maintained a high level of deposit accounts relative to their assets. Increasing the ratio of total deposits to total assets means increasing the funds available to use by the bank in different profitable ways such as investments and lending activities. The performance of commercial banks is influenced by a host of factors some of which are macroeconomic, institutional, regulatory and legal. Uchendu (1995) posited that in attempting to maximize profits; banks must do so under capital adequacy and liquidity considerations. He noted that the regulatory influences of monetary authorities include those on interest and exchange rates, bank reserves (indicating credit availability), labour costs or productivity. Yudistira (2003) in his study of bank capital requirement in Indonesia found that there is a strong positive relationship between bank capital and the growth rate of bank deposit.

Secondly, the results from the effect of deposits and loans showed that poor capitalized banks operated with low net worth relative to asset.

### **METHOD OF ANALYSIS**

This section tries to capture empirically the relationship between bank capitalization and performance. When we speak of bank capitalization we are referring to variables such as Return on Capital and Shareholders fund. Therefore, our equations looks at the extent to which these variables are brought into light or the realization is facilitated by the existence of what we generally referred to as adequate capitalization. Availability of funds facilitate ROC buoy up SHF. Thus, the kernel of this paper is to examine how bank capitalization and performance have been enhanced by bank consolidation. Further, the crux of this paper is to see how bank capitalization and consolidation in Nigeria make funds available for the realization of adequacy of capitalization and performance. Obviously, we can only look at a number of years given the fact that bank consolidation took place only three years ago. This is what makes it impossible to make use of time series analysis because we have only two years to seriously discuss issues. This is why the use of panel data is preferred in this exercise to time series analysis. Also, we have not used cross sectional data analysis in this paper because it is not possible to complete set of data on any bank for any particular year if only because merger has taken place randomly and banks have also come into existence randomly. The panel data methodology provides a useful answer to all these. Hence, the choice. This paper uses the econometric approach in estimating the effect and to be specific it uses the E-view software employing panel of data.

### **Population and Sample Size**

The population of this research is drawn from the Nigerian banking industry (deposit money banks) that is deposit-taking institutions. This is because they dominate the financial sector in terms of number and coverage. Despite the involvement of other financial institutions such as non-bank financial institutions - insurance companies, development banks, finance houses, etc -in the intermediation process, deposit money banks still control the major proportion

of the nation's deposits and savings. There were eighty-nine commercial banks in Nigeria before the 2005 bank recapitalization exercise and the number has been reduced to twenty-five banks after consolidation and to 24 (after merger of IBTC & Stanbic bank to Stanbic-IBTC) in 2008.

Of the twenty -four banks, four of them that is: Unity bank, Sterling bank, Spring and Skye banks are new creation of mega banks. A sample size of fourteen out of the twenty four commercial banks was employed in the study. The sample (of fourteen commercial banks) was drawn from both the old and new generation banks using the Stratified sampling technique based on simple random sampling supported by Judgment Sampling (See table 1). The selection process is restricted to banks quoted in the Nigerian Stock Exchange Daily official List (SEDOL).

#### **Insert table-1 here**

The sample drawn from the population was grouped into categories based on the size of their capital as at the 2006. The sample size consists of both old and new generation banks. Banks that commenced operation before 1988 are old generation banks while those that commenced operation from 1989 are new generation banks. Amongst others new generation banks started aggressive marketing a departure from armchair banking which old generation banks were noted. New generation banks also introduced new technology for efficient service delivery change. There is a modified sample size for banks in this study. Since this study is between 1986-2006, banks that are not quoted are eliminated because their data are not readily available. During the field work, it was observed that these banks had no data bank for their Annual financial statements. Hence, such banks are not considered. Thus in our sample size banks such as Nigerian International Bank, Standard Chartered Bank, Equatorial Trust bank that are not (listed) quoted were eliminated and this reduced our population of study to twenty-one. This represents 14/21 (67%) of the quoted banks in Nigeria.

The study analyses the data as contained in the financial report of 14 commercial banks out of the 24 banks operating in Nigeria as at the end of 2006, representing about 60% of the commercial banks and about 67% of the quoted banks. The bank data were obtained from CBN

Banking Supervision and Annual Reports, (2006-2007) and Annual financial Statements from various years of the selected banks for the years 1986 -2006 are used for the analysis. The end of the cut-off date represent just one year after the bank consolidation mandate of 2004 by the Central Bank of Nigeria which took effect on 31<sup>st</sup> December, 2005. The study of bank capitalization and performance thus covers the period from the structural adjustment program of 1986 to 2006. The period of 1986 was the beginning of bank deregulation and liberalization (more banks were licensed) while we projected from 2005 the commencement year of the study to a cut-off date of 2006 (one year after bank consolidation) when financial statements of banks are expected to be available. Audited bank financial statements most time fall in arrears. As stated earlier, this study employed the Stratified Sampling Technique. In stratified sampling, the population is categorized into groups that are distinctly different from each other on relevant variables. Each group is called stratum (plural strata). In applying stratified sampling, we categorized the population and stratified using bank capital (See table 1) above. In this study, the elements in a particular stratum are the same with respect to the relevant parameter (bank capital). The banks are grouped into stratum and were selected using simple random sampling supported by judgment sampling (non-probability) methods. Our table above shows that 11 banks (9 banks excluding non-quoted banks) fall into the frequency of bank capital between N25 < N34.9. This means that  $2/3$  multiplied 9 gives approximately 6 which were selected from the first stratum. The name of nine banks were written on a piece of paper, wrapped and put in a tray from where they were picked. The six out of the nine banks picked are Access bank, Fidelity bank, First Inland bank, Wema bank, Spring bank and Diamond bank. However, Spring bank was dropped because the data is only for one year (that is 2006) and would not be very useful. Using Judgment sampling an additional bank that is Afribank was selected to complete our simple random sampling of  $2/3 \times 9 = 6$  in the first stratum of N25 < N34.9 billion frequency. The remaining eight (8) out of the eleven banks were also selected by writing the names of the

banks on a piece of paper, wrapped and put in a tray from where they were picked. Our table above shows that of the 13 banks (12 banks excluding non-quoted banks) fall into the frequency of bank capital between N35 billion and above that is  $2/3$  multiplied 12 gives 8. The following banks were picked Oceanic bank, Guaranty Trust bank, Intercontinental bank, First bank of Nigeria, Union Bank of Nigeria, United Bank, Zenith and IBTC/Stanbic bank. At the of end of the selection process, 60% that is six (6) out of the nine (9) banks fall into the frequency of between N25 billion < N34.9 billion while 72% that is eight (8) banks out of the twelve (12) banks fall into the frequency of between N35 billion and above. The selection process picked 50% (seven) of the old generation banks and 50% (seven) of new generation banks (See table 1 above).

### **The Panel Data Method**

Instead of using time series data or a cross section of banks, this study looks at a panel data specification for individual banks. In Cross section analysis, data are collected across units of observation at a given point in time. For cross section unit we observe the same attribute on different people, geographical units, etc using same year. For example, one can collect data on total deposits of banks in say 2006. Here the variation is across the units, that is different banks and not for different years, say time. In Time series, data span across time a horizon usually on quarterly or yearly basis. An example is the total deposits of First Bank from 1986-2006 as could have been used in this study. In this case the variation is over time. Panel data or data set is a technique that combines the features of both time series and cross section methods. For example, total deposits of banks (one of our explanatory variables) in Nigeria from 1986-2006 as used in this study. Thus, panel data has the features of time series and cross section.

## **ESTIMATION, MODEL SPECIFICATION AND DISCUSSION OF RESULTS**

The ordinary least square method and multiple regression analysis will be used in estimating the impact of shareholders funds on performance of the Nigerian Commercial banks.

To test for the significance, reliability and validity of the result, F- statistic T-statistics, and their related probabilities, Coefficient of determination (R<sup>2</sup>), R bar, Durbin Waston (DW), Sum Square Residual (SSE), Standard Error (SE) of the explanatory variables and coefficient of determination R<sup>2</sup> are employed. The model will be estimated using annual data and the study will involve the use of multiple regression technique. Ordinary Least Square (OLS) using E-View package will be used in presentation of the result.

From the theoretical perspective, literature review and research questions the following hypotheses are postulated to justify our statement of problem and objectives of study.

H<sub>1</sub>: Shareholders fund has significant impact on banks' liquidity, bank loans and growth of bank deposits.

H<sub>0</sub>: Shareholders fund has no significant impact on banks' liquidity, bank loans and growth of bank deposits.

H<sub>1</sub>: Operation expenses has significant impact on return on capital.

H<sub>0</sub>: Operation expenses has no significant impact on return on capital.

Model 1 is represented as:

$$SHF = f(\text{Bank Deposit, Bank assets, Bank loans, Inflation, Interest, Expeans, Exch, LA, } \mu)$$

Equation 1

Restating the variables in equation 1 in explicit form, we can represent the model as follows:

$$SHF = a_0 + a_1 BD + a_2 BA + a_3 BL + a_4 Infl + \Delta Inr + a_6 Expean + a_7 Exch + a_8 LA + U_{it}$$

Equation 2

Where the a priori expectation is stated as  $\delta SHF / \delta BPM$

Where: Expected growth of bank deposits (BD), Bank Assets (BA), Bank Loans (BL),

Inflation rate (Inf), interest rate (Intr), Exchange rate (Exch) and Liquid assets (LA).

Bank Capitalization (SHF) is expected to be positively related to bank loan. Bank performance indices such as bank assets, bank deposits, liquid assets and bank loan (BA, BD, LA, and BL) should have a positive relationship with Shareholders Fund.

This is represented in equation form as:  $\delta SHF / \delta BPM > 0$

The results of the study on shareholders fund and bank performance are presented below in table 2; buffer theory of capital adequacy as generated by the computer. Model 1 has coefficient of determination (R<sup>2</sup>) of 0.975 and adjusted (R<sup>2</sup>) of 0.974. This shows that the regression has high explanatory power. The values (i.e R<sup>2</sup> and adjusted R<sup>2</sup>) indicate that over 97 percent of the variations in the dependent variables (shareholders fund) is attributable to the explanatory variables selected by the model and include Bank Deposit (BD), bank asset (BA), bank Loan (BL), Inflation (Infl), Interest (Intr), exchange rate, (Exch), Expean (OE) and Liquidity (LA). This high goodness of fit is further supported by the significant F-statistics, which is equally high. The implication of this is that the model is well specified and does not suffer mis-specification bias. In other words, the result from the model can be relied upon in making useful deductions with respect to return on assets. The S.E regression and Durbin-Watson statistics equally lend credence to the fact that there is no auto correlation. The financial implication of this regression will be explained in 4.1 below.

The results of the study on return on capital and bank performance are presented below in table 3 Model 2 is stated as:

$$ROC = f(\text{Bank deposit, Bank Asset, Bank Loan, Inflation, Interest, Expean, Exch, Liquid asset, } U_{it})$$

Equation 3

Restating the variables in equation 3 in explicit form, we can represent the model as follows:

$$ROC = a_0 + a_1 BD + a_2 BA + a_3 BL + a_4 Infl + \Delta Inr + a_6 Expean + a_7 Exch + a_8 LA + U_{it}$$

Equation 4

Model 2 has coefficient of determination (R<sup>2</sup>) of 0.9978 and adjusted (R<sup>2</sup>) of 0.9978. This shows that the regression has high explanatory power. The values (i.e R<sup>2</sup> and adjusted R<sup>2</sup>) indicate that over 99 percent of the variations in the dependent variables (return on capital) is attributable to the explanatory variables selected by the model and include Bank Deposit (BD), bank asset (BA), bank Loan (BL), Inflation (Infl), Interest (Intr), exchange rate, (Exch), Expean (OE) and Liquidity (LA). This high goodness of fit is further supported by the significant F-statistics, which is equally high. The implication of this is that the model is well specified and

does not suffer mis-specification bias. In other words, the result from the model can be relied upon in making useful deductions with respect to return on assets. The S.E regression and Durbin-Watson statistics equally lend credence to the fact that there is no auto correlation. The financial implications of this regression will be further explained in 4.1 that is result of hypotheses.

**Insert table-2 and 3 here**

The studies of bank capitalization and performance enables us provide answer to questions of macroeconomic variables such as (interest rate, exchange rate and inflation); if inadequate capital affects the Nigerian banks to compete effectively in the international market and play their major role of financing economic activities. It also provides answer to the soundness, safety, profitability, quality of loan portfolio, asset, and deposit in the Nigerian banking industry. The selection of bank management has not been taken seriously and the performance is a function of the inputs. The study also provides answer to the impact of cost of operation on bank capital. Our macroeconomic variables of interest rate, inflation and exchange rates have had no significant effect on Return on Capital (ROC). This is represented in model 2 of this study. Thus, it means that macro economic variables that is interest rate, inflation and exchange rates have not led to significant change on Return on Capital (ROC) one of the indicators of bank capitalization. Inflation rate, interest rate and exchange rate have negative association with return on capital. This implies that return on capital and inflation rate, interest rate and exchange rate move in opposite direction. The coefficient points to the fact a percentage increase of these macroeconomic variables will lead to about 66.2 in exchange rate, 163.0 inflation rate and 761.4 interest rate decrease in return on capital. As reported by Ige (2006) recent studies incorporating these variables indicated they could be statistically significant since they are more often than not at the mercy of the free market and not by government fiat. This does not conform to our a priori expectation that capitalization will be affected positively by interest rate, inflation and exchange rate.

Foreign exchange (forex) pricing mechanism (s) over the years has been an important macroeconomic variable in an open economy such as Nigeria. In an open economy we expect a flourishing banking sector now awash with capital fund to affect the external sector. Borrowing for the purchase of machines and raw materials from abroad should be expected as banks make more demand for forex at the periodic bidding using the Dutch Auction System (DAS). This will only drive up the exchange rate, causing the Naira to depreciate, posing an inverse relationship, and very little or no statistical significance. Interest rate and return on capital share a negative relationship, thus as interest rate rises, return on capital decreased during the period covered by this study. However, historically, we know that even when prime interest rate was falling it made no significant impact on the economy. Banks have not made concerted effort to transmit to the economy the benefit of lower interest rate. In the past excess money balances will normally go for purchase of foreign exchange from the CBN auction market for a premium in the foreign exchange parallel market. In this new era of mega banks, we expect bank management to have another look at their interest rate policy such that it will re-engineer and stimulate the growth of the economy. Inflation rate possesses an inverse relationship to return on capital, thus as inflation rises, return on capital during the period covered by the study falls. This conforms to a priori expectation. Where the economy is resting at a sub-optimal level, it requires government's fiscal policy or perhaps any external shock, a change in expectation (output) etc to boost aggregate demand and subsequently aggregate supply. An important tool to stem the tide of rising inflation in Nigeria is massive expenditure in infrastructure development.

**DISCUSSION OF HYPOTHESES**

Going to specifics and testing the stated hypotheses in our model which captures the buffer theory of capital adequacy, the result in the table 2 indicate that the hypothesis with null that there is no significant relationship between shareholders' fund and bank's liquidity is rejected at 1 percent level of significance. This is

because the probability value is far less than 0.01. Thus, the alternative hypothesis that there is a significant relationship between shareholders' fund and banks' liquidity is substantiated. This implies that banks capitalization (shareholders fund) and banks' liquidity move in opposite direction as reflected by the negative sign. This conforms to a priori expectation that bank shareholders' fund is affected positively by bank liquidity. This implies that bank capitalization requirement is very significant to bank health. In capital structure theory all equity firms are characterized by greater liquidity positions than levered firms and would embrace equity to finance real investment with positive net present value. However, banks use a mix of debt but more of equity in their equity financing to avoid seizure of the assets by creditors in the event of bankruptcy.

However, the nature of the results may not precisely explain the situation in Nigeria context because there are other real issues that needs to be explained. A good explanation may be found with management expertise, which presupposes that high capital requirement may not make significant impact to bank's liquidity and by extension profitability, if qualitative management is not in place to ensure effective and rewarding utilization of additional capital introduced. In other words a bank without good management, accountability and good governance culture may worsen the position it was before the injection of new funds. Hence, the use of regulatory tools by CBN to check illiquidity in the Nigerian banking industry. The period of 1990's and earlier 2000 in the Nigerian Banking Industry witnessed high rate of bank distress due to banks having reduction of the capital base which affected their liquidity ratio - ability to meet short term obligations of customers as they became due.

Another sub hypothesis was tested using the result in (table 2). From the result, the null hypothesis of no significant relationship between shareholders fund (SHF) and bank loans (BL) is rejected, which means that the alternative hypothesis that states a significant relationship between shareholders' fund (SHF) and bank loan (BL) is accepted. The result equally shows a positive relationship between shareholders fund and bank loans. In other words, a unit increase in bank loans will create

about 0.254 increase in the level of shareholders' fund. This conforms to theory that loans and advances represent the highest incomes item for banks. This also conforms to literature, that is, the higher the loans and advances portfolio the higher the shareholders' fund. However, this is subject to recovery of the loans and advances. The core business of banking which is credit involves financial intermediation manifested in the mobilization of deposit from the surpluses units and the passing on the funds sourced to the deficits (needed) units accordingly. The deposit is mobilized at a cost to the bank and this cost is often called interest. On the other hand, it is passed to the users who also pay interest though at a higher rates than the deposit rate. This presupposes that a bank must ensure proper management of its asset and liabilities, both in composition and utilization. Against the backdrop of the present competitive banking environment, the intermediation theory therefore requires that banks need to mobilize funds from the customers by engaging in aggressive marketing of financial services. This is very crucial for sustainability of banking business in this era of keen competition.

Another sub hypothesis one was also tested using the result in (table 2) and help to reject the null hypothesis of no significant relationship between bank capitalization based on the use of shareholders fund and bank deposit in favour of the alternative hypothesis. In addition, the negative sign indicates that they move in opposite direct. The coefficient points to the fact that a unit increase of bank's deposit will lead to about 0.156 decrease in shareholders' fund. This is contrary to our a priori expectation that capitalization based on the use of shareholders fund will positively influence bank deposit. According to the expense theory, Nyong (2001) opined that managers have the option in pursuing policies, which maximize their own utility rather than profit maximization for shareholders. Where managers prefer prestige, wrong loan application, power and status, it would be reflected in the amount of slack they receive in form of expense account, luxurious offices and building, company cars and other perquisites of office. This was the situation that led to the spate of bank distress in Nigerian banking Industry in the late 1980's, mid-1990 and early 2000.

The relevant result containing hypothesis 2 (two) are in table 3 in which return on capital (ROC) as reflected by profitability is stated as the dependent variable. This is represented in model 2 of the study. The result shows that the null hypothesis of no significant relationship between managerial efficiency and return of capital cannot be rejected at 10 percent level of significance. This is because the probability value of 0.171 is greater than 0.10. Thus, the operating efficiency, though it is positively related to return on capital, its impact is not significant in its influence. This does not conform to a priori expectation that efficiency of bank management measured by operating expenses is expected to be negatively related to ROC.

Wrong signs and/or significance or non-significance of the parameters does not necessarily imply that violation of a priori expectations is tantamount to poor empirical result. Rather one is led to ask the ultimate question whether in posterior and a priori expectations Nigerian commercial banks can be expected to utilize bank capital to the ends required by the shareholders and the economy. The real issue in Nigeria case has been that of mismanagement of funds which is aptly explained by our expense theory. A good explanation may be found with management expertise, which presupposes that high capital requirement as stipulated by the buffer theory of capital adequacy may not curtail reckless spending by managers who may indulge in reckless spending of bank capital. In other words a bank without good management may worsen the position it was before the injection of new funds. In the Pre and Post consolidation era in Nigerian banking industry what we have seen is bank management establishing more bogus bank branches everywhere rather using bank capital for worthwhile projects that will enhance shareholder wealth and the economy.

## **SUMMARY, FINDINGS AND RECOMMENDATIONS**

### **Summary of Findings**

This study has attempted to find the relationship between bank capitalization and performance in the Nigerian banking industry specifically commercial banks. Capitalization in

this study refers to a number of variables of interest which are produced from the existence of funds for use in the process of intermediation. From these funds, obviously concepts such as Return on Capital (ROC) and Shareholders Fund (SHF) are derivatives from the use of funds. In this research, SHF and ROC represent our dependent variables whereas our controlled independent variables are: bank assets, bank deposits, bank loan, liquid assets, operating expenses, macroeconomic variables such interest rate, exchange rate and inflation. Availability of funds facilitates return on capital. Further, the crux of this study is to see how bank capitalization in Nigeria make fund available for realization of adequacy of capitalization and performance.

### **Implications of Findings**

The analyses on table 2 shows the null hypothesis of no significant relationship between managerial efficiency and return on capital cannot be rejected at 10 percent level of significance. Thus, the operating efficiency, though it is positively related to return on capital, its impact is not significant in its influence. Perhaps the energy crisis in the Nigerian nation has had effect on adequacy of bank capital and consequently performance of banks. Operational expenses affected by absence of electricity, access roads has affected banking performance e.g overall profitability though the impact is not too significant. The positive and insignificant coefficient in our operating expenses, instead, suggests that banks are able to pass on most of the high overhead costs to customers through higher spreads in order to keep profits unaffected. To the extent that banks' ability to overcharge is a function of their market power, this outcome presents evidence of market power incidence in the banking sector.

Because of the rising cost of doing business the tendency is that interest rate on lending might continue to rise except it is controlled by government. We also find that there is significant relationship between shareholders' fund and banks' liquidity, bank deposits, and bank loans. This also conform to a priori expectation that bank capitalization will be affected positively by bank liquidity, bank

deposits and bank loans. The efficiency of management measured by operating expenses indice is negatively related to return on capital. Inflation rate, interest rate and exchange rate have negative association with return on capital. This implies that return on capital and inflation rate, interest rate and exchange rate move in opposite direction. Macroeconomic policies are important. Inflation reduces credit expansion by contributing to higher interest margins. Therefore, policies aimed at controlling inflation should be given priority in fostering financial intermediation. Fiscal and monetary policies designed to promote output stability and sustainable growth is good for financial intermediation.

When bank loans are profitably employed it will definitely lead to increase in profit and consequently shareholders fund. When banks are able to influence the other sectors in the economy through extension of loans, it would lead to multiplier effect in the long run, reduce inflation and appreciate the naira. Bank capital cannot on its own influence bank deposit as depicted by our result. There is no doubt that the days of armchair banking are over and intense competition in the Nigerian banking industry has come to stay. On the basis of the empirical findings of this study, and considering the fact that the days of armchair banking has been overtaken with the intense competition in the Nigerian banking industry, we recommend the following:

### Recommendations

- (i) A bank without good management (input) may worsen the position it was before the injection of new funds. Where managers prefer prestige, power and status, it would be reflected in the amount they receive in form of expense account and luxurious. Management capability should be better supported, for the best of assets can be overturned in short period by management. It is a known fact that CBN plays an important role in the selection of bank executives at the directorate level. The policy for the selection of this class of bank workers should emphasize strict consideration of good track records

and sequential growth phase through the ranks as some of the imperatives.

- (ii) Shareholders fund and total assets of the bank should be periodically evaluated.

The regulatory authorities will need to put in place appropriate machinery or tool that will address issues of bank liquidity and shore assets quality in the industry. Bank management in conjunction with the regulatory authorities should at all times address causes of illiquidity rather than the systems. In this way, lost confidence can once again be restored in the Nigerian banking industry. It is important to carry routine checks, periodic examinations on bank returns.

- (iii) We strongly suggest that apart from capital, technology, customer care, aggressive marketing and efficient service delivery are tools that can be used to attract more customers to shore up bank deposit. This will also help to reduce market concentration and also break the monopoly power of the big banks.

- (iv) Where there exists a viable financial infrastructures, bank management should lobby governments for the provision of an enabling environment for banks to strive. This will help to minimize the operation expenses (OE) of the banks.

- (v) Bank returns are affected by macroeconomic variables, suggesting that macroeconomic policies that promote low inflation rate, stable exchange rate, low interest rate and output growth will boost credit expansion. Government should provide an enabling environment and also control interest rate on credit in the short term to enable customers such as corporate bodies, manufacturers, and industrialists obtain loans in order to stimulate economic growth.

- (vi) The study identified a positive relationship between shareholders

- fund and bank loan. The higher the loans and advances, the higher the bank income; provided the credit facilities are recovered. In order to sustain this relationship, bank management should strengthen their supervisory units in credit administration, that is, from loan application to drawdown of such facilities so as to avoid bad loans in its financial statement.
- (vii) For Nigerian banks to be major players in domestic and international financial market, its capital must be kept above the minimum regulatory requirement at all times.
- (viii) Central Bank of Nigeria should ensure that bank management/managers apply customers deposit for worthwhile projects instead of using such for prefer prestige, wrong loan application, power and status, luxurious offices and building, company cars and other perquisites of office.

### **Limitations and Future Lines of Research**

This study is limited to deposit money banks in Nigeria whereas in the financial intermediation process, we have a gamut of non-bank financial institutions such as insurance companies, finance houses, investment companies, mutual trust fund/unit trust, development and specialized banks etc that are involved in funds mobilization. The impact of bank capitalization on performance for the entire Nigerian banking industry should be investigated to strengthen and confirm the results of our study. Secondly, in the course of the field work we observed that many banks do not have data bank for their annual financial statements and made it cumbersome to obtain data for this study. We also observed some inconsistency in annual financial statements of banks and that of the regulatory authority (Central Bank of Nigeria).

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**TABLE 1: POPULATION OF THE STUDY**

S/N	Name of Banks	Frequency of bank Capital	Bank Capital (N'Billion)	Remark
1	Access	Between N25 - N34.9 billion	28.8	
2	Bank PHB	"	28	
3	Fidelity	"	25.6	
4	FCMB	"	25.2	
5	ETB	"	28.4	N.O.B
6	First Inland	"	29.4	
7	Standard Chartered	"	26	N.O.B
8	Spring	"	25	
9	Afribank	"	26	
10	Wema	"	34.8	
11	Diamond	"	34.7	
12	GTB	Between N35 billion and above	36.4	
13	Sterling	"	35	
14	NIB	"	35.2	N.O.B
15	Oceanic	"	37.1	
16	Ecobank	"	35.3	
17	Skye	"	37.7	
18	Unity	"	35	
19	Intercontinental	"	53	
20	FBN	"	58.9	
21	Zenith	"	93	
22	UBA	"	47	
23	UBN	"	95.6	
24	IBTC/Stanbic	"	60	

Source: CBN Banking Supervision Annual Report 2006 and 2007

N.O.B = Non-Quoted Banks.

**TABLE 2: SHAREHOLDERS' FUND**

Dependent Variable: SHF

Included observations: 238

Excluded observations: 51 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BA	0.192667	0.040763	4.726561	0.0000
BD	-0.156447	0.039253	-3.985617	0.0001
BL	0.253775	0.042728	5.939253	0.0000
EXCH	-527.0022	862.1977	-0.611231	0.5417
INFL	1011.074	1950.858	0.518271	0.6048
INTR	1953.035	9590.197	0.203649	0.8388
LA	-0.160024	0.038151	-4.194481	0.0000
OE	-3.379571	4.565248	-0.740282	0.4599
C	-79658.81	248227.7	-0.320910	0.7486
R-squared	0.975007	Mean dependent var		477140.4
Adjusted R-squared	0.974134	S.D. dependent var		3287385.
S.E. of regression	528704.0	Akaike info criterion		29.23133
Sum squared resid	6.40E+13	Schwarz criterion		29.36263
Log likelihood	-3469.528	F-statistic		1116.715
Durbin-Watson stat	2.465165	Prob(F-statistic)		0.000000

Source: E-View Software Package: Computer Print Out

**TABLE 3: ROC (PROFIT)**

Dependent Variable :PT

Included observations: 238

Excluded observations: 51 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BA	0.023594	0.003308	7.133410	0.0000
BD	-0.023017	0.003185	-7.226430	0.0000
BL	0.032228	0.003467	9.295387	0.0000
EXCH	-66.20895	69.96019	-0.946380	0.3450
INFL	-163.0124	158.2960	-1.029795	0.3042
INTR	-761.4167	778.1650	-0.978477	0.3289
LA	0.066479	0.003096	21.47500	0.0000
OE	0.508664	0.370432	1.373165	0.1710
C	31328.88	20141.62	1.555430	0.1212
R-squared	0.997883	Mean dependent var		157309.1
Adjusted R-squared	0.997809	S.D. dependent var		916476.3
S.E. of regression	42899.94	Akaike info criterion		24.20821
Sum squared resid	4.21E+11	Schwarz criterion		24.33951
Log likelihood	-2871.777	F-statistic		13491.71
Durbin-Watson stat	1.973462	Prob(F-statistic)		0.000000

Source: E-View Software Package: Computer Print Out