

Capital Adequacy Measures and Bank Financial Performance in Nigeria: A Cointegration Analysis

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Abstract

This study is an empirical investigation of the impact of capital adequacy indicators (the ratio of shareholders fund to bank total deposit (SHF/BTD) and the ratio of shareholders fund to bank total assets (SHF/BTA)), on bank financial performance measures- net profit margin (NPM), earning per share (EPS) and return on assets (ROA) in Nigeria. The augmented Dickey-Fuller unit root test results indicated that the data series achieved stationarity after first differencing at the order 1 (1). The analysis revealed the existence of significant long run relationship between bank financial performance variables and capital adequacy indicators in the Nigerian banking industry. The granger causality test results reveal that there is unidirectional causality flowing from the ratio of shareholders fund to bank total assets (SHF/BTA). Causality also trickle from the ratio of shareholders fund to return on assets (ROA) in Nigerian banks. These suggest that capital adequacy strongly and actively stimulate and improve the financial performance of banks in Nigeria. The study recommends that bank managers should improve on the management of bank deposits and assets, introduce adequate short-term investment into the portfolio of banks in order to improve the financial performance of the banks.

Keywords: Capital adequacy, financial performance, Consolidation, Bank, co-integration.

1.0 Introduction

Capital adequacy in the financial sector and for banks in particular is a central issue of prudential regulation. This is so because the banking public are not in position to judge the safety and soundness of a bank or financial institution due to imperfect information and agency problems associated with the nature of the financial intermediation business. Hence, capital adequacy is aimed at ensuring that the banks are financially sound. Bank's capital may be defined as the value of its net assets (total assets minus total liabilities). Thus capital is the sum of the paid-up share capital and its accumulated capital reserves. Capital is crucial for the protection of bank depositors and for the building and maintenance of public confidence in banks' operations, and its long-term stability and growth. Capital adequacy involves setting minimum capital requirements for market risk in the books of banks and investment companies. This includes specifying standards, covering risk management and solvency ratio requirement (Girardone and Molyneux, 2006). Basel Accord (1988) as international standard of capital adequacy recognizes the ratio of capital funds to deposit and posit that a bank should have capital funds equal to at least 10% of its deposits liabilities. Conventionally, a bank statutory capital is considered as adequate if it is enough to cover customers' withdrawal needs and protect depositors against total or partial loss of deposits in the event of liquidation or losses sustained by the bank. Onuh (2002), Crosse and Hamsel (1980) posit that often times a bank statutory capital is considered as adequate if it is enough to cover the bank operational expenses, satisfy customer's withdrawal needs and protect depositors against total or partial loss of deposits in the event of liquidation or losses sustained by the bank.

Kishore(2005) and Pandey (2005) sees capital adequacy as the quantum of fund which a financial institution should have and plan to maintain in order to conduct its intermediation and investment business in a prudent manner. So, adequate capital is regarded as the amount of capital that can help banks to effectively discharge its primary function and provide the ultimate protection against insolvency arising from banking risk. Capital adequacy is conceptualized as the quantity or volume of funds (capital) that a bank maintains or planning to have in order to ease and facilitate its business operations and activities effectively and protect the bank against insolvency and failure. However, solvency is the ability of a bank to repay its obligations ultimately while liquidity is the ability of a bank to pay its obligations when they fall due (Casu, Girardone and Molyneux, 2006). Akintoye and Somoye (2008) opine that adequate capital represent the least amount necessary to inspire and sustain confidence in the banks, keep it open and operating so that time and earning can absorb losses without liquidation and enable the banking industry to take full advantage of its profitable growth opportunities. According to CAMEL approach to evaluating capital adequacy of banks and determining their soundness and safety, the ratio of shareholders' fund to total Asset are cardinals (Gunsel, 2007). This ratio is a measure of

the financial strength of a bank and reflects or represents the ability of the bank to absorb the unanticipated losses. This ratio is purported to have positive relationship with the sound financial performance of banks. This suggests that, for banks to perform its intermediation and investment function optimally, the financial performance must learn to react or respond appropriately to the dictates of its capital adequacy measures. Two measures of the indicators capital adequacy: The ratios of capital/shareholders' fund to deposit and the ratio of shareholders' fund to Asset are cardinal for our purpose. The manner of the financial performance reaction is a function of the magnitude and direction of the effects of the prudential regulations, reforms and capital adequacy measures at play in the banking industry. This manner is what this study terms financial performance response to capital adequacy stimuli. For the purpose of this research work, we are concerned with the forces, actions, stimulations, originating from capital adequacy measures that bring about corresponding reaction by the financial performance of banks.

Banks are financial intermediaries that offer loans and deposits, payment and services as well as a wide range of other and additional services. In doing so, they channel funds from savers to borrowers or investors thereby; increasing economic efficiency by promoting better allocation of resources (funds). These demand that they have adequate capital in order to maximize the attendant financial benefits. In order to chart present and future policy paths for the banks' financial performance response to capital adequacy stimuli, it is necessary to investigate the behavior of important financial performance indicators such as net profit margin, earning per share in the light of the effects of capital adequacy forces or prudential regulation that rule the banking industry. Financial Performance is an assessment of the financial condition or profitability of a bank in order to gain valuable insight into the health of the bank using an index that relates two pieces of financial data by dividing one quantity by the other (called financial ratios). Some previous studies have attempted to show that capital adequacy measures indeed influence the financial performance variables of businesses in general and banks in particular. While they seem to agree on the significant global effect of adequate capital on business performance, there appear to be disagreements in respect of the relative effects on the financial performance of banks in Nigeria. For instance, Onaolapo and Olufemi (2012) study, reveal that capital adequacy ratio did not affect the profitability of banks represented by return on Assets, return on capital employed, and percentage growth of profit before tax. This implies that the various review of the capital base of the banking sector have not improved the profitability of the banks.

In a latter study that modified slightly the data make-up of the correlates and adjusted the number of observations, the findings show that capital adequacy proxied by shareholders' fund exert positive influence on banks' profit, total assets, total deposits, return on assets, earning per share, loans and advances and credit risk, although not all were statistically significant. It was discovered that the share capital were very small compared to the value of deposits and total assets. The authors suggested that the regulatory bodies should not rely solely on the current capital base of N25 billion for a good bank performance but should focus on efficient and effective bank management supervision and examination (Ezike and Oke, 2013). From the foregoing, the effect of capital adequacy on bank financial performance seems inconclusive. The findings of previous studies concerning the nature of relationship between capital adequacy and the performance indicators of banks have been inconsistent. As such, the controversy surrounding the nature of the relationship between the proxies of capital adequacy and financial performance of banks constitute a research burden worthy of investigation. An additional problem is the controversy as to the appropriateness of the methods adapted in previous studies mostly as they concern the choice of variables and the adequacy of the models specified and research design used. However, there is the need to employ fitting empirical methods that will use the more appropriate variables, data, model and analytical tools.

To determine whether it can be said with consistency that getting enough capital can impact positively and significantly on the financial performance of Banks in Nigeria is a cardinal issue that this study seeks to address. The basic question is: To what extent are changes in the ratio of share holders' fund to deposits and the ratio of shareholders' fund to Assets important in explaining changes in Return on Assets, net profit margin and earning per share in Banks? This is because bank consolidation in Nigeria was aimed at increasing the capital base of banks so as to build strong, efficient and vibrant banks that can complete with other banks in the global financial market. It was also targeted at increasing soundness, stability and public confidence through robust and growing financial performance. The question as to whether or not the capital provided is adequate and can achieve the nominated objective of boosting or improving the financial performance of banks in Nigeria remain a subject of debate in finance literature. Unlike the earlier studies by the authors, this research attempt to investigate the critical behavioral patterns of bank financial performance in response to stimuli provided by the various capital adequacy measures in Nigeria. The logical point of departure is to determine the impact of the ratio of shareholders' fund to deposit, and the ratio of shareholders' fund to Asset, on bank financial

performance ratios- Return on Assets, net profit margin and earning per share. The findings of this study will be of great use to regulators and financial analysts alike. This paper is organized as follows: Section 2 discusses the theoretical issues and reviewed related empirical literature, section 3 describes the method of the study while section 4 reports the empirical results. Section 5 concludes this study.

2.1 The Concept of Capital Adequacy and Theoretical Postulates

Capital can be defined as the sum of the bank's paid-up share capital and its accumulated capital reserves. This capital is important for the protection of bank depositors and for the maintenance of public confidence in the operations of the bank as well as the underpinning of banks stability and performance. However, from the stand point of the bank, higher capital means lower returns for equity holders but regulators view capital as a necessary buffer to absorb possible losses before such losses will be charged against deposits. Capital can be regulatory or economic capital. Regulatory capital is the amount of capital required by regulators (domestic and international) or considered adequate to ensure a safe and sound banking system. Economic capital is the capital that a bank believes it should hold to cover the risk it is undertaking while performing its intermediation and investment functions. The Basel capital accords envisages that the higher the risk of loss, the higher the qualifying capital base of banks to maintain the stipulated capital adequacy ratio (Casu, Girardone and Molyneux, 2006).

In line with the Basel prescriptions, the Central Bank of Nigeria (CBN) in its "Guidance Notes on the Calculation of Capital Requirement for Operational Risk Basic Indicator Approach (BIA) and the Standardized Approach (TSA)" directs that the management of operational risks be the sole responsibility of the board and management of banks. As such, the board and senior management are to establish the general framework of the system. They are also responsible for its implementation, supervision of its operation and verification of its overall functionality and compliance with regulatory requirements as it relate to capital adequacy. Furthermore, bank board and senior management have the specific responsibility for identifying and measuring loss events and the quantum of capital that can help mitigate against such risk. They are also expected to identify the various forms and manner in which operational risks may materialize as well as assessing the operational risks associated with the introduction of new products, activities, processes and systems (Casu, Girardone and Molyneux, 2006). These are abstractions from Basel 11 Pillar 11 (2004) which seeks to "compel banks to do the job of analyzing risk and adopting adequate capital to mitigate it". Pillar 11, according to Bank of International Settlement is a regulatory review process intended to assist bank supervisors in analyzing risk and introducing adequate capital approach to managing risk with the addition of two new pillars that increase oversight and decrease reliance on Pillar 1 – the capital-to-asset ratio (Casu, Girardone and Molyneux, 2006).

No doubt the Nigerian banking industry has over the years been transformed sequel to eminent role of the Central Bank of Nigeria (CBN) in the reformation and the design of regulatory framework to monitor the performance and operation of banks. This was pertinent owing to the vulnerability of the banks due to systemic distress and often outright failure that characterize banks operations. Kama, (2006) opine that the ability of the financial sub sector to play its role has been periodically punctuated by its vulnerability to systemic distress and macro-economic volatility, and policy fine tuning inevitability. Though the consolidation and banking sector reforms has become a global economic phenomenon, in Nigeria it is aim at liberalizing banking business, stem competition and endear confidence and stability of the banking market. However, it suffice to say if the reforms by way of capitalization and consolidation of banks in Nigeria have actually have impact on the overall financial performance of the banks. Essien, (2012) state that the financial reforms were focused on the liberalization of banking business; ensuring competition and safety of the system; and proactively positioning the industry to perform the role of financial intermediation and playing a catalytic role in economic development.

The hallmark of banking sector reforms is predicated on the systemic distress and failure of banks in Nigeria as a result of high undercapitalization, weak management and corporate governance and the need to review the regulatory and supervisory framework in banking sector operations. The CBN's intervention and the quest for the financial sector reforms are pertinent due to volatility and undercapitalization of banks. Banks capital serves as both buffer and as a disincentive to excessive risk taking (Oladejo and Oladipolu, 2011). Capital is an essential and critical factor in the corporate existence and perpetual continuity of banking institution as a going concern. This is because adequate capital adequacy will propel the bank towards diversification of its portfolios and business risk. The need for suitable capital structure and sufficient Capital Adequacy requirement is felt and paramount (Raghavan, 2004). Consolidation of the banking sector continues to be important and sound vehicle for Corporate Growth and Productivity. The banking sector consolidation exercise and minimum capital regulatory framework in 2005 by the Central Bank of Nigeria (CBN), compel banks to recapitalize to twenty-

five billion naira minimum requirement. Athanasoglou et al (2005) argues that a minimum capital is required to ensure safety and soundness of the bank and also to build trust and confidence of the customers. A bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses thus achieving increased profitability. Banks and financial institutions holds capital basically because they are required and authorized to do so by the regulatory authorities whereas banks capital structure is supposed to be determined by the operational activities, investment drive, size of portfolio, financial intermediation role , level of risk and the cost of capital etc.

Oladejo and Oladipupo, (2011) opine that Capital adequacy is regarded as the amount of capital that can effectively discharge the primary function of preventing banking industries failure by absorbing losses. The Nigerian banking sector over the years was saturated with many banks that were undercapitalized, poor managerial acumen, liquidity problem, and absolute absence of confidence by the banking public and hostile competition. It is the quantum of fund which a financial institution should have and plan to maintain in order to conduct its business in a prudent manner (Kishore, 2007). Capital adequacy is the amount of capital that is needed by a financial institution of a country that will ensure smooth business operation and to meet the demands and banking needs and markets. Capital requirement differs from country to country but the essence is aim at maintaining a required capital level that will guarantee confidence and protect depositors fund and stem the fragility and volatility of the banking sector. However, such capital requirement should not be arbitrary determined in a manner that will stifle banking performance. Marcussen,(2005) stress that regulation may promote and stifle business performance.

John, and Oke, (2013) mentioned that capital adequacy is a conception that results from the idea of rearranging the existing capital structure of banks in order to restructure the banking industry against widespread distress. Adequate capital is the life wire of any business and creates better standard for any business establishment. A better management of capital is a sine qua non for effective bank performance in terms of meeting the operational dynamics, diversification and strategically position the bank for effective and efficient performance. Onaolapo and Adebayo (2012) stress that capital adequacy management among its other significances is designed to provide cushion for absorbing operational losses; afford some measure of shareholders confidence and reveals the bank's ability to finance its capital project as well as ensure some level of protection for depositors. It is a strategic measure aim at stabilizing the financial health operation of banks against the prevailing incidence of sectoral distress in the banking industry. Capital adequacy is practically aim at curtailing the eminent distress and collapse of banks as a result of managerial and capital inadequacies that greeted the Nigerian banking sector before and after the banking sector consolidation exercise of 2005. Uche (1998), reported in Ikpefan (2013) posits that the more capital a bank has, the more resistant it will be to failure.

Adequate capitalization as Umoh (1991) puts it is an important veritable tool in business and it is more so in the business of using other peoples monies such as banking services. This is pertinent because adequate capital can directly or automatically influences the amount of funds available for loans, which invariably affects the level and degree of risk absorption (John, and Oke, 2013). By extension, this might impede on the bank performance in terms of profitability and liquidity. However, a financial institutions statutory capital is only adequate to the extend for which it caters for the routine operational expenses, meet timely customers withdrawal needs and serve as a financial shield that protect depositors and creditors against losses or in the eventual liquidation of the bank. Ebhodaghe, (1991) defines capital adequacy as a situation where the adjusted capital of the bank is sufficient to absorb all losses and cover fixed assets of the bank leaving a comfortable surplus for the current operation and future expansion. Inadequate capital has lead to the sudden collapse of banks and prior to the 2005 consolidation; the incessant level of bank failure was systemic and endemic in Nigeria. Challenge by this prevalent cases of bank collapse and the need for bringing about a robust banking system that is secure, safe, and transparent and guarantee depositors fund and drive economic development, several reforms agenda have taken place in the past but have not yield the desire purpose.

The importance of capital regulation in the banking sector cannot be overemphasized. This is pertinent because banks capital structure remain a central issue in the determination of the soundness and safety net of any bank. It can in fact be said that the ultimate strength of a bank lies in its capital funds given its significance as a tool for meeting liabilities in a financial crisis and as a cushion for insulating a bank from the vagaries of the market adversity (Onaolapo and Adebayo, 2012). Okereke (2003), opine that capital adequacy measures the availability of sufficient capital funds to cover or protect depositors fund with banks. However, in its resilient bid to restructure the Nigerian banking Industry to meet the global challenge, endear competition, soundness and financial stability and stem crises that have continue to permeate global banking activities, the CBN reforms were targeted at institutionalizing robust capital regulatory framework that will measure the financial strength of

banks and boast their financial performance. Capital adequacy measure the financial strength of a bank, usually express as a ratio of shareholders fund to total assets (Kolade, 2012). The crux of banks maintaining a minimum adequate capital model is to evaluate the capital adequacy pattern that will aid the banks and policy makers in the formulation and implementation of strategic decisions and policies that promote economic development and enhance the securitization and profitability of banking operations.

(a) Capital Adequacy and the Basel Accord

The Basle capital accord (also known as BASLE 1), the current international framework for capital adequacy, was adopted in 1988 by a group of central bank and other national supervisory authorities, working through the Basle committee on banking supervision. The primary aim was to enhance the soundness and stability of global banking practices and guarantee equal participation and competition among banks. The capital adequacy standard of the Bank for International Settlement (BIS) stipulates that banks must maintain a minimum capital that is equal to 8% of its assets. It view capital adequacy as a veritable means of evaluating the strength, weakness and the future prospects of the equity net worth of banks by way of earnings and profitability. Worried with the spate of banking system globally and in a clear bid to enhance the performance of banks, the Basle framework requires that banks have available as regulatory capital (equity, loan-loss reserves, subordinated debt and other acceptable bank instruments) of at least 8% of the value of its risk-weighted assets (loans and securities) and assets equivalent off-balance sheet exposures such as loans commitments, standby letters of credit, obligations on derivatives contracts (FRB 2003). In determining the bank's assets, different types of assets of the bank are weighted base on their risk elements and the off-balance sheet exposures are readily converted to its equivalent value of asset and weighted according to the type of asset. Notably, while banks commercial loans are weighted at 100% owing to the risk factors, housing loan is weighted at 50% because they are less risky.

In determining the minimum capital that is required by banks to function effectively and meet its primary role of financial intermediation, the bank's total risk weighted assets are multiplied by the 8%. The Basle Accord has hitherto witnessed several amendments with the recent been Basle 111 approve in January 2013 with the focus of strengthening the regulatory capital framework for large, internationally active banking organizations through minimum banking requirement that are more sensitive to an institution's risk profile and that reinforce incentives for strong risk management. Basel III comprises of a new set of comprehensive reforms measures (particularly as it relates to banks liquidity and capital) strategically advanced by the Basel Committee on the supervision of banks, to strengthen the supervisory framework, regulation and risk management of the banking industry. Basel III is predicated on liquidity coverage ratio and liquidity risk monitoring tools which are geared towards improving the banking sector's ability to absorb shocks arising from financial and economic distress improve risk management and governance and strengthen banks' transparency and disclosures. According to FRB, 2003 the major objective of the reforms are

- To improve risk measurement and management.
- To increase the transparency of bank risk taking to the customer and counterparties that ultimately funds and hence share these risk positions.
- To link, to the extent possible, the amount of required capital to the risk taken.
- To further focus the supervisor-bank dialogue on the measurement and management and connection between risk and capital.

The Nigerian banking sector since inceptions, have witness several regulatory imperatives by the regulatory agencies on the review of the minimum capital requirement by banks. In line with the Basle Accord quest for the promotion of financial stability and soundness of banks, the CBN have progressively increase the minimum capital of indigenous bank and expatriate banks from 25,000 and 200,000 respectively in 1952 to 600,000 and 1,050,000 in 1962. John and Oke (2013) state that the minimum paid-up capital of banks before 1991 was ₦20 million and by the provision of section 9(2) of Bank and Other Financial Institution Degree (BOFID), the minimum start-up capital rose to ₦50 million, and in the 1997 budget it was increased to ₦500 million for both merchant and commercial banks. The consolidation of the banking industry by the CBN during Professor Soludo Chukwuma in 2004 increase the minimum capital base of deposit money banks from ₦2 billion to ₦25 billion. This was done pertinent to the prevalent rate of bank distress, financial instability and the economic need to strategically reposition the financial sector (banks) to be sound, robust and active financial warehouse that will drive economic development and growth in the Nigerian economy and global arena. Presently, major world develop and developing economies have implemented the Basle Accord including Nigeria. By policy implication, it is germane to enunciate unequivocally that the Basle Accord has greater impact on the historic aspect of banking sector recapitalization and consolidation reforms in Nigeria.

2.2 Theoretical Postulates

The essence of committing capital into banking business ventures are geared towards earning profit. Over the years some theories of capitalization and profit have emerge and some are discussed below;

(a) Earnings Theory of Capitalization

The earnings theory of capitalization recognizes the fact that the true value (capitalization) of an enterprise depends upon its earning capacity. According to this theory, the value or capitalization of a company is equal to the capitalization value of its estimated earnings. For this purpose, a new company has to prepare an estimated profit and loss account. For the first few years of its existence, the sales are forecast and the manager has to depend upon his experience for determining the probable cost. The earnings so estimated may be compared with the actual earnings of similar companies in the industry and the necessary adjustments should be made. The promoters will study the rate at which other companies in the same industry similarly situate their earnings. The rate is then applied to the estimated earnings of the company for finding out the capitalization (Webb et al, 2002). The earnings basis for capitalization has the merit of valuing a company at an amount which is directly related to its earning capacity. A company is worth what it is able to earn, but cannot at the same time be denied that new companies will find it difficult, and even risky to depend merely on the estimate of their earnings as the generally expected return in an industry.

(b) Dynamic Theory of Profits

Prof, J.B. Clark develops the dynamic theory of profits. According to him profit mount up in business due to the dynamics of the business environment. Hence the dynamics of nature breeds uncertainty in the future, any business venture that is predicated on the future involves risk. Thus if profit is the reward for risk taking/uncertainty, the creativity and ability of the managers to effect changes that meet the dynamics of the business environment will definitely stems performance (profitability). Patel, (2010), identify changes in trends of people and change in stock of capital as major influence of ever changing banking sector. Thus a business environment where the above factors are, the future is predictable and risk disappears. Major criticism of the dynamic theory is that not all profits are due to the dynamics of the business environment..

(c) Wages Theory of Profits

Patel (2010) explain that the services of the entrepreneur are also classified as labour but a superior type. Bank managers do a lot of work in planning and organising the business operational activities. The reward for the bank is the profit for their effective services in the same vein that managers are paid for their services. Profitability of the banks is the reward/price it gets for utilizing and investing its huge capital outlay in viable business (products and services). Thus profit is liken to wages earn by the entrepreneur for the services they render.

2.3 Link Between the Concepts

The conceptual framework guiding this study is based on a model developed by a comprehensive review of literature on capital adequacy and how it translate into better financial performance of banks in Nigeria. To this end, the connectivity is expressed in figure 2.1 below:

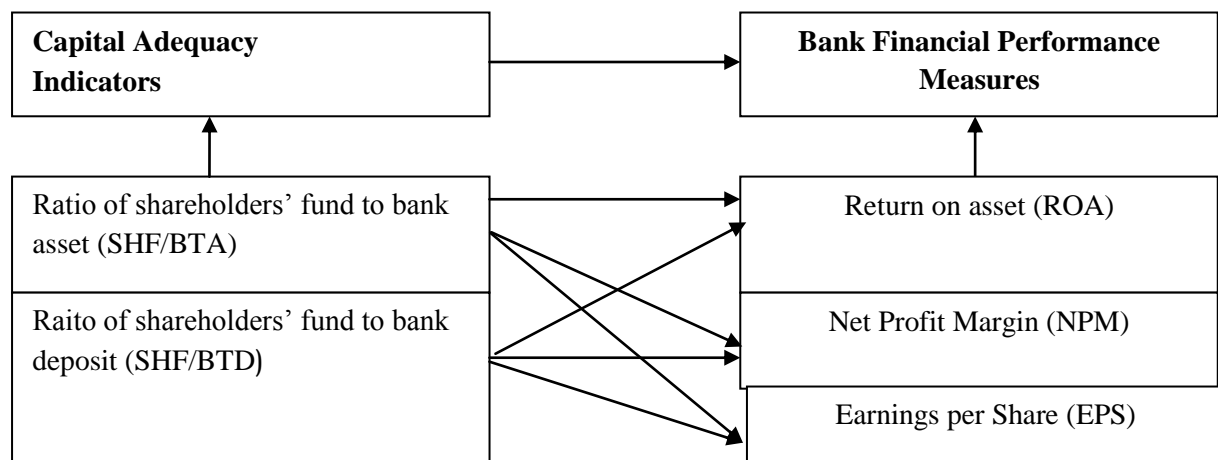


Fig 2.1: Concept Mapping

Source: Researcher’s Concept, 2013.

Adequate capital can translate into better financial performance when banks direct capital resources to areas of business that will generate the highest returns. This means that the efficient allocation of capital to juicy investments is critical if the banks intend to maximise its financial performance. It follows that banks must screen all areas of its business and choosing only where its capital can best be employed to generate the highest returns.

2.4 Empirical Review

Several studies have explained the effects of capital adequacy on the performance of banks and there is the need to review related studies to gain more incites and better understanding. Sampson, Harley & Apollos (2012), studied empirical analysis of capital adequacy in the banking sub-sector of the Nigerian economy. The study evaluates the effect of bank capital base and macro economic variables during 1980-2010 periods. They employ the use of Error Correction Model (ECM) and Co-integration techniques to analyze the relationship between bank capital base and macro-economic variables. Findings indicate that there is a negative relationship between inflation and bank capital base as inflation erode banks capital in most developing economy. The study recommends that government should regulate investment policy while banking institutions should strive to maintain low rate of inflation possibly at 5% to make them function efficiently and compete globally. Ikpefan (2013) study Capital Adequacy Management and Performance in the Nigerian Commercial Bank. The study examine the extent to which bank capital adequacy ratios impact on bank performance and investigate the extent to which operational expenses impacted on return on capital between 1986-2006. The study uses cross-sectional and time series data obtain from the Central Bank of Nigeria (CBN), financial statement and annual reports of the sample banks. Using ordinary least square regression method to analyze the formulated models, findings indicates that the ratio of shareholders fund/Total Assets (SHF/TA) which measure capital adequacy of banks has negative impact on the return on assets (ROA). Also, management efficiency measured by operating expenses is negatively related to return on capital. The study recommends that adequate shareholders fund can serve as a stimulant in enhancing the performance of commercial banks operations in Nigeria and build customers' confidence.

Asikhia and Sokefun, (2013) study Capital Adequacy and Banks' Profitability: Empirical Evidence from Nigeria. The study investigates the impact of capital adequacy on banks profitability of domestic and foreign banks in Nigeria. It combines the use of a sample of f 518 questionnaires administered to bank staff with a response rate of 76% basically to obtain primary data and published financial reports of studied banks between the 2006 to 2010 periods. The study use survey design in line with cross-sectional research design. It also uses linear regression to analyze the primary data and panel data to analyze the secondary data of the study. The result of the primary data analyze shows a non-significant relationship while the secondary data analyzed revealed a positive and significant relationship between capital adequacy and profitability of banks. This simply means that capital adequacy is important in the determination of banks profitability in the Nigerian commercial banks. Findings also revealed that capitalization and profitability are indicators of bank risk management efficiency and cushion against losses not covered by current earnings. The study recommends that the regulatory authorities should ensure the sustainability of the gains of banking sector reforms. They recommend further that more risk management framework should be drawn as this will have positive effect on banks profitability in the Nigerian banking industry.

Ragnar, Kethi and Maureen, (2013). The Role of Capital Requirements on Bank Competition and Stability: The Case of Kenyan Banking Industry. The study investigates the role of capital requirements on banks competition and stability in Kenyan for 2000-2011 periods. The study estimates the fixed effects panel regression model for the 36 commercial banks operating in the Kenyan banking industry using Lerner Index and Panzar and Rosse H-Statistics as a measure of competition. The study use return on equity to capture bank performance and stability and the estimation result shows a positive relationship supporting the evidence that capital regulation improves the overall financial stability and performance of banks. Findings from the study also indicate that the panel estimates shows significant non-linear effect of core capital on competition. The log of core capital is positive and significant while squared log of core capital is negative and significant. This however means that an increase in core capital reduces competition up to a point and then increases competition indicating that the benefits of increasing capital requirements on competitiveness will yield benefits once banking sector consolidation start. Okafor, Ikechukwu & Adebimpe (2010) study the effect of capital adequacy on Banks' performance. The study analyses the impact of banks capital adequacy on earnings and profitability of banks in Nigeria using panel data of sample 10 strong and 10 weak banks between 2000 -2003 periods. The study uses Least Square Dummy Variables (LSDV) model to estimates the variables. Findings show that bank earnings is invariants to factors such as bank assets and bank size but highly driven by liquidity and capital adequacy. They recommend that the consolidation of bank's capital base was right and suggest more robust and strategic

regulatory framework in the effective management of liquidity and bank capital base to shore-up bank performance in Nigeria.

Oladejo and Oladipupo (2011) studied capital regulation and the performance of the Nigerian banks: need for review. The study adopts majorly an exploratory methodology and literature review approach by collecting the opinions of erudite scholars and current upsurge in banks performance (liquidity and profitability) to review the implication of capital regulations on the performance of Nigerian banking sector with a view to find solutions to the problem. The study finds that though reforms of the banking sector are necessary, there is a limit to the regulation as it relates to capital adequacy. The study finally argued that the consolidation of the banking sector by pegging minimum recapitalization regulatory requirement may bring about serious problems that may mar the essence of the reforms if not adequately harnessed. John and Oke (2013) investigate the impact of capital adequacy standards, Basel Accord on the performance of the Nigerians Banks from 2003-2007. The study applied Ordinary Least Square (OLS) estimation technique to examine and determine the impact of the independent variables-loans and advances, total assets, customers' deposits and shareholders' funds on the dependent variables-Earnings per share (EPS) and profit after tax (PAT). The study result showed that capital adequacy standards exert a major influence on bank performance and thus recommend that the CBN should not only lay emphasis on banks' capitalization as a determinant of banks performance, but should rather concentrate on efficient and effective bank management supervision and evolve strategies for effective examination and control of banks.

Mathuwa (2009) study capital adequacy, cost Income Ratio and performance of commercial banks in Kenya using return on assets and return on equity as proxies for banks profitability for the period 1998 to 2007. The study uses a selected sample of 41 licensed commercial banks in Kenya. The study employ different financial ratios and statistical tools including percentages, averages, trend analysis, regression, correlation and the significant test using Minitab Software in analyzing and interpreting the data for the study. The study finds out that the non-risk weighted capital adequacy measure (i.e. the equity capital ratio) is negatively related with the profitability of the bank (as measured by both ROA and ROE) while there is a positive relationship between the risk-adjusted capital adequacy measure (i.e. tier I risk-based capital ratio and core capital ratio) and bank profitability (as measured by both ROA and ROE). Another major findings is that CIR is negatively related to both performance measures and recommend that commercial banks in Kenya should strive to keep CIR at a minimum level, if possible below 50% threshold for them to be more efficient and globally competitive. Ranga (2012). An Analysis of the Impact of the Minimum Capital Requirements on Commercial Banks Performance in Zimbabwe. The study uses descriptive correlation method augmented by some regression analysis to determine the magnitude of effect of capital on performance of selected banks using twenty senior bank executives as the population of the study. Findings reveal that there is significant and positive relationship between commercial banks capitalization and its performance. The study recommends that the basis for capital to be held by bank should be in line with the risk a bank is expose to, hence, the higher the risk profiles of a bank the larger the capital base should be.

Onaolapo and Olufemi (2012), examined the effect of capital adequacy on the profitability of the Nigerian banking sector. The study measured capital adequacy ratio and five bank performance variables over a ten year period of 1999-2008 of selected banks in the Nigerian banking industry. It employ ordinary Least square (OLS) estimation obtained from an SPSS 17.0 package to evaluate the relationship between the variables, while the Augmented Dickey Fuller (ADF) is used to test the stationary of the time series data employed. The study further conducted a pair wise Granger Causality test to determine the co-integration between the study variables. Findings reveals that the bank performance variables tested Return On Capital Employed (ROCE), Return on Assets (ROA), Efficiency Ratio (ER) does not have significant effect on Capital Adequacy Ratio of the Nigerian banking sector and recommend pragmatic changes in bank regulatory framework to focus on personnel and asset management, training, improved corporate governance and stable economic and financial environment for better performance of commercial banks in Nigeria.

Yu Min-Teh, (1996). Measuring Fair Capital Adequacy Holdings for Banks: The Case of Taiwan. The study applied theoretical-option framework to evaluate the level of capital at which a deposit insurer in Taiwan would break even to guarantee the deposits of individual banks. He studied ten banks in Taiwan yearly from 1985 to 1992. Asset value and volatility parameters were estimated using the maximum likelihood method via market based equity data. Critical values were then applied as inputs in Merton's (7) deposit insurance pricing model towards yielding the fair levels of capital adequacy for individual bank. Findings shows that most of the banks studied were inadequately capitalized except for the year 1989. The result also shows that estimates of adequate levels of capital for four commercial banks were found to be generally exceeds 10 billion NT (\$400 million).

Thus the 10 billion NT which was the regulatory capital requirement impose on commercial banks that was seen by the public to be high, may actually not be adequate.

Abba, Zachariah and Inyang, (2013). Capital Adequacy Ratio and Banking Risks in the Nigeria Money Deposit Banks. The study empirically examined the relationship between capital adequacy and banking risk. A sample of twelve banks out of twenty banks in the Nigeria banking Industry was studied from 2007-2011 periods. The study employs multiple regression, serial correlation and multicollinearity based on Durbin Watson result to analyze data. It also adopts value to risk to estimate capital adequacy ratio of banks. This means when risk level rises, capital adequacy ratio falls in the Nigeria banking Industry. The study recommends that banks in Nigeria should adopt a risk based approach in the management of capital instead of using paid-up capital and retained earnings as currently practice, hence there is a significant relationship between capital adequacy ratio and banks risks. It also recommends that banks should adopt pragmatic approach as increase in deposits does not necessary result in increase in capital adequacy ratio so as to guarantee the safety and security of depositor's fund.

Vyas, Singh, and Yadav, (2008). The impact of capital adequacy requirements on performance of scheduled commercial banks. The study compares the performance measured in terms of Return on Assets (ROA) of public sector banks and Indian private banks with foreign banks operating in India and Capital to Risk Weighted Assets Ratio (CRAR), Non-Interest Income (NII) and Net Interest Margin (NIM). The study scope is on schedule commercial Banks in India (excluding Regional Rural Banks) over the period 1997-2007. Using the Least Square Dummy Variable (LSDV) model, findings indicate that capital adequacy ratio increases the profitability of scheduled commercial banks in India. This support other studies findings that adequate capitalized banks face low cost of going bankruptcy. The findings also suggest that in a market driven economy, the studied schedule commercial banks net interest margin is under pressure and have to devise other sources of income to remain relevant in the market. The study recommends that banks should enhance customer's confidence by maintaining (retaining) and increasing the Capital Risk Weighted Assets Ratio (CRAR) to the minimum of 9 percent as prescribed by RBI. This is because maintaining adequate level of CRAR reduces the risk of depositors.

Naceur, and Kandil (2006). Study the Impact of Capital Requirements on Bank Performance: The Case of Egypt. The study investigates the effects of capital regulations on cost of intermediation and profitability of Egyptian banking industry. Using a sample of 28 banks consolidated financial statements and micro finance data from World Bank Indicators (WDI) between the 1989 to 2004 period, the study employ two alternative measures of cost intermediation variable and profitability variable. The profitability variables uses Return on Assets (ROA) and Return on Equity (ROE) while cost of intermediation uses the ratio of Net Interest revenue over average interest-bearing assets (NIM1) and the ratio of net interest income over average total assets (NIM2). The study analyze cross-sectional and time series data using cross-section and panel data estimators and then present the Generalized Method of Moments (GMM) estimator. Finding indicates that capital adequacy variable (capital/assets) has a positive and significant effect on return on assets. The overall results support the Central Bank efforts to enforce capital regulations towards improving the performance of the banking sector in Egypt. The study recommends that higher capital requirements, reduction in implicit cost and increase in size of banks leads to banks profitability in the post-regulation period.

3.0 Method of the Study

The study is designed to be in line with the deductive econometric procedure in conjunction with the quasi-experimental design involving the specification of the relevant model used in measuring the subject of interest, estimation of the parameters, testing the nominated hypotheses and examining the global utility of the estimated model for policy purposes (Gujarati, 2006). This study sampled Nineteen (19) commercial banks whose stocks are quoted on the floor of the Nigeria Stock Exchange and who are licensed to carry out commercial banking business in Nigeria.

Data: The study utilizes annual data series of 15 out of the 19 commercial banks for the period of this research (2008-2012). However, the number of banks covered was occasioned by the availability of data for the period under study. Yearly Net profit margin, Earning per share and Return on assets were computed from the annual financial reports of the studied banks. Five years average for the periods were also obtained by computation and expressed in absolute values for each bank. The same was done for the ratio of shareholders' fund to deposits and the ratio of shareholders' fund to assets (capital adequacy measures) of the banks. All these gave the summary of data on table 4.1. From the foregoing, the data was collected from secondary sources.

Variables: For our purpose, the ratio of shareholders’ fund to bank deposit and the ratio of shareholders’ fund to bank assets are the independent variables while Net profit margin, Earning per share and Return on Assets are the dependent variables. Operationally, net profit margin is conceptualized as the ratio of Net profit after taxes to Net income per naira generated. It measures the profitability of banks with respect to sales generated. Return on assets is defined as the ratio of Net profit after taxes to total assets. It measures the overall effectiveness of the bank in generating profits with available assets and measures the earning power of banks invested capital. IMF (2002) averred that ROA emerges as the key ratio for the evaluation of banks profitability. According to Sarkar et al, (1998) reported in Vyas et al. (2008), “Return on Asset measures the ability of the management to convert the assets of the bank into net earnings. Earning per share is expressed as the ratio of profit after tax to share capital; it indicates how much of a bank’s profit that can be attributed to each ordinary share in the company. The ratio of shareholders’ fund to bank deposit measures how many times the total deposit can be contributed by equity owners of the banks in relation to each naira of total capital. The ratio of shareholders’ fund to bank assets captures the proportion of total assets that is contributed by equity owners of the bank in relation to each naira of the total capital.

3.1 The Model

Following the theoretical postulates, we can hypothesize that Net profit margin, Earning per share and Return on Assets of commercial banks are positive functions of the ratio of shareholders’ fund to bank deposit, and the ratio of shareholders’ fund to bank assets. This relationship could be negative depending on the prevail circumstance in the banking industry. The study construct and utilized three capital Adequacy-financial performance models with two predictor variables linearly in the functional form as follows:

Functional form

$$NPM = f(SHF/BD, SHF/BA) \dots\dots\dots(1)$$

$$ROA = f(SHF/BD, SHF/BA) \dots\dots\dots(2)$$

$$EPS = f(SHF/BD, SHF/BA) \dots\dots\dots(3)$$

Where,

NPM = Net Profit Margin

ROA = Return on Asset

EPS = Earning per Share

SHF/BD = ratio of Shareholders’ fund to Bank Deposits

SHF/BA = ratio of Shareholders’ fund to Bank Assets

Recasting equation (1), (2) and (3) into the econometric form gives:

$$NPM_{it} = a_0 + a_1SHF/BD_{it} + a_2 SHF/BA_{it} + U_{it} \dots\dots\dots(4)$$

$$ROA_{it} = b_0 + b_1SHF/BD_{it} + b_2 SHF/BA_{it} + U_{it} \dots\dots\dots (5)$$

$$EPS_{it} = z_0 + z_1SHF/BD_{it} + z_2 SHF/BA_{it} + U_{it} \dots\dots\dots (6)$$

Where, a_0, b_0, z_0 are the intercepts, while a_1, b_1 and c_1 are the slopes, and U_{it} is the error term.

However, the casual relationship between the regressor and the regressand can be expressed as:

$$NPM = \sum_{uj} NPM_{t-j} + CAF_{t-j} + V_t \dots\dots\dots(7)$$

$$ROA = \sum_{uj} ROA_{t-j} + CAF_{t-j} + V_t \dots\dots\dots(8)$$

$$EPS = \sum_{uj} EPSt_{-j} + CAF_{t-j} + V_t \dots\dots\dots(9)$$

Where, NPM, ROA, EPS are sum of the lags value of the dependent variables. CAF is the sum of the lags of capital adequacy factors (CAF). Equation 7 to 9 can be used to determine the casual implication of the relationship between the explained and the explanatory variables.

The analytical framework of this study includes pre-estimation analysis such as stationarity test. We investigate the stationarity of the variables; non stationarity could lead to spurious regression results. Such spurious relationship between or among variables may be evident in time series data that exhibit non-stationary. The test for long- run relationship is carried out based on the Johansen’s (1991) multivariate cointegration technique. The test for linear causality or feedback effects between the specified variables is carried out using Granger Causality Technique. This test is necessary since the Johansen co-integration Test only accounts for long-run

relationships between variables but it does not show the direction of the relationship or a breakdown in the system which Granger causality test take cares of in its application.

4.0 Data Presentation

This section present the five years summary of the compressed (average) data of the fifteen sampled commercial banks in Nigeria. It also focuses on the presentation and analysis of estimated results derived from the various estimation techniques employed in the study. The data for this study is presented in table 4.1 below:

Table 4.1: The Research Data on Indicators of Capital Adequacy and Financial Performance of Banks in Nigeria

S/N	BANKS	SHF/BTD	SHF/BTA	NPM %	EPS %	ROA %
		%	%	%	%	%
1.	UNION	33	21	6.28	2.18	12.33
2.	DIAMOND	17	14	8.96	1.63	3.04
3.	UBA	16	12	16.95	1.45	1.95
4.	GTB	28	18	39.8	3.93	3.66
5.	ZENITH	27	19	21.47	1.85	2.4
.6.	STERLING	12	10	14.72	1.61	2.03
7.	WEMA	9	6	43.8	0.52	0.68
8.	FBN	20	15	23.74	4.47	3.35
9.	ACCESS	41	22	19.2	1.51	4.58
10.	FCMB	38	23	19.04	0.61	1.69
11.	STANBIC	47	20	21.36	0.37	1.92
12.	ECOBANK	16	11	13.85	1.31	1.33
13.	UNITY	12	9	-11.65	11.27	2.92
14.	FIDELITY	30	22	21.24	22.2	2.07
15.	SKYE	16	11	10.76	59.91	4.86

Source: Researcher's computation

4.1 Empirical Analysis

The empirical analysis of data for this study is carried out under the following sub-headings:

- Unit root test
- Johansen Co integration Test
- Granger Causality Test (Lead- Follow analysis)

4.1.1 Unit Root Test

The Augmented Dickey Fuller (ADF) unit root test conducted on all the variables used in the study is reported in table 4.2 below.

Table 4.2: Unit Root Test Results

Unit Root Test For NPM

ADF Test Statistic	-4.395687	1% Critical Value*	-4.1366
		5% Critical Value	-3.1483
		10% Critical Value	-2.7180

Unit Root Test For EPS

ADF Test Statistic	6.835741	1% Critical Value*	-4.0113
		5% Critical Value	-3.1003
		10% Critical Value	-2.6927

Unit Root Test For ROA

ADF Test Statistic	-4.262376	1% Critical Value*	-4.1366
		5% Critical Value	-3.1483
		10% Critical Value	-2.7180

Unit Root Test for SHF/BTD

ADF Test statistic	-3.642453	1% critical value	-3.6661
		5% critical value	-2.9627
		10% critical value	-2.62

Unit Root Test for SHF/BTA

ADF Test statistic	-5.702087	1% critical value	-3.6752
		5% critical value	-2.9665
		10% critical value	-2.622

Source: Researcher's Computation

Comparing the ADF test statistics with the 5% critical values, the result of the unit root test reported in table 4.2 indicate that all the variables are stationary at first difference. Therefore, the series are all integrated series of order 1(1). This is evidence by the fact that the absolute values of the ADF test statistics are all greater than the critical values at 5% level of significant. After stationalizing the variables, the data can then be tested whether these variables are co-integrated or not by applying Johansen co-integration procedure to test for long-run relationship between the dependent and independent variables.

4.1.2 Test of Long Run Relationship

Following the result of the unit root/test and establishing that the data are stationary of the order 1(1), we can proceed to apply the Johansen co-integration technique to verify the existence of long-run co-integrating relationship between the indicators of capital adequacy variables and the bank financial performance measures. This test is aimed at investigating whether the variables share mutual stochastic trend and are linked in a common long-run equilibrium. The Johansen co-integration procedure is based on maximum Eigen value, trace statistics and the critical value. The result is reported in table 4.3.

Table 4.3: Johansen Co-Integration Test Results For NPM Model

Date: 01/08/14 Time: 02:08				
Sample: 1 15				
Included observations: 13				
Test assumption: Linear deterministic trend in the data				
Series: NPM BTD BTA				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.920744	53.52522	29.68	35.65	None **
0.733609	20.56925	15.41	20.04	At most 1 **
0.228531	3.372966	3.76	6.65	At most 2
*(**) denotes rejection of the hypothesis at 5%(1%) significance level				
L.R. test indicates 2 cointegrating equation(s) at 5% significance level				

Source: Researcher's computation

The result in table 4.3 indicate that the first hypothesis of no co-integrating vector is rejected since the observed 53.52 likelihood ratio is greater than the critical value of 29.68 at 5% confidence level. The second null hypothesis is also rejected because the likelihood ratio of 20.56 is greater than the critical value of 15.41, but the null hypothesis of at most 2 co-integrating vector or less cannot be rejected since the likelihood ratio of 3.37 is less than the critical value of 3.76 with the attendant probability. Hence the result indicate 2 co-integrating equation at 0.05 confidence level. Taking cognizance of the fact that the 2 co-integrating vectors are lower than the number of variables in the model, this result implies that there is a long-run equilibrium relationship between capital adequacy indicators and bank NPM. This shows that the variables share mutual stochastic trend and are linked in a common long-run equilibrium relationship. These means that the provision of adequate capital positively and significantly correlate with the NPM of banks in the long-run when possibly enough time is allowed for the investments made with the capital to mature and yield returns on the investment.

Table 4.4: Johansen Co-Integration Test Results For EPS Model

Date: 01/08/14 Time: 02:17				
Sample: 1 15				
Included observations: 13				
Test assumption: Linear deterministic trend in the data				
Series: EPS BTD BTA				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.938553	53.62009	29.68	35.65	None **
0.653998	17.35555	15.41	20.04	At most 1 *
0.239465	3.558528	3.76	6.65	At most 2
*(**) denotes rejection of the hypothesis at 5%(1%) significance level				
L.R. test indicates 2 cointegrating equation(s) at 5% significance level				

Source: Researcher's Computation

The test result in table 4.4 shows that the first hypothesis of no co-integrating equation is rejected because the likelihood ratio 53.62 is larger in value than the critical value 29.68 at 5% confidence level. Also, the second hypothesis of at most one co-integrating equation or less is also rejected on the basis that likelihood ratio of 17.35 is greater than the critical value of 15.41 at 5% confidence level. However, the third, null hypothesis of at most 2 co-integrating equation is not rejected because the likelihood ratio of 3.56 is less than the critical value of 3.76 at 5% confidence level. From the foregoing, we posit that there is a long-run equilibrium relationship between capital adequacy measures and the earning per share EPS of banks in Nigeria.

Table 4.5: Johansen Co-Integration Test Results For ROA Model

Date: 01/08/14 Time: 02:19				
Sample: 1 15				
Included observations: 13				
Test assumption: Linear deterministic trend in the data				
Series: ROA BTB BTA				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.915144	56.04786	29.68	35.65	None **
0.802212	23.97949	15.41	20.04	At most 1 **
0.200697	2.912205	3.76	6.65	At most 2
*(**) denotes rejection of the hypothesis at 5%(1%) significance level				
L.R. test indicates 2 cointegrating equation(s) at 5% significance level				

Source: Researcher's Computation

Judging from the results on table 4.5, we reject the first two hypothesis of no co-integrating vector and at most one co-integrating equation. This is occasion by the fact that, in the case of the first hypothesis, the likelihood ratio 56.04 is greater than the corresponding critical value of 29.68, while the likelihood ratio of 23.97 is also greater than the corresponding critical value of 15.41 in the case of the second hypothesis. We are however left with the choice of not rejecting the third hypothesis stating that there is at most 2 co-integrating vector or less since its likelihood ratio 2.91 is less than the critical value 3.76. This indicate that the capital adequacy measures used in this study and the financial performance of commercial banks in Nigeria share mutual stochastic trend and are linked in a common long-run equilibrium relationship. The Johansen co-integration test result of long run relationship reveal that all the capital adequacy measures and the bank financial performance indicators are found to be co-integrated indicating the existence of long-run equilibrium relationship between the correlates in Nigeria and that the variables share mutual stochastic tread and are linked in a common long-run equilibrium relationship.

We can report that there exist significant long-run equilibrium relationship between capital adequacy indicators and bank financial performance measures in Nigeria. These suggest that banks in Nigeria seem to have relatively adequate capital and this capital when invested and allowed to mature over time could boost the financial performance of the banks into the long-run. However, since there exist stationarity of the variables and subsequent co-integration is found to be in line with a priori expectations, the application of conventional causality test between the capital adequacy and bank financial performance variables will be appropriate.

4.1.3 Granger Causality Test

The granger causality test conducted on the models to determine the direction of causality or lead-follow relationship between capital adequacy measures and banks financial performance indicators so as to examine whether the capital adequacy variables can actually cause variation in or influence bank financial performance. The result of the pairwise granger causality test is presented in table 4.6 below.

Table 4.6: Pairwise Granger Causality Test Result

Pairwise Granger Causality Tests			
Date: 01/08/14 Time: 02:22			
Sample: 1 15			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
EPS does not Granger Cause NPM	13	0.17378	0.84357
NPM does not Granger Cause EPS		1.27913	0.32960
ROA does not Granger Cause NPM	13	0.03844	0.96246
NPM does not Granger Cause ROA		0.61758	0.56310
BTD does not Granger Cause NPM	13	0.96857	0.42006
NPM does not Granger Cause BTD		0.53844	0.60341
BTA does not Granger Cause NPM	13	0.23813	0.79349
NPM does not Granger Cause BTA		0.54820	0.59825
ROA does not Granger Cause EPS	13	6.13800	0.02423
EPS does not Granger Cause ROA		1.57488	0.26503
BTD does not Granger Cause EPS	13	2.76408	0.12229
EPS does not Granger Cause BTD		1.28857	0.32725
BTA does not Granger Cause EPS	13	2.16989	0.17666
EPS does not Granger Cause BTA		3.17142	0.09679
BTD does not Granger Cause ROA	13	2.30689	0.16180
ROA does not Granger Cause BTD		0.26512	0.77360
BTA does not Granger Cause ROA	13	12.4038	0.00354
ROA does not Granger Cause BTA		0.97768	0.41700
BTA does not Granger Cause BTD	13	0.37596	0.69815
BTD does not Granger Cause BTA		0.36852	0.70291

Source: Researcher's Computation

The result conducted with a maximum lag of 2 on the first difference of the linear form of the variables is based on a decision rule. The null hypothesis is that there is no causal relationship between the correlates. The null hypothesis is rejected the probability of t-statistics given in the test result is less than 0.05. The result in table 4.6 reveal that at 5% level of significance, the ratio of shareholders fund to bank total deposit does not granger cause growth in the financial performance of banks but causality runs unidirectionally from the ratio of share holder's fund to bank total assets (SHF/BTA), to return on assets. This result suggests that when banks' adequate capitals are invested in the right kind of assets, over time, it will impact positively on the return on assets of these banks. However, there is no causal relationship between the ratio of shareholders fund to bank total deposit (SHF/BTD) and the financial performance measures of banks. This point to the fact that there is the need for proper management of bank deposit and its allocation into juicy investment is necessary. This further confirm the long-run test results that when banks has adequate capital and this capital is invested in the right kind of assets, and allowed to mature over time, such adequate capital will impact positively or cause growth/increase in the return on assets. The indication that the ratio of shareholders fund to bank total deposit did not lead or follow any of the bank financial performance indicators suggest that proper management of bank deposits and channelling same to appropriate investments is of utmost importance.

5.0 Summary and Conclusions

The Nigerian banking sector over the years have been characterised by incessant systemic distress, instability and outright collapse and failures. This however has necessitated various reforms in the Nigerian banking industry, especially the persistent upward review of bank capital base. The adequacy of this capital for its absorption and to stimulate better financial performance of banks has been an issue of controversy. Therefore the researcher set out to investigate the impact of capital adequacy indicators on banks financial performance in Nigeria. Following our nominated objective, we hypothesize that bank financial performance measures-NPM, EPS, ROA are positive functions of capital adequacy indicators. It was conceived that the findings of this study

will be of great importance to researchers, policy makers, financial analyst and even contribute to existing literature. This study is predicated on the theories of capital and profitability and the link between these concepts were established. While the various reforms in the banking sector were x-rayed with their attendant implication for enhancing banks profitability. Section two was concluded with the reports of past related empirical works with special attention on the aim, method of the study, findings and recommendations. The gap in these literatures is what this work intend to fill.

The deductive econometric procedure of research design was adopted and fifteen out of the nineteen existing commercial banks were sampled. Two predictor models of linear formation were specified to capture the argument in the study in relation to the financial performance variables-NPM, EPS, and ROA. The data analysis techniques employed in this study include the Ordinary Least Square method, The Johansen Co-integration technique and Granger Causality procedure. Section four x-rayed the data presentation of the study drawn from the fifteen studied sampled commercial banks. The results of the various econometric models employ in the study were also presented and critically analysed. The Johansen Co-integration test reveal a long-run equilibrium relationship between the correlates in Nigeria. The Granger Causality test was also use to determine the direction of causality between the indicators of capital adequacy and banks financial performance measures. The findings from the study indicates that capital adequacy strongly impact on the financial performance of banks in Nigeria. This findings lead to the following conclusive remarks: The cause-effect analysis reveal that causality runs unidirectionally from the ratio of shareholders fund to bank total assets (SHF/BTA) to return on assets (ROA). This however provides evidence for the existence of the impact of capital adequacy on bank financial performance in the Nigerian banking sector. There is also evidence for strong long-run co-integrating relationship between the capital adequacy of banks and their financial performance in the long- run. This however supports the position that capital adequacy strongly and actively stimulate, improve and even grow the performance and especially the financial performance of banks in Nigeria.

The study concludes that capital adequacy indicators strongly lead to financial performance of banks from the causality test result. There is also long-run equilibrium relationship between capital adequacy measures and bank financial performance indicators. These implies that sufficiency of capital and proper management of same can translate to improved financial performance of banks in Nigeria through the window of efficient portfolio management, efficient asset selection and the application of matching principles. From the empirical findings of this study and the conclusion reached, we recommend that bank managers should improve on the management of bank deposits and assets in order to improve on the achievement of the objective of the firm. Adequate short term investment should be introduced into bank investment port folios so as to improve financial performance in the short run.

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