# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

Banking operations commenced in Nigeria in 1892 under colonial master and by 1945, Nigerian and African elites had established indigenous banks. The bank flops during 1953- 1959 were attributed to illiquidity of banks and inadequate capital to cushion customers' demand (Enyioko, 2012). There was no efficient financial system with enough financial instruments to invest in. Hence, banks simply invested in real assets which could not be easily converted to cash without loss of value in times of need. This prompted the Federal Government then, backed by the World Bank report to institute the Loyne's commission on September 1958. The outcome was the promulgation of the ordinance of 1958, which established the Central Bank of Nigeria (CBN). The year 1959 was remarkable in the Nigeria banking history not only because of the establishment of Central Bank of Nigeria (CBN) but that the Treasury Bill Ordinance was enacted which led to the issuance of our first treasury bills in April, 1960. The period (1959–1969) marked the establishment of formal money, capital markets and portfolio management in Nigeria (Enyioko, 2012). In addition, the company acts of 1968 were established. This period could be said to be the genesis of serious banking regulation in Nigeria.

The establishment of the CBN as the government monetary authority that has power to issue banking operation licence, led to the establishment of more banks in Nigeria, with the minimum paid-up capital stipulated at ₦400, 000 (US$480,000) in 1958. In the '90s proliferation of banks, which also occasioned the failure of many of them, led to another recapitalization exercise that saw bank's capital being amplified to ₦500million (US$5.88million) and

subsequently ₦2billion (US$0.0166 billion) (Enyioko, 2012, Olaoye & Olarewaju, 2015; Somoye, 2008 ).

Banking sector was fully deregulated in January 2001, with the adoption of universal banking system in Nigeria which merged merchant bank operation to commercial banks system. On 4th 2004 with the institution of a 13-point reform agenda aimed at addressing the fragile nature of the banking system, stop the boom and bust-cycle that characterized the sector and evolve a banking system that not only could serve the Nigeria economy, but also the transnational economy. The agenda by the monetary authorities is also agenda to consolidate the Nigeria banks and make them capable of playing in international financial system. However, there seems to be deviation between the states of the banking industry in Nigeria concerning the vision of the government regulatory authorities for the financial sector.

Prior to the major policy modification by the Central Bank of Nigeria (CBN), Nigerian banking experienced a steady increase in the number of distressed deposit money banks, that is, those rated by the CBN as marginal or unsound. This created the fear that Nigerian banking could be heading towards systematic distress. The marginal and unsound banks increased in number from seventeen (17) in 2001 to twenty three (23) in 2002 and 2003, and then twenty-seven (27) in 2004 representing the operating banks in the system. It can be argued that poor corporate financial structure and governance were partially responsible for the increase in the number of marginal and unsound banks in 2004. The upshot is that the banks concerned have had inherent financial weakness that CBN exposes, and no matter what, they would have eventually become distressed (Central of Bank Nigeria, 2004; Enyioko, 2012). Furthermore, this makes roles or functions of banks not to be over-looked; banks as financial institution have the main role of lubricating the mechanisms facilitating the economic activities of a nation. The

banking system plays a crucial role in moving funds from the surplus units to the deficit units of the economy. To mention a few, if a financial system is efficient, it should show improvements in financial performance, increasing the volume of funds flowing from saver to borrowers, meeting depositors' demands as at when required and provide better quality services to public at large (Olaoye & Olarewaju, 2015). As financial intermediaries, banks play critical role in the operation of an economy banks are the most important channel for financing needs of the economy. Banks have an important role in the process of financial intermediation. In financial crises, credit activities of banks decline, and this has an impact on the availability of resources for financing the economy (Živko & Kandžija, 2013). This is particularly true in the case of Nigeria where all other sectors have to relate with banks to carry out their operations effectively either as a borrowers or lenders. While, the thriving of an economy is contingent to a large extent on the degree of operations in the real sector, but the crucial roles of the financial system in supporting a flourishing economy cannot be over-emphasized.

The soundness and elasticity of the financial system have received considerable attention in the recent time due to the continuous integration of the system which leads to increase in cross-border listing. It brought about the systematic wearing a way of countries' financial boundaries while expanding the possibilities of the influence of global financial shocks, as evidenced from the various financial crisis witnessed in the past, particularly the global financial crisis which began from the United States as a result of crisis in the sub-prime mortgage market in August 2007 (Essien & Doguwa, 2014). The starting of economy crunch in any financial system can be appalling, but there may be conspicuous symptoms of financial vulnerabilities in the system that could be used in the development of appropriate responses to prevent the effect of financial crises on the economy. For instance, in the wake of the global financial crisis, there

was a widespread acknowledgment for the need to reinforce links among vital components of the financial system, examine carefully how systemic risk varies over time, as well as study the robustness of the system when hit by shocks or systemic risk (Essien & Doguwa, 2014).

This escalates bank's susceptibility which points an upturn in the provisions and demands higher level of capital as increase in risk weighted capital curtailed lending, high liquidity and necessitates reforms in banks' capital requirements making it more risk sensitive as well. Thus, a financial crisis in the economy is shifted into banking system and making it too vulnerable and consequently wanes its financial performance. It strongly covers that one cannot neglect the microeconomics and macroeconomics environment while tracing the deterioration of profitability and efficiency in the banking sector (Muhammad, Syed, & Muhammad, 2015). Nigeria is an emerging economy and its markets capital and banking sector show virtually parallel physiognomies as other emerging economics. Specifically, Nigerian banking is connected to both national and global economy and had adopted recommendations of Basel Committee on Banking Supervision (BCBS). The regulatory reform for banks has been converted from post-crisis lip service into implementation actions, although the effect of the new rules on financial soundness metrics is driving the financial sectors to make changes to its business model (Basel Committee on Banking Supervision in IMF, 2012).

In order to ensure that stakeholders are better protected in the financial sector from deceitful managements; committee such Basil/Basel committee arose with a set of regulation key on taming creative accounting, utilised to manipulate financial systems. The regulatory frameworks conceptualised by Basil/Basel committee is a universal system used to enhance the soundness and resilience of banks and this is enabled with the setting up of a global structure for liquidity risk assessment, principles as well as monitoring known as the Basel III (Blundell-

Wignall & Atkinson, 2010; Imad, & Khaled, 2015). According to Lastra (2011) Basel III is a regulatory framework which is based on two approaches the macro and micro prudential. Chun, Kim and Ko (2012) stated that micro-prudential regulatory framework, a key regulatory framework in regulating the capital bases of banks by widening the scope of risk on the banks capital base and hence, conceptualising and bringing into the financial sector global liquidity standards as well as setting up as a regulated leverage ratio. The micro-prudential regulatory also enhances the supervisory role in the financial sector as well as better risks management and better disclosure of relevant material information which was previously hidden from the public and shareholders (Imad, & Khaled, 2015). In addition, Lastra (2011) also stated that the micro-prudential regulatory framework worked in implementing countercyclical measures especially when the economy is faced with different economic outcomes to ensure the economy is strengthened. This measure also seeks to regulate the bank's leverage ratios which end up enhancing the regulatory systems critical in the banking sector. The banks are central to countries financial system and hence crucial to the country's economy (Imad, & Khaled, 2015; World Bank, 2015).

Crises have taught us lesson that there may be instability in the financial system even when there exists stable inflation. This connotes that sustained growth cannot be achieved without having stability in the financial system along with sound prudential financial guideline. There is no doubt that banking system is back bone of the financial system. Rajan and Zingales (1998) argue that well-functioning banking system has key role in economic growth. It also provides opportunities for efficient allocation of savings, and returns on savings and investments. It also has role in better fiscal management by solving budget adversaries of government. This shows how much important a profitable banking system is for the economy. Knowing

unpredictability of risk associated with macro-financial environment and key role of regulators in enhancing economic stability and also financial risk or unsystematic bank's risks as well. These risks deteriorate banks' statement of financial position and impede banks' financial performance (Muhammad, Syed, & Muhammad, 2015).

Appreciation of sound and efficient financial system provides strong rationality to explore what factors are involved in financial health of a banking industry and how these variables react to financial soundness of the banking industry when it has been accepted globally the need of financial liberalization for achieving market stability; this had been noted that increased in liberalisation without suitable financial regulation as well as supervision in the sector can lead to financial crises (Chun, Kim, & Ko, 2012).

More so, at the beginning of the 2008 financial crisis, former governor of the Central Bank of Nigeria (CBN) Charles Soludo honoured invitations to several functions to, among other issues, answer the question: are Nigerian banks safe or do they require any bailout? Soludo was consistent in stating that because Nigeria moved ahead of the world to recapitalise and consolidate its banking system, "Nigerian banks are robust and strong enough to take losses" and that they are protected from the full effects of the global financial system. Interpretations of Soludo's statement by analysts took different dimensions at that time. This prompted the apex bank to come up with a statement to the effect that at no time did Soludo say that the Nigerian economy was "immune" to or "insulated" from the global crisis. By the time the banks passed through a stress test under a new governor of CBN in 2009, 'a lot of dead bodies were exhumed from the books of the banks' as some critics would put it. By the end of 2009, it became clear that the banks were not strong enough as Soludo had made the world to believe (Fidelity Bank, 2017; Gbadebo, 2014). This also advances a question of what policy suggestion could be drawn

to help banking industry and strengthen the financial sector with a minimum restriction against internal and external financial crunch.

Scholars are of the opinion that, extreme risk-taking together with non-adherence to prudential financial control as well as impaired financial policy was the major contributor to the financial crunch. Although, it is usually assumed that banks survived and flourished on risks, but the risks must be well managed to avoid liquidation. Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC) have a fundamental role to play in ensuring financial stability by monitoring the activities and performance of banks, but their mutual efforts were clearly not suffice to prevent the financial crunch (Enyioko, 2012; Essien & Doguwa, 2014; Olaoye & Olarewaju, 2015). In an ideal situation the duty of central bank is to maintain and mange inflationary pressures that arise as a result of economic activities, but under financial stress its role as a regulator becomes too important in providing safeguard to financial system and liquidity management (Muhammad, Syed, & Muhammad, 2015). The economy crunch, has indisputably stressed the importance of a prudential financial method to regulate so as to evaluate the soundness of financial systems as well as individual financial institution.

Finally, banks are the sole dealer of funds, and their stability is of great importance to the financial system. As such, an in depth understanding of contributions of their financial soundness capital-liquidity based indicators to national and international Nigeria deposit money banks' financial performance is necessary and vital to the ability of an economy to resist financial crunch and safeguard stakeholders' interest.

**1.2 Statement of the Problem**

The banking sector in Nigeria over the years has witnessed a number of crises that led to the distress of many banks particularly in the 1990s through early 2000s. The crisis, which was

caused and fueled among others by high figures of non-performing loans and loan loss provisioning leading to dissipation of profit, capital erosion and impairment of liquidity, and consequently poor asset quality has necessitated the introduction of consolidation in order to address the problem head-on (Bebeji, 2013). The Nigeria banking system exhibits fluctuating and unimpressive financial performance compared to other countries in the world. Banks are financial institutions for mobilizing financial resources through their intermediation role for productive investment (Athansasoglou, Brissimis, & Delis, 2006; Obamuyi, 2011). The environment for Nigerian banks to make profits is unstable and Nigerian banks are yet to realize financial optimal capital structure and sound liquidity based (Tomola, 2013).

In addition, financial crises experienced by Nigeria banking sector in 2008/2009 brought about a need for the regulation of financial institutions which had become increasingly reckless in the way businesses are being conducted. Their business patterns had become vulnerable and this is what led banks such as Oceanic bank, Intercontinental bank, Afrik bank etcetera to demise (Gbadebo, 2014; Imad, & Khaled, 2015). The free-for-all manner in which banks did their business was reported to be the single defining outcome which lead to crisis in (2008/2009) in the banking sector locally and internationally.

The Central Bank of Nigeria (CBN) as a regulatory government agency as at 2009 had already initiated reforms in the banking sector such as increasing the paid up capital, issuance of corporate governance codes, stipulation of prudential financial guidelines for banks and ensuring creating greater inflow of foreign capital. Despite all this initiatives from the regulatory government agency, today banks in Nigeria are experiencing financial instability issues which are likely to impact on banks' financial performance (Osisioma, Egbunike & Jesuwunmi, 2015).

The injection of US$ 4.1 billion in the 2009 to ten (10) commercial banks in Nigeria is a typical example of salvaging the financial system from systemic collapse, that is, given bail-out fund to commercial banks that are thought to be under great financial crunch, dismissed eight commercial banks chief executive officers as well as introducing a number of new set of laws and also taking other immediate measures which are compulsory if the banks are to be protected from the systematic failure and also to make sure there is financial soundness (stability) in the Nigerian banking sector (Adewoyin, 2012; Gbadebo, 2014).

The Central Bank of Nigeria unveiled new banking guidelines designed to restructure the industry and control the activities of the banks by classifying the banks into regional, national and international banks in order to increase the capital based and enhance the financial soundness of the banking sector (CBN, 2004; Akpan, 2007). This was to make Nigerian banks strong in term of capital base and more competitive in order to play an effective intermediation role in the local and global market. In spite of all these measures, the discrepancies of financial stability still remains un-resolved between national and international Nigerian deposit money banks.

In addition, given the continued poor performance experienced in the banking sector as indicated by high levels of credit risk, poor liquidity, high financial leverage and impairment of capital based by high incidence of non-performing loans, in spite of the frequent reforms that various governments in Nigeria have embarked upon, there is the need to constantly examine and analyse the factors that could affect bank performance with the aim of providing empirical evidence based on which solutions can be offered. Also, it is in the realization of the consequence of deteriorating corporate financial structure, efficiency and profitability of the financial system at larger; it is on this basis that the study will seek to empirically establish the

difference in the contributions of financial soundness capital, liquidity and leverage based indicators on Nigeria international and national deposit money banks' financial performance.

Finally, it is anticipated to expose all the preventive factors and feasibly propose the way out. The study does not only revalidate knowledge but make a definite contribution to knowledge, expand the theoretical literature review and validate the banks' financial performance econometric model.

**1.3 Objectives of the Study**

The main objective of the study is to determine the contribution of financial soundness indicators (FSCIS) on Nigeria deposit money banks' performance. Specifically the study is set out to:

i. Determine the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on asset (ROA).
ii. Ascertain the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' asset quality (AQ).
iii. Ascertain the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' expenses-revenue ratio (ExpeR).
iv. Determine the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on equity (ROE).
v. Determine the relationship between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA).
vi. Ascertain the magnitude and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ).

### 1.4 Research Questions

The following research questions were developed from earlier stated above research objectives:

i. What is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on asset (ROA)?
ii. To what extent is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' asset quality (AQ)?
iii. What is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' expenses-revenue ratio (ExpeR)?
iv. To what extent is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on equity (ROE)?
v. What is the magnitude and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA)?
vi. To what extent is the degree and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ)?

### 1.5 Research Hypotheses

The following null hypotheses (**$H_0$**) were tested at 5% level of significance ($\alpha$):

i. The difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on asset (ROA) is not significant.
ii. There is no significant difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' asset quality (AQ).
iii. The difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' expenses-revenue ratio (ExpeR) is not significant.

iv. There is no significant difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on equity (ROE).

v. The magnitude and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA) is not significant.

vi. The degree and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ) is not significant.

### 1.6 Significance of the Study

The study will be of importance to the following set of individuals:

**Management:** will find this work of great importance on their day to day decision making process. This study will be beneficial to the management of deposit money banks, as it will provide optimum financial capital-based and liquidity-based structured information for making proper and effective management decisions about trade-off between optimum financial capital structure, liquidity level, profitability and efficiency in order to achieve optimal financial performance. It will help captains of industries to determine the overall efficiency and profitability of the banks.

**Employee:** this study will provide a knowledge that will aid the employees in determining the true picture of the financial health condition of the banks where they work and look forward for the future financial prospect of the organisation.

**Government:** this will provide a focus for government agencies (Central Bank of Nigeria, Nigeria Deposit Insurance Corporation and Financial Reporting Council of Nigeria-FRCN) in formulating accounting standards in regards to financial soundness and accounting practice that will disclose the true and fair view of organizational financial position. Also provide focus for CBN on the financial soundness metrics that will be included in prudential financial guidelines

formulation that will be adopted in determining the financial health of Nigerian deposit money banks. And it will aid the Nigerian Deposit Insurance Corporation to understand a financial metric that guide them in regulating the amount of risk exposure that Nigerian deposit money can absorbed based on the peculiarity of the bank.

**Shareholders:** the study will provide knowledge to shareholders on how to determine the efficiency and profitability within the organization in order to ascertain if their wealth had been maximized or not. And to measure or determine the management's efficiency by comparing the fund or resources committed into their trust and value created by management.

**Creditors/Customers:** it will serve as a reference point or guide in the computation or determination of banks' financial ability in meeting their financial obligations to the savers, lenders or provider of short-term funds as at when due.

**Academia:** Scholars wishing to carry out research work in this area will find this research work vital to their studies. It would serve as a reference point and research material for further studies in related research work that will be conducted locally and internationally.

### 1.7 Scope of the Study

The study examined the contribution of capital adequacy ratio-CAR, leverage ratio-LEV and liquid asset ratio-LR to financial performance (i.e. return on investment-ROI, return on equity-ROE, asset quality-AQ, and administrative expenses-revenue ratio -ADER) of Nigerian deposit money banks. The financial statements of the selected Nigerian banks were used to obtained secondary data for the study. The study will adopt parametric and non-parametric statistical techniques for analyzing the data.

The study covered international and national Nigeria deposit money banks excluding non-interest banks, the international and national Nigeria deposit money banks capital adequacy

ratio are 15% and 10% respectively. The study covered eight (8) years period from year 2010-2017. The choice of these sectors is informed by the fact that the Nigeria deposit money banks play an intermediary role of providing funds from surplus unit to deficit unit of the financial system and development of Nigerian economy and also the financial stability of Nigeria deposit money banks is of paramount issue to the entire Nigeria financial system. The basis for the selection of these banks is that they have escaped the financial shocks of 2008/2009 and Central Banks of Nigeria reforms and maintain their financial stability reasonably. The generalisation of the study results will be limited to the studied banks selected.

### 1.7 Limitation of the Study

We would like to make it clear that, mainly there are limitations of this study. This research work was carried out in the face of various constrictions in the area of dearth of data as a result of the dynamic nature of the Nigerian economy. Despite these precincts, it is thought that the quality of the research work is not hindered. The study is confined to eight years data only, i.e. from 2010–2017, therefore, a detailed analysis covering a lengthy period, which may give slightly different results has not been made. Therefore, the accuracy of results is purely based on the data of studied units. The generalization of the study will be limited to the selected international and national deposit money banks licensed by Central Bank of Nigeria (CBN).

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.1 Conceptual Review

### 2.1.1 Financial Soundness Indicators

In recent decades, financial instability has become a major source of concern worldwide. The proliferation and recurrence of financial crises since the 1980s, affecting both developed countries and developing countries and the socio-economic costs they generate, are the main reasons for this concern. A significant component of this concept lies in the central role of banks at the heart of countries' growth dynamics. International banking activity has undergone dramatic changes in terms of banks' structure, status and regulations in a competitive and changing environment (Berger, Rosen, & Udell, 2007). Bank fragilities lastingly and profoundly affect societies, as seen in the subprime financial crisis that erupted in 2008. The idea that emerges highlights the importance of banks' financial stability and the creation of stronger banks that was seen as a remedy that could promote greater stability or soundness of financial systems and enhance the financial performance of banks.

There are increasing scholarly debates on the direction of policy to effectively improve the performance of banks. Some scholars argue that bank performance is enhanced by improvements in the internal organization and managerial efficiency, while others argue that industry wide factors are integral to bank performance. In recent times, the direction of literature has shown that both micro-prudential guidelines and macro-economic factors play a significant role in determining banks' financial performance. The International Monetary Fund (IMF) and Bank for International Settlement (BIS) had issued series of metrics to determine the financial

health or financial soundness of specific financial institution and financial systems as a whole; these lists of financial metrics are referred to as financial soundness indicators (FSI).

Financial soundness can be defined in the narrow sense to connote financial stability of financial institutions. While financial stability can also be extended to cover the functioning of financial markets, asset price volatility, risk management practices of institutions, etc., financial soundness of banks is still at the center of stability concerns. Financial soundness has been crucial issues for regulatory agency during the past decades both in developed and emerging economies. During this period, financial soundness of financial institutions has been used generally as a definition for financial system stability. Conversely, scholars suggest that financial soundness is multi-dimensional phenomenon which cannot be measured only with soundness of financial institutions (Münür, Alper, & Mahmut, 2008). In spite of the fact that there is still no universally recognized definition of financial soundness, there are essential ingredients in various financial soundness definitions. Price stability (monetary stability), infrastructure of the financial markets, functioning of financial markets, soundness of financial institutions, sustainable capital flows, reliable risk management practices of financial institutions, and the interaction between these variables are emphasized mostly together with the concept of financial stability– usually understood as the financial soundness-Among them, the stability of the banking sector is perhaps the most crucial element of financial stability (CBN, 2010; Münür, Alper, & Mahmut, 2008).

While the definition of financial stability needs to be further explored, there is a growing interest in measuring financial stability in order to take proactive measures to avoid any sources of instability. Similar to the multi-definition nature of financial stability, there are various ways of measuring it. The methods of measuring stability vary from a range of basic approaches to complex modeling techniques. Accounting and financial ratio analyses are used to examine the

financial soundness of financial institutions. Statistical and econometric methods are more robust and advanced approaches and have the advantage of doing in depth analysis or examination over a time period (Münür e tal., 2008).

More so, several methods have been developed to measure financial institutions' stability in terms of a common metric; as noted by IMF and Basel Committee that the new Basel III regulatory framework, which represents a substantial change from the current framework, will be fully implemented in 2019, with a phase-in period starting in 2013. Adoption of the Basel III Accord will have an impact on the compilation of the current FSIs measuring capital adequacy, leverage, and liquidity. Under Basel III, the existing definition of-total regulatory capital‖ has been tightened, in particular for Tier 1 capital. A new Capital Conservation Buffer has been established above the regulatory minimum capital requirement, which will be introduced in 2016 and will increase annually until 2019. A new leverage ratio will supplement risk-based capital requirements. Two new internationally harmonized global liquidity standards have been introduced, as a complement to capital requirements: a Liquidity Coverage Ratio and a Net Stable Funding Ratio.

We can analyze the stability of the Nigerian banking sector by applying CBN financial soundness metric which is in consonant with Bank for International Settlement (BIS) financial soundness metrics. This can be classified into three components, that is, financial soundness Asset-based indicators, financial soundness capital-based indicators and financial soundness income-expense based indicators; this taxonomy is based on CBN nomenclature. The study will considered financial soundness capital, liquidity and leverage based indicators since it has been adopted as the latent or hidden variables. The financial soundness liquidity and leverage based are the new financial metrics been added by Bank for International Settlement (BIS) under Basel

III accord to test the banks' financial health condition or financial stress. Financial soundness indicators can be divided into capital adequacy ratio, liquidity ratio and leverage ratio.

**a. Financial soundness Capital adequacy indicators**

Capital adequacy is vital to the robustness of financial sector to withstand shocks to their statement of financial position. Deterioration in the ratio signifies increased risk exposure and possible capital adequacy problems while an increase in the ratio means the reverse. There are three core indicators of capital adequacy and they are all compiled for banks. The indicators are: regulatory capital to risk-weighted assets, regulatory Tier 1 capital to risk-weighted assets and nonperforming loans net of provision to capital. Regulatory capital is as defined by the Basel Committee on Banking Supervision (BCBS) and comprises three tiers of capital (i.e. Tier 1, Tier 2 and Tier 3). It is important to note that Tier 3 is yet to be operational in Nigeria.

Regulatory capital to risk-weighted assets ratio measures the capital adequacy of the banking sector in Nigeria. The numerator represents the industry position of the regulatory capital of all DMBs in the country, while the denominator is their Risk Weighted Assets (RWA) within the given period. In 1988 Basel capital accord propounded the definition of capital and distinguished it between core elements (Tier 1) capital and supplementary elements (Tier 2) capital. Basel Committee introduced capital adequacy regulation in 1988, which required globally active banks to maintain a minimum capital equal to 8% of risk adjusted assets, with capital consisting of Tier I capital (equity capital and disclosed reserves) and Tier II capital (long term debt, undisclosed reserves and hybrid instruments) that has been adopted by more than 100 countries (Jacobson, Linde, & Roszbach, 2002). Financial institutions must maintain a capital adequacy at specific minimum level in order to avoid risks and bankruptcy. The regulators of capital requirements seek to guarantee that risk exposure on financial institutions and banks are supported by an adequate amount of capital which bears unexpected losses arising in the future.

This ensures banks further promote their cushion of assets that can be utilized for liquidation claims.

Nonperforming loans net of Provision to Capital can be represented as $(NPL-PR)/CA$. That is, NPL is nonperforming loans, PR is specific loan provisions and CA denotes capital. Capital implies total capital and reserves as reported in the sectoral statement of financial position for cross border consolidated data. It can also be proxied by total regulatory capital. This indicator is intended to compare the potential impact on nonperforming loans net of provision on capital. In other words, it displays the capacity of the banking sector to withstand losses from NPLs. Loan is treated in Nigeria as nonperforming when payments of principal and interest are overdue by three months or more. Specific provisions are deducted from the capital which is measured as capital and reserves reported in the sectoral statement of financial position, that is, to show the component that is fully at risk. In the alternative, however, regulatory capital can also be used (Essien & Doguwa, 2014; Olaoye & Olarewaju, 2015).

The international convention is that regulatory capital should not be less than 8.0 per cent of banks' risk weighted assets, while the required minimum ratio in Nigeria is 10 per cent for Regional and National banks and 15 per cent for International banks. Regulatory Tier 1 capital to risk-weighted assets ratio measures the capital adequacy of the banking sector in Nigeria. The numerator represents the industry position of the Tier 1 capital of all DMBs in the country, while the denominator is their risk weighted assets (RWA) within the given period. Tier1 capital comprises of paid-up capital, common stock and disclosed reserves such as retained earnings, share premiums, general reserves and legal reserves. Capital adequacy ratio was measured as the ratio of the sum of Tier-One and Tier-Two to risk weighted assets (CBN, 2014).

**b. Financial soundness Liquidity-based indicators**

There are two core indicators for liquidity; namely: liquid assets to total assets (also known as liquid assets ratio) and liquid assets to short-term liabilities. Liquid assets ratio measured the ratio of liquid assets to totality of assets (that is liquid asset divided by total asset) this indicator aims to provide indication of the liquidity available in the system to meet both expected and unexpected demands for cash. Liquid asset could take the form of either core or broad liquid assets. Core liquid assets comprise of currency and deposits and other financial assets that are available either on demand or within three months or less. Broad liquid asset equals the core assets plus securities that are traded in liquid markets and can be easily converted into cash with no or minimal change in value. While liquid asset to short-term liability is the ratio of total specified liquid assets to total current liabilities. The indicator aims to identify the extent of liquidity mismatch between assets and liabilities so as to provide insight into the possibility of deposit takers satisfying short-term withdrawal of funds without facing liquidity problems. Short-term liabilities are the short-term elements of debt liabilities plus the net short-term market value of financial derivatives position (BCBS in IMF, 2006).

Customer Deposits to Total (Non-interbank) Gross Loans is one of the indicators derived by IMF to determine the banks or deposit takers liquidity, this can be measured as total deposit liabilities of the DMBs excluding interbank takings divided by total loan portfolio. Lower stable deposits in relation to loans imply a greater reliance on more volatile funds to cover the illiquid assets. The risk in using volatile funds to fund loans is relatively higher than that of using a stable deposit base. This can also be term deposit structure which is defined as total deposit divided by total asset-(loan and advances); tries to establish the percentage of total deposit used in financing total asset. In Nigeria this term as Loan-to-Deposit ratio is the ratio of total loans

and advances to total deposit liabilities. Loan is represented by total loan in the statement of financial position, whilst the deposits include demand deposits, time deposits, certificate of deposits, savings, issued securities, prime capital, loan capital, and borrowing. This ratio shows the proportion of public contribution as a source of capital or liquidity to finance the banks' loans. Smaller LDR number indicates that public provides smaller proportion to support the banks' loans. The ratio represents liquidity mechanism. Eighty percent (80%) is the maximum prescribed by CBN (CBN, 2014).

**c. Financial soundness Leverage-based indicators**

This is one of the capital based indicators formulated by IMF which is defined as capital to assets in section ($I013= CA/TA$ (12)) of IMF publication. Where I013 is the IMF code for the indicator, CA and TA are as defined tier-1 capital and total assets. However, Tier 1 can also be used to proxy CA. This indicator aims to show the leverage of the deposit takers. It reveals the extent to which assets are funded by funds other than those of the owners of the deposit takers (DTs) or it shows the proportions of debt and equity in financing the bank's assets. It is also called the leverage ratio (IMF, 2006).

Leverage ratios can be measured through debt ratio (that is, total debt divided capital employed or net asset), total debt will include short and long-term borrowings from financial institutions, debenture/bonds, deferred payment arrangements for buying capital equipment, bank borrowings, public deposits and any other interest-bearing loan. Capital employed will include total debt and net worth. Supplier of long-term debt concentrates on the long-term and short-term solvency. They evaluate the firm's profitability over time, its ability to generate cash to be able to pay interest and repay principal and the relationship between various sources of funds (capital structure), (Osisioma, Egbunike, & Jesuwunmi, 2015).

Note leverage ratios may be determined from statement of financial position or statement of comprehensive income elements, that is, calculate the proportion of debt in total financing or the degree to which operating profits are sufficient to cover the fixed charges; that is, coverage ratios or interest coverage = EBITDA divided by interest or (EBITDA÷[interest +[loan repayment(1-tax rate)]). But the study will adopt Basel III leverage ratio. This is a non-risk based leverage ratio and is calculated by dividing Tier-1 capital by the bank's average total consolidated assets (sum of the exposures of all assets and non-balance sheet items). The banks are expected to maintain a leverage ratio in excess of 3% (i.e. LEV $\geq$ 3%) under Basel III accord. Many variations of these ratios exist; but all these ratios symbolize the same thing- the extent to which the bank has relied on debt in financing assets.

### 2.1.2 Financial Performance

There is need to understand the construct performance before considering financial performance. Performance has been defined by numerous scholars as multi-dimensional construct the mention of which varies from one discipline to the other, one view is concerned with record of outcomes achieved, that is, performance is regarded as accomplishments. Another view is that performance is about doing the work which is behavioral in nature (Osisioma, Egbunike, & Jesuwunmi, 2015). Nnabuife, (2009) sees performance as individual efforts that will lead to a specific outcome that will be matched with expected reward by managers. Performance is the outcomes of work because they provide the strongest linkage to the strategic goals of the organization, customer satisfaction, and economic contributions. Performance could be regarded as behavior, that is, the way in which organizations, teams, and individuals get work done (Armstrong, 2004 as cited in Akintonde, 2013). Hornby, et al., (2010) see performance as the act or process of performing a task, an action that involves a lot of effort, or how well or badly you do something or something works. Nnabuife (2009) in Osisioma, Egbunike, and

Jesuwunmi (2015) opined that performance assessment helps to determine what an employee had accomplished, which approaches provided the best results and the degree to which you are reaching your career goals.

According to Kohler, (1978) “Performance is a general term applied to a part or to all of the conduct of activities of an organization over a period of time; often with reference to past or projected costs efficiency management responsibility or accountability or the like.” Robert, (1961) “Performance is used to mean the efforts extended to achieve the targets efficiently and effectively the achievement of targets involves the integrated use of human, financial and natural resources.” So performance refers to presentation with quality and result achieved by the management of company.

Organizational performance evaluation or appraisal can be viewed from both financial and non-financial; this study is concerned with banks’ financial performance. The crucial point to note is that the overall financial performance of banks or organizations in this context is limited to financial accounting ratios; this factor is relevant and paramount to the banks’ financial analysis in this study. Stakeholders measure or evaluate the overall financial performance of a bank through its financial statements which shows the results of the banks’ operating cycle within a year and to identify bank’s strengths and weaknesses in order to proffer remedial solution. Furthermore, bank’s future plan should be in line with the firm’s financial strengths and weaknesses; consequently, financial analysis is the starting point for making plans, before adopting any advanced forecasting and planning techniques. Understanding the past is a prerequisite for anticipating the future (Adeniyi, 2011; Pandey, 2010).

Financial performance is scientific evaluation of profitability and financial strength of any business concern according to Kennedy and Macmillan (1986) financial statement analysis

attempt to unveil the meaning and significance of the items composed in statement of comprehensive income and statement of financial position. They assist management in the formation of sound operating and financial policies. One of the most fundamental facts about businesses is that the operating performance of the firm shapes its financial structure. It is also true that the financial situation of the firm can also determine its operating performance. The financial statements are therefore important diagnostic tools for the informed manager.

The management of the bank would be interested in all areas of the financial analysis; it is their duty to make the effective and efficient use of the bank's resources in their quest for optimization attainment. Shareholders (investors), who have invested their resources in the bank, are most concerned about the organization's profitability. They have assurance in those companies that indicate stable growths in earnings. Seeing that, they focus on the analysis of the bank's current and potential earnings. The government is interested in profitability to assess tax liabilities, survival and to ensure economic development. Employees are interested in stability and survival of the banks, on which their jobs, wages depend; while customers focused on the company's continued existence to maintain supplies possibly at reduce cost without compromising standards (Adeniyi, 2011; Pandey, 2010). All these can be ascertained through banks' financial ratios (that is, activity ratios or turnover ratio, asset quality and profitability ratios).

In summary, the term performance cannot be put into a tight framework of definition. It is indistinct phenomenon and it can be interpreted and measured in different ways. Different scholars from their point of views can evaluate performance from various angles. A financial analyst will judge the performance from profitability and growth point of view. Welfare economist and economic planner will be concerned with the equal distribution of gains and

wealth bedsides efficient utilization of resources. From the national viewpoint the various indicators of performance can be employment generation, research and development, health education and economic development etc. Moreover different parties viewed performance differently.

Therefore, activity ratio (turnover), profitability, and assets quality should be considered while analyzing financial performance of a bank. Some researchers have used only profitability as measurement of financial performance. The study will be interested in the two categories of financial performance ratios, that is, profitability ratios, and efficiency ratios-activity ratios (turnover ratio) and asset quality. Activity ratios reflect the bank's efficiency in utilizing its assets. Asset quality is measured as non-performing loan divided by total loan and advances. While profitability ratios measure overall effectiveness of the banks. These are used in determining how the management had use the fund or resource committed to their trust. Bank's performance constitutes the primary objective of shareholders' and other stakeholders' interest. This study employs four proxies for bank financial performance defined as the return on ivestment (ROI), asset asset quality (AQ), admin expenses-revenue (ADER) and return on equity (ROE). These regressands or explained variables will be discussed thus:

**i.** ***Return on Asset (ROA) and Return on equity (ROE)***

The term investment may refer to total assets or net assets. The funds employed in net assets are known as capital employed. Net assets equal net noncurrent (fixed) assets plus current assets minus current liabilities excluding banks loans. Alternatively, capital employed is equal to net worth plus total long-term debt (Groppelli, Angelico & Ehsan, 2000). The conventional approach of determining return on asset (ROA) is to divide PAT by investment. Investment represents pool of funds supplied by owners (shareholders) and creditors (lenders), while PAT

represents residue income of shareholders; as a result, it is conceptually unsound to use PAT in the computation of ROA. In addition, PAT is affected by capital structure. It is therefore more appropriate to use earnings before interet and tax (EBIT) (1-T) divided by total assets (TA) in determination of return on assets (ROA). While return on equity (ROE) can be determined by profit after tax divided total asset (Pandey, 2010).

### ii. Asset Quality (AQ)

There are two components for asset quality; namely: nonperforming loans to total gross loans and sectoral distribution of loans. Nonperforming loans to total gross loans pointer shows the quality of assets created by the banking system. The numerator is the total value of loans that are overdue while the total value of the loan portfolio is used as the denominator. Loan include those financial assets created through the direct lending of funds by a creditor to a debtor through an arrangement in which the lender either receives no security evidencing the transactions or receives a non-negotiable document or instrument. This can be calculated by dividing non-performing loan to total loan (NPL/TL). Is the ratio of non-performing loan divided by total loan or credit (NPTC); the tolerable limit is 10% stipulated by CBN (CBN. 2014; IMF, 2006).

Sectoral distribution of loans reveals the level of credit concentration and/or diversification in the loan portfolio which may be a source of vulnerability to the financial system. The numerators are lending to each of the listed sectors while the denominator is total gross loan (IMF, 2012).

### iii. Expenses to Revenue

The determination of expenses-revenue ratios can be divided into two parts, that is, non-interest expenses to gross income and personnel expenses to non-interest expenses; this is based

on IMF nomenclature. A non-interest expense to gross income implies that the metric measures the size of administrative expenses to gross income (interest margin plus non-interest income). Non-interest expenses include all expenses other than interest expenses, but without provisions and extra-ordinary items. This indicator measures the size of administrative expenses within gross income (IMF, 2012). Personnel expense to non-interest expenses is the IMF indicator use in determining the ratio of personnel expenses to non-interest expenses. This indicator accesses the proportion of personnel costs in total administrative costs. Personnel costs imply total remuneration payable by the banks in return for services rendered by the employees. This indicator has the tendency to undermine profitability.

## 2.2 Theoretical framework

The study is anchored on capital adequacy-risk theory, portfolio regulation theory and managerial discretion /expense theory; these three theories were adopted as a result of link or connection they have with the latent exogenous factors and latent endogenous variables used in building or formulating the linear multiple econometric models specified in chapter three.

### 2.2.1 Capital adequacy-risk theory

Negative externalities resulting from bank default are not reflected in market requirements. In this framework, an unregulated bank will take excessive portfolio and leverage risks in order to maximize its shareholder value at the expense of the deposit insurance (Benson, Eisenbeis, Horvitz, Kane, & Kaufman, 1986; Furlong and Keeley 1989; Keeley and Furlong, 1990). Capital requirements can reduce these moral hazard incentives by forcing bank shareholders to absorb a larger part of the losses, thereby reducing the value of the deposit insurance put option. With more capital and less risk taking, the effect is clearly a decrease in the bank's default financial performance, that is, efficiency and probability indicators.

### 2.2.2 Portfolio regulation theory

The study also adopts the theory of portfolio regulation to measure the performance of Nigeria deposit money banks. The theory opined that the controls of financial institutions are necessary to sustain safety and soundness of the banking system, to the extent, which put them in a position to meet its liabilities without difficulty (Ikpefan, 2013). It makes necessary for the CBN and NDIC to compel greater solvency and liquidity on Nigeria deposit money banks than making it discretionary. The higher this ratio, the better liquidity and solvency of the individual banks; if the asset portfolio is considered excessively risky or inadequate capital, the concerned regulatory body(ies) will attempt to compel an amendment in the bank's statement of financial position (Peltzman, 1970).

### 2.2.3 Managerial discretion theory

Managerial discretion theory was propounded by Williamson (1963); this theory is also known as theory of expense; Williamson (1963) asserted that managers have the preference in pursuing policies, which maximize their own utility rather than magnifying the shareholders' returns (profit maximization for shareholders); such utility comprise the satisfaction which mangers obtained from certain types of expenditure. Managers' reputation is to some degree reflected in the amount of allowances they receive in the form of expense account, luxurious offices and building, company cars and other perquisites of office (Williamson, 1963 as cited in Nyong, 2001). Operating efficiency attempts to capture this aspect of bank behaviour. Operating expenses captured by the study is represented in the developed models one of the variables that is, expense-revenue ratio. Operating expenses is derived from the use of resources and can have positive or negative implication on financial performance.

## 2.3 Conceptual Framework

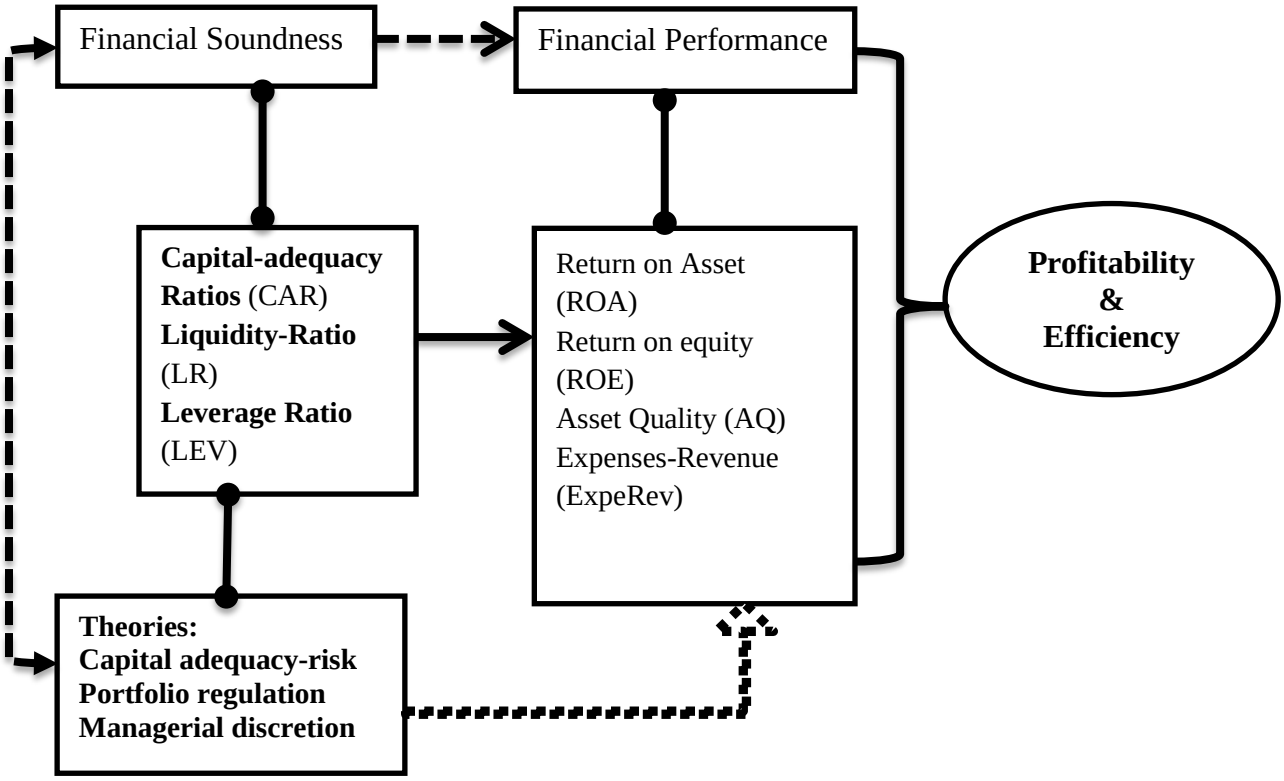


**Figure 2.3.1:** *Conceptual Model of Nigeria Deposit Money Banks' Financial soundness capital-liquidity based and Financial Performance metrics.*
**Source:** Researcher's conceptual model

Figure 2.3.1 shows the links between the studied variables and the theories is that it considers the contributions of financial soundness indicators on financial performance, that is, profitability and efficiency of Nigeria deposit money banks. It is obvious from the conceptual model that the basis of this study is established on capital-liquidity based indicators, efficiency and profitability of Nigerian deposit money banks, specifically financial soundness and optimal capital-liquidity management. It is the base which makes us interested in the study of the prediction and relationship between financial soundness and optimal financial performance of the national and international Nigeria deposit money banks. And more specifically, we want to find the prediction of capital-liquidity on efficiency and profitability. The study need to quantify

financial soundness capital-liquidity based as well as efficiency and profitability to reveal the prediction and relationship in an objective and linear econometric pattern.

To achieve this, we actually investigate the difference in prediction among the national and international banks; three indicators chosen to represent or measure financial soundness capital-liquidity based indicators and four indicators chosen to represent efficiency and profitability. Financial soundness capital-liquidity based metrics can be disclosed from three angles: capital adequacy ratio, leverage ratios and liquidity ratio, which is the bed-rock in the conceptual model design. And profitability and efficiency of Nigeria deposit money banks can be represented into return on asset, return on equity, asset quality and expenses-revenue which lies upon the indicators of profitability and efficiency.

In conclusion, the variables of financial soundness capital-liquidity based metrics can be viewed as the foundation of this enquiry and they are derived from the International Monetary Fund (IMF) and Basel Committee for Banks Supervision (BCBS) taxonomy or nomenclature. Seven indicators (capital adequacy ratio-CAR, Liquidity ratio-LR, Leverage ratio-LEV, ROA, ROE, asset quality-AQ, and expenses-revenue) form the foundation of this research. The mixture of ratios representing financial soundness-capital-liquidity based indicators and ratios disclosing efficiency and profitability which will be measured in the study is the main body of the model. The utmost level of the model after testing all indicators' prediction is linked to efficiency and profitability of Nigerian deposit money banks.

### 2.3.1. Theoretical Studies

The FSI was conceived after the Asian financial crisis that started in 1997. The crisis underscored the need for colossal data to facilitate timely, effective and efficient intervention of the regulatory authorities as well as effective oversight of member countries by the International Monetary Fund (IMF). The IMF, in response, launched some statistical initiatives to improve the

coverage of potential financial and external vulnerabilities. The initiative includes among others, the introduction of international reserves and foreign currency liquidity template, external debt statistics as well as financial soundness indicators (FSIs). The FSIs tends to measure in aggregate terms the current financial health and soundness of the financial institutions in a country as well as their corporate and household counterparties (Lotte, Albert, & Song, 2010).

The monetary statistics collected from member countries by the IMF before the introduction of FSIs does not convey adequate information on the soundness and risk of the financial system (Borio, 2003; IMF, 2006). The IMF as a starting point invited a group of experts, officials of IMF member countries, regional and international organisations and standard setters to a meeting in 2002 where an agreement was reached on the need for additional data. The meeting further identified some critical indicators member countries should compute for monitoring financial system vulnerabilities. A survey was, in the mid-2000 conducted, covering over 100 countries, by the IMF on the compilation, dissemination and use of the agreed FSIs. The response from the survey helped the Fund to identify a core set of financial soundness indicators to be compiled by all member countries and another group of encouraged set of important indicators that countries are not obligated but encouraged to compile depending on the national circumstances.

To ensure that FSIs reflect the evolving need of the Fund surveillance activities, arising from the rapidly changing financial environment, the Fund agrees to review the indicators from time to time. Consequent upon another set of consultation in collaboration with national and international experts, international standards setting bodies, relevant departments of the Fund, all the FSIs reporting countries including Nigeria and interested international organisations, the first review which took place in 2013 led to some modifications. The list was expanded to cover money market funds, insurance corporations, pension funds, other nonbank financial institutions, nonfinancial corporations and households. Other FSIs proposed at the initial stage were however

dropped due to its non-comparability status. Thus, nineteen indicators were added to the list, while five were dropped. The nomenclature for "Encouraged FSIs" was also changed to "Additional FSIs". Table 2.1 shows the monetary and financial statistics for deposit and non-deposit takers.

**Table 2.3.1:** Monetary and Financial Statistics: Financial Soundness Indicators: The Core and Encouraged Sets

| | **Core Set** |
|---|---|
| **Deposit-taking institutions** | |
| Capital adequacy | Regulatory capital to risk-weighted assets |
| | Regulatory Tier I capital to risk-weighted assets |
| Asset quality | Nonperforming loans to total gross loans |
| | Nonperforming loans net of provisions to capital |
| | Sectoral distribution of loans to total loans |
| Earnings and profitability | Return on assets |
| | Return on equity |
| | Interest margin to gross income |
| | Noninterest expenses to gross income |
| Liquidity | Liquid assets to total assets (liquid asset ratio) |
| | Liquid assets to short-term liabilities |
| Sensitivity to market risk | Net open position in foreign exchange to capital |
| | **Encouraged Set** |
| Deposit-taking institutions | Capital to assets Geographical distribution of loans to total loans |
| | Gross asset position in financial derivatives to capital |
| | Gross liability position in financial derivatives to capital |
| | Trading income to total income |
| | Personnel expenses to noninterest expenses |
| | Spread between reference lending and deposit rates |
| | Spread between highest and lowest interbank rate |
| | Customer deposits to total (non-interbank) loans |
| | Foreign currency-denominated loans to total loans |
| | Foreign currency-denominated liabilities to total liabilities |
| | Net open position in equities to capital |
| | Large exposures to capital |
| Other financial corporations | Assets to total financial system assets |
| | Assets to GDP |
| Nonfinancial corporate sector | Total debt to equity |
| | Return on equity |
| | Earnings to interest and principal expenses |
| | Net foreign exchange exposure to equity |
| | Number of applications for protection from creditors |
| Market liquidity | Average bid-ask spread in the securities market |
| | Average daily turnover ratio in the securities market |
| Households | Household debt to GDP |
| Real estate markets | Household debt service and principal payments to income |
| | Real estate prices Residential real estate loans to total loans |
| | Commercial real estate loans to total loans |

**Source:**IMF-FSI Compilation Guide, 2006

**e. Differences between FSIs and Monetary Statistics**

Although, most of the names of the financial soundness indicators sound familiar, their computational procedure and sources of data differs widely. The FSIs for deposit takers (DTs), for instance, are computed from different sources, such as the income and expense statement, statement of financial position and memorandum items. The data derived from the financial statements are specially defined in line with some specifically incorporated accounting principles (Sere-Ejembi, Udom, Audu, Atoi, & Yaaba, 2014). Only a small fraction of core and additional sets of the FSIs for deposit takers are derived from the statement of financial position for the Other Depository Corporations (ODCs) compiled in line with the requirements of monetary statistics. This is because data required for some of the indicators are out rightly not available in the statement of financial position of the deposit takers (DTs). More so, in case of similarities between an item in monetary statistics and FSI-underlying series, standards regarding definition and accounting vary significantly (Yaaba & Adamu, 2015). The key differences between monetary statistics and FSIs can be summarized as follows:

**Data Sources:** while the data for compiling FSIs are sourced from both the sectoral statement of financial position and income statement that of monetary statistics is derived from only the sectoral statement of financial position.

**Consolidation Basis:** the consolidation of data for FSIs is done either on domestically controlled, cross border, cross sector basis and/or cross border, cross sector consolidation for all domestically incorporated entities while that of monetary statistics is only on domestic consolidation basis.

The Central Bank of Nigeria (CBN) compiles to both core and encouraged FSIs for deposit takers in Nigeria. The compilation is limited to the indicators whose underlying series are available in the statutory returns of deposit money banks (DMBs). Eleven of the twelve core

financial soundness indicators initially approved by the IMF, is been computed for the banking sector in Nigeria. The FSIs cut across all the four components of the indicators; namely: capital based, asset based and income and expense based (CBN, 2014).

**f. The Concepts of Prudential Monitoring**

Prudential monitoring can be categorized into macro and micro-prudential monitoring. Macro-prudential monitoring differs from micro-prudential supervision from the perspective of the objective, focus, approach, risk as well as the calibration of tools used for monitoring. The major objective of macro-prudential regulation is to examine trends in the financial system in particular and the economy as a whole that can impact on financial stability and possibly trigger systemic financial crises(Borio, 2003; Lotte, Albert, & Song, 2010). With efficient markets, enough infrastructure to support the financial system and properly managed financial institutions, the incidence of financial stress is likely to be less frequent and the associated costs much lower.

But the recurrence of financial market volatility implies that institutions are not properly managed, markets do not always function efficiently and effectively and the supporting financial infrastructure has some inherent weaknesses. Since the operation of the financial system depends to a large extent on the macroeconomic developments that affect individual institutions, it is imperative to take stock of the inter-relationship between financial markets and the real economy to understand the potential risks and possibly predict an impending financial stress.

It is highly difficult for crisis to be the same in terms of cause and magnitude but experts agreed that most of the crisis mirror a confluence of some underlying economic vulnerability. For instance, risk effects emanate mostly from exposures to the same or similar source of risk factors. Exposures are likely to build up on the asset side of the statement of financial position as

against the liability side. This could arise as a result of some political crisis, terms of trade shocks, contagion from other economies or the collapse of certain sector of the economy like the case of the United States (US) subprime market that lead to the most recent financial and economic crisis in 2007. Macro-prudential regulation focuses on the major subsectors and institutions of the financial system (Borio, 2003). The importance of banking institutions is because of their specific function as suppliers of liquidity to the economy and the significant macroeconomic costs of the impact of the financial stress on the institutions and the economy. Table 2.3.2 shown the differences between micro and macro-prudential approaches to regulation.

**Table 2.3.2:** Differences between Micro and Macro-Prudential Approaches to Regulation

| | **Macro-Prudential** | **Micro-Prudential** |
|---|---|---|
| **Objectives** | Limit the likelihood of financial system-wide distress and avoid significant losses on real output | Limit the likelihood of failure of individual institutions and protect customers |
| **Focus** | Financial system as a whole | Individual financial institutions |
| **View of Risk** | Endogenous (risk is seen as dependent on collective actions) | Exogenous (risk is seen as independent of individual actions) |
| **Calibration of Prudential Tools** | Top-down (calibrated with respect to cross-sectional and time dimensional risks) | Bottom-up (calibrated with respect to risks incurred by individual institutions) |

**Source:** Borio, 2003

## 2.4 Review of Related Empirical Studies

The following empirical literature reviews were carried out from previous studies conducted by different scholars so that insight can be drawn from them and gap establishes:

Recent banking reforms in different nations of the world fostered the entry of foreign banks to increase competition and improve the financial stability of banks. There is, however, no comprehensive econometric study which has analyzed the profitability of national and international banks on a standalone and comparative basis. Abba, Okwa, Soje, and Aikpitanyi (2018) analyze capital adequacy ratio (CAR) and Nigerian deposit money banks' (DMBs) performance using balanced panel data collected from financial statements of 12 selected quoted

banks for the ten-year period 2005-2014. The index for profitability which is ROA was found to be the most important determinant of CAR. Also, Nigerian banks' risk portfolio is quite high and ROA is quite low. The study concludes that CAR is largely determined by banks risk-portfolio, deposit level, profitability and asset quality and CAR of Nigerian banks is well above CBN and Basel Accord regulatory minimum. The banks should maintained optimum capital adequacy ratio.

Adekunle (2018) studied internal factors affecting profitability of deposit money banks (DMBs) in Nigeria for the period of 2008-2016 using panel data of 14 listed banks drawn from the Nigerian Stock Exchange. Secondary data obtained from the listed deposit money banks' financial statements were analyzed. The independent variables were proxied by capital adequacy, credit risk, and inflation while profitability was proxied by return on assets (ROA). The study adopts correlational research design to investigate the determinants of profitability of the deposit money banks. Panel data techniques (fixed and random effects model) were employed to examine the effect of internal factors on profitability of the sampled listed deposit money banks. The study found that internal factors had significantly influenced on deposit money banks' profitability over the study period. The capital adequacy had a positive and significant relationship with bank ROA while credit risk had a negative and significant relationship with banks' profitability during the study period. The banks should maintained good credit risk portfolio and capital adequacy policy.

Ahmad, Ahmad, and Adeel (2018) appraise the trade-off between liquidity and profitability in the banking sector. The research was applied to all listed banks of Pakistan Stock Exchange during the time period of 2010-2015. Document investigation was the key research method adopted to gather secondary data for the research. Six research models were stated and

estimated via Ordinary Least Squares (OLS) method. The observed outcomes exposed significant connection among bank liquidity ratios and return on assets, return on equity, net profit margin, and Tobin-q. However, return on investment and earning per share relationship with liquidity is insignificant. The banks' management should maintained optimum liquidity that will maximise profitability.

Gweyi, Tobias, and Oloko (2018) evaluate the influence of liquidity risk on financial performance of deposit taking savings and credit co-operatives (DT-Saccos) in Kenya. The study adopted a descriptive research design. The target population for this study was 164 deposit taking Sacco societies licensed to undertake deposit-taking Sacco business in Kenya. The study adopted census and considered all the Deposit Taking Saccos for study. Secondary data was collected from 135 deposit taking Sacco's audited financial statement which represented 82.32% success rate. Data was analyzed using both descriptive and inferential statistics. The result indicates liquidity risk has a negative and significant influence on financial performance. There should be good policy to minimize liquidity risk, so that, depositors demands can be met.

Tuffour, Owusu, and Boateng, (2018) appraise factors internal to the firm as well as those external to the control of the firms' management. The study examined internal and external determinants of bank profitability in Ghanaian banking industry. A panel data of 6 banks listed on the Ghana Stock Exchange was analyzed over the period 2010-2015, using pooled regression models. The statistical results revealed that major determinants of bank profitability in Ghana include the bank capital adequacy, liquidity, total assets and real interest rate. Bank liquidity has significant negative effect on both return on assets and return on equity, while bank operating efficiency has negative and significant influence on only return on equity. On the other hand, while bank capital adequacy was positive and significant for determining both return on assets

and return on equity, that of bank total assets has positive and significant influence on only return on assets. The bank management and regulator should stipulate optimum level for profitability determinants.

Onyekwelu, Chukwuani, and Onyeka (2018) appraised effect of liquidity on financial performance of deposit money banks in Nigeria**.** Ex-post facto research design was adopted and sample of five (5) banks was used for the study. Secondary data were collected from the firms for ten years period, 2007-2016. The data were analyzed using multiple regression analysis. Results show that Liquidity has positive and significant effect on banks' profitability, that is, return on capital employed (ROCE). The management should established liquidity level that will guarantee best financial performance.

Saheed ﴿2018﴾ studied the effect of capital adequacy and operational efficiency on profitability of deposit money banks (DMBs) in Nigeria for the period of 2008-2016 using panel data of 15 listed banks drawn from the Nigerian stock exchange. The study adopts correlational research design to examine the effect of the bank specific factors on bank profitability. Panel data techniques were employed to examine the effect of capital adequacy and credit risk on profitability of the sampled DMBs. Although Hausman specification test suggested that random effect model is more appropriate, the study utilized feasible generalized least square (FGLS) to underpin the outcome of the Hausman specification. The capital adequacy has a positive and significant relationship with bank profitability while operational efficiency has a negative and significant relationship with bank profitability during the study period. The banks should maintained optimum capital adequacy and operational efficiency level.

Abdulazeez, Asish, and Rohani (2017) assessed the profitability of Saudi banks using the parameters of the capital adequacy, asset quality, management quality, earning ability and

liquidity framework over the period 2000-2014 using pooled ordinary least square and fixed effect model. Their results shown that domestic banks are more profitable than foreign banks; and foreign banks carry more credit risk in their portfolio. In contrast to domestic banks, operating expenses to total income for foreign banks is significant but negatively related to profitability, indicating that cost management inefficiency adversely affect the profitability of this group. Their results also indicated that banks with larger size are less profitable. The study failed to identify the effect of banks' capital adequacy, liquidity, and asset risk portfolio on their asset quality, efficiency and profitability on a stand lone basis between foreign and domestic banks rather focusing on earnings' ability of the studied banks. Another flaw is inappropriate statistical tool adopted for models comparison.

Liquidity refers to the ability of a firm to meet its obligations as and when they fall due. In order to meet their obligations, banks are expected to hold a certain percentage of their total finance in cash. However, majority of the institutions especially financial institutions tend to focus only on profit maximization at the expense of liquidity management. This creates a spur for Akenga (2017) to examine the effect of current ratio, cash reserves and debt ratio on financial performance of firms listed at the Nairobi Securities Exchange (NSE). Causal research design was adopted. Purposive sampling technique was used to select 30 firms. The data was analyzed using descriptive and inferential statistics it was found that current ratio and cash reserves have a significant effect on ROA. The debt ratio was found to have no significant effect on ROA. The banks should keep to appropriate level of leverage that will maximize shareholders' wealth and safe guard of depositors' deposit.

Almazari and Alamri (2017) assessed the effect of capital adequacy on profitability between two banks Samba and Saab. Data for analysis were collected from secondary sources. A

descriptive analysis was used in testing the hypotheses. Results indicated that, Model 1 Saab bank shows a low positive correlation relationship between the ROA and ROE and a high positive relationship between ROA and core capital adequacy ratio, equity capital adequacy, total capital adequacy and debt-equity. The ROE has a positive relationship with core capital adequacy, equity capital adequacy and total capital adequacy. Furthermore, Model 2 Samba bank shows a high positive correlation relationship between ROA and ROE and a positive relationship between ROA and debt-equity ratio. A negative relationship between ROA and core capital adequacy, equity capital adequacy, and total capital adequacy. A positive relationship between ROE and cost income ratio, debt-equity ratio, and a negative relationship with core capital adequacy, equity capital adequacy and total capital adequacy. Appropriate capital adequacy must be maintained in order to achieve optimum return and enhanced financial performance.

Amahalu, Okoye, and Nweze, (2017) ascertained the effect of capital adequacy on financial performance with a focus on selected quoted deposit money banks in Nigeria from 2010-2015. They made use of secondary data obtained from fact books, annual reports and account of the deposit money banks under study. The data were subjected to statistical analysis using Pearson coefficient of correlation, multiple regression analysis, variance inflation factors, multicollinearity, heteroskedasticity test and hausman test. The result of this study revealed that there is a positive and significant relationship between capital adequacy and financial performance. It was also empirically verified that capital adequacy has a statistically significant effect on financial performance of deposit money banks. The Central Bank of Nigeria should monitor, review and control the capital adequacy level of Nigeria deposit money banks.

Anupam and Ganga (2017) studied the variables that impact the profitability of UAE banks. They provide evidence of important bank-specific, macroeconomic, and industry-specific

variables that have affected 19 UAE banks' profitability by analyzing balanced panel data for 2006 to 2013. Both Islamic and non-Islamic, domestic commercial banks are considered. The study examined internal variables (company-level indicators), which include size, liquidity, and capital adequacy ratio, as well as external variables, which include macroeconomic and industry-specific variables. Panel data regression analysis is used for the analysis. Based on the empirical analysis, the cost efficiency, non-traditional revenue sources, and high asset quality are the most significant bank-specific variables. The GDP, a macroeconomic variable, is found to be relevant to the return on assets and return on equity. The model generated in the study can explain a greater than 75% change in the total variance of various measures of profitability. The Central Bank of Nigeria needs to monitor the banks-specific and macro-economic determinants.

From a different perspective Asima, Mahmood, Raheel, and Muhammad (2017) endeavored to find out the effect of financial variables on bank performance pre and post financial crisis of 2008 in Pakistan. Using regression analysis the study revealed that financial crises of 2008 posed a significant influence on the performance of conventional and Islamic banks in Pakistan and pronounced a negative relationship between financial crises and bank performance. The capital adequacy, assets quality, management quality, liquidity, earning quality and bank size posed a negative influence on bank performance. The major flaw of this study is that, it failed to adopt appropriate methodology that can cross examined research data; difference in prediction does connote significant influence for different periods.

Barus, Muturi, Kibati, and Koima (2017) appraise the effect of liquidity on financial performance of savings and credit societies in Kenya. The study employed an explanatory research design. The target population and sample size was 83 registered deposit taking SACCO's in Kenya that have been in operation for the last five years (2011-2015). Both primary

and secondary sources of data were employed. Multiple linear regression models were used to analyze the data. A pilot study was conducted to measure the research instruments reliability and validity. Based on the findings the study concluded that liquidity influenced the financial performance of savings and credit societies in Kenya. This can be explained by the regression results which showed that the influence was positive and also showed the magnitude by which liquidity influenced the financial performance of savings and credit societies. Appropriate liquidity level should be maintained with profitability by banks.

Edem (2017) empirically investigates the impact of liquidity management on the performance of deposit money banks. Twenty-four banks were surveyed which constitute the entire deposit money banking industry in Nigeria between 1986 and 2011. Secondary data were collected; correlations and multiple linear regression analysis were adopted to analyse the data. Bank performance in terms of profitability is measured by its return on equity. Findings from the empirical analysis show that there is a significant relationship between liquidity and the performance of deposit money banks in Nigeria. The correlation results reveal positive impacts between return on equity and liquidity management variables: liquidity and cash reserve ratios, whereas loan to deposit ratio shows negative impact. However, the key results indicate that only the banks with optimum liquidity were able to maximize returns.

Similarly, Irwan (2017) analyzed the effect of capital adequacy ratio (CAR), non-performing financing (NPF), operating costs to operating income ratio and financing to deposit ratio (FDR) toward return on assets (ROA), either jointly or partially and also looking for the most dominant influencing factor. As for the object of the research are 47 Islamic rural banks in Indonesia with total assets of IDR3.908 billion or 50.5% of total assets of Islamic rural banks in Indonesia that is IDR7.739 billion. The analysis was done by regression with the result of

independent variable of non-performing financing (NPF) and operating cost to operating income ratio, partially, have a significant and negative effect toward return on assets. However, capital adequacy ratio (CAR) and financing to deposit ratio (FDR) are slightly influential and have insignificant effect toward return on assets (ROA) of Islamic rural banks in Indonesia partially, while jointly, have positive and significant influence toward return on assets. The study failed to examine how capital requirement, that is, capital adequacy ratio had affected credit quality.

Isanzu (2017) empirically examined the impact of credit risk on the financial performance of Chinese banks. Secondary data was collected from five largest commercial banks in the country for the period of 7 years from 2008 to 2014. The study used nonperforming loans, capital adequacy ratio, impaired loan reserve, and loan impairment charges as measures of credit risk and for a measure of financial performance return on asset was used. Balanced panel data regression model was adopted and the study findings revealed that nonperforming loan and capital adequacy have a significant impact on financial performance of Chinese commercial banks. There is a flaw of wrong combination of regressors the capital adequacy should have been used to predict asset quality (nonperforming loan) and profitability.

Capital adequacy is sufficiency of the amount of equity to absorb any unexpected shocks that a bank may face. According to the capital adequacy standard set by the Bank for International Settlements (BIS), banks must have a primary capital base equal at least to 8% of their assets. Since bank-specific characteristics differ in Nigeria, the Central Bank of Nigeria (CBN) set an arbitrary ₦ 25 billion minimum capital base after considering all capital adequacy variables to forestall all future financial downturns. This created a momentum in Jalloh (2017) to examine the impact of capital adequacy on banks' performance in Nigeria. Data was collected using the cross panel methodology from nine deposit money banks with significant foreign

operations. The results of the ordinary least square (OLS) regression show that 76% ($R^2$) of the variations in profit after tax (PAT) were caused by capital adequacy ratio. Constant monitoring and reviewing of capital adequacy based of banks by Central Bank of Nigeria and banks' management.

Kamande (2017) examined the effects of bank specific factors on the financial performance of commercial banks in Kenya. The dependent variable under investigation was return on assets (ROA). Data were collected from published financial statements of 11 selected listed banks on Nairobi securities exchange for five years from 2011 to 2015. They adopted an explanatory approach and data was analysed using multiple linear regression models. The results showed that there was positive and significant association between ROA and the regressors (capital adequacy, asset quality, management efficiency, earnings ability and liquidity). The study concludes that Asset quality of the bank have the highest influence on ROA of banks.

Kipruto, Wepukhulu, and Owino (2017) studied how capital adequacy ratio influences financial performance of commercial banks in Kenya. Correlation and descriptive research designs were used. The study was conducted in 14 second tier commercial banks in Kenya. It collected financial data from 2013 to 2016, considering that the regulations came into effect in 2013 from CBK and commercial banks websites. Multiple regression analysis was performed. Findings revealed that there is significant positive relationship between capital adequacy ratio and financial performance of mid-tier commercial banks. In conclusion, it was found that capital adequacy ratio is among the main predictors of mid-tier commercial banks' financial performance.

Lemara, (2017) seeks to determine the effect of liquidity on financial performance of deposit taking microfinance institutions (DTMs) in Kenya. Descriptive research design was used

and data was obtained from the published financial statements of 13 deposit taking microfinance institutions in Kenya. The sampling technique that was employed in this study was a census with a clear preference on this based on the fact that the population sample is a bit small. Ratio analysis and regression models were used to analyze the secondary data collected. The data obtained from financial statements covered financial years from 2012-2016. The study found that there was insignificant relationship between liquidity and return on asset of deposit taking micro finance institutions in Kenya. The findings showed that the macro-economic factors have little effects on the financial performance of DTMS. There should not be excess liquidity by microfinance institutions, so that, profitability can be enhanced.

Mbella and Magloire (2017) examined the extent to which bank-specific factors affect the performance of Afril and First Bank. Afril and First Bank was selected out of fourteen commercial banks because during the period of study, it was the only local bank among the top commercial banks in terms of market shares in Cameroon. The researchers extracted data from the consolidated financial statements of Afril and First Bank from the period 2009 to 2016 inclusive. Generalised Methods of Moments was adopted, the result showed that capital adequacy, liquidity management and asset quality were found to have a significant negative effect on Return on Assets, meanwhile Management Efficiency was found to have significant positive effect on Return on Asset of Afril and First Bank during the period of study.

Mhanna and Al-Ammar (2017) determined the effect of bank characteristics on the financial performance of Islamic banks in Syria for the period (2009-2015). The financial performance is measured by return on assets (ROA), and return on equity (ROE). On the other hand, the explanatory variables are capital adequacy, liquidity, deposits, efficiency, bank size and Syrian crisis. Panel data was adopted through estimating fixed effects model. The empirical

analysis shows that bank size has a positive and significant impact on ROA and ROE. Efficiency has a negative and significant impact on ROA and ROE. Also, capital adequacy and liquidity have a significant impact on ROA, but have no significant impact on ROE. However, the variables (deposits and crisis) have no significant impact on ROA and ROE. There should equilibrium between capital adequacy and liquidity, so that, profitability can be enhanced.

Mucheru and Shukla (2017) determined the effects of liquidity management on the performance of commercial banks. Firm performance was measured using Return on Equity (ROE). Descriptive research design was adopted in soliciting information on effects of liquidity management on financial performance of commercial banks. The target population was 14 commercial banks in Rwanda. The sampling technique employed was simple random sampling and the sample size was 42 respondents. Primary data (questionnaires) and secondary data derived from the audited financial statement of the commercial banks for the period 2014 to 2016 collected and analyzed. The study employed multiple regression analysis. The findings revealed that liquidity has insignificant impact on financial performance. The study concludes that holding liquid assets as no significant effect on commercial banks' return on asset. Banks should carry appropriate liquidity that will lead to better return on banks' financial performance.

Muhammad and Muhammad (2017) investigate the effect of the liquidity management on profitability in the Pakistani commercial banks during the period (2004–2013). Total of Three banks having more than 1767 branches are chosen to reflect the whole Pakistani commercial banks. The liquidity indicators are investment ratio, current ratio, capital ratio, credit facilities and liquid assets ratio, while return on equity (ROE) and return on assets (ROA) are the proxies for profitability. Regression analysis and correlation were used for data analysis. The empirical results show that increase in the current ratio and the investment ratio of the available funds have

positive effects on the profitability, while there is a negative effect of the capital ratio and the liquid assets ratio on the profitability of the Pakistani commercial banks. The researcher recommends that there is a need for an optimum utilization of the available liquidity in a various aspects of investment in order to increase the banks' profitability.

Musyoka (2017) examines the effect of capital adequacy on the financial performance of commercial banks in Kenya. Capital adequacy is among the most regulated aspects in the banking industry across the world. All the three sets of Basel accords are anchored on Capital adequacy. Descriptive research design was adopted and the population was 42 commercial banks hence census survey was undertaken and secondary data was collected from financial statements of the target population. Liner regression analysis was adopted. The results established that the relationship between capital adequacy ratio of commercial banks and return on assets is negative and significant. Also, the relation between asset quality and ROA of the commercial banks is negative and insignificant while the relation between liquidity and ROA is positive and insignificant. The study concluded that capital adequacy significantly affects commercial banks financial performance. The study recommended that the management of commercial bank in Kenya should hold sufficient capital adequacy to strengthen their banks capital.

Njimanted, Akume, and Nkwetta (2017) examine the impact of liquidity on the financial performance of commercial banks in Cameroon. Using Return on Assets (ROA) as proxy for the measurement of financial performance, secondary data from 1990 to 2016, with the application of the VAR technique, the findings reveals that excess liquidity and total liquid outflows affect ROA negatively. Gross domestic product, interest rate gap, total liquid inflows had positive effects on ROA. Also from the empirical findings, there is an existing significant negative chain between excess liquidity, commercial bank performance and economic growth in Cameroon. The

study recommends guided minimum and maximum liquidity regulatory control and government effort geared towards encouraging moral suasions and special directive of investment by commercial banks in the agricultural, industrial and the educational sectors in Cameroon.

Financial leverage is the use of fixed charge sources of funds to finance the firms' operations. A levered firm is a firm that employs debt in its capital structure. Excessive use of debt is likely to expose the firm to financial risk hence insolvency. Therefore, a firm should maintain an optimal capital structure that will minimise the overall cost of capital. This motivated Olang (2017) assessed the effect of financial leverage on the profitability of firms listed on the Nairobi Stock Exchange. Causal research design was employed on the target population of 66 listed firms. Purposive sampling technique was used to select a sample size of 30 listed firms. Data was analysed using descriptive and inferential statistics. Descriptive statistics was used to test for normality of data. Inferential statistics on the data were done using regression model. The study established that, firm size has a statistically significant effect on the profitability. Liquidity and growth opportunity on the other hand were insignificant. This means they have no significant effect on the profitability of listed firms on the Nairobi Stock Exchange. Banks should avoid the excessive use of debt in financing the operations and in order to maximize profitability.

Radhe and Pratikshya (2017) examined the effect of capital adequacy and cost income ratio on the performance of Nepalese commercial banks. Data were extracted from annual reports of selected 20 Nepalese commercial banks and bank supervision reports published by Nepal Rastra Bank, covered the period of 2009 to 2015 leading to a total of 120 observations. The linear regression model was adopted. Results showed that there is positive relationship of bank size with return on assets. It was observed that the higher the equity capital to total assets,

the lower would be the return on assets. Similarly, the study observed that there is a negative relationship of cost income ratio and liquidity ratio with return on equity. This indicates that the higher the liquidity ratio, the lower would be the return on equity. Also, study reveals that capital adequacy ratio, liquidity ratio, cost income ratio, and equity capital to total assets has negative impact on return on assets. Banks should maintained appropriate expenses and adequate capital base.

Srinivasan and Britto (2017) evaluate the financial performance of selected Indian commercial banks for the period from 2012 to 2016/17. The study comprises 16 commercial banks, 11 representing public sector and 5 from private sector. The study shows that the financial performance of private sector banks is relatively better than the public sector banks. They employed panel estimations via fixed and random effect models. The empirical results from the panel data estimations revealed that the liquidity ratio, solvency ratio, and the turnover ratio are found to have positive and significant impact on the profitability of selected public sector and private sector banks, respectively.

Zahidur (2017) assessed the financial soundness of twenty four private commercial banks operating in Bangladesh. Rather than using other models like CAMELS framework or CLSA-Stress test, a new effective model was used in the study named “Bankometer”. This model has been developed according to the guidelines of IMF (2000) for measuring soundness of banks and used by many researchers for its simplicity. Using this model, soundness of selected banks has been measured for the year 2015 and again consistency of soundness of these banks has been evaluated for long period covering (2010-2015). The study reveals that all the banks have ensured sound financial status individually and banking industry has always been in favorable position during the period (2010-2015). Finally, the study concludes that “Bankometer” model

will definitely help the internal management of any bank in determining insolvency issues and removing the shortcoming generated from inefficiency in banking operations.

Apere (2016) empirically investigated the relationship between capital adequacy of banks and return on assets of banks in Nigeria over the period 2001 to 2014.Using secondary data obtained from the Central Bank of Nigeria (CBN) statistical bulletin (2014) and World Bank (2015). Descriptive statistic test and correlation tests were conducted to ascertain the strength of relationship and it was observed that all the variables were stationary at their first differences, using the Phillip-Perron unit root test, and having determined the stationarity of the variables we further employ the Johansen Co-integration test, the error correction model (ECM). The study revealed that there is a long-run significant positive relationship between capital adequacy and return on assets of banks in Nigeria over the period under review. Appropriate capital adequacy should be maintained in order to enhance banks' profitability.

Irina and Florin (2016) evaluated the way in which capital influences profitability of banks and exposure to risk in seven European countries: Austria, Bulgaria, Greece, Italy, Romania, the Netherlands and Hungary. Based on previous studies, they developed a model of simultaneous equations to analyse the relation between capital, risk and performance. The model includes 68 banks and covers the period between 2006 and 2011. In addition, estimations have been made for the three capital ratios (own capital ratio, tier 1 ratio and capital adequacy ratio) for each country included in this study. The results revealed that the existence of a negative relationship between capital and taken risks and a positive relationship between capital and profitability.

Joseph and Nasieku (2016) assessed the effect of capital on the financial performance of commercial banks in Kenya. The study adopted a descriptive research design. The target

population was the listed commercial banks in Kenya as licensed by the Central Bank of Kenya as of 2014. The study was based on secondary data retrieved from the banks' annual audited financial reports spanning 5 years between 2010 and 2014. Results showed that the core capital to total risk weighted assets for the Tier I banks decreased from year 2010 to year 2014 while that of the Tier II banks decreased from year 2010 to year 2014. The findings further showed that both Tier I and Tier II banks maintained their core capital to total risk weighted assets ratios and their total capital to total risk weighted assets ratios at a significantly higher level than the set minimum requirement of 8% and 12%, respectively. Inappropriate research design, statistical tool and financial performance measures adopted were the major flaws in their study. The study should have considered capital adequacy ratio which has tier-I and tier-II has components and any of profitability, liquidity or efficiency measures as financial performance surrogate.

Kan (2016) assessed liquidity management with the aim of determining its effect on returns of shareholders. Ex-post factor research design was adopted. Data on ROE, ROA, Log of Sales and EPS were collected from the selected banks financial statement and Nigerian Stock Exchange fact book. The study covered a period of 2000-2014. Unit root was used to test the data for stationarity. Autoregressive method was also applied to solve auto-regression issues. Linear regression and Pearson correlation was used to test the hypotheses. The result showed that there is no significant relationship between liquidity and Nigerian quoted banks' financial performance. Central Bank of Nigeria and Banks' management should monitor and review the liquidity level of banks that will guarantee efficient performance.

Masud and Haq (2016) conducted a study to measure the financial soundness of selected private commercial banks of Bangladesh for the period 2006 to 2014. An attempt was made to analyze the financial soundness and trend analysis of selected banks using graphs and financial

indicators. The study reveals that different financial indicators showed upward trends during the period 2006 to 2014. The study also made a rank of the selected commercial banks based on financial indicators. It was found that a bank with higher deposits, loans and advances, investments, branches, employees does not always mean that has better profitability performance. The research focused on general financial situation (Deposit, loans and advances, investment, income, ROA, ROE) forecasting through trend analysis of the historical data available from 2006 to 2014.

Noman, Syeda, and Shahlal (2016) investigates the collision of leverage and liquidity on banks' profitability of the conventional banking sector of Pakistan. The major indicators of the financial performance of corporate entities are liquidity, leverage and profitability. Two independent variables i.e. leverage and liquidity was taken into consideration to find out the impact on dependent variable, i.e. bank's profitability. The sample chosen for this certain study is the three famous Pakistani conventional banks. The 10 years data was collected from annual reports and accounts of the 3 banks, i.e. Faysal Bank, Alfalah and MCB. Regression, correlation and t-statistics were used to analyse the data. The research results indicated that liquidity is insignificantly positively related with profitability and leverage is significantly negatively correlated with profitability. Focusing on liquidity and profitability will help banks to enhance their stability.

According to the Central Bank of Kenya (CBK) 2012 report credit risk, operational risk and market risk still pose a major challenge. This prompted Odunga (2016) to examined specific performance indicators, operating efficiency for commercial banks in Kenya. The study examined the patterns and effect of bank specific performance indicators on Kenya banks' operational efficiency. Secondary data and regression analysis was adopted for the study. The

result revealed that, bank's operational efficiency is well explained by bank specific performance indicators as $R^2$ = 64%. However, market share is a matter in determination of bank's operational efficiency. The study should have adopted proxies that are related to loan or facilities repayment and non-performing loan recoverability; cost-revenue can be used as measure of financial performance; these serve as the critical weakness of the study.

Olarewaju and Akande (2016) empirically analysed capital adequacy determinants in Nigerian banking sector. Their study examined the determinants of capital adequacy in Nigerian quoted deposit money banks for the years 2005-2014. They adopted descriptive and fixed effect panel regression. The descriptive analysis shows that the mean and median values are within the minimum values and the standard deviation shows the expected growth rate deviation for each of the identified determinants of capital adequacy. From the analysis of panel data using cross-sectional specific fixed effect estimations, it was discovered that a direct relationship exists among equity to total asset, return on asset and bank size while an inverse linear relationship that exists among return on asset, credit risk, deposit structure and liquidity structure are statistically significant in determining the level of capital adequacy among the deposit money banks in Nigeria.

Rudin, Djayani, and Vita (2016) analyzed the effect of leverage and liquidity simultaneously on profitability of public real estate and property firms in Indonesian stock exchange within the period of 2005 until 2010. Based on purposive sampling technique, 43 companies were used as research population, since 16 companies provide a comprehensive and complete financial report within the period of research. The data was analyzed using SPSS version 16 with multiple linear regression test. The result showed that leverage and liquidity simultaneously have significant effect on profitability, while individual effect of liquidity eon

profitability was not significant but leverage had a significant effect on profitability. Leverage and liquidity should be maintained at level to increase profitability.

Siti, Nusaibah, and Kazuhiro (2016) investigated the financial performance and economic impact of capital adequacy ratio on regional banks in Japan. Economic performance surrogates are unemployment rate, inflation rate, real exchange rate, money supply and gross domestic product, while financial performance was proxy by deposit-to-asset ratio, return on assets, return on equity, total assets, total deposits and total loans. 64 regional banks were evaluated over a period of 10 years from 2005 to 2014.Secondary data were composed of World Bank data and the individual financial statements of Japanese regional banks. The results show a various signs of relationships between variables and it was slightly different from previous study. This was supported by result tested by panel regression analysis and correlation analysis conducted in order to measure the relationship between capital adequacy and each variable. There is no link between macro-economic variables adopted in the study and capital adequacy ratio which is used in testing the financial stability or stress of banks; this is an acute weakness of their study.

Torbira and Zaagha (2016) empirically investigated the impact of capital adequacy indicators on bank financial performance measures-net profit margin (NPM), earning per share (EPS) and return on assets (ROA) in Nigeria. 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 trickles from the ratio of shareholders fund to return on assets (ROA) in Nigerian banks. These suggested that capital adequacy strongly and actively stimulate and improve the financial performance of banks in Nigeria. The study failed to properly bring out the

impact of capital adequacy on banks' financial performance measures, in addition inappropriate method of data analysis was used this constitute the weakness in their study.

Umoru and Osemwegie (2016) carried out a research titled "Capital adequacy and financial Performance of Banks in Nigeria: Empirical Evidence Based on the FGLS Estimator" They examined the degree of significance of the capital adequacy ratio in influencing the financial performances of Nigerian banks by applying the feasible GLS estimator technique on the pooled panel model for the period of 2007 to 2015. Data were obtained from CBN statistical bulletin and annual reports and accounts of eight selected Nigerian deposit money banks .Empirical evidence supports the overriding impact of capital adequacy in enhancing the financial performances of Nigerian banks. Nevertheless, the impact of the estimated capital adequacy is below 30%. The policy stance of the empirics holds thus that depositor's money in the banking sector has not been absolutely assured. Hence, the deposit money banks might not be able to fulfill their liabilities and risk. Their study did not extend to 2017 and is not focus on model comparison prediction.

The banks' response to changes in leverage ratios was examined by Valipour-Pasha, and Arshadi (2016). Data from 31 Iranian banks' annual databases during the course of 2006-13 in order to estimate an empirical panel data model of banks' statement of financial position adjustment was adopted. The study indicated leverage ratio degree to show that both equity and liabilities tend to adjust to move leverage positively without considering the state of the Iranian economy. On the other hand, the index of leverage coefficient conditioned by the state of the economy is negative which replicates that banks tend to experience a negative impact of leverage on the return to equity as a result of cost push due to higher ratio of assets to equity in the bust and inappropriate return on investment. Furthermore, the non-performing loans ratio coefficient

is negative and significant on return on equity ratio. Besides, the leverage ratio (lev2) is positive as expected and banks gain higher returns through higher leverage. However, the leverage measure's coefficient conditioned by the state of the economy (dummy) is negatively significant owing to cost push from lower return on investment and higher ratio of assets to equity in the bust and the banks are advised to maintain an optimum leverage ratio in order to enhance performance.

Adabenege and Lamidi (2015) studied the financial performance of Jaiz Bank Plc, the only Islamic bank licensed to operate in Nigeria, over a period of two years (2013 – 2014). They examine the financial performance of the bank in terms of profitability, liquidity, leverage and growth. Time series data were collected and analysed by way of Gray Comparative Index. The study finds positive relationship between profitability, leverage, growth ratios and financial performance. There is sufficient evidence also that shows that the relationship between liquidity and financial performance is negative. They recommended that bank managers should take measures to improve profitability by taking advantage of leverage and growing their banks. They should be careful in keeping liquidity beyond desirable level since liquidity and financial performance have negative relationship. Bank regulators should take measures to ensure stable economic conditions.

The capital base of ₦2 billion has become grossly inadequate to meet domestic and global realities in the financial system and has been upwardly reviewed to ₦25billion. This prompted Agbeja, Adelakun, and Olufemi (2015) to examine whether or not capital adequacy ratio affects bank profitability, they analyzed the effect of loans and advances on bank profitability as well as the impact of capital adequacy ratio on banks' exposure to credit risk. They utilized secondary data covering five years financial statement taking case studies of five

selected commercial banks. The positive and significant relationship between capital adequacy and bank's profitability suggested that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability. The higher the capital ratio, the more profitable a bank will be. The studied sample was not robust enough to provide empirical evidence and relationship was measured instead of impact by implication their findings was not in line with their title.

Akani and Anyike (2015) examined the econometrics analysis of capital adequacy ratios and the impact on the profitability of commercial banks in Nigeria from 1980 – 2013.Time series data were sourced from Stock Exchange fact book and financial statement of quoted commercial banks and the Johansen co-integration techniques in vector error correction model setting (VECM) as well as the granger causality test were employed. The study has Return on Asset (ROA), Return on Investment (ROI) and Return on Equity (ROE) as the dependent variables and the independent variables are Adjusted Capital to Risk Asset Ratio (ACRR). The empirical result demonstrated vividly in the models that there is a positive long run dynamic and significant relationship between return on asset and capital to risk asset ratio and capital to deposit ratio while others are negatively correlated.

Alshatti (2015) aimed at examining the effect of credit risk management on financial performance of the Jordanian commercial banks during the period (2005-2013), thirteen Jordanian commercial banks was selected. Linear regression analysis was adopted to measure this relationship; results revealed that the credit risk management affects financial performance of the Jordanian commercial banks as measured by return on asset and return on equity. They suggested that banks should impose strict credit policy that will improve their profitability and consider leverage ratio as one of the indicators that were found significant in determining credit

risk management. One of the major flaw or criticism against the study is that it failed to identify the appropriate impact of the credit risk management surrogates on any of the financial performance proxies. The studied period stopped at year 2013, it did not cover the current period.

Chinoda, Chingombe, and Chawuruka (2015) carried out an investigation to establish the impact of minimum capital requirements on the performance of commercial banks in Zimbabwe and to analyse the relationship between minimum capital requirements and bank performance. The study used the triangulation of a quantitative and qualitative research design where both primary and secondary data were used .The population under study was drawn from the entire commercial banking sector in Zimbabwe. Questionnaires and documentary analysis were used. The sample size of nine out of the fifteen commercial banks in Zimbabwe was used. It was discovered that minimum capital requirement enable banks to make profits since meeting the minimum capital reduces the chances of bank distress as banks will not be pressured by short-term borrowing which is usually at high cost. Unsuitable research design which lead into poor instrumentation and findings; these are the key weaknesses of the study; secondary data would have suffice for the study.

Claudiu (2015) tested the influence of financial soundness indicators on the banks' profitability, at the macro-level, in a set of emerging countries. The study focused on the internal conditions of banks. Using the IMF monthly data for the period 2005-2013 and a panel data approach, it was discovered that non-performing loans have a negative impact on banks' profitability under the fixed effect model. While the level of liquidity has a mixed influence, the capitalization and the interest rate margins positively affect the banks' profitability. As expected, the non-interest expenses negatively impact the profitability. The study used the return on assets or the return on equity indicator to measure the level of profitability. The banks should have

strong capital based and implement good credit-risk management policy that will enhance banks' performance.

Eyo and Offiong (2015), carried out a study titled "effect of capital adequacy on the performance of Access Bank Plc. from 1999 to 2012" The study focused more on the influence of capital adequacy on the bank's profitability. Data sourced from annual report of Access Bank Plc. for the years under scope, CBN statistical bulletin was analyzed using the desk survey. Analytical technique employed is the multiple regression method. Empirical analysis indicates that there is no significant relationship between core capital and the profitability of Access Bank Plc. and also that there is a significant relationship between supplementary capital and the profitability of Access Bank Plc.

Godwin and Effiong (2015) carried out a study titled "Bank Profitability and Liquidity Management: A Case study of Selected Nigerian Deposit Money Banks" They examined the liquidity-profitability trade off of deposit money banks in Nigeria. The study sampled fifteen deposit money banks in Nigeria and covered a panel data of 2010 to 2012. Quantitative and explanatory research design was adopted. Two models were specified and estimated using Ordinary Least Squares (OLS) technique. The empirical results revealed that there is a statistically significant relationship between bank liquidity measures-current ratio, liquid ratio, cash ratio, loans to deposit ratio, loans to asset ratio- and return on equity. However, when return on asset was used as proxy for profitability, the relationship became statistically insignificant. It was suggested that the banks should evaluate and redesign their liquidity management strategy so that it will not only optimize returns to shareholders equity but also optimize the use of the assets. Incongruous research design was adopted thereby producing spurious results and study period ended in 2012 which mean there is a need for current study.

Imad, and Khaled (2015) examined the Jordanian banks using financial soundness indicators. They tries is to establish if Jordanian banks were affected by 2007/2008 financial crisis. 25 listed Jordan banks financial records were studied in order to derive Basel III ratios such as capital adequacy ratio, leverage ratio, liquidity ratio and total provisions (as % of non-performing loans). The results revealed that Jordan Banks do not meet Basel financial Indicators for capital adequacy ratio, liquidity ratio, leverage ratio and total provisions (as % of non-performing loans) ratio. The general outcome of the research revealed that Jordanian banks were not affected significantly by the financial crisis. The result produced by the study was in variance with recommendation offered this show that the study was not good enough to examine the research work. Inapt methodology and there were no empirical evidence to support that the 2007/2008 financial crisis did not affect Jordanian banks.

Kayode, Obamuyi, Owoputi, and Adeyefa (2015) investigated the impact of credit risk on banks' performance in Nigeria. A panel estimation of six banks from 2000 to 2013 was done using the random effect model framework. Their findings showed that credit risk is negatively and significantly related to bank performance, measured by return on assets (ROA). This suggests that an increased exposure to credit risk reduces bank profitability. They also found that total loan has a positive and significant impact on bank performance. Therefore, to stem the cyclical nature of non-performing loans and increase their profits, the banks should adopt an aggressive deposit mobilization to increase credit availability and develop a reliable credit risk management strategy with adequate punishment for loan payment defaults.

Kočišová, and Stavárek, (2015) investigated the aggregate financial stability index and construct an aggregate banking stability index (BSI). They construct an aggregate index, taking into account indicators of financial strength of banks (performance and capital adequacy) and

major risks (credit risk and liquidity risk) affecting banks in the banking system. Based on the international experience an aggregate BSI is then used for evaluation of stability in the European Union (EU) countries, focusing on ten countries that joined EU in 2004. Data were obtained from database of the International Monetary Fund. Results showed that in 2014 countries with the most stable banking sectors were Luxembourg and Estonia. On the opposite end of the scale were banking sectors in Spain, Portugal, and Greece. The outcome of the study showed decline of the average banking stability in EU countries during the period of 2005-2008, and its improvement since 2009. The improvement in was positively affected mainly by development of the capital adequacy (which may be affected by the gradual implementation of decrees in the field of capital requirements regulation). Results also showed that the countries that joined EU in 2004 was positively affected by accession to EU what is evidenced by the value of BSI, which increased between the years 2004 and 2014.

Kunga (2015) sought to establish the relationship between financial leverage and profitability of firms listed at the Nairobi Securities Exchange (NSE). Descriptive research design and 47 listed firms on the NSE for the past five years were used; secondary data were obtained for the period 2010-2015. Data was analyzed using descriptive statistics, correlation analysis and regression analysis. The results indicated that liquidity and financial leverage depicted a negative relationship with return on asset. From the results obtained it is evident that financial leverage does not contribute to profitability of the firm. This is because when a firm borrows more from its creditors then the firm has to pay more amount of cost of debt to the creditor which is the interest rate. This leads to less net income for the firm and hence lower profitability.

Kutum and Al-Jaberi (2015) examined the Jordanian banks using financial soundness indicators. The study was conducted on 25 banks in Jordan listed in the countries securities

exchange. The research methodology used consisted of examining the banks financial records in order to derive four crucial Basel III ratio such as the capital adequacy ratio, the leverage ratio, the liquidity ratio and finally the total provisions (As % of non-performing loans) %. The results revealed that Jordan banks do not meet Basel financial indicators for capital adequacy ratio, liquidity ratio, leverage ratio and total provisions as % of non-performing loans ratio. The general outcome of the research revealed that Jordanian banks were not affected significantly by the financial crisis.

Mohsen and Mohamadreza (2015) studied the effect of credit risk management and capital adequacy on financial performance of business banks from 2009 to 2014. The statistical population of the study is all state and private banks and final sample volume is 25 banks based on available information. The results of data analysis using multivariate -linear regression at 95% confidence level indicated that there is a negative relationship between loss reserve on loans and previous maturity of credits and banks' performance (return on asset). On the other side, the results indicated that there is a positive relationship between liquidity ratio and capital adequacy ratio with banks' performance (return on asset). Banks should evaluate their capital adequacy ratios and credit risk practice from time to time so that efficient utilization of fund and banks' financial stability can be attained.

Molefe and Muzindutsi (2015) analysed the effect of capital and liquidity management on profitability in five leading South African banks during the period 2004 to 2014. A co-integration panel analysis was used to test for the effect of the liquidity indicators on profitability. The capital ratio and quick ratio were used as liquidity indicators, whilst return on assets (ROA) and return on equity (ROE) were used as proxies for measuring profitability. The empirical results showed that there is no long-run relationship between banks' profitability and

liquidity and capital management. For the short-run, capital ratio was found to have significant positive effect on banks' profitability; whereas liquidity does not have an effect on banks' profitability. Banks regulators should focus on capital adequacy as the most effective tool to ensure the safety and soundness of South African financial institutions.

Odunayo and Oluwafeyisayo (2015) examine the existence and direction of causality between liquidity and profitability of deposit money banks in Nigeria. Fifteen quoted banks out of the existing nineteen banks were selected for the study. Pairwise Granga Causality test was carried out to determine the presence and direction of causality between banks' liquidity and profitability. Thus, the result revealed that there is no causal relationship (be it unidirectional or bidirectional) between liquidity and probability of the selected banks. The result also shows that there is a trace of unidirectional causality relationship running from liquidity to profitability for 4 banks. Based on the findings and conclusions, the study recommend that Central Bank of Nigeria should ensure close supervision and monitoring of deposit money banks' strength and level of liquidity in an attempt to stabilize and strengthen the financial sector of the economy.

The Tunisian banking sector has weathered the global financial crisis and the revolution's immediate impacts; this made Sana (2015) to present a study titled "Tunisian banking system vulnerabilities beyond the global financial crisis and recent political instability". The study examined the implications of the macroeconomic environment on the soundness and performance of Tunisian banks. In other words, the paper purports to identify whether the Tunisian banks' profitability, liquidity and leverage indicators have been impacted by the world financial crisis and the recent political instability by use of financial soundness indicators during the period 2002-2012. The results revealed that Tunisian banks remain resilient from the effects of the global financial crisis. Nevertheless, they have been impacted by the revolution's turmoil.

It will be maintained that the difficult economic situation resulting from the political changes has enhanced the Tunisian banks' vulnerability. Government should maintain normalcy so that the political atmosphere will be conducive and banks' financial soundness will be restored.

Torki and Ghazi (2015) examined the capital adequacy of the Jordanian banking system for the period 2000-2013. They adopted the descriptive and the analytical approaches to identify the capital adequacy of the Jordanian banking system depending on data obtained from the Amman Stock Exchange Market, the Central Bank of Jordan and the Jordanian Ministry of Finance for the period 2000 - 2013. Findings showed that there is a statistically significant relationship between capital adequacy, liquidity, credit risk, investment in securities portfolio. The study recommends that commercial banks to increase their strategic planning and management capacity to utilize any rise in capital to increase profits. And they should develop market and operational risk assessment methods to be included in the calculation of capital adequacy ratio of the commercial banks.

Adolphus, (2014) analyzed how statement of financial position problems in the form of non-performing loans (NPLS) affect the liquidity, funding and profitability of selected Nigerian banks in two critical periods, the bank distress era (1999-2001) and the post- consolidation era (2007-2009). The data for this study were computed from the statement of financial positions of twenty-two universal banks in the first period, and twenty-two consolidated deposit money banks in the second period. Multiple regression models were used. The inferential results showed that the explanatory powers of non-performing loans (NPLs) and loan loss reserves (LLR) are high in causing variations in loan-to-total assets (LTA) during the bank distress era (1999-2001). The deteriorating asset quality in the bank distress era constrained significantly bank liquidity, funding growth and profitability. In the post-consolidation era, the pursuit of consolidation and

risk-based supervision (RBS) moderated NPLs without a corresponding impact on liquidity and funding growth (LTDR).

Aruwa and Naburgi (2014) examined the impact of capital adequacy on the financial performance in term of profitability and saving mobilization of quoted banks in Nigeria. Data was collected from the Nigerian Deposits Insurance Corporation (NDIC) for the period spanning through 1997-2011. Ordinary least square method of regression was used on time series data and found insignificant impact of capital adequacy on financial performance. Thus the study concluded that financial performance is not majorly influenced by capital adequacy. They recommended that pragmatic changes in bank regulatory focus, improved corporate governance, personnel training and stable polity for ensuring sound financial health for the Nigerian banking sector.

Aspal and Nazneen (2014) emphasized the impact of risks such as credit, liquidity and sensitivity on the capital adequacy of banks. Secondary data were obtained from the annual accounts and reports of the selected banks and multiple linear regression analysis was used for analysis. The results revealed that capital adequacy ratio is negatively correlated with proxy variables of lending (loans), asset quality and management efficiency. Nevertheless, liquidity and sensitivity are positively correlated. The regression results have revealed that loans, management efficiency, liquidity and sensitivity have statistically significant influence on the capital adequacy of private sector banks. Conversely, the independent variable asset quality has negligible influence on capital adequacy of Indian private banks. In addition, the study revealed that the Indian private banks maintain a higher level of capital requirement above stipulated amount and excessive funds to meet their obligation and have opportunity to give more advances to public by

protecting owner's stake. Optimum capital adequacy should be maintained by banks in order to meet their financial obligations and protect stakeholders' interest or stake.

Bogdan and Iulian (2014) assessed the main determinants of banks' profitability in five selected Central Europeans East (CEE) countries over the period from 2004 to 2011. The sample contains 143 commercial banks from Romania, Hungary, Poland, Czech Republic and Bulgaria. They used return on average assets, the return on average equity and net interest margin as proxy for banks profitability. The results showed that the empirical findings are consistent with the expected results. Management efficiency and capital adequacy growth influence the bank profitability for all performance proxies, while credit risk and inflation determine only the ROA and ROE. They noticed that banks with higher capital adequacy are more profitable. Higher capital adequacy should be maintained.

Ejoh and Iwara, (2014) evaluated the impact of capital adequacy on deposit money banks' profitability in Nigeria, taking a case study of five selected banks. The empirical analysis covered the period from 1981 to 2011. The data for the study were obtained from secondary sources, that is, annual reports of the selected banks and Central Bank of Nigeria (CBN) statistical bulletin. The study adopted the Engle and Granger two steps procedure in co-integration. The study revealed that capital adequacy explained variation in returns on assets (ROA) which is a measure of banks' profitability. The positive and significant relationship between capital adequacy and banks' profitability suggest that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability. The higher the capital ratio, the more profitable a bank will be. Based on the findings, they suggested among others that there should be a constant review of minimum capital requirement of deposit money banks in Nigeria to the optimal level.

Fan and Yijun (2014) investigated the relationship between credit risk management and profitability of commercial banks in Europe. They also investigated the stability and fluctuation of the relationship. In the research regression analysis model, return on equity and return on asset are defined as proxies of profitability while non-performing loan ratio (NPLR) and capital adequacy ratio (CAR) are defined as proxies of credit risk management. The study obtained data from the largest 47commercial banks in Europe from 2007 to 2012. The findings revealed that credit risk management does have positive effects on profitability of commercial banks. Between the two proxies of credit risk management, NPLR has a significant effect on the both ROE and ROA while CAR has an insignificant effect on both ROE and ROA. However, from 2007 to 2012, the relationships between all the proxies are not stable but fluctuating. Banks should balance the relationship between credit-risk management and profitability, so that, the financial stability of the banks can be guarantee.

Gweyi and Karanja (2014) investigated the effect of financial leverage on financial performance of deposit taking Saccos in Kenya. The sample data was extracted from 40 Savings and Credit Co-operative Societies (Saccos) registered by Sacco Society Regulatory Authority (SASRA) covered the period 2010 to 2012. The secondary data used for analysis was collected from the financial statements of the various deposit taking Saccos. Two basic approaches descriptive and analytical design were adopted. The results show perfect positive correlation between debt equity ratio with return on equity and profit after tax and a weak positive correlation between debt equity ratio with return on assets and income growth.

Kombo (2014) assessed the effects of Basel III framework on capital adequacy requirement in commercial banks in Kenya. A descriptive survey design was applied to a population of 43 commercial banks operating in Kenya. The population was composed of 159

commercial banks' staff in Kenya. A sample of 30% was selected and primary data was gathered using questionnaires. Content analysis was used to analyse qualitative data. The findings showed that capital adequacy requirement is important in commercial banks because it leads financial stability in the Kenyan economy, improves credit risk management techniques as poor credit risk management requires more capital and leads to reduced vulnerability to liquidity shocks due to the sound capitalisation policies being implemented under the Basel III framework. Findings also revealed that capital adequacy affected the statement of financial position structure of the commercial banks in Kenya. Hence capital adequacy has significantly changed the statement of financial position structure of commercial banks in Kenya. The weakness in this study was wrong methodology.

Mugwang'a (2014) identified the most important factors that determined capital adequacy of commercial banks in Kenya for the period 2009 – 2013 using multiple linear regression analysis and the Karl Pearson correlation coefficient. The target population comprised all registered commercial banks in Kenya and secondary data was obtained from Nairobi securities exchange for listed and unlisted banks. Results showed that there is significant relationship between capital adequacy and capital risk. There was no existence of a significant relationship between capital adequacy and the following: liquidity risk, credit risk, interest rate risk, return on assets ratio, return on equity ratio and revenue power ratio. The overall conclusion of the study was that there is a significant relationship between the liquidity risky assets, credit risks, capital risks, interest rate risks, return on asset, return on equity and revenue power ratio.

Mustafa (2014) investigated the financial performance of Erbil Bank for Investment and finance in Kurdistan Region of Iraq during the period of 2009-2013. Financial ratios are used for analysis which is used to measure the financial position for the bank and on broader range

correctional statistical tools were used for analysis. The findings of the study showed positive behaviour of the financial position for Erbil Bank and some of their financial factors variables influence the financial performance for the bank. It was found that the overall financial performance of Erbil Bank is improving in terms of liquidity ratios, assets quality ratios or credit performance, profitability ratios (NPM, ROA, and ROE).

Onuonga (2014) aimed at investigating the impact of the internal determinants of profitability of Kenya`s top six commercial banks over the period 2008-2013, The study used generalized least squares method to estimate the impact of bank assets, capital, loans, deposits and assets quality on banks profitability. The study used return on assets (ROA) as a measure of profitability. The findings revealed that bank size, capital strength, ownership, operations expenses, diversification do significantly influence profitability of the top six commercial banks. The study suggested that the Kenyan Government should set policies that encourage commercial banks to raise their assets and capital base as this will enhance the performance of the sector. The implication of the study is that commercial banks need to invest in technologies and management skills which minimize costs of operations as this will impact positively on their growth and survival.

Parrado-Martínez, Ureña, and Fernández-Guado, (2014) examined the usefulness of financial soundness of EU member countries. Using ordered response models and credit ratings as a proxy for country risk, they examined the impact of capital adequacy, asset quality and earnings core FSIs on the financial risk of EU for the period 2008-2011. In addition, they explored the possible relationship between the financial development level of a country and its financial soundness. Their analysis provides evidence of the ability of some of these indicators to illustrate the health of the financial sector, as well as a significant positive relationship between

financial development and financial soundness of a country. The study failed to indicate the effect of financial soundness on any of the credit risk rating in particular and the period covered did not extend to current economic period.

Žuk-Butkuvienė, Vaitulevičienė, and Staroselskaja (2014) analysed the supervision, capital adequacy and liquidity prudential norms, limits and requirements of commercial banks operating in Lithuania, as well as to assess the quality of capital adequacy and liquidity risk management impact on the banking industry. Descriptive analysis and secondary data was adopted. There were presented prudential standards of capital adequacy and liquidity for banks operating in Lithuania, their values' change after the Basel III reforms, and the scientific opinion about their development and tightening standards. The findings revealed that the most important in banks' capital adequacy and liquidity risk management is quality control and the harmonization of bank assets and liabilities. The study failed to show in statistical term how capital adequacy and liquidity risk management are quality control mechanism rather the study is less of idealized or conceptual. The methodology adopted is not robust enough to derive the findings stated above.

Adeyinka (2013) examined the effect of capital adequacy on profitability of deposit-taking banks in Nigeria. It sought to assess the effect of capital adequacy of both foreign and domestic banks in Nigeria and their profitability. The study presented primary data collected by questionnaires involving a sample of five hundred and eighteen (518) distributed to staff of banks with a response rate of 76%. Also, published financial statements of banks were used from 2006 to 2010. The finding from the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between liquidity, capital adequacy and profitability of bank. This implies that for deposit-taking banks in Nigeria,

liquidity and capital adequacy play key role in the determination of profitability. It was discovered that liquidity and profitability are indicators of bank risk management efficiency and cushion against losses not covered by current earnings. The study would have adopted only quantitative data instead of employing primary and secondary data; this is a wrong instrumentation in research procedure.

The research conducted by Agbada and Osuji (2013) explored the efficacy of liquidity management and banking profitability performance in Nigeria. Profitability and return on capital employed (ROCE) were adopted as proxy variables. Findings from the empirical analysis were quite robust and clearly indicated that there was a statistically significant relationship between efficient liquidity management and banking performance, and that efficient liquidity management enhances the soundness of the banks. Also Kehinde (2013) critically examined the relationship between credit management, liquidity position and profitability of selected banks in Nigeria using annual data of ten banks over the period of 2006 and 2010. The results from ordinary least squares estimate found that liquidity has significant positive effect on return on asset (ROA).

Al-Mamun, (2013) evaluated the performance of prime bank. Descriptive survey was adopted. Data of the bank is analyzed using capital adequacy ratio, debt equity ratio and advance to asset ratio for the period 2008 to 2012. The study found that banks maintained high debt equity ratio and capital is above regulatory requirement. The study recommended that bank should further improvement in capital adequacy to meet regulatory requirement and enhance bank performance.

Banks financial stability in the Gulf Cooperation Council (GCC) countries was empirically assessed by Altaee, Talo, and Adam (2013) in their study titled “Testing the financial

stability of banks in GCC countries: Pre and post financial crisis" using z-score and secondary data as variables. A group of macro and microeconomic independent variables were selected to measure their effects on banks stability. All banks in this region that are considered Conventional or Islamic banks were selected. The targeted period was 2003-2010 to cover pre- and post-financial crisis. It was found that there is no evidence that there is a significant difference between the financial stability of Conventional and Islamic banks for the periods 2003-2010, 2003-2007, and 2008-2010. However, Conventional banks tend to be financially stronger than Islamic banks for the pre- financial crisis. The study lacked credence by not applying appropriate research procedure in determining the financial soundness or stability of the studied banks.

The Bank for International Settlements, (BIS) established a framework for measuring capital adequacy for banks in the group of ten (G10), industrialized nations of the world. In consequence, it was implemented by the Central Bank of Nigeria, in December 2005. This prompted Ezike and Oke (2013) to investigate the impact of the adoption of the Capital Adequacy Standards on the performance of Nigerian banks. The study involved the use of ordinary least squares (OLS) estimation technique to examine and determine the effect of the independent variables – loans and advances, shareholders' funds, total assets and customer deposits – on the dependent variables – Earnings per share (EPS) and profit after tax. The results of the analysis showed that capital adequacy standards exert a major influence on bank performance and the impact of the Nigerian monetary authority on the new capital requirements was found to be complemented with the adoption of the Basle accord framework.

Hao, Yang-Cheng, and Chi-Wei (2013) investigated changes in the financial performance of representatives of the world's top 200 commercial banks after the global subprime financial crisis. Their empirical results show that following the subprime-crisis disclosure, all commercial

banks exhibited worse performance in asset quality, profitability, liquidity, and growth index, accompanied by risk increases in asset adequacy, managerial ability, profitability, and growth index. Developed markets have suffered a greater negative influence than emerging markets, causing downward pressure on capital adequacy, asset quality, and profitability since the subprime crisis. Their results prove that larger commercial banks, particularly those with larger capitalization, have the economies-of-scale advantage to resist the negative effects of economic downturns. The methodology adopted was not shown and the studied sample was not indicated; the exact effect of the variables were not stated, these constitute the major lapses in the study.

Ijaz, Syed, and Khurram (2013) analyze the determinants of capital adequacy ratio in banking sector of Pakistan. Empirical analyses were conducted by applying statistical tool such as weighted average least square on the penal data from banking sector of Pakistan. Analyses were conducted based on the financial statements of 12 sample banks from banking sector of Pakistan; bank-level annual data were used for the period 2005-2009. The results have revealed that average capital ratio, capital ratio requirement, and portfolio risk level shows weak correlation while share of deposits and return on equity are strongly but negatively correlated with capital adequacy ratio. CAR had a positive effect on the profitability measures.

Ikpefan (2013) investigated the impact of bank capital adequacy ratios, management and performance in the Nigerian commercial bank (1986 - 2006). The study determined the extent bank capital adequacy ratios had impacted on bank performance and extent to which operation expenses has impacted on the return on capital. The study captured their performance indicators and employed cross sectional and time series of bank data obtained from Central Bank of Nigeria (CBN) and annual reports of the sampled banks. Regression analysis was adopted. The overall capital adequacy ratios of the study shows that shareholders fund/total assets (SHF/TA) which

measures capital adequacy of banks (risk of default) have negative impact on ROA. The efficiency of management measured by operating expenses indices is negatively related to return on capital. The measure of capital adequacy was not properly defined in study this serve as weakness of the study.

The capital and the financial performance are two important variables in the banking sector. They show the ability of banks to achieve sustainable benefits and to address systemic shocks. This informed Moussa and Mohamed (2013) to use a static panel to empirically study the relationship between capital and financial performance by approximating the capital by the ratio (equity/total assets) and financial performance by three measures: ROA (return on assets), ROE (return on equity), NIM (net interest margin). Through a sample of 19 banks in Tunisia over the period of 2000-2009, the author found that the relationship between capital and financial performance (ROA, ROE, and NIM) is positive. But only the relationship between capital and return on assets is statistically significant.

Navajas and Thegeya (2013) tests the effectiveness of financial soundness indicators (FSIs) as harbingers of banking crises, using multivariate logit models to see whether FSIs, broad macroeconomic indicators (inflation, credit to the private sector and composite governance indicator) and institutional indicators (capital adequacy ratio, return on equity and non-interest expenses to gross income) can indeed predict crisis occurrences. The analysis draws upon a data set of homogeneous indicators comparable across countries over the period 2005 to 2012, leveraging the IMF's FSI database. Results indicate significant correlation between some FSIs and the occurrence of systemic banking crises, and suggest that some indicators are precursors to the occurrence of banking crises.

Soyemi, Akinpelu, and Ogunleye, (2013) examines factors influencing profitability among Deposits Money Banks (DMBs) in Nigeria. Five internal determinants were identified and deployed, three of these variables were found to contribute to variation of bank profitability: bank size which is measured by log of total assets is negative and significantly related to profitability of bank; capital adequacy ratio is also negatively related to and statistically significant to variation in bank profitability. The external determinants of financial structure and macroeconomic variables adopted depict no significant influence on profitability. Findings suggested that some banks in Nigeria may be suffering from diseconomy of scale which is as a result of inefficiencies that may be associated with large complex organizations. This study also shows that management expenses, current and saving deposit accounts variables does not have any effects on bank profitability variation.

Management of liquid funds is considered to be an important factor of company's growth. This explains the rationale for Zoriana (2013) examined the effect of the company's liquidity on profitability is tested by using fixed effects regression to the panel dataset consisting of Ukrainian enterprises financial information in 2001-2010. The database covers state, closed and open joint stock companies and limited liabilities companies that operate in agriculture, production, construction, retail and finance industries. The expected hypothesis of quadratic relationship between static and dynamic liquidity indicators is supported. Current ratio and quick ratio have significant positive effect on profitability. It is profitable for the companies to increase liquid assets up to the turnover point, after which a further increase will have negative impact on profitability.

Akinlo and Asaolu (2012) examine the profit profile of firms in Nigeria and analyze the impact of leverage on profitability for the period 1999-2007. Ex-post facto research design and

multiple regression analysis were adopted. The results show that aggregate profit level for the firms decreased by 0.02 percent yearly over the study period. However, when disaggregated into sectors, a few firms actually experienced an increased profit level. The results show that firm size has a significant positive effect on return on asset, while leverage has negative effect. They suggest that expansion, increased sales and low debt ratios enhance firm profitability.

Ing (2012) analysed central bank communication on financial stability. The study identified international comparable features of the communication, such as financial stability reports, stress tests, financial soundness indicators, etc. These are then used for the construction of financial stability transparency index (FST index) for 110 countries from 2000 to 2011. FST index is used to determine the most important drivers of central bank communication. In particular, the level of transparency towards financial stability depends most on monetary policy transparency, size and development of the economy. Using two proxies for financial stress, evidence of the influence of central bank communication on financial soundness was found. It is concluded that the communication still has not reached its steady state and markets have only limited experience using it. Nevertheless, the communication has a strong potential to influence financial stability in the future.

The influence of liquid asset holdings on Iranian banks profitability is presented by Shahchera, (2012) study by using the Generalized Method of Moment (GMM), this study analyzed the profitability of listed banks using unbalanced panel data for the period 2002-2009, and used the liquid asset and liquidity asset- square for estimating liquid asset and profitability relationship. The estimated relationship between liquid assets and bank profitability is as predictable. Coefficients for the liquid assets ratio, its square, business cycle, regulation and its product of interaction business cycle and regulation are all statistically significant. The study

found evidence of a non-linear relationship between profitability and liquid asset holdings. A substantial result of this study is that the business cycle significantly influences bank profits. The coefficient of regulation is negative and significant. It was recommended that regulators minimize the constraints imposed on banks' obtain profit.

Shajari and Shajari (2012) analyzed the financial soundness indicators in Iran`s banking system. In the first part it emphasis on asset quality measure by the non-performing loans ratio. The non-performing loans grew rapidly in last decade in Iran's banking system and it reached higher than 25 percent of total loans in 2010. They concluded that NPLs increase have impact on real part of economy in the concept of credit crunch and bank lending decline when NPLs exceeds a specific level of total loans. The study also analyzed the relationship between three financial soundness indicators (asset quality, capital adequacy and profitability) and key macroeconomic, bank-specific, and structural variables. The results revealed that asset quality and capital adequacy are influenced by business cycle. Lending interest rate over two previous years has a negative effect on asset quality. Capital adequacy is affected by short term deposit interest rate and changes in the exchange rate. Profitability fluctuates with inflation rate and NPLs ratio. Macroeconomic variables cannot establish specific effect with banks' financial performance.

Yaaba and Idris (2012) conducted a study titled "Financial Soundness Indicators: The case of Nigeria" This paper adopted the concept as designed by the Fund to examine the soundness of the Nigerian Banking Sector from 2007Q1 to 2014Q4. From the results of the FSIs compiled for Nigeria, it is obvious that the indicators can serve as reliable and consistent tools, capable of detecting vulnerabilities in the system. The study, therefore, recommends that adequate attention be paid to the indicators by the central bank.

The point to which effective liquidity management impacts profitability in commercial banks and how commercial banks can stimulate their liquidity and profitability situation is presented by Adebayo, David and Samuel (2011) study by using quantitative methods of research. Many findings were reaching through the analysis of both the structured and unstructured questionnaire on the management of banks and the financial reports of the tested banks. The data obtained from the primary and secondary sources were analyzed using tables of percentages and frequency distribution. Pearson correlation was used. Findings indicated that there is significant relationship between liquidity and profitability. That means profitability in commercial banks is significantly influenced by liquidity and vice versa. It was suggested that for the prosperity of operations and survival, commercial banks should not expose efficient and effective liquidity management and that both illiquidity and excess liquidity are "financial diseases" that can simply wear out the profit rule of a bank as they affect banks in order to arrive high profitability level.

Al-Khouri (2011) assessed the impact of bank's specific risk characteristics, and the overall banking environment on the performance of 43 commercial banks operating in 6 of the Gulf Cooperation Council (GCC) countries over the period 1998-2008. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

The relationship between liquidity and profitability is presented by Saleem and Rehman (2011); secondary data and correlational studies was adopted The results revealed that there is a significant impact of liquid ratio on ROA while insignificant on ROE and ROI; the results also revealed that ROE is no significant effected by three ratios current ratio, quick ratio and liquid

ratio while ROI is greatly affected by current ratios, quick ratios and liquid ratio. It suggested that banks should focus also on profitability ratios; it plays an important role in the financial positions of enterprises.

The effect of liquid asset holdings on U.S. and Canadian banks is presented by Bordeleau and Graham (2010). Results proposed that profitability is improved for banks that hold some liquid assets, however, there is a place at which holding further liquid assets minimize a banks' profitability, all else equal. Furthermore, empirical evidence also indicated that this relationship varies depending on a bank's business model and the state of the economy. These results are particularly relevant as policymakers devise new standards establishing an appropriate level of liquidity for banks.

Okafor, lkechukwu, and Adebimpe (2010) estimated the effect of capital adequacy on bank earnings and profitability in Nigeria. Panel data were provided for a sample of 10 strong banks and 10 weak banks in the period 2000-2003 with the strong banks selected on the basis of the first 20 companies listed with the highest market capitalization. With the aid of a least square dummy variable (LSDV) model, the study found that bank earnings is invariants to factors such as bank assets and bank size but highly driven by liquidity and capital adequacy. The fixed effect model showed the distinction between strong and weak bank does not hold as differential intercept dummy shows that the effect of capital adequacy on bank performance is stronger for weak banks than for strong banks.

Buehler, Samandari, and Mazingo (2009) carried out a study titled "Capital ratios and Financial distress: Lessons from the crisis" Specifically, they analyzed bank distress during the credit and liquidity crisis of 2007 to 2009. The study adopted regression analysis. Results revealed that tangible common equity to risk-weighted assets ratio (or TCE to RWA) was the

strongest predictor of future bank distress of the commonly measured capital ratios, and appears to be a significantly better predictor than other traditional risk-based measures of capital, including Tier 1 capital to RWA and Tier 1 capital plus Tier 2 capital to RWA simple measures of leverage have some predictive power in isolation, they do not appear to have any incremental predictive power in addition to the TCE to RWA ratio. An increase in the TCE / RWA ratio to 6.5 to 7.5 percent would have affected approximately 58 to 83 percent of banks that ultimately became distressed, at a cost of $280 billion to $540 billion in incremental capital raised and a reduction of 140 to 260 in ROE, all other things being equal. The concluded that setting higher minimum ratios than 7.5 percent has substantially diminished marginal benefits in terms of the incremental number of distressed banks that would have been affected and does so at sharply higher incremental costs. The study recommended that no further leverage requirement should be imposed on the institutions that are already subjected to a risk-based capital requirement.

Mathuva (2009) assessed the relationship between capital adequacy and profitability. Using the return on assets and the return on equity as proxies for bank profitability for the period 1998 to 2007, the study finds that bank profitability is positively related to the core capital ratio and the tier 1 risk-based capital ratio. This implies that an increase in capital may raise expected earnings by reducing the expected costs of financial distress, including bankruptcy. The study also establishes that there exists negative relationship between the equity capital ratio and profitability. The study also finds out that Kenyan banks are not competitive enough globally in terms of their efficiency as measured by the cost-income ratio (CIR). The study reveals that the CIR is inversely related to both bank profitability measures. The study also reveals that the CIRs of Kenyan banks are higher than those of developed countries.

Vong and Anna (2009) examined the impact of bank characteristics as well as macroeconomic and financial structure variables on the performance of the Macao banking industry. The econometric or regression analysis and secondary data were used for the study. The results showed that the capital strength of a bank is of paramount importance in affecting its profitability. A well-capitalised bank is perceived to be of lower risk and such an advantage will be translated into higher profitability. On the other hand, the asset quality, as measured by the loan-loss provisions, affects the performance of banks adversely. In addition, banks with a large retail deposit-taking network do not achieve a level of profitability higher than those with a smaller network.

## 2.5 Summary of Literature Review

**Table 2.5.1: Summary of Empirical Review**

| S/N | Authors and date | Title | Methodology | Findings and conclusions | Recommendation |
|---|---|---|---|---|---|
| **1** | Abba, Okwa, Soje, & Aikpitanyi, (2018). | Determinants of capital adequacy ratio of deposit money banks in Nigeria | Ex-post facto research design, Balanced panel linear regression; secondary data | Returns on asset and banks' risk portfolio are determinants of capital adequacy ratio. | The banks should maintained optimum capital adequacy ratio. |
| **2** | Adekunle, (2018). | Determinants of listed deposit money banks' profitability in Nigeria. | Correlational research design; Panel data technique (fixed and random effect); secondary data. | Capital adequacy had a positive and significant relationship with bank ROA while credit risk had a negative and significant relationship with banks' profitability | The banks should maintained good credit risk portfolio and capital adequacy policy. |
| **3** | Ahmad, Ahmad, & Adeel, (2018). | Exploring the impact of liquidity on profitability: Evidence from banking sector of Pakistan | Documents investigation; secondary data; ordinary least square method. | Significant connection among bank liquidity ratios and return on assets, return on equity, net profit margin, and Tobin-q | The banks' management should maintained optimum liquidity that will maximise profitability. |
| **4** | Gweyi, Tobias, & Oloko (2018). | Effect of liquidity risk on financial performance of deposit taking savings and credit societies in Kenya. | Descriptive research design; census. Audited financial statements; Secondary data. | The result indicates liquidity risk has a negative and significant influence on financial performance. | There should be good policy to minimize liquidity risk, so that, depositors demands can be met. |
| **5** | Tuffour, Owusu, & Boateng (2018). | Profitability of listed Ghanaian banks determined by the stylized facts. | Pooled regression models; secondary data, | Determinants of bank profitability are capital adequacy, liquidity, total assets and real interest rate | The bank management and regulator should stipulate optimum level for profitability determinants. |

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| **6** | Onyekwelu,Chukwuani, & Onyeka (2018). | Effect of liquidity on financial performance of deposit money banks in Nigeria | Ex-post facto research design; multiple regression analysis, secondary data | Liquidity has positive and significant effect on banks' return on capital employed (ROCE). | The management should established liquidity level that will guarantee best financial performance. |
| **7** | Saheed ⟨2018⟩. | The effect of capital adequacy and operational efficiency on profitability of listed deposit money banks in Nigeria. | Correlational research design; Panel data techniques; Hausman specification feasible generalized least square | Capital adequacy has a positive and significant relationship with profitability while operational efficiency has a negative and significant relationship with profitability | The banks should maintained optimum capital adequacy and operational efficiency level. |
| **8** | Abdulazeez, Asish, & Rohani (2017) | Profitability of Saudi commercial banks: A Comparative evaluation between domestic and foreign banks using capital adequacy, asset quality, management quality, earning ability and liquidity parameters. | Pooled ordinary least square and fixed effect model and secondary data, | Domestic banks are more profitable than foreign banks; and foreign banks carry more credit risk in their portfolio | There should be prudent management of credit risk by banks so that profitability will be enhanced |
| **9** | Akenga (2017). | Effect of liquidity on financial performance of firms listed at the Nairobi securities exchange, Kenya. | Causal research design; Purposive sampling technique; secondary data | Current ratio and cash reserves have a significant effect on ROA. The debt ratio was found to have no significant effect on ROA | The banks should keep to appropriate level of leverage that will maximize shareholders' wealth and safe guard of depositors' deposit. |
| **10** | Almazari & Alamri (2017) | The effect of capital adequacy on profitability: A comparative study between Samba and Saab banks of Saudi Arabia | Correlational and descriptive analysis; secondary data | A positive relationship between ROE and cost income ratio, debt-equity ratio, and a negative relationship with core capital adequacy, equity capital adequacy and total capital adequacy | Appropriate capital adequacy must be maintained in order to achieve optimum return and enhanced financial performance. |
| **11** | Amahalu, Okoye, & Nweze (2017) | Effect of capital adequacy on financial performance of quoted deposit money banks in Nigeria | Pearson coefficient of correlation, multiple regression analysis; secondary data | Capital adequacy has a statistically significant effect on financial performance of deposit money banks | The Central Bank of Nigeria should monitor, review and control the capital adequacy level of Nigeria deposit money banks. |
| **12** | Anupam & Ganga (2017). | What determines banks' profitability? Evidence from emerging markets—the case of the UAE banking sector. | Panel data regression analysis | The model generated in the study can explain a greater than 75% change in the total variance of various measures of profitability | The Central Bank of Nigeria needs to monitor the banks-specific and macro-economic determinants |
| **13** | Asima, Mahmood, Raheel & Muhammad | The effect of financial variables on bank performance pre and | Ex-post facto, Regression analysis and | The capital adequacy, assets quality, management quality, liquidity quality, earning | There should be constant review of monetary policy so that the banks |

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| | (2017) | post financial crisis | secondary data | quality and bank size have negative relationship and impact on banks' performance | can with stand financial shocks |
| **14** | Barus, Muturi, Kibati, & Koima (2017) | Effect of liquidity on financial performance of savings and credit societies in Kenya | Explanatory research design; Multiple linear regression, primary and secondary data | The regression results showed that liquidity has positive influence on financial performance | Appropriate liquidity level should be maintained with profitability by banks |
| **15** | Edem (2017) | Liquidity management and performance of deposit money banks in Nigeria (1986 – 2011): An investigation. | Correlations and multiple linear regression analysis; | There is a significant relationship between liquidity and the performance of deposit money banks in Nigeria | Appropriate optimum liquidity level need to be maintained for maximum return. |
| **16** | Irwan (2017) | The effect of financial ratios on Islamic rural bank performance in Indonesia | Ex-post facto Regression analysis and secondary data | non-performing financing (NPF) and operating cost to operating income ratio, have significant negative effect return on assets; capital adequacy ratio (CAR) and financing to deposit ratio (FDR) have insignificant effect on return on assets (ROA) | Banks should maintain an appropriate capital adequacy ratio and sound credit risk policy that will increase performance. |
| **17** | Isanzu (2017) | The impact of credit risk on the financial performance of Chinese banks | Balanced panel data regression model and Secondary data | Nonperforming loan and capital adequacy have significant positive impact on financial performance of Chinese commercial banks. | There is need to control credit risk and is crucial for bank financial performance |
| **18** | Jalloh (2017). | Impact of capital adequacy on the performance of Nigerian banks using the Basel Accord Framework | Cross panel methodology; ordinary least square (OLS) regression; secondary data. | The results of the ordinary least square (OLS) regression show that 76% ($R^2$) of the variations in profit after tax (PAT) were caused by capital adequacy ratio. | Constant monitoring and reviewing of capital adequacy based of banks by Central Bank of Nigeria and banks' management. |
| **19** | Kamande (2017) | The effect of bank specific factors on financial performance of commercial banks in Kenya. | Explanatory approach; multiple linear regression models; secondary data. | There was positive and significant association between ROA and the regressors (capital adequacy, asset quality, management efficiency, earnings ability and liquidity) | Banks should keep appropriate asset quality in order to achieve better profitability. |
| **20** | Kipruto, Wepukhulu, & Owino (2017) | The influence of capital adequacy ratio on the financial performance of second-tier commercial Banks in Kenya | Quantitative research-correlation & descriptive research designs were used and secondary data | Capital adequacy ratio is among the main predictors of mid-tier commercial banks' financial performance | CBK needs to regularly monitor commercial banks by ensuring that they publish their quarterly results to the public |
| **21** | Lemara (2017). | The effects of liquidity on financial performance of deposit taking microfinance institutions in Kenya. | Descriptive research design; secondary data, regression analysis | There was insignificant relationship between liquidity and return on asset of deposit taking micro finance institutions | There should not be excess liquidity by Microfinance institutions, so that, profitability can be enhanced. |
| **22** | Mbella & Magloire | The effect of bank | Generalised | Capital adequacy, liquidity | Appropriate capital |

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| | (2017) | specific factors on the performance of Afril and First Bank in Cameroon | Methods of Moments; secondary data. | management and asset quality were found to have a significant negative effect on Return on Assets, | adequacy, liquidity and asset quality should be maintained. |
| **23** | Mhanna & Al-Ammar (2017) | The impact of banks characteristics on financial performance of Islamic banks: Evidence from Syria. | Panel data; fixed effects model; secondary data. | Capital adequacy and liquidity have significant impact on ROA, but insignificant impact on ROE. | There should equilibrium between capital adequacy and liquidity, so that, profitability can be enhanced. |
| **24** | Mucheru & Shukla (2017) | Effect of liquidity management on financial performance of commercial banks in Rwanda. A study on selected banks in Rwanda | Descriptive research design; multiple regression analysis; primary and secondary | Liquid assets as no significant effect on commercial banks' return on asset. | Banks should carry appropriate liquidity that will lead to better return on banks' financial performance |
| **25** | Muhammad& Muhammad (2017). | Impact of liquidity management on profitability in the Pakistani commercial banks. | Regression analysis and correlation; secondary data, audit accounts and reports. | There is a negative effect of the capital ratio and the liquid assets ratio on the profitability of the Pakistani commercial banks. | There is a need for an optimum utilization of the available liquidity in a various aspects of investment in order to increase the banks' profitability. |
| **26** | Musyoka (2017) | The effect of capital adequacy on the financial performance of commercial banks in Kenya | Descriptive research design; Liner regression analysis | Capital adequacy significantly affects commercial banks financial performance | Management of commercial bank in Kenya should hold sufficient capital adequacy to strengthen their banks capital |
| **27** | Njimanted, Akume, & Nkwetta, (2017). | Modelling the impact of liquidity trend on the financial performance of commercial banks and economic growth in Cameroon. | VAR technique; secondary data, | Excess liquidity and total liquid outflows affect ROA negatively | Regulator should establish appropriate liquidity regulatory control and enforcement of moral suasions and special directive for investment decisions by banks. |
| **28** | Olang (2017). | Effect of financial leverage on profitability of firms listed in the Nairobi securities exchange. | Causal research design; Purposive sampling; linear regression model. | Liquidity and growth opportunity on the other hand has insignificant on profitability. | Banks should avoid the excessive use of debt in financing the operations and in order to maximize profitability. |
| **29** | Radhe & Pratikshya (2017). | Impact of capital adequacy and cost income ratio on performance of Nepalese commercial banks. | Linear regression model; secondary data. | Capital adequacy ratio, liquidity ratio, cost income ratio, and equity capital to total assets has negative impact on return on assets | Banks should maintained appropriate expenses and adequate capital base. |
| **30** | Srinivasan & Britto (2017). | | Panel estimations via fixed and random effect models | Liquidity ratio, solvency ratio, and the turnover ratio are found to have positive and significant impact on the profitability | Appropriate capital adequacy should be maintained in order to enhance banks' profitability. |
| **31** | Zahidur (2017). | Financial soundness | Bankometer | Banks have ensured sound | The study concludes that |

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| | | evaluation of selected commercial banks in Bangladesh: An application of bankometer model. | model. Secondary data; | financial status individually and banking industry has always been in favorable position | "Bankometer" model will definitely help in the internal management of any bank in determining insolvency issues and removing the shortcoming generated from inefficiency in banking operations |
| **32** | Apere (2016). | Return on assets and capital adequacy of banks in Nigeria. | Descriptive and correlational design; secondary data; Johansen Co-integration; error correction model | There is a long-run significant positive relationship between capital adequacy and return on assets of banks | Appropriate capital adequacy should be maintained in order to enhance banks' profitability. |
| **33** | Irina & Florin (2016) | Bank capital, risk and performance in European banking: A case study on seven banking sectors | Simultaneous equations model and secondary data | The existence of a negative relationship between capital and taken risks and a positive relationship between capital and profitability, as well as between risk and profitability | There should be point of equilibrium between capital, risk-taken and profitability of the banks, so that, financial soundness and profitability can be achieved |
| **34** | Joseph & Nasieku (2016) | Effect of capital on the financial performance of commercial banks in Kenya | Quantitative research design & secondary data | core capital to total risk weighted assets for the Tier I banks decreased from year 2010 to year 2014 while that of the Tier II banks decreased from year 2010 to year 2014 | Sound capital adequacy ratio should be sustained by the banks, so that, financial stability and profitability can be ascertained. |
| **35** | Kan (2016). | Liquidity management and returns of shareholders in quoted banks of Nigeria | Ex-post factor research design; secondary data; Linear regression and Pearson correlation | There is no significant relationship between liquidity and Nigerian quoted banks' financial performance | Central Bank of Nigeria and Banks' management should monitor and review the liquidity level of banks that will guarantee efficient performance |
| **36** | Masud & Haq (2016). | Financial soundness measurement and trend analysis of commercial banks in Bangladesh: an observation of selected banks | Trend analysis and graphs; secondary data | It was found that a bank with higher deposits, loans and advances, investments, branches, employees does not always mean that has better profitability performance. | Nil |
| **37** | Noman, Syeda, & Shahlal (2016). | An empirical analysis of financial performance of conventional banking sector in Islamic Republic of Pakistan | Regression, correlation and t-statistics; secondary data | Liquidity is insignificantly positively related with profitability and leverage is significantly negatively correlated with profitability | Focusing on liquidity and profitability will help banks to enhance their stability |
| **38** | Odunga (2016) | Specific performance indicators, market share and operating efficiency for commercial banks in Kenya. | Secondary data and regression analysis | Bank's operational efficiency is well explained by bank specific performance indicators as $R^2$ = 64%. Never the less, market share is a matter in determination of bank's operational efficiency | It was recommended that banks should have close attention to variables that effect operational efficiency in order for banks to remain competitive in the |

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| **39** | Olarewaju & Akande (2016) | An empirical analysis of capital adequacy determinants in Nigerian banking sector. | Descriptive and fixed effect panel regression, panel data using cross-sectional specific fixed effect estimations | Direct relationship exists among equity to total asset, return on asset and bank size. Inverse linear relationship exists among return on asset, credit risk, deposit structure and liquidity structure are statistically significant in determining the level of capital adequacy of Nigerian deposit money banks | banks to gear up and invest more on the significant factors that can lead to improvements in their capital adequacy in order to achieve viability, sustainability and stability in the long run |
| **40** | Rudin, Djayani, &Vita (2016). | The effect of liquidity and leverage on profitability of property and real estate company in Indonesian Stock Exchange. | Purposive sampling technique; secondary data; multiple linear regression | Leverage and liquidity simultaneously have significant effect on profitability, while individual effect of liquidity eon profitability was not significant but leverage had a significant effect on profitability | Leverage and liquidity should be maintained at level to increase profitability. |
| **41** | Siti, Nusaibah, & Kazuhiro (2016) | Financial performance and economic impact on capital adequacy ratio in Japan | Panel regression and correlation analysis and secondary data | The results show a various signs of relationships between independent variables (Unemployment rate, inflation rate, real exchange rate, money supply and gross domestic product) and dependent variables ( deposit-to-asset ratio, return on assets, return on equity, total assets, total deposits and total loans) | Banking institutions and policy maker need to maintain and improve the level of capital adequacy for a stable security to all parties. |
| **42** | Torbira & Zaagha (2016) | Capital adequacy measures and bank financial performance in Nigeria: A co-integration analysis. | Causality test, regression analysis and secondary data | Unidirectional causality flowing from the ratio of shareholders fund to bank total assets and return on assets. capital adequacy strongly and actively stimulate and improve the financial performance of banks in Nigeria | 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 |
| **43** | Umoru & Osemwegie (2016) | Capital adequacy and financial performance of banks in Nigeria: Empirical evidence based on the FGLS estimator | Feasible General Least Square estimator technique on the pooled panel model | The impact of the estimated capital adequacy is below 30%. The policy stance of the empirics holds thus that depositor's money in the banking sector has not been absolutely assured. | Constant reassessment of the least amount of capital required of banks by the CBN |
| **44** | Valipour-Pasha, & Arshadi (2016) | Degree of leverage ratio analysis in the Iranian banking network. | Panel data model, regression analysis, secondary data | Equity and liabilities affect leverage positively; leverage affect return to equity negatively; non-performing loans has a negative significant impact on return on equity. | Banks are advised to maintain an optimum leverage ratio in order to enhance performance |
| **45** | Adabenege & | Empirical examination | Time series data | The study finds positive | Bank managers should |

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| | Lamidi (2015) | of the financial performance of Islamic banking in Nigeria: A case study approach | were collected and analysed by way of Gray Comparative Index. | relationship between profitability, leverage, growth ratios and financial performance but liquidity ratios has negative relationship with financial performance surrogates. | improve profitability by taking advantage of leverage and be careful in keeping liquidity beyond desirable level since liquidity and financial performance have negative relationship |
| **46** | Agbeja, Adelakun, & Olufemi (2015) | Capital adequacy ratio and bank profitability in Nigeria: A linear approach. | Regression and Correlational analysis, secondary data | Positive and significant relationship between capital adequacy and bank's profitability suggested that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability | There should be a constant review of minimum capital requirement of deposit money banks in Nigeria to the optimal level and Nigeria |
| **47** | Akani & Anyike (2015) | Econometrics analysis of capital adequacy ratios and the impact on the profitability of commercial banks in Nigeria from 1980 – 2013. | Time series data; Johansen co-integration techniques; vector error correction model | There is a positive long run dynamic and significant relationship between return on asset and capital to risk asset ratio and capital to deposit ratio | Nil |
| **48** | Alshatti (2015) | The effect of credit risk management on financial performance of the Jordanian commercial banks | Linear regression analysis; secondary data | Credit risk management affects financial performance of the Jordanian commercial banks as measured by return on asset and return on equity | Banks should imposed strict credit policy and improve their credit risk management to achieve more profits |
| **49** | Chinoda, Chingombe, & Chawuruka (2015) | The impact of minimum capital requirements on performance of commercial banks in Zimbabwe | Triangulation quantitative and qualitative research design (primary and secondary data) Questionnaires and documentary analysis | It was discovered that minimum capital requirement enable banks to make profits since meeting the minimum capital reduces the chances of bank distress as banks will not be pressured by short-term borrowing which is usually at high cost | There should be effective regulatory monitoring and review of minimum capital. |
| **50** | Claudiu (2015) | Banks' profitability and financial soundness indicators: A macro-level investigation in emerging countries | panel data approach and fixed effect model | Non-performing loans have a negative impact on banks' profitability; non-interest expenses negatively impact the profitability; the capitalization and the interest rate margins positively affect return on assets and return on equity | The banks should have strong capital based and implement good credit-risk management policy that will enhance banks' performance. |
| **51** | Eyo & Offiong (2015) . | Effect of capital adequacy on the performance of access bank Plc. (1999 – 2012). | Desk survey. Analytical technique; multiple regression method | There is no significant relationship between core capital and the profitability of Access Bank Plc. but there is a significant relationship between supplementary capital and the profitability of Access Bank Plc. | Nil |

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| **52** | Godwin & Effiong (2015) | Bank profitability and liquidity management: A case study of selected Nigerian deposit money banks | Quantitative and explanatory research design; Ordinary Least Squares (OLS) technique | statistically significant relationship exist between bank liquidity measures-current ratio, liquid ratio, cash ratio, loans to deposit ratio, loans to asset ratio- and return on equity | Banks should evaluate and redesign their liquidity management strategy so that it will not only optimize returns to shareholders equity but also optimize the use of the assets. |
| **53** | Imad, & Khaled (2015) | Jordan banks financial soundness indicators | methodology used consisted of examining the banks financial records in order to derive four crucial Basel III ratio | The general outcome of the research revealed that Jordanian banks were not affected significantly by the financial crisis. Jordan Banks do not meet Basel financial Indicators for capital adequacy ratio, liquidity ratio, leverage ratio and total provisions (as % of non-performing loans) ratio | Central Bank of Jordan (CBJ) should implement prudent financial soundness indicators that will aid the banks to weather any financial crises |
| **54** | Kayode, Obamuyi, Owoputi, & Adeyefa, (2015) | Credit risk and bank performance in Nigeria. | Panel estimation and random effect model framework | Credit risk is negatively and significantly related to return on assets; total loan has a positive and significant impact on bank performance | Banks should adopt an aggressive deposit mobilization to increase credit availability and develop a reliable credit risk management strategy |
| **55** | Kočišová & Stavárek (2015). | Banking stability index: New EU countries after ten years of membership. | Aggregate index-BSI; secondary data. | Most stable banking sectors were Luxembourg and Estonia. On the opposite end of the scale were banking sectors in Spain, Portugal, and Greece. The outcome of the study showed decline of the average banking stability in EU countries. | Nil |
| **56** | Kunga (2015). | The relationship between financial leverage and profitability of firms listed at the Nairobi securities exchange | Descriptive research design; correlation and regression analysis secondary data | Liquidity and financial leverage depicted a negative relationship with return on asset. | Banks should reduce amount of borrowed fund used in financing their activities. |
| **57** | Kutum & Al-Jaberi (2015). | Jordan banks financial soundness indicators | Secondary data; descriptive survey research, descriptive statistics. | Jordan banks do not meet Basel financial indicators for capital adequacy ratio, liquidity ratio, leverage ratio and total provisions as % of non-performing loans ratio | Nil |
| **58** | Mohsen & | The effect of credit risk | Multivariate - | Negative relationship between | Banks should evaluate |

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| | Mohamadreza (2015) | management and capital adequacy on financial performance of business banks | linear regression | loss reserve on loans and previous maturity of credits and banks' performance; positive relationship between liquidity ratio and capital adequacy ratio with banks' performance | their capital adequacy ratios and credit risk practice from time to time so that efficient utilization of fund and banks' financial stability can be attained. |
| **59** | Molefe & Muzindutsi (2015) | Effect of capital and liquidity management on profitability of major South African banks. | co-integration panel analysis | Capital ratio was found to have significant positive effect on banks' profitability; whereas liquidity does not have an effect on banks' profitability | Banks regulators should focus on capital adequacy as the most effective tool to ensure the safety and soundness of South African financial institutions. |
| **60** | Odunayo & Oluwafeyisayo (2015). | Causal relationship between liquidity and profitability of Nigerian deposit money banks. | Pairwise Granga Causality; secondary data; | There is no causal relationship between liquidity and probability of the selected banks. And there is a trace of unidirectional causality relationship running from liquidity to profitability for 4 banks | Central Bank of Nigeria should ensure close supervision and monitoring of deposit money banks' strength and level of liquidity in an attempt to stabilize and strengthen the financial sector of the economy |
| **61** | Sana (2015) | Tunisian banking system vulnerabilities beyond the global financial crisis and recent political instability | Descriptive and Panel study of banks financial statements | Tunisian banks remain resilient from the effects of the global financial crisis. Nevertheless, they have been impacted by the revolution's turmoil | Government should maintain normalcy so that the political atmosphere will be conducive and banks' financial soundness will be restored. |
| **62** | Torki & Ghazi (2015) | Capital adequacy of the Jordanian banking system for the period 2000-2013 | Descriptive and analytical approaches; secondary data | There is a statistically significant relationship between capital adequacy, liquidity, credit risk, investment in securities portfolio | Commercial banks should develop market, operational risk assessment, strategic planning and management capacity to utilize any rise in capital to increase profits. |
| **63** | Adolphus, (2014) | Financial fragility and performance of Nigerian banking institutions: An Inter-temporal analysis. | Multiple regression models; ex-post facto | explanatory powers of non-performing loans (NPLs) and Loan Loss Reserves (LLR) are high in causing variations in Loan-to-Total Assets (LTA); The deteriorating asset quality in the bank distress era constrained significantly bank liquidity, funding growth and profitability | Heavier regulation in the post-consolidation era will keep the banks safe, profitable and relevant, and not merely becoming a stringent response to market failures and cumulative risk concentrations |
| **64** | Aruwa & Naburgi (2014) | Impact of capital adequacy on the financial performance of quoted deposit money banks in Nigeria | Ordinary least square method of regression; time series data | insignificant impact of capital adequacy on financial performance; financial performance is not majorly influenced by capital adequacy | Pragmatic changes in bank regulatory focus, improved corporate governance, personnel training and stable polity for ensuring sound |

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| | | | | | financial health for the Nigerian banking sector |
| **65** | Aspal & Nazneen (2014) | An empirical analysis of capital adequacy in the Indian private sector banks | Ex-post facto multiple linear regression analysis; Secondary data | Capital adequacy ratio is negatively correlated with (loans), asset quality and management efficiency; liquidity and sensitivity are positively correlated; Loans, Management Efficiency, Liquidity and Sensitivity have statistically significant influence on the capital adequacy of private sector banks. | Optimum capital adequacy should be maintained by banks in order to meet their financial obligations and protect stakeholders' interest or stake. |
| **66** | Bogdan & Iulian (2014) | Banks' profitability in selected central and eastern European countries | Regression analysis, Time series data | Management efficiency and capital adequacy growth influence the bank profitability for all performance proxies, while credit risk and inflation determine only the ROA and ROE | Higher capital adequacy should be maintained. |
| **67** | Ejoh & Iwara, (2014) | The impact of capital adequacy on deposit money banks' profitability in Nigeria | Engle and Granger two steps procedure in co-integration. | capital adequacy plays an important role in explaining banks returns on assets (ROA) which is a measure of banks' profitability; positive and significant relationship between capital adequacy and banks' profitability | there should be a constant review of minimum capital requirement of deposit money banks in Nigeria to the optimal level |
| **68** | Fan & Yijun (2014) | The impact of credit risk management on profitability of commercial banks: A study of Europe | Research regression analysis model and correlational study, panel data | NPLR has a significant effect on the both ROE and ROA while CAR has an insignificant effect on both ROE and ROA. However, from 2007 to 2012, the relationships between all the proxies are not stable but fluctuating | Banks should balance the relationship between credit-risk management and profitability, so that, the financial stability of the banks can be guarantee. |
| **69** | Gweyi, & Karanja (2014) | Effect of financial leverage on financial performance of deposit taking savings and credit co-operative in Kenya | Descriptive and analytical research design; secondary data | The results show perfect positive correlation between debt equity ratio with return on equity and profit after tax and a weak positive correlation between debt equity ratio with return on assets and income growth | Nil |
| **70** | Kombo (2014) | Effects of Basel III framework on capital adequacy of commercial banks in Kenya | Descriptive survey design; content analysis; primary data (questionnaires); mean, standard deviation | capital adequacy requirement is important in commercial banks because it leads financial stability in the Kenyan economy; capital adequacy affected the statement of financial position structure of the commercial banks in Kenya | Banks should continue the pursuit of various strategies to ensure that they are in compliance with Basel III requirements and the Central Bank of Kenya's Prudential Guidelines |
| **71** | Mugwang'a (2014) | Determinants of capital adequacy of commercial | Multiple linear regression | There is a significant relationship between the | Nil |

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| | | banks in Kenya | analysis and the Karl Pearson correlation coefficient; secondary data | liquidity risky assets, credit risks, capital risks, interest rate risks, return on asset, return on equity and revenue power ratio | |
| **72** | Mustafa (2014) | Evaluating the financial performance of banks using financial ratios- A case study of Erbil bank for investment and finance | Correlational study; secondary data | The overall financial performance of Erbil Bank is improving in terms of liquidity ratios, assets quality ratios or credit performance, profitability ratios (NPM, ROA, and ROE) | The study suggested a set of factors regarding the development and enhancing of some banking operations which will boost the banks' financial performance |
| **73** | Onuonga (2014) | The analysis of profitability of Kenya`s top six commercial banks: Internal factor analysis | Generalized least squares method; secondary data | Bank size, capital strength, ownership, operations expenses, diversification do significantly influence profitability of the top six commercial banks | Kenyan Government should set policies that encourage commercial banks to raise their assets and capital base as this will enhance the performance of the sector |
| **74** | Parrado-Martínez, Ureña, & Fernández-Guado, (2014) | Usefulness of financial soundness indicators for risk assessment: The case of EU member countries. | Using ordered response models | Credit ratings, capital adequacy, asset quality and earnings core FSIs on the financial risk of EU. significant positive relationship between financial development and financial soundness of a country | Nil |
| **75** | Žuk-Butkuvienė, Vaitulevičienė, & Staroselskaja (2014) | Capital adequacy (solvency) and liquidity risk management: Analysis, evaluation, and possibilities for improvement. | Descriptive analysis and secondary data | banks' capital adequacy and liquidity risk management is quality control and the harmonization of bank assets and liabilities | review of calculation for requirements and procedures, to impose additional limits to ensure the basic standards and an efficient banking security |
| **76** | Adeyinka (2013) | Capital adequacy and banks' profitability: An empirical evidence from Nigeria. | Descriptive survey research design; secondary and primary data (questionnaire) | Positive and significant relationship between liquidity adequacy and profitability of bank. This implies that for deposit-taking banks in Nigeria, liquidity adequacy plays a key role in the determination of profitability | Banks should maintained good liquidity and profitability because, they are indicators of bank risk management efficiency and provide cushion against losses not covered by current earnings |
| **77** | Agbada & Osuji (2013) | The efficacy of liquidity management and banking performance in Nigeria. | Regression and Correlational studies; secondary data | There was a statistically significant relationship between efficient liquidity management and banking performance, and that efficient liquidity management enhances the soundness of the banks. | Nil |
| **78** | Al-Mamun, (2013) | Performance evaluation | Descriptive | Banks maintained high debt | Bank should further |

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| | | of prime bank limited in terms of capital adequacy | survey research design | equity ratio and capital is above regulatory requirement | improvement in capital adequacy to meet regulatory requirement and enhance bank performance |
| **79** | Altaee, Talo, & Adam (2013) | Testing the financial stability of banks in GCC countries: Pre and post financial crisis. | z-score and secondary data | There is no evidence that there is a significant difference between the financial stability of Conventional and Islamic banks for the periods 2003-2010, 2003-2007, and 2008-2010. Conventional banks tend to be financially stronger than Islamic banks for the pre-financial crisis | Nil |
| **80** | Ezike & Oke (2013) | Capital adequacy standards, Basle Accord and bank performance: The Nigerian experience (A case study of selected banks in Nigeria). | Ordinary least squares (OLS) estimation technique; secondary data | Capital adequacy standards exert a major influence on bank performance and the impact of the Nigerian monetary authority on the new capital requirements was found to be complemented with the adoption of the Basle accord framework | CBN should not rely solely on the capitalization of banks as a determinant of bank performance but also should concentrate on efficient and effective bank supervision and risk management |
| **81** | Hao, Yang-Cheng, & Chi-Wei (2013) | Impact of the subprime crisis on commercial banks' financial performance. | Descriptive analysis | Commercial banks exhibited worse performance in asset quality, profitability, liquidity, and growth index, accompanied by risk increases in asset adequacy, managerial ability, profitability, and growth index Developed markets have suffered a greater negative influence than emerging markets, causing downward pressure on asset adequacy, asset quality, and profitability since the subprime crisis | Nil |
| **82** | Ijaz, Syed, & Khurram (2013) | Determinants of capital adequacy ratio in banking sector: An empirical analysis from Pakistan | Weighted average least square (WALS); Penal data | Average capital ratio, capital ratio requirement, and portfolio risk level shows weak correlation while share of deposits and return on equity are strongly but negatively correlated with Capital Adequacy Ratio | Nil |
| **83** | Ikpefan (2013) | Capital adequacy, management and performance in the Nigerian commercial bank (1986 - 2006). | Regression analysis (ordinary least square) | Shareholders fund/total assets (SHF/TA) which measures capital adequacy of banks (risk of default) have negative impact on ROA; efficiency of management measured by operating expenses indices is negatively related to return on capital | Adequate shareholders fund can serve as a veritable stimulant in strengthening the performance of Nigerian commercial banks and also heighten the confidence of customers |
| **84** | Moussa & | Impact of capital on | Static panel; | The relationship between | Nil |

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| | Mohamed (2013) | financial performance of banks: the case of Tunisia. | correlational studies and regression analysis | capital and financial performance (ROA, ROE, and NIM) is positive. But only the relationship between capital and return on assets is statistically significant. | |
| **85** | Navajas & Thegeya (2013) | Financial soundness indicators and banking crises | Multivariate logit models | Results indicate significant correlation between some FSIs and the occurrence of systemic banking crises | Nil |
| **86** | Soyemi, Akinpelu, & Ogunleye, (2013) | The determinants of profitability among deposit money banks (DMBS) in Nigeria post consolidation | Regression and correlational studies; secondary data | Bank size which is measured by log of total assets is negative and significantly related to profitability of bank; capital adequacy ratio is also negatively related to and statistically significant to variation in bank profitability. The external determinants of financial structure and macroeconomic variables adopted depict no significant influence on profitability | Nigeria may avoid inefficiencies that may be associated with large complex organizations |
| **87** | Zoriana (2013) | Impact of liquidity management on profitability: Evidence from Ukraine | Fixed effects regression, Panel data, secondary data | Current ratio and quick ratio have significant positive effect on profitability | It is profitable for the companies to increase liquid assets up to the turnover point |
| **88** | Akinlo & Asaolu (2012) | Profitability and leverage: Evidence from Nigerian firms | Ex-post facto research design and multiple regression analysis; secondary data | Firm size has a significant positive effect on return on asset, while leverage has negative effect. | They suggest that expansion, increased sales and low debt ratios enhance firm profitability. |
| **89** | Ing (2012) | Central bank communication on financial stability | financial stability transparency index (FST index) | Evidence of the influence of central bank communication on financial soundness was found | Communication need to reached its steady state and markets have only limited experience using it |
| **90** | Shahchera, (2012) | The impact of liquidity asset on Iranian bank profitability | Generalized Method of Moment (GMM), | Coefficients for the liquid assets ratio, its square, business cycle, regulation and its product of interaction business cycle and regulation are all statistically significant. The study found evidence of a non-linear relationship between profitability and liquid asset holdings | Regulators minimize the constraints imposed on banks' obtain profit. |
| **91** | Shajari & Shajari (2012) | A financial soundness indicator with emphasis on non-performing loans in Iran's banking system. | Regression analysis and correlation | Non-performing loan (NPLs) increases have impact on real part of economy in the concept of credit crunch and bank lending decline when NPLs exceeds a specific level of total loans. asset quality and capital | |

| | | | | | |
|---|---|---|---|---|---|
| | | | | adequacy are influenced by business cycle | |
| **92** | Yaaba & Idris (2012) | Financial soundness indicators: Can we use them to avert banking crisis"? | Econometrics-regression analysis (OLS) | The FSIs compiled for Nigeria, it is obvious that the indicators can serve as reliable and consistent tools, capable of detecting vulnerabilities in the system | adequate attention be paid to the indicators by the central bank |
| **93** | Adebayo, David & Samuel (2011) | Liquidity management and commercial banks' profitability in Nigeria. | Quantitative research methods; Primary and Secondary data; Pearson correlation | There is significant relationship between liquidity and profitability; profitability in commercial banks is significantly influenced by liquidity and vice versa | For the prosperity of operations and survival, commercial banks should not expose efficient and effective liquidity management |
| **94** | Al-Khouri (2011) | Assessing the risk and performance of the GCC banking sector | fixed effect regression analysis, secondary data | Credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk | Nil |
| **95** | Saleem & Rehman (2011) | Impacts of liquidity ratios on profitability (Case of oil and gas companies of Pakistan) | correlational studies and secondary data was adopted | there is a significant impact of only liquid ratio on ROA while insignificant on ROE and ROI; the results also revealed that ROE is no significant effected by three ratios current ratio, quick ratio and liquid ratio | Banks should focus also on profitability ratios, it plays an important role in the financial positions of enterprises |
| **96** | Bordeleau & Graham (2010) | The impact of liquidity on bank profitability | Regression analysis | profitability is improved for banks that hold some liquid assets, however, there is a place at which holding further liquid assets minimize a banks' profitability | policymakers should devise new standards establishing an appropriate level of liquidity for banks |
| **97** | Okafor, lkechukwu, & Adebimpe (2010) | The effect of capital adequacy on banks' performance: Evidence from Nigeria. | Panel data; least square dummy variable (LSDV) model | Bank earnings is invariants to factors such as bank assets and bank size but highly driven by liquidity and capital adequacy | Banks should maintained strong capital adequacy in order to mitigate any financial shock. |
| **98** | Buehler, Samandari, & Mazingo (2009) | Capital ratios and financial distress: Lessons from the crisis | Regression analysis; secondary data | Tangible common equity to risk-weighted assets ratio (or TCE to RWA) was the strongest predictor of future bank distress of the commonly measured capital ratios, and appears to be a significantly better predictor than other traditional risk-based measures of capital | Further leverage requirement should be imposed on the institutions that are already subjected to a risk-based capital requirement |
| **99** | Mathuva , D.M. (2009). | Capital adequacy, cost income ratio and the performance of commercial banks: The Kenyan Scenario | Pearson Product moment correlation coefficient, correlational research desing, | Profitability is positively related to the core capital ratio and the tier 1 risk-based capital ratio. This implies that an increase in capital may raise expected earnings by reducing | Domestic banks should reduce, Their overhead cost because cost to income ratio (CIR) of Kenyan banks are higher than those of developed |

| | | | | | |
|---|---|---|---|---|---|
| | | | secondary data | the expected costs of financial distress, including bankruptcy | countries |
| **100** | Vong & Anna (2009) | Determinants of bank profitability in Macao. | econometric or regression analysis and secondary data | Asset quality, as measured by the loan-loss provisions, affects the performance of banks adversely; banks with a large retail deposit-taking network do not achieve a level of profitability higher than those with a smaller network. | There should be a stable macro economy policy that will enhance banks stability. |

## 2.6 Research Gap

Several studies on the relationship or influence of financial soundness indicators or capital requirements on financial performance of banks have been conducted locally and internationally by different scholars with divergent views. Majority of these empirical studies are with diverse findings and conclusions that is, some concluded a positive impact or relationship, a few others concluded a negative impact or relationship; others discovered no impact or relationship at all. Again the techniques applied in the analysis are also varied and the extent of work done is without consensus, while the methodologies adopted are not sufficient to cross-examine research data.

Based on empirical literatures reviewed no studies in Nigeria had considered or looked at the contributions of financial soundness capital, leverage, liquidity based indicators on Nigeria deposit money banks' financial performance on a stand-alone comparison or evaluation among regional, national and international banks.

Hence, this study tries to fill the gap by investigating the contributions of financial soundness capital, leverage and liquidity based indicators on Nigeria deposit money banks' financial performance. This research work also gives attention to IMF financial soundness indicators framework, Basel Committee for Banking Supervision (BCBS) framework, CBN prudential guidelines, relevant theories, variables and methodology in order to have good external validity.

## CHAPTER THREE

# METHODOLOGY

### 3.1 Research Design

This research work adopted an ex-post facto research design. This is because it seeks to establish cause-effect relationship and the researcher has no control over the variables under study. Another name for this research design is causal-comparative because groups differential in terms of some independent variables are compared on a given dependent variable. This design is very appropriate where it is not possible for the researcher to directly manipulate the independent variable, (Onyeizugbe, 2013).

### 3.2 Area of Study

This study was carried out in Nigeria. Nigeria is located in the south western part of West Africa; it shares boarders with the Republic of Benin in the West, Chad and Cameroon in the East, and Niger in the North. Its coast lies on the Gulf of Guinea in the South and it boarders Lake Chad to the North East. It has an estimated land area of about 15, 000 sq.km. The total population in Nigeria was estimated at 182.2 million people in 2015, according to the latest census figure. The administrative headquarters of the country is the Federal Capital Territory (FCT), and there are thirty-six states in Nigeria (Osisioma, 2015, e tal).

### 3.3 Population of the Study

The population of the study refers to the totality of all the elements or variables under study (Osisioma, 2015, et al).The population of this study consist of all the twenty-seven (27) Nigeria Deposit Money Banks licensed by Central Bank of Nigeria (CBN) and insured by Nigerian Deposit Insurance Corporation (NDIC) see Appendix-I for more details. This sector is selected because they serve as the engine room of Nigeria economy and make funds available from surplus units of the economy to deficits

units and any financial shock or crises that affect this sector will lead to systemic collapse of the entire economic system. The sector was categorized into international, national and regional Nigeria deposit money banks (DMBs); this nomenclature was adopted because of capital adequacy ratio requirements of 15% and 10% for international and other Nigeria deposit money banks which is contingent on the level of operations and financial stability or ability to withstand financial stress or shock. See Figure 3.3.1 for more details:

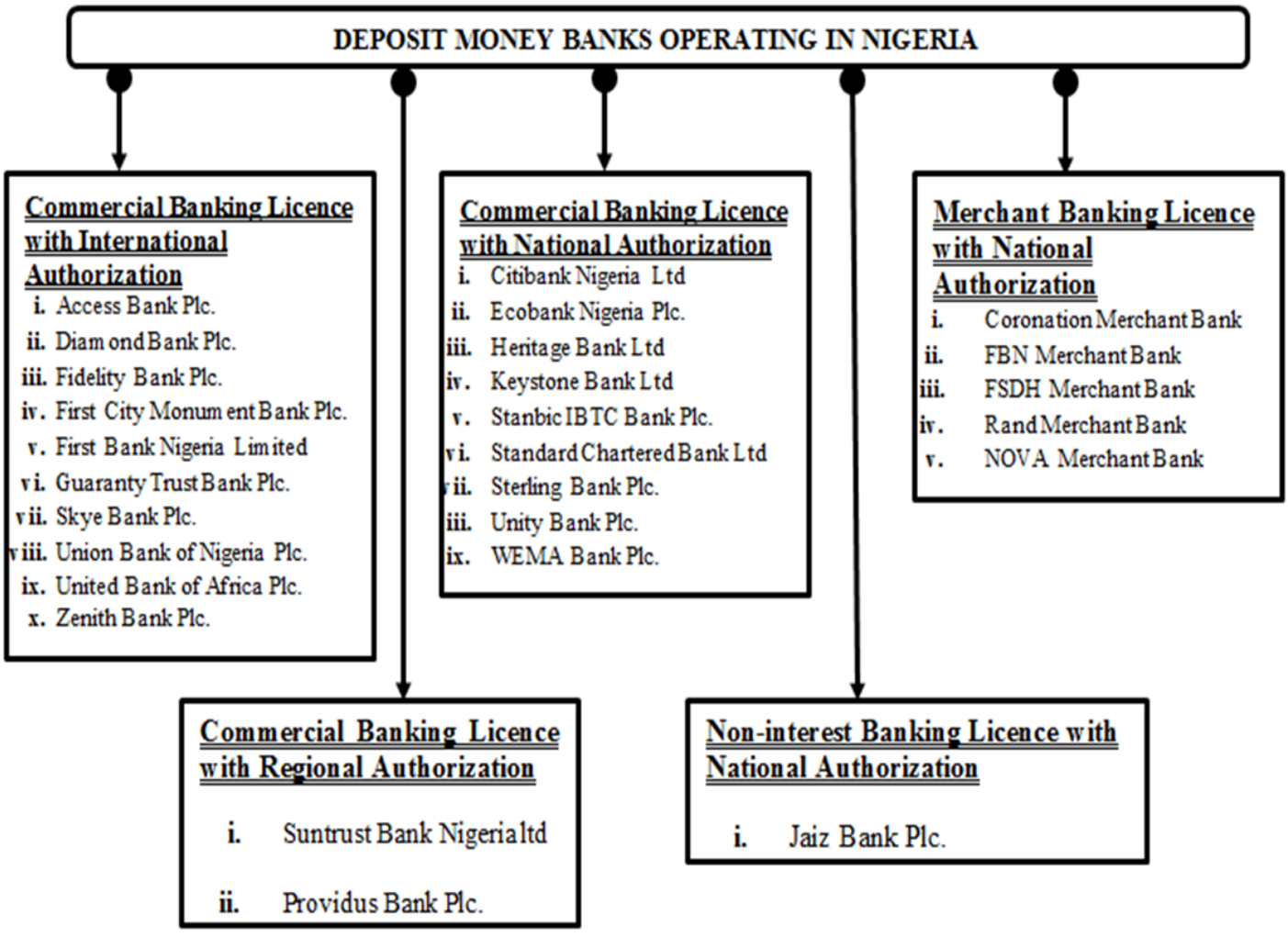


**Figure 3.3.1:** Organogram of Twenty-seven Deposit Money Banks Operating in Nigeria

**Source:** Researcher's concept

**Table 3.3.1:** List of Nigeria Deposit Money Banks Licensed by Central Bank of Nigeria as at 31st May, 2018.

| S/N | Names of Bank | Year of Starting Operation | Categorisation |
|---|---|---|---|
| 1 | Access Bank Plc. | 1989 | Comm. Banking L. International |
| 2 | Citibank Nigeria Limited | 1990 | Comm. Banking L. National |
| 3 | Coronation Merchant Bank | 2015 | Merchant Bank National |
| 4 | Diamond Bank Plc. | 1990 | Comm. Banking L. International |
| 5 | Ecobank Nigeria Plc. | 1986 | Comm. Banking L. National |
| | **Enterprise Bank** | **2011** | **Uncertain/AMCON** |
| 6 | Fidelity Bank Plc. | 1988 | Comm. Banking L. International |
| 7 | First Bank Nigeria Limited | 1979 | Comm. Banking L. International |
| 8 | First City Monument Bank Plc. | 1982 | Comm. Banking L. International |
| 9 | FBN Merchant Bank | 2015 | Merchant Bank National |
| 10 | FSDH Merchant Bank | 2012 | Merchant Bank National |
| 11 | Guaranty Trust Bank Plc. | 1990 | Comm. Banking L. International |
| 12 | Heritage Banking Company Ltd. | 2009 | Comm. Banking L. National |
| 13 | Jaiz Bank Plc. | 2011 | Non-interest National |
| 14 | Key Stone Bank | 2011 | Comm. Banking L. National |
| | **Mainstreet Bank** | **2011** | **Uncertain/AMCON** |
| 15 | NOVA Merchant Bank | 2017 | Merchant Bank National |
| 16 | Providus Bank Plc. | 2015 | Comm. Banking L. Regional |
| 17 | Rand Merchant Bank | 2012 | Merchant Bank National |
| 18 | Skye Bank Plc. | 2006 | Comm. Banking L. International |
| 19 | Stanbic IBTC Bank Ltd. | 2005 | Comm. Banking L. National |
| 20 | Standard Chartered Bank Nigeria Ltd. | 1999 | Comm. Banking L. National |
| 21 | Sterling Bank Plc. | 2006 | Comm. Banking L. National |
| 22 | Suntrust Bank Nigeria Limited | 2015 | Comm. Banking L. Regional |
| 23 | Union Bank Of Nigeria Plc. | 1993 | Comm. Banking L. International |
| 24 | United Bank For Africa Plc. | 1961 | Comm. Banking L. International |
| 25 | Unity Bank Plc. | 2006 | Comm. Banking L. National |
| 26 | Wema Bank Plc. | 2001 | Comm. Banking L. National |
| 27 | Zenith Bank Plc. | 1990 | Comm. Banking L. International |

**Source:** Central Bank of Nigeria (2018).

### 3.4 Sample Size and Sampling Technique

The non-probability method of sampling technique was adopted, that is, convenience sampling method. The rationale for choosing the deposit money banks is the fact that the selected banks constitute the foremost prominent banks in recent time especially when these banks have survived the global economic meltdown, financial shock, banking sector reforms and CBN financial stress test. And availability of financial statements for the period (i.e. 2010-2017) under investigation was also a yardstick or benchmark. Convenience sampling technique was adopted in selecting the deposit money banks; units selected are limited to those that contain the available data needed for the purpose of this study. We also adopted the sampling method of Tabachnick

and Fidell (2007) in determining our pooled sample size (n), that is, number of observations, that is, $n \geq 50 + 8m = 50 + 8(3) = 74$, that is, our sample size (that is, pooled regression observations) should not be less than 74. In order to have a good regression analysis result or good fit. M represents number of explanatory variables in the model.

**Table 3.3.2: Selected Nigeria Deposit Money Banks Licensed by Central Bank of Nigeria**

| S/N | Names of Bank | Categorisation |
|---|---|---|
| 1 | Access Bank Plc. | International |
| 2 | Diamond Bank Plc. | International |
| 3 | Fidelity Bank Plc. | International |
| 4 | First Bank Nigeria Limited | International |
| 5 | First City Monument Bank Plc. | International |
| 6 | Guaranty Trust Bank Plc. | International |
| 7 | Union Bank Of Nigeria Plc. | International |
| 8 | United Bank For Africa Plc. | International |
| 9 | Zenith Bank Plc. | International |
| 10 | Citibank Nigeria Limited | National |
| 11 | Ecobank Nigeria Plc. | National |
| 12 | Stanbic IBTC Bank Ltd. | National |
| 13 | Standard Chartered Bank Nigeria Ltd. | National |
| 14 | Sterling Bank Plc. | National |
| 15 | Unity Bank Plc. | National |
| 16 | Wema Bank Plc. | National |

**Source:** Central Bank of Nigeria (2018).

### 3.5 Instrument for data collection

The study adopts a secondary technique of data collection. Secondary data was collected from the audited annual accounts and reports of the selected deposit money banks, the annual accounts and reports selected covered the period of eight years, that is, from 2010 to 2017.

### 3.6 Validation and Reliability of the Instrument

The instrument is valid and reliable since they have been signed by the management of the firms, approved by the security and exchange commission, and other scholars have used the annual audited financial statements to carry out related study, therefore the instrument is deemed to be valid.

### 3.7 Method of Data Analysis

The study adopted standardized multiple linear regression (Ordinary Least Square-OLS), Chow-test and Karl Pearson Product Moment Correlation Coefficient-(PPMCC) to analyse data via SPSS version 23. The study involved time series and cross-sectional data (that is, eight time series and sixteen banks which is one hundred and twenty-eight (128) observational pooled data). Our theoretical expectation (***Aprior***) that is, $\beta_1$, $\beta_7$, $\beta_{10}$, $\beta_{13}$, $\leq 0$, while $\beta_2$, $\beta_3$, $\beta_4$, $\beta_5$,$\beta_6$, $\beta_8$, $\beta_9$, $\beta_{11}$, $\beta_{12}$, $\beta_{14}$ to $\beta_{30}$ $\geq$ 0 and the data conformed to the standardized multiple linear regression assumptions that is, linearity, homoscedasticity, normality and independence of data. All plotted graphs are within the acceptable limits; that is, tolerance value is not less than 0.10 (10%), variance inflationary factor (VIF) is less than 10, otherwise possible multicolinearity; Durbin Watson statistics is within the range of 1-3, (Gujarati, Porter & Gunasekar, 2012; Kothari, & Gaurav, 2014; Tabachnick & Fidell, 2007).

### 3.8 Decision Rule

The decision was based on 5% level of significant. Accept null hypothesis ($H_0$) if probability value (i.e. P-value or Sig.) is greater than or equals to ($\geq$) stated 5% level of significance ($\alpha$); otherwise, reject and accept alternate hypothesis ($H_a$), if p-value or sig calculated is less than 5% level of significance (Osisioma, Egbunike & Jesuwunmi, 2015).

### 3.9 Model specification and Variables Measurement

*Financial Performance (FP) = f (Financial Soundness Capital-based Indicators-FSCI)*

*Financial Performance* is a function of Financial Soundness Capital-based Indicators-FSCI

Introduce the surrogates (i.e. proxy variables).

FP-( $ROA_{it}$, $AQ_{it}$, $ADER_{it}$, $ROE_{it}$) = $f$ (FSIV-$CAR_{it}$, $LEV_{it}$, $LAR_{it}$)…eqn 3.9.1.

Financial performance is proxy by ROA, AQ, ExpeR, ROE, while financial soundness capital-liquidity based indicator is proxy by CAR, LAR, LEV

$ROA_{it} = \alpha_0 + \beta_1 CAR_{it} + \beta_2 LEV_{it} + \beta_3 LAR_{it}$ … eqn. 3.9.2

$AQ_{it} = \alpha_1 + \beta_4 CAR_{it} + \beta_5 LEV_{it} + \beta_6 LAR_{it}$ ……. eqn. 3.9.3

$ExpeR_{it} = \alpha_2 + \beta_7 CAR_{it} + \beta_8 LEV_{it} + \beta_9 LAR_{it}$ ….. eqn. 3.9.4

$ROE_{it} = \alpha_3 + \beta_{10} CAR_{it} + \beta_{11} LEV_{it} + \beta_{12} LAR_{it}$ …..eqn. 3.9.5

**Note:** Equations 3.9.2 to 3.9.5 are pooled deterministic or mathematical models;

**Introduce the stochastic random variable (error term) into the model**.

$LogROA_{it} = \alpha_0 + \beta_1 logCAR_{it} + \beta_2 logLEV_{it} + \beta_3 logLAR_{it} + \varepsilon_{it}$…..... eqn. 3.9.6

$LogAQ_{it} = \alpha_2 + \beta_4 logCAR_{it} + \beta_5 logLEV_{it} + \beta_6 logLAR_{it} + \varepsilon_{it}$……. eqn. 3.9.7

$LogExpeR_{it} = \alpha_3 + \beta_7 logCAR_{it} + \beta_8 logLEV_{it} + \beta_9 logLAR_{it} + \varepsilon_{it}$….. eqn. 3.9.8

$LogROE_{it} = \alpha_4 + \beta_{10} logCAR_{it} + \beta_{11} logLEV_{it} + \beta_{12} logLAR_{it} + \varepsilon_{it}$….. eqn.3.9.9

**Note:** equation 3.9.6 to 3.9.9 are pooled log-log multiple linear regression or econometric models.

$ROA_{it} = \alpha_5 + \beta_{13} ICAR_{it} + \beta_{14} ILEV_{it} + \beta_{15} ILAR_{it} + \varepsilon_{it}$….eqn. 3.9.10

$AQ_{it} = \alpha_6 + \beta_{16} ICAR_{it} + \beta_{17} ILEV_{it} + \beta_{18} ILAR_{it} + \varepsilon_{it}$……eqn. 3.9.11

$ExpeR_{it} = \alpha_7 + \beta_{19} ICAR_{it} + \beta_{20} ILEV_{it} + \beta_{21} ILAR_{it} + \varepsilon_{it}$…..... eqn. 3.9.12

$ROE_{it} = \alpha_8 + \beta_{22} ICAR_{it} + \beta_{23} ILEV_{it} + \beta_{24} ILAR_{it} + \varepsilon_{it}$….. eqn. 3.9.13

**Note:** Eqn.3.9.10 to 3.9.13 are multiple linear regression for international Nigeria deposit money banks.

$ROA_{it} = \alpha_9 + \beta_{16} NCAR_{it} + \beta_{17} NLEV_{it} + \beta_{18} NLR_{it} + \varepsilon_{it}$…..... eqn. 3.9.14

$AQ_{it} = \alpha_{10} + \beta_{22} NCAR_{it} + \beta_{23} NLEV_{it} + \beta_{24} NLR_{it} + \varepsilon_{it}$……. eqn. 3.9.15

$ExpeR_{it} = \alpha_{11} + \beta_{25} NCAR_{it} + \beta_{26} NLEV_{it} + \beta_{27} NLR_{it} + \varepsilon_{it}$…..eqn. 3.9.16

$ROE_{it} = \alpha_{12} + \beta_{28} NCAR_{it} + \beta_{29} NLEV_{it} + \beta_{30} NLR_{it} + \varepsilon_{it}$…..eqn. 3.9.17

**Note:** models 3.9.14 to 3.9.17 are multiple linear regression or econometric models for national Nigeria deposit money banks.

**Table3.10: Variables measurement and nomenclature**

| S/N | Names & Codes | Measurement | Variable type |
|---|---|---|---|
| **1** | Financial Performance-FP | **FP**=ROI, ATO, AQ, ADER, ROE | Latent-Endogenous |
| **2** | Return on Asset -ROA | **ROA**= Earnings before Interest Tax Depreciation Amortization(EBITDA) ÷ [Total Assets – current liability OR share capital + long-term liability ] | Observed/measured endogenous |
| **3** | Asset Quality-AQ | **AQ=** Non-performing loan/total loan | Observed/ explained |
| **4** | Expense-revenue | **ExpeR**= Amin expenses/gross income | Observed/ explained |
| **5** | Return on equity-ROE | **ROE=**Profit after tax/ No. outstanding ordinary share | Observed/ explained |
| **6** | Financial Soundness Capital-based indicators-FSCI | **FSCI**= CAR, LEV, LAR | Latent/hidden exogenous |
| **7** | Capital Adequacy Ratio-CAR | **CAR**= Total regulatory equity capital/risk weighted asset | Observed/measured exogenous |
| **8** | Leverage ratio (**LEV**) | LEV= debt/capital employed (net asset) | Observed exogenous |
| **9** | Liquidity asset ratio (LAR) | **LAR**=liquid asset/ total asset | Observed exogenous |
| **10** | $\beta_{1\text{-}24}$ | Regression coefficient | Parameter |
| **11** | $\chi_{0\text{-}12}$ (Gandia) | Intercept /constant term | Parameter |
| **12** | Ƒ | Functional notation | |
| **13** | I | Individual firms | |
| **14** | T | Time/ year | |
| **15** | N | Nigeria national deposit money banks | Added to variables |
| **16** | I | Nigeria international deposit money banks | Added to variables |

**Source:** Researcher's literature review, 2017.

### 3.11 Justification for Model Estimation Technique

The panel data methodology was adopted because the study combined time series and cross-sectional data that is sixteen cross-sectional observations for each year and eight time series for each deposit money banks on regressor and explained variables, a total of one hundred and twenty-eight pooled observations. A panel data set has multiple entities each of which has repeated measurements at different time periods. Panel data give more informative data, more degrees of freedom and more efficiency. They also provide ways of dealing with diverse data and examine fixed and random effects on the longitudinal data (Gujarati, Porter, & Gunasekar, 2012).

## CHAPTER FOUR
## DATA PRESENTATION AND ANALYSIS

### 4.1 Data Presentation

See the Financial Data of selected deposit money banks in Nigeria in Appendix-II

#### 4.1.1 Descriptive Statistics of Nigeria Deposit Money Banks' Financial Ratios

The data for the research analysis is presented in a descriptive form for Nigerian deposit money banks (DMBs) for the period of eight years (i.e. 2010-2017) thus:

**Table 4.1.1: Descriptive Statistics of Nigeria Deposit Money Banks Financial Ratios *From 2010-2017*.**

| Variables | Minimum | Maximum | Mean (N=128) | Std. Deviation (N=128) |
|---|---|---|---|---|
| Capital Adequacy Ratio | .0202 | .4383 | .190146 | .0598582 |
| Liquid Asset Ratio | .8676 | .9976 | .953308 | .0210423 |
| Leverage Ratio | .4284 | 1.1339 | .859591 | .1089503 |
| Return on Assets | .4742 | .8820 | .775028 | .0697344 |
| Return on Equity | .2537 | .8680 | .718063 | .1058120 |
| Asset Quality | .6437 | .9731 | .800141 | .0704797 |
| Expense-revenue | .5942 | .9974 | .937074 | .0479278 |

**Source:** Researcher's Computation via SPSS version-23.

Table 4.1.1 shows the mean, minimum, maximum and standard deviation of the Nigerian deposit money banks' financial ratios for the period of eight years (i.e. 2010-2017). Capital adequacy ratio (CAR) ranges within 0.0202 to 0.4383 with the mean of 0.190146 and standard deviation of 0.0598582, liquid asset ratio (LAR), leverage ratio (LEV), return on assets (ROA), return on equity (ROE), asset quality (AQ) and Expense-revenue (Exper), had the mean of 0.953308, 0.859591, 0.775028, 0.718063, 0.800141and 0.937074 respectively. Capital adequacy ratio had the least mean or average while liquid asset ratio had the highest value among the variables followed by expense-revenue ratio; leverage, asset quality, return on assets and return on equity ratios ranked third, fourth, fifth and sixth respectively.

The CAR average is within the regulatory acceptable limit while the maximum and minimum CAR is above and below the Central Bank of Nigeria (CBN) stipulated limit. Leverage ratio is within the acceptable limit of Basel-III accord framework which stipulated at excess of 3% (i.e. LEV≥3%). However, liquidity ratio represented by liquid asset ratio (LAR) is greater than 80% stipulated by Central Bank of Nigeria this implies that there is need for optimum liquidity measure to prevent banks from excessive borrowing and risk exposure.

## 4.2 Data Analysis

### 4.2.1 Answer to Research Questions

*i. What is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on asset (ROA)?*

**Table-4.2.1:** ***Multiple regression analysis model summary of financial soundness surrogates' prediction on return on asset (ROA) of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | R | $R^2$ | Adj. $R^2$ | Std. Error of the Estimate |
|---|---|---|---|---|
| Pooled/Joint | .470 | .221 | .202 | .0622840 |
| International | .262 | .069 | .028 | .0579930 |
| National | .487 | .237 | .193 | .0671047 |

**Source:** Researcher's computation using SPSS version-23

The multiple regression result of the study is presented in table4.2.1. The regression result in Table4.2.1 is run by taking ROA as explained variable and financial soundness surrogates (i.e. capital adequacy, liquid asset and leverage ratios) as regressors. The regression output reveals that the variation in the regressand is well explained by the predictors in the pooled model with $R^2$ and Adj.$R^2$ of .221 (22.1%) and .202 (20.2%) respectively. The unexplained variation in the pooled or joint model, that is, error term or stochastic random variable (Ɛ) had captured .798 or 79.8% variations. While the international and national models had explained the variations in explained variable (i.e. ROA) to the tune of 2.8% and 19.3% respectively; can we conclude that there is no significant difference in the model prediction? This prompts us to test for difference in model prediction.

*ii. To what extent is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' asset quality (AQ)?*

**Table-4.2.2:** ***Multiple regression analysis model summary of financial soundness surrogates' prediction on asset quality (AQ) of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | R | $R^2$ | Adj. $R^2$ | Std. Error of the Estimate |
|---|---|---|---|---|
| Pooled/Joint | .488 | .238 | .219 | .0622676 |
| International | .533 | .284 | .252 | .0550208 |
| National | .585 | .342 | .304 | .0658159 |

**Source:** Researcher's computation using SPSS version-23

The multiple regression analysis is shown in table4.2.2. The regression result in Table4.2.2 is performed by taking AQ as regressand and capital adequacy, liquid asset and leverage ratios as regressors. The regression output reveals that the variation in the explained variable is well explained by the regressors in the pooled model with $R^2$ and Adj.$R^2$ of .238 (23.8%) and .219 (21.9%) individually. The unexplained variation in the pooled or joint model, that is, error term or stochastic random variable (Ɛ) had accounted for .781 or 78.1% variations. While the international and national models had explained the variations in explained variable (i.e. ROA) to the tune of 25.2% and 30.4% respectively; can we infer that the difference in model prediction is significant? This serves as stimuli for test of difference in model prediction.

***iii. What is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' expenses-revenue ratio (ExpeR)?***

**Table-4.2.3:** ***Multiple regression summary of financial soundness surrogates' prediction on expense-revenue (Exper) of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | R | $R^2$ | Adj. $R^2$ | Std. Error of the Estimate |
|---|---|---|---|---|
| Pooled/Joint | .263 | .069 | .047 | .0467952 |
| International | .395 | .156 | .119 | .0219820 |
| National | .247 | .061 | .007 | .0671267 |

**Source:** Researcher's computation using SPSS version-23

The multiple regression result in Table4.2.3 is derived by taking Expenses-revenue as explained variable and financial soundness indicators as explanatory variable. The regression output shows that the variation in the explained variable is well explained by the regressors in the pooled model with $R^2$ and Adj.$R^2$ of .069 (6.9%) and .047 (4.7%) correspondingly. The unexplained variation in the pooled or joint model, that is, error term or stochastic random variable (Ɛ) had explained .953 or 95.3% variations. However the international and national models had explained the variations in regressand (i.e. ExpeR) to the tune of 11.9% and 0.07% separately; can we deduce that there is no difference in model prediction? This serves as spurs for test of difference in model prediction.

***iv. To what extent is the difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on equity (ROE)?***

**Table-4.2.4:** ***Multiple regression summary of financial soundness surrogates' prediction on return on equity (ROE) of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | R | $R^2$ | Adj. $R^2$ | Std. Error of the Estimate |
|---|---|---|---|---|
| Pooled/Joint | .542 | .294 | .276 | .0900055 |
| International | .357 | .127 | .089 | .0769581 |
| National | .548 | .300 | .260 | .1041109 |

**Source:** Researcher's computation using SPSS version-23

The multiple regression result shown in Table4.2.4 is derived by taking return on equity (ROE) as regressand and financial soundness indicators as regressor. The regression result indicates that the variant in the regressand is well explained by the regressors in the pooled model with $R^2$ and Adj.$R^2$ of .294 (29.4%) and .276 (27.6%) respectively. The unexplained variation in the pooled or joint model, that is, error term or stochastic random variable (Ɛ) had accounted for .724 or 72.4% variations. Though the international and national models had explained the variations in explained variable (i.e. ROE) to the tune of 8.9% and 26% independently; can we assume that the difference in model prediction is not significant? This stimulates test for difference in model prediction.

***v. What is the magnitude and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA)?***

***Table-4.2.5: Karl Pearson Product Moment Correlation Coefficient Statistics between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA).***

| | ***Return on assets (ROA)*** |
|---|---|
| Pearson Correlation-CAR | .123 |

**Source:** Researcher's computation using SPSS version-23

Table4.2.5 had shown the magnitude and direction of relationship or association between capital adequacy ratio-CAR and return on asset (ROA) of Nigeria deposit money banks. It was showed that there is positive relationship (R = .123), that is 12.3%; this shown that there is relationship between the aforementioned variables. Can we conclude that there is insignificant relationship between the variables? This led us to test of hypothesis.

***vi. To what extent is the degree and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ)?***

***Table-4.2.6: Karl Pearson Product Moment Correlation Coefficient Statistics between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ).***

| | *Assets Quality(AQ)* |
|---|---|
| Pearson Correlation-CAR | -.069 |

**Source:** Researcher's computation using SPSS version-23

Table4.2.6 had shown the magnitude and direction of relationship or association between capital adequacy ratio and asset quality (AQ) of Nigeria deposit money banks. It was showed that there is inverse or negative relationship (R = -.069), that is -6.9%; this shown that there is inverse or negative relationship between the aforementioned variables. Can we conclude that there is insignificant relationship between the variables? This led us to test of hypothesis.

## 4.3 Test of Hypotheses

***i. The difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on asset (ROA) is not significant.***

**Table-4.3.1:** ***The relative contributions of financial soundness' coefficients to return on asset (ROA) of Nigerian deposit money banks from 2010-2017.***

| | **Standardized Coefficients Beta** | | | **t** | | | **Sig.** | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Pooled** | **International** | **National** | **Pooled** | **International** | **National** | **Pooled** | **International** | **National.** |
| (Constant) | .252 | .246 | -.041 | -.368 | .589 | -.116 | .714 | .558 | .908 |
| Capital Adequacy Ratio | .037 | -.036 | .019 | .459 | -.302 | .157 | .647 | .763 | .876 |
| Liquid Asset Ratio | .203 | .090 | .213 | 2.533 | .735 | 1.753 | .013 | .465 | .085 |
| Leverage Ratio | .399 | .221 | .450 | 4.960 | 1.803 | 3.686 | .000 | .076 | .001 |

**Source:** Researcher's computation using SPSS version-23

The result in Table4.3.1 showed the beta ($\beta$) weights of estimates of the strengths of the causation. The entire financial soundness proxy variables shown to contribute differentially to return on asset (ROA) among Nigerian deposit money banks; for the pooled model prediction capital adequacy, liquid asset and leverage ratios had contributed to the variation in return on asset (ROA) thus, CAR-$\beta = .037$ ($t = .459, p = .647$), and LAR-$\beta = .203$($t = 2.053, p = .013$) and LEV-$\beta = .339$ ($t = 4.96, p = .000$), the contribution of CAR is positively insignificant whereas the independent contributions of LAR and LEV were positively significant

to the prediction of Nigeria deposit money banks' financial performance proxy by ROA. For international and national Nigeria deposit money banks coefficients' predictions only national deposit money banks' leverage ratio was positively significant [CAR-$\beta = .019$ ($t = .157, p = .876$); LAR-$\beta = .213$($t = 1.753, p = .085$) and LEV-$\beta = .450$ ($t = 3.686, p = .001$)] in the prediction of ROA. While the individual contribution of international deposit money banks coefficients' prediction were not significant [CAR-$\beta = -.036$ ($t = -.302, p = .763$), and LAR-$\beta = .09$($t = .735, p = .465$) and LEV-$\beta = .221$ ($t = 1.803, p = .076$)] ROA's prediction.

**Table-4.3.2: ANOVA *multiple regression model summary of financial soundness surrogates' prediction on return on asset of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | Adj. $R^2$ | Sum of square | | | df | Mean$^2$ | | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| | | Reg. | Res. | Total | | Reg. | Res. | | |
| Pooled | .202 | .137 | .481 | .618 | (3, 124);127 | .046 | .004 | 11.734 | .000 |
| International | .028 | .017 | .229 | .246 | (3, 68);71 | .006 | .003 | 1.673 | .181 |
| National | .193 | .073 | .234 | .307 | (3, 52)55 | .024 | .005 | 5.382 | .003 |

**Note:** Reg. = **Regression**; Res. = **Residual**;

**Source:** Researcher's computation using SPSS version-23

Table4.3.2 showed that the three explanatory variables (i.e. capital adequacy ratio, liquidity asset ratio and leverage ratio) pooled model jointly contributed significantly to the prediction of Return on Asset (ROA), [F (3, 124) = 11**.**734, Adj.$R^2$ **=** .202; P =**.**000]. However, the remaining variation not explained by the joint contribution of the financial soundness surrogates might be accounted for by the effects of extraneous or stochastic random variables. Therefore, the financial soundness proxy variables were significantly joint contributors to the prediction of Nigeria deposit money banks' financial performance as proxy by return on asset (ROA). Furthermore, the national and international deposit money banks' models jointly contributed significantly and insignificantly to the prediction of Return on Asset (ROA), [F (3, 52) = 5**.**382, Adj.$R^2$ **=** .193; P =**.**003] and [F (3, 68) = 1.673, Adj.$R^2$ **=** .028; P =**.181**]; correspondingly.

**Table-4.3.3:** ***Regression stability test of multiple regression contrast coefficients of Nigeria deposit money banks' financial soundness indicators and return on asset from 2010-2017.***

| Source | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Contrast | .018 | 4 | .005 | 1.178 | .324 |
| Error | .463 | 120 | .004 | | |

**Source:** Researcher's computation using SPSS version-23

We used regression stability test to determine the prediction or stability of coefficients of regressors after ordinary least square (OLS) is performed. Chow test using F-test estimation technique indicates that there is stability or no structural break for the variables under investigation. The Chow test results on the regressions of the national and international Nigeria deposit money banks financial soundness indicators and ROA are displayed in Tables4.3.3. The estimated statistics [F (4, 120) =1.178; p=.324] at 5% significance level. This implies that the p-value is greater than 5%; we therefore accept the null hypothesis ($H_o$) of no significant difference in the models' prediction of financial soundness surrogates on Nigeria national and international deposit money banks' return on asset-ROA. It was concluded that there is regression stability or financial soundness surrogates' coefficients are stable or no difference in the prediction of Nigeria deposit money banks' profitability and efficiency for eight years, that is, 2010-2017.

***ii. There is no significant difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' asset quality (AQ).***

**Table-4.3.4:** ***The relative contributions of financial soundness' coefficients to asset quality of Nigerian deposit money banks from 2010-2017.***

| | Standardized Coefficients Beta | | | t | | | Sig. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pooled | International | National | Pooled | International | National | Pooled | International | National. |
| (Constant) | -.242 | .278 | -.644 | -.963 | .702 | -1.878 | .338 | .485 | .066 |
| Capital Adequacy Ratio | -.162 | -.266 | .011 | -2.03 | -2.58 | .094 | .044 | .012 | .926 |
| Liquid Asset Ratio | .270 | .014 | .419 | 3.42 | .126 | 3.72 | .001 | .900 | .000 |
| Leverage Ratio | .389 | .467 | .436 | 4.89 | 4.35 | 3.85 | .000 | .000 | .000 |

**Source:** Researcher's computation using SPSS version-23

The result in Table4.3.4 showed the beta ($\beta$) weights of estimates of the strengths of the causation. The entire financial soundness proxy variables shown to contribute differentially to asset quality-AQ among Nigerian deposit money banks; for the pooled model capital adequacy ratio, liquid asset and leverage ratios had contributed to the variation in asset quality thus, CAR-$\beta = -.162$ $(t = -2.03, p = .044)$; LAR-$\beta = .270$ $(t = 3.42, p = .001)$ and LEV-$\beta = .389$ $(t = 4.89, p = .000)$, the contribution of CAR is negatively significant whereas the independent contributions of LAR and LEV were positively significant to the prediction of Nigeria deposit money banks' financial performance proxy by asset quality. For international and national Nigeria deposit money banks coefficients' predictions were significant and

insignificant, thus; [CAR-$\beta = -.266$ ($t = -2.58, p = .012$); LAR-$\beta = .014$($t = .126, p = .900$) and LEV-$\beta = .467$ ($t = 4.35, p = .000$)] in the prediction of AQ. While the individual contribution of national deposit money banks coefficients' prediction were significant [CAR-$\beta = -.011$ ($t = .094, p = .926$), and LAR-$\beta = .419$($t = 3.72, p = .000$) and LEV-$\beta = .436$($t = 3.85, p = .000$)] ROA's prediction.

**Table-4.3.5: ANOVA *multiple regression model summary of financial soundness surrogates' prediction on asset quality (AQ) of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | Adj. $R^2$ | Sum of square | | | df | Mean$^2$ | | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| | | Reg. | Res. | Total | | Reg. | Res. | | |
| Pooled | .219 | .150 | .481 | .631 | (3, 124);127 | .050 | .004 | 12.903 | .000 |
| International | .252 | .082 | .206 | .288 | (3, 68);71 | .027 | .003 | 8.990 | .000 |
| National | .304 | .117 | .225 | .343 | (3, 52)55 | .039 | .004 | 9.024 | .000 |

**Note:** Reg. = **Regression**; Res. = **Residual**;

**Source:** Researcher's computation using SPSS version-23

Table4.3.5 presented that the explanatory variables (i.e. capital adequacy ratio, liquidity asset ratio and leverage ratio) for pooled model jointly contributed significantly to the prediction of asset quality, [F (3, 124) = 12.90, Adj.$R^2$ = .219; P < .05]. However, the remaining variation not explained by the joint contribution of the financial soundness surrogates might be accounted for by the effects of extraneous or stochastic random variables. Therefore, the financial soundness proxy variables were significantly joint contributors to the prediction of Nigeria deposit money banks' financial performance as proxy by asset quality (AQ). Furthermore, the national and international deposit money banks' models jointly contributed significantly to the prediction of asset quality (AQ) thus, [F (3, 52) = 9.024, Adj.$R^2$ = .304; P< .05] and [F (3, 68) = 8.99, Adj.$R^2$ = .252; P < .05]; respectively.

**Table-4.3.6: *Chow test of multiple regression contrast coefficients of Nigeria deposit money banks' financial soundness indicators and asset quality from 2010-2017.***

| Source | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Contrast | .050 | 4 | .012 | 3.457 | .010 |
| Error | .431 | 120 | .004 | | |

**Source:** Researcher's computation using SPSS version-23

Table 4.3.6 presents regression stability test in determining the prediction or stability of coefficients of explanatory variables after multiple linear regression analysis was performed. Chow

test using F-test estimation technique indicates that there is structural break or no stability for the variables under investigation. The Chow test results on the regressions of the national and international Nigeria deposit money banks financial soundness indicators and asset quality are displayed in Tables4.3.6. The estimated statistics [F (4, 120) =3.457; p=.010] at 5% significance level. This implies that the p-value is less than 5%; we therefore accept the alternate hypothesis ($H_a$) of significant difference in the models' prediction of financial soundness surrogates on Nigeria national and international deposit money banks' asset quality-AQ. It was concluded that there is no regression stability or financial soundness surrogates' coefficients are not stable or difference in the prediction of Nigeria deposit money banks' credit risk management and efficiency for eight years, that is, 2010-2017.

***iii. The difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' expenses-revenue ratio (ExpeRev) is not significant.***

**Table-4.3.7:** ***The relative contributions of financial soundness' coefficients to expense-revenue of Nigerian deposit money banks from 2010-2017.***

| | Standardized Coefficients | | | t | | | Sig. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Beta | | | Pooled | International | National | Pooled | International | National |
| | Pooled | International | National | | | | | | |
| (Constant) | .579 | .797 | .551 | 3.06 | 5.035 | 1.577 | .003 | .000 | .121 |
| Capital Adequacy Ratio | -.157 | -.208 | -.167 | -1.78 | -1.86 | -1.239 | .077 | .068 | .221 |
| Liquid Asset Ratio | .144 | .014 | .140 | 1.65 | .118 | 1.040 | .102 | .906 | .303 |
| Leverage Ratio | .184 | .340 | .146 | 2.09 | 2.917 | 1.080 | .039 | .005 | .285 |

**Source:** Researcher's computation using SPSS version-23

The result in Table4.3.7 showed the beta ($\beta$) weights of estimates of the strengths of the causation. The entire financial soundness proxy variables shown to contribute differentially to expenses-revenue (Exper) among Nigerian deposit money banks; for the pooled model prediction capital adequacy, liquid asset and leverage ratios had contributed to the variation in expenses-revenue (Exper) thus, CAR-$\beta = -.157$ ($t = -1.78, p = .077$), and LAR-$\beta = .144 (t = 1.65, p = .102)$ and LEV-$\beta = .184$ ($t = 2.09, p = .039$), the contribution of CAR is negatively insignificant whereas the independent contributions of LAR and LEV were positively insignificant and significant to the prediction of Nigeria deposit money banks' financial performance proxy by expenses-revenue respectively. For international and national Nigeria deposit money banks coefficients' predictions only international deposit money banks' leverage

ratio was positively significant [CAR-$\beta = -2.08$ ($t = -1.86, p = .068$); LAR-$\beta = .140$($t = 118, p = .906$) and LEV-$\beta = .340$ ($t = 2.917, p = .005$)] in the prediction of expenses-revenue. While the individual contribution of national deposit money banks coefficients' prediction were not significant [CAR-$\beta = -.167$ ($t = -1.239, p = .221$), and LAR-$\beta = .140$($t = 1.040, p = .303$) and LEV-$\beta = .146$ ($t = 1.080, p = .285$)] in expenses-revenue's prediction.

**Table-4.3.8: ANOVA *multiple regression summary of financial soundness surrogates' prediction on expense-revenue (Exper) of Nigeria deposit money banks from 2010-2017.***

| Models | Adj. $R^2$ | Sum of square | | | df | Mean$^2$ | | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| | | Reg. | Res. | Total | | Reg. | Res. | | |
| Pooled | .047 | .020 | .272 | .292 | (3, 124);127 | .007 | .002 | 3.074 | .030 |
| International | .119 | .006 | .033 | .039 | (3, 68);71 | .002 | .000 | 4.203 | .009 |
| National | .007 | .015 | .234 | .250 | (3, 52)55 | .005 | .005 | 1.127 | .347 |

**Note:** Reg. = **Regression**; Res. = **Residual**;

**Source:** Researcher's computation using SPSS version-23

Table4.3.8 showed the explanatory variables (i.e. capital adequacy ratio, liquidity asset ratio and leverage ratio) pooled model jointly contributed significantly to the prediction of expenses-revenue (Exper), [F (3, 124) = 3.**0**74, Adj.$R^2$ = .047; P =.030]. However, the remaining variation not explained by the joint contribution of the financial soundness surrogates might be accounted for by the effects of extraneous or stochastic random variables. Therefore, the financial soundness proxy variables were significantly joint contributors to the prediction of Nigeria deposit money banks' financial performance as proxy by expenses-revenue (Exper). Furthermore, the international and national deposit money banks' models jointly contributed significantly and insignificantly to the prediction of expenses-revenue (Exper), [F (3, 68) = 4.203, Adj.$R^2$ = .119; P =.009] and [F (3, 52) = 1.127, Adj.$R^2$ = .007; P =.347]; respectively.

**Table-4.3.9: *Chow test of multiple regression contrast coefficients of Nigeria deposit money banks' financial soundness indicators and expense-revenue (Exper) from 2010-2017.***

| Source | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Contrast | .004 | 4 | .001 | .490 | .743 |
| Error | .267 | 120 | .002 | | |

**Source:** Researcher's computation using SPSS version-23

We present regression stability test in Table 4.3.9 in order to determine the prediction or stability of coefficients of regressors after ordinary least square (OLS) is performed. The Chow test

results on the regressions of the national and international Nigeria deposit money banks' financial soundness indicators on expense-revenue. The estimated statistics [F (4, 120) =.490; p=.743] at 5% significance level. This implies that the p-value is greater than 5%; we therefore accept the null hypothesis ($H_0$) of no significant difference in the models' prediction of financial soundness surrogates on Nigeria national and international deposit money banks' expense-revenue-Exper. It was concluded that there is regression stability or financial soundness surrogates' coefficients are stable or no difference in the prediction of Nigeria deposit money banks' efficiency for eight years, that is, 2010-2017.

***iv. There is no significant difference in the joint prediction of capital adequacy ratio (CAR), leverage ratio (LEV) and Liquid asset ratio (LR) on international and national Nigeria deposit money banks' return on equity (ROE).***

**Table-4.3.10:** ***The relative contributions of financial soundness' coefficients to return equity (ROE) of Nigerian deposit money banks from 2010-2017.***

| | Standardized Coefficients | | | t | | | Sig. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Beta | | | | | | | | |
| | Pooled | International | National | Pooled | International | National | Pooled | International | National. |
| (Constant) | -.481 | -.278 | -.236 | -1.322 | -.502 | -.436 | .189 | .618 | .665 |
| Capital Adequacy Ratio | -.007 | -.060 | -.046 | -.085 | -.524 | -.397 | .933 | .602 | .693 |
| Liquid Asset Ratio | .163 | .125 | .124 | 2.137 | 1.049 | 1.063 | .035 | .298 | .293 |
| Leverage Ratio | .505 | .298 | .545 | 6.591 | 2.517 | 4.665 | .000 | .014 | .000 |

**Source:** Researcher's computation using SPSS version-23

The result in Table4.3.10 showed the beta ($\beta$) weights of estimates of the strengths of the causality. The entire financial soundness proxy variables shown to contribute differentially to return on equity (ROE) among Nigerian deposit money banks; for the pooled model prediction capital adequacy, liquid asset and leverage ratios had contributed to the variation in return on equity (ROE) thus, CAR-$\beta = -.007$ ($t = -.085, p = .933$), and LAR-$\beta = .163$($t = 1.049, p = .035$) and LEV-$\beta = .505$ ($t = 6.591, p < .05$), the contribution of CAR is negatively insignificant whereas the independent contributions of LAR and LEV were positively significant to the prediction of Nigeria deposit money banks' financial performance proxy by ROE. For international and national Nigeria deposit money banks coefficients' predictions only leverage ratios was positively significant [CAR-$\beta = -.060$ ($t = -.524, p = .602$; LAR-$\beta = .125$($t = 1.049, p = .298$) and LEV-$\beta = .298$ ($t = 2.517, p = .014$)] and [CAR-$\beta = -.046$ ($t - .397, p = .693$), and LAR-$\beta = .124$($t = 1.063, p = .293$) and LEV-$\beta = .545$ ($t = 4.665, p < .05$)] in the prediction of ROE respectively.

**Table-4.3.11: ANOVA** ***multiple regression of financial soundness surrogates' prediction on return on equity (ROE) of Nigeria deposit money banks (DMBs) from 2010-2017.***

| Models | Adj. $R^2$ | Sum of square | | | df | Mean$^2$ | | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| | | Reg. | Res. | Total | | Reg. | Res. | | |
| Pooled | .219 | .150 | .481 | .631 | (3, 124);127 | .050 | .004 | 12.903 | .000 |
| International | .089 | .059 | .403 | .462 | (3, 68);71 | .020 | .006 | 3.311 | .025 |
| National | .260 | .242 | .564 | .806 | (3, 52)55 | .081 | .011 | 7.442 | .000 |

**Note:** Reg. = **Regression**; Res. = **Residual**;

**Source:** Researcher's computation using SPSS version-23

Table4.3.11 showed that the three explanatory variables (i.e. capital adequacy ratio, liquidity asset ratio and leverage ratio) pooled model jointly contributed significantly to the prediction of return on equity (ROA), [F (3, 124) = 11**.**734, Adj.$R^2$ **=** .202; P =**.**000]. However, the remaining variation not explained by the joint contribution of the financial soundness surrogates might be accounted for by the effects of extraneous or stochastic random variables. Therefore, the financial soundness proxy variables were significantly joint contributors to the prediction of Nigeria deposit money banks' financial performance as proxy by return on asset (ROA). Furthermore, the national and international deposit money banks' models jointly contributed significantly and insignificantly to the prediction of Return on Asset (ROA), [F (3, 52) = 5**.**382, Adj.$R^2$ **=** .193; P =**.**003] and [F (3, 68) = 1.673, Adj.$R^2$ **=** .028; P =**.181**]; respectively.

**Table-4.3.12:** ***Regression stability test (Chow test) of multiple regression contrast coefficients of Nigeria deposit money banks' financial soundness indicators and ROE from 2010-2017.***

| Source | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Contrast | .038 | 4 | .010 | 1.185 | .321 |
| Error | .966 | 120 | .008 | | |

**Source:** Researcher's computation using SPSS version-23

Table 4.3.12 presents Chow test using F-test estimation technique indicates that there is stability or no structural break for the variables under investigation. The Chow test results on the regressions of the national and international Nigeria deposit money banks financial soundness indicators on return on equity (ROE) are displayed in Tables4.3.12. The estimated statistics [F (4, 120) =1.185; p=.321] at 5% significance level. This implies that the p-value is greater than 5%; we therefore accept the null hypothesis ($H_o$) of no significant difference in the models' prediction of financial soundness surrogates of Nigeria national and international deposit money banks' return on equity-ROE. It was concluded that there is regression stability or financial

soundness surrogates' coefficients are stable or no difference in the prediction of Nigeria deposit money banks' profitability and efficiency for eight years, that is, 2010-2017.

***v. The magnitude and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA) is not significant.***

***Table-4.3.13: Karl Pearson Product Moment Correlation Coefficient Statistics between capital adequacy ratio (CAR) and Nigeria deposit money banks' return on asset (ROA).***

| | ***Return on assets (ROA)*** |
|---|---|
| Pearson Correlation-CAR | .123 |
| Sig. (2-tailed) | .165 |
| N | 128 |

**Source:** Researcher's computation using SPSS version-23

Table4.3.13 had shown the magnitude and direction of relationship or association between capital adequacy ratio-CAR and return on asset-ROA of Nigeria deposit money banks. It was showed that there is insignificant statistical positive relationship (R = .284; p = .165), that is 28.4%; between capital adequacy ratio-CAR and return on asset. We therefore, accept the null hypothesis ($H_O$) and reject the alternate hypothesis ($H_a$) and conclude that the degree and direction of relationship or association between return on asset (ROA) and capital adequacy ratio (CAR) among the Nigeria deposit money banks is statistically insignificant.

***vi. The degree and direction of correlation between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ) is not significant.***

***Table-4.3.14: Karl Pearson Product Moment Correlation Coefficient Statistics between capital adequacy ratio (CAR) and Nigeria deposit money banks' asset quality (AQ).***

| | ***Assets Quality(AQ)*** |
|---|---|
| Pearson Correlation-CAR | -.069 |
| Sig. (2-tailed) | .436 |
| N | 128 |

**Source:** Researcher's computation using SPSS version-23

Table4.3.14 had shown the magnitude and direction of relationship or association between capital adequacy ratio-CAR and asset quality-AQ of Nigeria deposit money banks. It was showed that there is insignificant statistical inverse or negative relationship (R = -.069; p=.436), that is, -6.9%; between capital adequacy ratio and asset quality. We therefore, accept the null hypothesis ($H_O$) and reject the alternate hypothesis ($H_a$) and conclude that the degree and

direction of relationship between asset quality (AQ) and capital adequacy ratio among the Nigeria deposit money banks is not statistically significant.

### 4.4 Discussion of Findings

The outcomes of study shown that there is positive and negative impact or connection of financial soundness surrogates (capital adequacy ratio, liquid asset ratio and leverage ratio) and Nigeria international and national deposit money banks' profitability and efficiency proxies (return on asset, asset quality, expenses-revenue and return on equity) this was supported by the findings of (Claudiu, 2015; Godwin & Effiong, 2015; Kunga, 2015; Mathuva, 2009; Mhanna & Al-Ammar, 2017; Molefe & Muzindutsi, 2015; Vong & Anna, 2009). In overall there is no significant difference in models prediction between international and national deposit money banks in Nigeria; except asset quality model prediction which showed significant difference in financial soundness prediction between Nigeria international and national deposit money banks.

Capital adequacy ratio had a negative influence on Nigeria deposit money banks' profitability surrogates; that is, asset quality ratio, expense-revenue and return on equity only the negative impact of CAR on asset quality is statistically significant this signifies that as capital requirement increases profitability decreases this result is consistent with the findings of **(**Asima, Mahmood, Raheel & Muhammad, 2017; Buehler, Samandari & Mazingo, 2009; Claudiu, 2015; Ikpefan, 2013; Mbella & Magloire, 2017; Soyemi, Akinpelu & Ogunleye, 2013) who established that capital adequacy measures and incremental capital raised lead to a reduction in banks' financial performance this result is not aligning with the findings of (Aruwa & Naburgi, 2014; Bogdan & Iulian, 2014; Ejoh & Iwara,2014; Isanzu, 2017; Umoru & Osemwegie, 2016) their results revealed that capital adequacy ratio had exerted positive effect on banks' financial performance. But CAR had a positive insignificant impact on return on asset this finding was

corroborated with the finding of (Ejoh & Iwara, 2014; Fan & Yijun, 2014; Irwan, 2017; Isanzu, 2017) they concurred that empirical evidence supports the overriding positive impact of capital adequacy in enhancing the financial performances of banks.

Furthermore, leverage and liquidity (i.e. liquid asset ratios) were significantly joint contributors to the positive prediction of return on asset, asset quality, return on equity and expense-revenue, this results was supported by findings of (Adabenege & Lamidi, 2015; Adeyinka, 2013; Ahmad et al., 2018; Al-Khouri, 2011; Alshatti, 2015; Barus et al., 2017; Onyekwelu et al., 2018; Saleem & Rehman, 2011) they discovered that leverage and liquid asset ratios substantially influenced banks' financial performance but this deviate from the results of (Agbeja et al., 2015; Akinlo & Asaolu, 2012; Gweyi et al., 2018; Kan, 2016; Mucheru & Shukla, 2017; Olang, 2017; Rudin et al., 2016; Srinivasan & Britto, 2017; Tuffour et al., 2018; Valipour-Pasha & Arshadi, 2016) who reported that leverage and liquid asset ratios have no significant positive impact on banks' profitability. In addition, but the positive impact of liquid asset ratio was not significant on expense-revenue of Nigerian banks.

The relationship between capital adequacy ratio and return on asset is positive connoting that they move in the same direction; that is, has one increase or decreases the other respond in the same manner. This finding is substantiated by the results of (Adekunle, 2018; Agbeja, Adelakun, & Olufemi, 2015; Amahalu et al., 2017; Apere, 2016; Ejoh & Iwara, 2014; Kamande, 2017; Kipruto, Wepukhulu & Owino, 2017; Moussa & Mohamed, 2013; Odunayo & Oluwafeyisayo, 2015; Saheed, 2018; Torbira & Zaagha, 2016) they all reported that there is a positive relationship between capital adequacy ratio and banks' profitability. But this result did not aligned with the findings of (Aspal & Nazneen, 2014; Eyo & Offiong, 2015; Ijaz, Syed, & Khurram, 2013; Lemara, 2017; Musyoka, 2017) they reported that there is no correlation between capital adequacy and banks' profitability. There is inverse relationship between capital adequacy ratio and asset quality. That is the two variables move in opposite direction.

Finally our empirical results show that the prediction of financial soundness surrogates had moderately predicted the Nigerian deposit money banks' financial performance variables.

# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

## 5.1 Summary of findings

Based on the analysis of data collected, the following findings were drawn:

i. There is regression stability or financial soundness surrogates' coefficients are stable or no difference in the prediction of international and national Nigeria deposit money banks' return on asset (ROA) for eight years, that is, 2010-2017.

ii. There is no regression stability of explanatory variables' coefficients or difference in the prediction of international and national Nigeria deposit money banks' coefficients on asset quality (AQ) for eight years, that is, 2010-2017 .

iii. There is regression stability of explanatory variables' coefficients or no difference in the prediction of international and national Nigeria deposit money banks' expense-revenue (Exper) for eight years, that is, 2010-2017.

iv. There is no difference in the prediction of financial soundness indicators for international and national Nigeria deposit money banks' return on equity (ROE) for eight years, that is, 2010-2017.

v. The degree and direction of relationship or association between return on asset (ROA) and capital adequacy ratio (CAR) among the Nigeria deposit money banks is positively insignificant.

vi. The degree and direction of relationship between asset quality (AQ) and capital adequacy ratio among the Nigeria deposit money banks is negatively insignificant.

## 5.2 Implications of Findings

From the empirical study we are able to gather that financial soundness surrogates have both positive and negative impact or relationship on Nigeria deposit money banks' financial performance proxies. Holding all other factors constant, marginal increase or decrease in capital adequacy, liquid asset and leverage ratios will lead to proportional increase or decrease in return on asset, asset quality, expenses-revenue and return on equity to the tune of (3.7%), (39.9%),

(20.3%) for return on asset (ROA); (-16.2%), (38.9%), (27%) for asset quality (AQ); (-15.7%), (18.4%), (14.4%) for expense-revenue (ExpeR) and (-0.7%), (50.5%), (16.3%) for return on equity(ROE) which are specified in the pooled models respectively:

$ROA_{it}$=.252+.037$CAR_{it}$+.399$LEV_{it}$+.203$LAR_{it}$+$\varepsilon_{it}$...eqn.6 this shows that CAR had insignificantly contributed positively to return on asset; the contributions of leverage and liquid asset ratios are significant and positive to variation in return on assets of Nigeria deposit money banks; this connotes that management of Nigeria deposit money banks may be using legitimate means to enhance their financial performance through relaxed credit policy and excessive asset portfolio risk thereby improving their overall profitability and efficiency. The pooled model-6 also represents the profitability trend prediction among Nigeria deposit money banks when used as a basis for comparison between international and national deposit money banks it indicates that there is no significant difference in the international and national model prediction; this implies there is stability or regression coefficients are stable over the period under investigation by extension the banks had been adopting the same pattern in the management of their leverage and liquid ratios.

$AQ_{it}$=-.242-.162$CAR_{it}$+.389$LEV_{it}$+ .270$LAR_{it}$+$\varepsilon_{it}$…eqn.7 the positive and significant contributions of leverage and liquid asset ratios to asset quality variation in the model symbolizes the management appetite for more risk taking, that is, the more core liquid assets and other forms of financing are available, the more management will be eager to be risk-seekers by giving out more loan but the significant negative effect of the capital adequacy ratio on asset quality will reduce the management appetite for taking more risk as the market capital requirement will limit and control the management to align with regulatory requirements or prudential financial guideline, this is in consonant with our theoretical framework adopted, that is, capital adequacy-

risk theory and portfolio regulation theory. The pooled model-7 represents the trend in asset quality management practices among the Nigeria deposit money banks, there is a significant difference in model prediction between international and national Nigeria deposit money banks for the period of 2010-2017; this connotes that the stability in model coefficients' prediction had not been stable between the two classes of banks, this implies that some of Nigeria deposit money banks had not been complying fully with the regulatory requirements.

$ExpeR_{it}$=.579-.157$CAR_{it}$+.184$LEV_{it}$+.144$LAR_{it}$+ $\varepsilon_{it}$...eqn.8 the expenses-revenue model-8 had shown that the capital adequacy ratio had an insignificant negative effect on expenses-revenue while the impact or effect of leverage and liquid asset ratios are positive only the leverage ratio was statistically significant. This implies that management have the preference in pursuing policies which maximize their utility rather than magnifying the shareholders returns; such utility entails satisfaction which management obtained from certain types of expenditure (expense account and other perquisites of office). So, management can borrow fund in order to pay salaries and allowances. By extension the pooled model-8 shown that there is there is no significant difference in models prediction indicating that the Nigeria deposit money had been employing the same pattern in management of administrative and personnel expenses. This aligned with our managerial discretion or theory of expense.

$ROE_{it}$ = -.481 + -.007$CAR_{it}$ + .505$LEV_{it}$+ .163$LAR_{it}$ + $\varepsilon_{it}$…..eqn.9 leverage and liquid asset ratios have positive impact on return on equity; only the impact of leverage ratio is statistically significant. The implication of significant contribution of leverage ratio to return on equity is that the management had been taking excessive assets portfolio risk or trading on equity in order to enhance or magnify shareholders returns on investment. The negative impact of capital adequacy ratio is not significant; but this implies that when firms' assets or funds are tie

down it will not generate income for the organization, therefore, there is a need for efficient management of the banks' leverage and liquidity position from time to time (i.e. trade-off between capital adequacy ratio, liquidity, leverage and banks' profitability). Furthermore, this has been the common practice among the Nigeria deposit money banks since there is no significant difference in the international and national deposit money banks' model prediction.

Finally, the correlation or relationship between capital adequacy and return on assets is positive and insignificant compare to the association between capital adequacy ratio and asset quality which is inverse or negatively insignificant. Theses imply that ROA and CAR move in the same direction compare to AQ and CAR that move in opposite direction. By implication CAR enhances banks' profitability and control asset portfolio risk.

## 5.3 Conclusion

The influence of efficient financial soundness indicators is the bank's management who guarantees that the stakeholders' interests are not put in jeopardy. Capital adequacy ratio is a financial soundness surrogate that would assist banks increase depositors' and other stakeholders' trust. By putting control and check on management appetite for excessive asset portfolio risk taking and quest for profit maximization. The stakeholders require guarantee that the bank will be run to their best interest and management will not pursue or maximize their utility at the expense of other stakeholders; this form the rationale why the capital requirement will checkmate excessive leverage that can jeopardise the financial system. This would aid the development of banks in the long run. The theories used to a great extent explain the complexity and uniqueness of the study.

Financial soundness indicators may vary from nation to nation due to diverse cultural backgrounds, socio-economic and political system and historical development. Therefore it is vital that a rounded recognition be given to financial soundness surrogates across banks in Nigeria that would bring about good financial performance.

Moreover, the Nigeria deposit money banks have undergone series of development since the introduction of Basel-III accord in 2005 the gradual implementation of which has led to

improved soundness and stability of Nigeria financial system. This is due to the enforcement of CAR (10% and 15%) and continuous reviews of banking capital base by CBN and NDIC. In addition, in terms of performance the adoption of financial soundness indicators have impacted positively and negatively on Nigeria deposit money banks' financial performance proxy by return on assets, asset quality, expense-revenue and return on equity. Leverage ratio and liquid ratio had positive and significant contribution to banks' financial performance. In addition, capital adequacy ratio, leverage ratio and liquidity asset ratio jointly affect the prediction of Nigeria deposit money banks' financial performance. Therefore, this study concludes that apart from asset quality prediction; there is no significance difference or regression coefficients are stable in predicting Nigeria international and national deposit money banks' financial performance; by extension this connotes that the financial stability of Nigeria deposit money banks do not differ significantly within the period (2010-2017) under study.

## 5.4 Recommendations

Based on the empirical findings of the study, the following recommendations were submitted:

i. Central Bank of Nigeria should relentlessly monitor capital adequacy ratio and established liquidity and leverage ratio ceiling that will restrain the quest for management's profit maximization and incentives for banks to game the regulatory framework.

ii. Central Bank of Nigeria should constantly review and monitors the asset portfolio management of Nigeria deposit money banks, so that, excessive asset risk portfolio can be avoided, so that, depositors' funds will be safeguarded and the entire financial system will not experience another financial crunch.

iii. Central Bank of Nigeria should develop a mechanism for personnel remuneration determination, control administrative expenses and management's excessive use of borrowed fund to settle recurrent expenditure.

iv. Central Bank of Nigeria should establish a trade-off among liquidity, leverage and capital adequacy ratios; so that, fund will not be tied down or idle, shareholders' wealth will be maximize moderately and banks' asset will not largely depend on debt.

v. Central Bank of Nigeria should create an optimum capital adequacy ratio that will guarantee efficient use of assets and reduce credit risk that will enhance Nigeria deposit money banks' financial performance.

**5.5 Contribution to Knowledge**

This study investigated the contribution of financial soundness surrogates on Nigerian deposit money banks' financial performance surrogates. The exceptionality of this study is that:

1. The study revealed that a financial soundness or stability indicator as a concept cannot be explained with a single theory rather is the combination of theories (i.e. Capital adequacy-risk, portfolio regulation and managerial discretion) that can assist in explaining and comprehending the concept.

2. This research develops a conceptual model on financial stability theoretical framework in order to introduce significant insight from different fields, so that, the concept of financial soundness indicators can be properly understood.

3. The study estimates the Nigeria deposit money banks' profitability and efficiency model which is proxy by return on asset, asset quality, expense-revenue and return on equity in order to establish the difference in prediction and validity of estimated model through F-test, t-test, Durbin Watson and Variance Inflationary Factor (VIF) statistics.

**5.6 Suggestions for further studies**

The following suggestions were reached for further studies:

i. Path analysis of financial soundness metrics on Nigeria deposit money banks' risk-return.
ii. Co-movement between capital-liquidity base indicators and Nigerian deposit money banks' credit risk management.
iii. Impact of Liquidity- Risk on Profitability of Nigerian Deposit Money Banks-DMBs.

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## Appendix-I

## Names of Listed Nigeria Deposit Money Banks Licensed by CBN

**9/1/2018**


| S/N | Names of Bank | Commercial Banking Licence |
|---|---|---|
| 1 | Access Bank Plc. | **International Authorisation** |
| 2 | Citibank Nigeria Limited | **National Authorisation** |
| 3 | Diamond Bank Plc. | **International Authorisation** |
| 4 | Ecobank Nigeria Plc. | **National Authorisation** |
| 5 | Enterprise Bank | **Not specified/AMCON** |
| 6 | Fidelity Bank Plc. | **International Authorisation** |
| 7 | First Bank Nigeria Limited | **International Authorisation** |
| 8 | First City Monument Bank Plc. | **International Authorisation** |
| 9 | Guaranty Trust Bank Plc. | **International Authorisation** |
| 10 | Heritage Banking Company Ltd. | **National Authorisation** |
| 11 | Key Stone Bank | **National Authorisation** |
| 12 | Mainstreet Bank | **Not specified/AMCON** |
| 13 | Skye Bank Plc. | **International Authorisation** |
| 14 | Stanbic IBTC Bank Ltd. | **National Authorisation** |
| 15 | Standard Chartered Bank Nigeria Ltd. | **National Authorisation** |
| 16 | Sterling Bank Plc. | **National Authorisation** |
| 17 | Suntrust Bank Nigeria Limited | **Regional Authorisation** |
| 18 | Union Bank Of Nigeria Plc. | **International Authorisation** |
| 19 | United Bank For Africa Plc. | **International Authorisation** |
| 20 | Unity Bank Plc. | **National Authorisation** |
| 21 | Wema Bank Plc. | **National Authorisation** |
| 22 | Zenith Bank Plc. | **International Authorisation** |

**Source:** Central Bamk of Nigeria (CBN), 2018.

**Appendix-I cont'd…**

**LIST OF DEPOSIT MONEY BANKS AND FINANCIAL HOLDING COMPANIES OPERATING IN NIGERIA AS AT MAY 31, 2018**

**COMMERICAL BANKING LICENCE WITH INTERNATIONAL AUTHORIZATION**

| | NAME OF INSTITUTION | HEAD OFFICE ADDRESS |
|---|---|---|
| 1 | ACCESS BANK PLC | 999c, Danmole Street, Off Idejo Street, Off Adeola Odeku Street, Victoria Island, Lagos |
| 2 | DIAMOND BANK PLC | Plot 1261, Adeola Hopewell Street, Victoria Island, Lagos |
| 3 | FIDELITY BANK PLC | 2, Kofo Abayomi Street, Victoria Island, Lagos |
| 4 | FIRST CITY MONUMENT BANK PLC | Primose Towers, 17a, Tinubu Street, Lagos |
| 5 | FIRST BANK NIGERIA LIMITED | Samuel Asabia House, 35 Marina, Lagos |
| 6 | GUARANTY TRUST BANK PLC | 635, Akin Adesola Street, Victoria Island, Lagos |
| 7 | SKYE BANK PLC | 3, Akin Adesola Street, Victoria Island, Lagos |
| 8 | UNION BANK OF NIGERIA PLC | Stallion Plaza, 36 Marina, Lagos |
| 9 | UNITED BANK OF AFRICA PLC | 57 Marina, Lagos |
| 10 | ZENITH BANK PLC | Plot 84, Ajose Adeogun Street, Victoria Island, Lagos |

**COMMERICAL BANKING LICENCE WITH NATIONAL AUTHORIZATION**

| | | |
|---|---|---|
| 11 | CITIBANK NIGERIA LIMITED | 27, Kofo Abayomi Street, Victoria Island, Lagos |
| 12 | ECOBANK NIGERIA PLC | 21, Ahmadu Bello Way, Victoria Island, Lagos |
| 13 | HERITAGE BANK LIMITED | 292b, Ajose Adeogun Street, Victoria Island, Lagos |
| 14 | KEYSTONE BANK LIMITED | Keystone House, 1, Keystone Crescent, Victoria Island, Lagos |
| 15 | STANBIC IBTC BANK PLC | IBTC Place, Walter Carrington Crescent, Victoria Island, Lagos |
| 16 | STANDARD CHARTERED BANK LIMITED | 142, Ahmadu Bello Way, Victoria Island, Lagos |
| 17 | STERLING BANK PLC | Sterling Towers, 20 Marina, Lagos |
| 18 | UNITY BANK PLC | Plot 42, Ahmed Onibudo Street, Victoria Island, Lagos |
| 19 | WEMA BANK PLC | Wema Towers, 54 Marina, Lagos Island, Lagos |

**COMMERICAL BANKING LICENCE WITH REGIONAL AUTHORIZATION**

| | | |
|---|---|---|
| 20 | SUNTRUST BANK NIGERIA LIMITED | 1, Oladele Olashore Street, Victoria Island, Lagos |
| 21 | PROVIDUSBANK PLC | Plot 54, Adetokunbo Ademola Street, Victoria Island, Lagos |

**NON-INTEREST BANKING LICENCE WITH NATIONAL AUTHORIZATION**

| | | |
|---|---|---|
| 22 | JAIZ BANK PLC | Kano House, Plot 73, Ralph Shodeinde Street, Central Business District, Abuja |

**MERCHANT BANKING LICENCE WITH NATIONAL AUTHORIZATION**

| | | |
|---|---|---|
| 23 | CORONATION MERCHANT BANK | St. Nicholas House, 6th Floor, 28A, Catholic Mission Street, P.M.B 12511, Marina, Lagos |
| 24 | FBN MERCHANT BANK | 2, Broad Street, P.O. Box 4238, Lagos |
| 25 | FSDH MERCHANT BANK | UAC House, 5th-8th Floor, 1/5 Odunlami Street, P.M.B 12913, Lagos |
| 26 | RAND MERCHANT BANK | 3rd Floor Wings East Tower, 17A, Ozumba Mbadiwe Street, Victoria Island, Lagos |
| 27 | NOVA MERCHANT BANK | 23, Kofo Abayomi Street, Victoria Island, Lagos |

**FINANCIAL HOLDING COMPANIES IN NIGERIA**

| | | |
|---|---|---|
| 1 | FBN HOLDINGS PLC | Samuel Asabia House, 35 Marina, P.O. Box 5216, Lagos |
| 2 | FCMB GROUP PLC | First City Plaza, 44 Marina, Lagos |
| 3 | STANBIC IBTC HOLDINGS PLC | I.B.T.C Place, Walter Carrington Crescent, P.O. Box 71707, Victoria Island, Lagos |

## Appendix-II

## Financial Data of selected Deposit Money Banks in Nigeria

| Names of Banks | Total Regulatory Capital | Risk Weighted Asset-RWA | Liquid Asset | Total Asset | Total liabilities |
|---|---|---|---|---|---|
| **Access Bank Plc.-2010** | 174001400 | 669431201 | 243682362 | 726960580 | 544455766 |
| Diamond Bank Plc. | 107084863 | 619340674 | 484865067 | 548402560 | 431521401 |
| Fidelity Bank Plc. | 135983 | 312199 | 288964 | 481615 | 345437 |
| First Bank Nigeria Limited | 385332 | 1893289 | 911364 | 2304686 | 1965481 |
| First City Monument Bank Plc. | 134203 | 436834 | 162526226 | 530073488 | 395437666 |
| Guaranty Trust Bank Plc. | 220721027 | 949871787 | 492491286 | 1168052897 | 947798681 |
| Union Bank Of Nigeria Plc. | 68740 | 723177 | 528264 | 845231 | 981125 |
| United Bank For Africa Plc. | 184680 | 1071694 | 888354 | 1617696 | 1438270 |
| Zenith Bank Plc. | 345892 | 1153738 | 1086876 | 1895027 | 1531466 |
| **Citibank Nigeria Limited-2010** | 17.06 | 100 | 1592.1 | 1914 | 1694 |
| Ecobank Nigeria Plc. | 74320 | 330162 | 167420 | 454239 | 379919 |
| Stanbic IBTC Bank Ltd. | 85970 | 266764 | 70061 | 384541 | 300240 |
| Standard Chartered Bank Nig. Ltd. | 45062 | 245077 | 168949 | 599070 | 477695 |
| Sterling Bank Plc. | 21560996 | 168343811 | 133734692 | 259579523 | 233259036 |
| Unity Bank Plc. | 10.85 | 100 | 116473294 | 305477735 | 261193023 |
| Wema Bank Plc. | 40798217 | 93082353 | 124151084 | 216984400 | 201215091 |
| **Access Bank Plc.-2011** | 109485458 | 636132942 | 684562591 | 751967274 | 548763281 |
| Diamond Bank Plc. | 78485944 | 582835899 | 728438235 | 796231792 | 710250776 |
| Fidelity Bank Plc. | 137415 | 460927 | 447925 | 740941 | 603459 |
| First Bank Nigeria Limited | 404222 | 1979600 | 1165269 | 2839373 | 2473888 |
| First City Monument Bank Plc. | 117086 | 429354 | 235873059 | 593273465 | 475900304 |
| Guaranty Trust Bank Plc. | 242113680 | 1170740630 | 752268059 | 1608652646 | 1374644487 |
| Union Bank Of Nigeria Plc. | 101963 | 490547 | 540799 | 843763 | 664203 |
| United Bank For Africa Plc. | 217370 | 1000133 | 1141665 | 1942793 | 1772760 |
| Zenith Bank Plc. | 407691 | 1345700 | 1278433 | 2326695 | 1932427 |
| **Citibank Nigeria Limited-2011** | 165384 | 973369 | 1045 | 1874 | 1694 |
| Ecobank Nigeria Plc. | 81727 | 722405 | 581394 | 1102027 | 1033931 |
| Stanbic IBTC Bank Ltd. | 85634 | 373527 | 161269 | 554225 | 472729 |
| Standard Chartered Bank Nig. Ltd. | 47507 | 270510 | 118838 | 599070 | 557695 |
| Sterling Bank Plc. | 40868989 | 243649481 | 310871049 | 504427737 | 463474622 |
| Unity Bank Plc. | 23775394 | 198031637 | 186557844 | 375930237 | 331450194 |
| Wema Bank Plc. | 35243640 | 132417008 | 116649228 | 222238550 | 215517487 |
| **Access Bank Plc.-2012** | 185067626 | 897606906 | 1220921870 | 1515754463 | 0 |
| Diamond Bank Plc. | 144182133 | 832578315 | 476821441 | 1059137257 | 951820842 |
| Fidelity Bank Plc. | 161455 | 561325 | 515190 | 914360 | 752905 |

**Appendix-II continued**

| | | | | | |
|---|---|---|---|---|---|
| First Bank Nigeria Limited | 389289 | 2040361 | 1521895 | 3228384 | 2787069 |
| First City Monument Bank Plc. | 115486940 | 497769000 | 482174605 | 908545756 | 776530353 |
| Guaranty Trust Bank Plc. | 280054765 | 1176805668 | 729254755 | 1734877860 | 1453050919 |
| Union Bank Of Nigeria Plc. | 82564 | 382976 | 734349 | 1015278 | 836094 |
| United Bank For Africa Plc. | 256544 | 1091824 | 1423902 | 2272923 | 2080456 |
| Zenith Bank Plc. | 475229 | 1552660 | 1483462 | 2604504 | 2141548 |
| **Citibank Nigeria Limited-2012** | 167686 | 971253 | 1033153 | 1864660 | 1673663 |
| Ecobank Nigeria Plc. | 152952 | 829743 | 668975 | 1325315 | 1171687 |
| Stanbic IBTC Bank Ltd. | 80439 | 377992 | 513997 | 676819 | 357474 |
| Standard Chartered Bank Nig. Ltd. | 40600 | 301861 | 132185 | 631208 | 585153 |
| Sterling Bank Plc. | 44907694 | 308113422 | 329705135 | 580225940 | 533583546 |
| Unity Bank Plc. | 36713227 | 275015223 | 141447620 | 395720180 | 344262498 |
| Wema Bank Plc. | 22198424 | 131647181 | 111766017 | 245704597 | 244426281 |
| **Access Bank Plc.-2013** | 194642599 | 1096697585 | 855050628 | 1704094012 | 1458912015 |
| Diamond Bank Plc. | 165784230 | 958946431 | 679508177 | 1354930871 | 1380002731 |
| Fidelity Bank Plc. | 163454 | 632278 | 609763 | 1081217 | 917762 |
| First Bank Nigeria Limited | 417217 | 2352722 | 1946460 | 3871001 | 3399224 |
| First City Monument Bank Plc. | 115288287 | 658692371 | 500096545 | 1008280170 | 864573441 |
| Guaranty Trust Bank Plc. | 321138796 | 1469865571 | 818243586 | 2102846415 | 1770493345 |
| Union Bank Of Nigeria Plc. | 113330 | 451379 | 692606 | 1002756 | 803413 |
| United Bank For Africa Plc. | 239242 | 1223479 | 1561286 | 2642296 | 2407260 |
| Zenith Bank Plc. | 504595 | 1950004 | 1752992 | 3143133 | 2633882 |
| **Citibank Nigeria Limited-2013** | 176748 | 1177736 | 1046262 | 1880382 | 1674249 |
| Ecobank Nigeria Plc. | 165746 | 953338 | 710236 | 1460811 | 1304183 |
| Stanbic IBTC Bank Ltd. | 96317 | 392888 | 488369 | 763046 | 312695 |
| Standard Chartered Bank Nig. Ltd. | 58019 | 322251 | 141064 | 674380 | 627539 |
| Sterling Bank Plc. | 62978088 | 448520341 | 360094438 | 707797181 | 644339285 |
| Unity Bank Plc. | 41341029 | 299439510 | 133142522 | 403629290 | 403629290 |
| Wema Bank Plc. | 17906928 | 134325071 | 166408966 | 330872475 | 289477324 |
| **Access Bank Plc.-2014** | 268474620 | 1560034376 | 794954325 | 1981955730 | 1707799944 |
| Diamond Bank Plc. | 226721540 | 1228529160 | 943283062 | 1750270423 | 1544609656 |
| Fidelity Bank Plc. | 196102 | 821527 | 606875 | 1187025 | 1013914 |
| First Bank Nigeria Limited | 407882 | 2585214 | 2007378 | 4343737 | 3819675 |
| First City Monument Bank Plc. | 151522622 | 787253337 | 480390953 | 1169364784 | 1008999353 |
| Guaranty Trust Bank Plc. | 298633286 | 1395662310 | 681622884 | 2355876526 | 1991162228 |
| Union Bank Of Nigeria Plc. | 90989 | 555197 | 403871 | 1008451 | 786923 |
| United Bank For Africa Plc. | 265091 | 1581019 | 1528594 | 2762573 | 2497167 |
| Zenith Bank Plc. | 533917 | 2679955 | 1924080 | 3755264 | 3202626 |

**Appendix-II continued**

| | | | | | |
|---|---|---|---|---|---|
| **Citibank Nigeria Limited-2014** | 185280 | 1275012 | 1032996 | 1842530 | 1630485 |
| Ecobank Nigeria Plc. | 239281 | 1492373 | 775593 | 1772922 | 0 |
| Stanbic IBTC Bank Ltd. | 134114 | 658587 | 483050 | 941919 | 821675 |
| Standard Chartered Bank Nig. Ltd. | 57099 | 341648 | 379963 | 725914 | 679176 |
| Sterling Bank Plc. | 77295247 | 556686606 | 417411568 | 824539426 | 739824141 |
| Unity Bank Plc. | 5937853 | 293736080 | 129825076 | 413305111 | 337041116 |
| Wema Bank Plc. | 20006689 | 120969415 | 203379527 | 396743314 | 338793663 |
| **Access Bank Plc.-2015** | 340521191 | 1887612134 | 963607001 | 2411944061 | 2051515157 |
| Diamond Bank Plc. | 190838143 | 1166540901 | 791809741 | 1555183067 | 1347106683 |
| Fidelity Bank Plc. | 191595 | 1012062 | 1190792 | 1231722 | 1048206 |
| First Bank Nigeria Limited | 430099 | 2518285 | 2182974 | 4166189 | 3587389 |
| First City Monument Bank Plc. | 146981974 | 870874445 | 497767826 | 1159534176 | 997142889 |
| Guaranty Trust Bank Plc. | 333426139 | 1835072113 | 745853894 | 2524593709 | 2111031771 |
| Union Bank Of Nigeria Plc. | 89911 | 587515 | 383961 | 1046892 | 802971 |
| United Bank For Africa Plc. | 241091 | 1208372 | 1542135 | 2752622 | 2420001 |
| Zenith Bank Plc. | 561448 | 2636417 | 1898383 | 4006842 | 3412489 |
| **Citibank Nigeria Limited-2015** | 148916 | 998181 | 960740 | 1731210 | 1508118 |
| Ecobank Nigeria Plc. | 254109 | 1357098 | 888295 | 1794348 | 1614913.2 |
| Stanbic IBTC Bank Ltd. | 112715 | 646343 | 499875 | 937564 | 808597 |
| Standard Chartered Bank Nig. Ltd. | 59021 | 302925 | 327070 | 640483 | 591971 |
| Sterling Bank Plc. | 85262476 | 487486579 | 423592913 | 799451417 | 703885670 |
| Unity Bank Plc. | 58380725 | 272018565 | 131770019 | 443321012 | 360746129 |
| Wema Bank Plc. | 25773922 | 170851205 | 167532892 | 396743314 | 350679204 |
| **Access Bank Plc.-2016** | 419807320 | 2148490422 | 1313425455 | 3094960515 | 2673281895 |
| Diamond Bank Plc. | 188094590 | 1252721540 | 300523441 | 1517755785 | 0 |
| Fidelity Bank Plc. | 196079 | 1138258 | 538589 | 1298141 | 1112739 |
| First Bank Nigeria Limited | 501256 | 2818158 | 2478655 | 4736805 | 4154230 |
| First City Monument Bank Plc. | 163775083 | 990234291 | 446133976 | 1172778078 | 993905084 |
| Guaranty Trust Bank Plc. | 405526626 | 2049087592 | 1418038217 | 3116393439 | 2611490604 |
| Union Bank Of Nigeria Plc. | 96309 | 724660 | 382811 | 1252682 | 981012 |
| United Bank For Africa Plc. | 262423 | 1331901 | 1819949 | 3504470 | 3056401 |
| Zenith Bank Plc. | 681926 | 2979256 | 2296555 | 4739825 | 4035360 |
| **Citibank Nigeria Limited-2016** | 138638 | 973739 | 809304 | 1792077 | 0 |
| Ecobank Nigeria Plc. | 255450 | 1527860 | 815604 | 1808503 | 1587728 |
| Stanbic IBTC Bank Ltd. | 158386 | 695439 | 613761 | 1053523 | 912725 |
| Standard Chartered Bank Nig. Ltd. | 57438 | 269445 | 390796 | 646692 | 598034 |
| Sterling Bank Plc. | 75437 | 675918 | 320646 | 834192 | 748530 |
| Unity Bank Plc. | 21755146 | 463106398 | 145937761 | 492681647 | 409574667 |

## Appendix-II continued

| | | | | | |
|---|---|---|---|---|---|
| Wema Bank Plc. | 21027001 | 189863679 | 154281258 | 424043581 | 375572847 |
| **Access Bank Plc.-2017** | 420096296 | 2311370698 | 1476278218 | 3499683979 | 3030192882 |
| Diamond Bank Plc. | 193820189 | 1157482529 | 312461336 | 1184307286 | 0 |
| Fidelity Bank Plc. | 179341 | 1118786 | 571344 | 1379214 | 1175899 |
| First Bank Nigeria Limited | 535692 | 3019880 | 3060144 | 5236537 | 4558345 |
| First City Monument Bank Plc. | 163313926 | 967279227 | 452221413 | 1186179155 | 997211525 |
| Guaranty Trust Bank Plc. | 465873382 | 1827284008 | 1787391287 | 3351096659 | 2725928864 |
| Union Bank Of Nigeria Plc. | 137876 | 774497 | 484084 | 1455540 | 1109799 |
| United Bank For Africa Plc. | 255027 | 1265087 | 2177761 | 4069474 | 3540040 |
| Zenith Bank Plc. | 795449 | 2987516 | 3246463 | 5595253 | 4773585 |
| **Citibank Nigeria Limited-2017** | 199989 | 1155099 | 1016840 | 1842465 | 1640793 |
| Ecobank Nigeria Plc. | 247386 | 1547846 | 874865 | 1829761 | 1562432 |
| Stanbic IBTC Bank Ltd. | 204002 | 867200 | 923874 | 1386416 | 1201198 |
| Standard Chartered Bank Nig. Ltd. | 58758 | 279748 | 377948 | 663501 | 611694 |
| Sterling Bank Plc. | 86480 | 708144 | 429864 | 1072201 | 969264 |
| Unity Bank Plc. | 21755146 | 463106394 | 102165295 | 483720756 | 399705067 |
| Wema Bank Plc. | 25032755 | 174776788 | 118810568 | 388153526 | 338538276 |

## Appendix-II continued

| Total exposure | Tier-1 capital | Shareholders' funds | EBITDA | NET ASSET | Profit After Tax-PAT | Outstanding Ordinary Share |
|---|---|---|---|---|---|---|
| 669431201 | 173155069 | 182504814 | 17668584 | 182504814 | 12931441 | 178882514.8 |
| 213785530 | 106151350 | 116881159 | 9468016 | 116881159 | 6522455 | 144752431.1 |
| 562205 | 135858 | 136053 | 42077 | 136053 | 5976 | 28974.79702 |
| 2184406 | 334650 | 339205 | 33154 | 339205 | 32123 | 32632084356 |
| 436834 | 134203 | 134635822 | 9025742 | 134635822 | 7934971 | 162711922 |
| 1023483708 | 216066524 | 220254216 | 82814192 | 220254216 | 39604024 | 23317185766 |
| 723177 | 221041 | 135894 | 81102 | 135894 | 118016 | 13524755973 |
| 654360 | 153146 | 179426 | 130602 | 179426 | 668 | 32334693692 |
| 706226 | 342570 | 363561 | 91546 | 363561 | 37414 | 25117195029 |
| 100 | 8.8 | 163.5 | 86.6 | 163.5 | 6.8 | 100 |
| 87246 | 74320 | 74320 | 28554 | 74320 | 1619 | 138799.5164 |
| 314523 | 83657 | 85126 | 15346 | 85126 | 9455 | 18750000000 |
| 64666 | 37012 | 38865 | 6122 | 38865 | 4414 | 13971029 |
| 75228000 | 21029252 | 26320487 | 3688251 | 26320487 | 4178493 | 15703864431 |
| 213704760 | 11800600 | 44284711 | 13409900 | 44284711 | 12487550 | 33287177238 |
| 18598027 | 12935019 | 6721063 | 13552690 | 6721063 | 17208174 | 12821249880 |

**Appendix-II continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| 974333463 | 187037078 | 185836455 | 16016762 | 185836455 | 16708255 | 178882514.8 |
| 582835899 | 86961725 | 85981016 | 70857921 | 85981016 | 22868254 | 1447524311 |
| 859276 | 137292 | 137359 | 51026 | 137359 | 5468 | 28974.79702 |
| 1893289 | 357925 | 365485 | 68029 | 365485 | 47462 | 32632084356 |
| 7885000 | 113890 | 117373161 | 11354401 | 117373161 | 9915148 | 162711922 |
| 1399156225 | 233856310 | 234008159 | 98796541 | 234008159 | 51741620 | 29431179224 |
| 490547 | 62995 | 179560 | 35228 | 179560 | 83239 | 16935806471 |
| 952798 | 141394 | 170033 | 138708 | 170033 | 10474 | 32334693692 |
| 1236886 | 392476 | 394268 | 128286 | 394268 | 48704 | 25117195029 |
| 100 | 7.19 | 180 | 48.447 | 180 | 112 | 2998.8 |
| 213694 | 68096 | 68096 | 28173 | 68096 | 2291 | 27919.19891 |
| 481050 | 82806 | 84719 | 10106 | 84719 | 7440 | 18750000000 |
| 71708 | 37012 | 41375 | 6775 | 41375 | 4933 | 15590159 |
| 119626000 | 34188661 | 40953115 | 3459744 | 40953115 | 4644220 | 8227240 |
| 400161155 | 11887697 | 44480043 | 3127446 | 44480043 | 2431740 | 34951536100 |
| 27798341 | 17880422 | 15769309 | 21372749 | 15769309 | 11087503 | 12821249880 |
| 307270245 | 189823586 | 237624211 | 36259530 | 237624211 | 31597683 | 2288291891 |
| 135783240 | 109103104 | 107316415 | 89321522 | 107316415 | 23073427 | 1447524311 |
| 1046583 | 161744 | 161455 | 36810 | 161455 | 17924 | 289747.9702 |
| 3749591 | 356772 | 441315 | 93921 | 441315 | 76801 | 32632084356 |
| 478212981 | 115479945 | 132015403 | 16248019 | 132015403 | 15121704 | 198027107.8 |
| 2015834096 | 279885158 | 281826941 | 103027923 | 281826941 | 86686880 | 29431179224 |
| 119165 | 42747 | 179184 | 2872 | 179184 | 3836 | 5927532265 |
| 2462272 | 173883 | 192467 | 153093 | 192467 | 55530 | 32981387565 |
| 1799312 | 462500 | 462956 | 156757 | 462956 | 100681 | 31396493786 |
| 100 | 7.48 | 1909.97 | 47603 | 190997 | 149 | 2930.6 |
| 741100 | 147623 | 153628 | 118492 | 153628 | 7805 | 184825.2977 |
| 377992 | 78197 | 85651 | 11412 | 85651 | 10157 | 5444066030 |
| 1142859 | 40600 | 46055 | 18783 | 46055 | 4985 | 2413000000 |
| 5834544700 | 38832849 | 46642394 | 7499651 | 46642394 | 6953539 | 15703863000 |
| 489628502 | 18984544 | 51457682 | 6456727 | 51457682 | 6180061 | 34951536100 |
| 180857780 | 22198424 | 1278316 | 4942211 | 1278316 | 504062.9 | 12821249879 |
| 351978517 | 188248156 | 245181996 | 31365396 | 245181997 | 31046067 | 2288291891 |
| 828805475 | 113963795 | 138303224 | 72924419 | 138303224 | 30334675 | 723762155.3 |
| 1028901.37 | 163380 | 163455 | 30812 | 163455 | 7721 | 289747.9702 |
| 4694151 | 352011 | 471777 | 91337 | 471777 | 70631 | 32632084356 |
| 555628002 | 115275778 | 143706729 | 18184399 | 143706729 | 16001155 | 198027107.8 |
| 2469874418 | 318112889 | 332353070 | 107091256 | 332353070 | 90023977 | 29431179224 |

**Appendix-II continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| 113054 | 64258 | 199343 | 3769 | 199343 | 3836 | 16935806471 |
| 2926327 | 166938 | 235036 | 56058 | 235036 | 46601 | 32981387565 |
| 2733961 | 509779 | 509251 | 110597 | 509251 | 95318 | 31396493786 |
| 100 | 7.35 | 206133 | 19497 | 206133 | 13673 | 302920 |
| 1241980 | 149293 | 156628 | 88399 | 156628 | 11658 | 18482.52977 |
| 392888 | 86376 | 97634 | 24617 | 97634 | 20773 | 5444066030 |
| 1239009 | 42335 | 46841 | 18777 | 46841 | 4200 | 2427000000 |
| 6829943 | 56181292 | 63457896 | 9310198 | 63457896 | 8274864 | 21592813593 |
| 76606288 | 41341029 | 28212640 | 33639368 | 28212640 | 22582339 | 38446690 |
| 248838540 | 17906928 | 41395151 | 1947308 | 41395151 | 1596531 | 38574466081 |
| 767884747 | 264026949 | 274155786 | 46142422 | 274155786 | 42520929 | 22882918908 |
| 985917756 | 189862887 | 205660767 | 24413014 | 205660767 | 22057198 | 23160388968 |
| 1283744 | 147445 | 173111 | 48826 | 173111 | 13796 | 289625.8569 |
| 4838836 | 316687 | 578800 | 265023 | 578800 | 15148 | 35895292792 |
| 829026920 | 124444961 | 160365431 | 23942893 | 160365431 | 22133257 | 1980271078 |
| 2888784779 | 298700425 | 364714298 | 116385843 | 364714298 | 93736459 | 29431179224 |
| 832690 | 67962 | 221528 | 27708 | 221528 | 26825 | 16935806471 |
| 3107592 | 190530 | 265406 | 56200 | 265406 | 47907 | 32981387565 |
| 3732512 | 529688 | 552638 | 119796 | 552638 | 99455 | 31396493786 |
| 100 | 9.03 | 212045 | 47993 | 212045 | 7498 | 418720 |
| 1241980 | 190407 | 1772922 | 99128 | 1772922 | 29733 | 201475.4463 |
| 1892307 | 112603 | 120244 | 43527 | 120244 | 34459 | 5446384055 |
| 1460648 | 38799 | 46738 | 18334 | 46738 | 2705 | 2473000000 |
| 556686606 | 73863402 | 84715285 | 10747985 | 84715285 | 9004973 | 28790418124 |
| 42229645 | 4453389 | 76263995 | 13639390 | 76263995 | 10692476 | 116893379 |
| 240503496 | 20006689 | 43768649 | 3093940 | 43768649 | 2372445 | 38574466081 |
| 1563555607 | 346610519 | 360428904 | 65177914 | 360428904 | 61321089 | 28927971631 |
| 903723535 | 167183038 | 208076384 | 5171592 | 208076384 | 3833749 | 23160388968 |
| 1165406 | 143696 | 183516 | 60864 | 183516 | 13904 | 28962585692 |
| 4299470 | 333883 | 578800 | 265023 | 578800 | 15148 | 35895292792 |
| 733988945 | 119405819 | 162391287 | 7768664 | 162391287 | 4760666 | 198027107.8 |
| 2928419613 | 329660653 | 413561938 | 120694804 | 413561938 | 98678427 | 29431179224 |
| 885721 | 70075 | 243921 | 14548 | 243921 | 13987 | 16935806471 |
| 2743929 | 197260 | 332621 | 68454 | 332621 | 65822 | 36279526321 |
| 3334052 | 558835 | 594353 | 125616 | 594353 | 105663 | 31396493786 |
| 100 | 7.58 | 221857 | 46630 | 221857 | 17332 | 668720 |
| 1098488 | 202017 | 179434.8 | 124546 | 1794348 | 11304 | 20147.54463 |
| 1871877 | 112715 | 128967 | 23651 | 128967 | 18891 | 5446384055 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1292428 | 42773 | 48512 | 15289 | 48512 | 2196 | 3278000000 |
| 487486599 | 81370755 | 95565747 | 11016301 | 95565747 | 10292577 | 28790418124 |
| 329640385 | 58380725 | 82574531 | 2342667 | 82574531 | 4689157 | 37990348 |
| 264642663 | 19330694 | 46064110 | 3045528 | 46064110 | 2327275 | 38574466081 |
| 1281108820 | 397316409 | 421678620 | 80072480 | 421678620 | 71439347 | 28927971631 |
| 981575542 | 160789925 | 211336909 | 96336621 | 211336909 | 1970044 | 23160388968 |
| 1424635 | 147096 | 185402 | 61928 | 185402 | 9734 | 28962585692 |
| 4866550 | 393766 | 582575 | 304442 | 582575 | 9275 | 35895292791 |
| 680483061 | 129635453 | 178872994 | 16251397 | 178872994 | 14338882 | 198027107.8 |
| 3515764399 | 406527306 | 504902835 | 165136461 | 504902835 | 131341742 | 29431179224 |
| 507190 | 74874 | 271670 | 15738 | 271670 | 15391 | 16935806471 |
| 3779269 | 214493 | 448069 | 165200 | 448069 | 138150 | 36279526321 |
| 3609325 | 642511 | 704465 | 156748 | 704465 | 129652 | 31396493787 |
| 1859211 | 126282 | 229184 | 923 | 229184 | 664 | 2772.4 |
| 1082444 | 201743 | 220775 | 123995 | 220775 | 5780 | 20147.54463 |
| 100 | 129480 | 140798 | 37209 | 140798 | 28520 | 5461742246 |
| 1347505 | 42292 | 48658 | 13808 | 48658 | 191 | 6183210 |
| 700237 | 77292 | 85665 | 56612 | 85665 | 5163 | 28790418124 |
| 463106396 | 217551640 | 83106980 | 1816431 | 83106980 | 2183798 | 11689337942 |
| 227008550 | 17322951 | 48470734 | 3245145 | 48470734 | 2560580 | 38574466081 |
| 1132122613 | 432191647 | 469491097 | 90339456 | 469491097 | 61990852 | 28927971631 |
| 870175316 | 168821838 | 213563961 | 99623490 | 213563961 | 869441 | 23160388968 |
| 1666923 | 150109 | 203315 | 71896 | 203315 | 18857 | 28962585692 |
| 5256369 | 419746 | 678192 | 331522 | 678192 | 47785 | 35895292791 |
| 675101825 | 133110385 | 188967630 | 11462392 | 188967630 | 9410204 | 198027107.8 |
| 3629622413 | 460985624 | 625167795 | 200242020 | 625167795 | 169602315 | 29431179224 |
| 517103 | 106049 | 345741 | 15519 | 345741 | 14608 | 29120752788 |
| 4360573 | 217215 | 529434 | 207632 | 529434 | 106359 | 34199421366 |
| 3127709 | 753367 | 821658 | 203461 | 821658 | 177933 | 31396493787 |
| 2432491 | 162377 | 201672 | 7213 | 201672 | 3884 | 200740 |
| 1127789 | 189257 | 267329 | 116560 | 267329 | 20204 | 201475.4463 |
| 1554109 | 169763 | 185218 | 61166 | 185218 | 48381 | 5461742246 |
| 1392263 | 44861 | 51807 | 14289 | 51807 | 1268 | 6182467 |
| 865430 | 80543 | 102937 | 61085 | 102937 | 8521 | 28790418124 |
| 52041191 | 3293968.26 | 84015689 | 2720197 | 84015689 | 2448177 | 11689337942 |
| 220076033 | 21536301 | 49615250 | 3009203 | 49615250 | 2255488 | 38574466081 |

**Appendix-II continued**

| Revenue/Income | Expenses | Non-Performing Loan-NPL | Total loan |
|---|---|---|---|
| 79065123 | 38797403 | 31228154 | 403178957 |
| 85723090 | 43115551 | 32894248 | 276345697 |
| 70048 | 29857 | 22591 | 159561 |
| 209187 | 107392 | 89703 | 1017411 |
| 62686096 | 31491391 | 19298201 | 323531060 |
| 112589162 | 84500003 | 10368326 | 603906669 |
| 113961 | 97068 | 102044 | 178654 |
| 177571 | 94015 | 59434 | 630626 |
| 192488 | 97769 | 43190 | 713285 |
| 86601 | 47375 | 40655 | 608139 |
| 58313 | 30521 | 64539 | 231108 |
| 56745 | 34246 | 14237 | 266113 |
| 24488 | 9023 | 3458 | 240358 |
| 30386957 | 15162982 | 11639976 | 99312070 |
| 64808967 | 32100760 | 19630441 | 113974907 |
| 21796628 | 29102970 | 9693393 | 42793251 |
| 96234017 | 38964674 | 22397188 | 463131979 |
| 98163095 | 39741491 | 36878356 | 388136486 |
| 70048 | 38878 | 4272 | 256902 |
| 275629 | 134786 | 28116 | 1162438 |
| 80398043 | 32857320 | 9584646 | 315101376 |
| 126471509 | 90641872 | 19503412 | 706893133 |
| 66492 | 103240 | 7805 | 140520 |
| 184833 | 97330 | 26458 | 689625 |
| 243948 | 115918 | 59768 | 893834 |
| 83360462 | 50933 | 8000 | 119055 |
| 74199 | 43174 | 24818 | 401807 |
| 67428 | 40557 | 18535 | 332867 |
| 24488 | 9917 | 3087 | 263765 |
| 45173435 | 20442336 | 8227240 | 159734616 |
| 47531931 | 32452019 | 7077177 | 113661630 |
| 28385325 | 31999497 | 37166845 | 60143382 |
| 180725850 | 72656747 | 23861019 | 557646719 |
| 112351955 | 42584744 | 25734646 | 585200158 |
| 119137 | 50708 | 13384 | 345500 |
| 370167 | 182522 | 39324 | 1580701 |

**Appendix-II continued**

| | | | |
|---|---|---|---|
| 116832323 | 21090849 | 9540876 | 357798601 |
| 223065885 | 87266044 | 738786 | 779050018 |
| 117212 | 73004 | 33290 | 160669 |
| 220129 | 91704 | 15991 | 658922 |
| 307082 | 118560 | 31930 | 989814 |
| 70173 | 50518 | 25455 | 655464 |
| 157748 | 38054 | 22372 | 546873 |
| 91860 | 42069 | 31981 | 65995 |
| 26325 | 17768 | 5538 | 279638 |
| 68856815 | 29383987 | 7016811 | 229420874 |
| 53760353 | 26729670 | 15486237 | 189041345 |
| 30716386 | 28845764 | 8426117 | 73745728 |
| 180230976 | 81163232 | 24874774 | 748540833 |
| 210270110 | 74579699 | 20262048 | 104891633 |
| 126918 | 54815 | 16572 | 426076 |
| 395942 | 200944 | 45047 | 1814177 |
| 130995439 | 30688374 | 17962321 | 450532965 |
| 242665011 | 96580301 | 2886005 | 1002370638 |
| 121399 | 59956 | 14607 | 229542 |
| 264687 | 101682 | 12787 | 937620 |
| 351470 | 136479 | 30917 | 1251355 |
| 76419 | 48408 | 15994 | 644635 |
| 176658 | 35069 | 34823 | 625907 |
| 111226 | 49087 | 32726 | 171509 |
| 25694 | 16630 | 6479 | 290708 |
| 91628840 | 37204944 | 5466815 | 321743748 |
| 62827927 | 37146464 | 30405386 | 195229573 |
| 35645558 | 34071134 | 4430923 | 98631825 |
| 215960318 | 81033306 | 19966521 | 1075685685 |
| 190952742 | 90619473 | 37443390 | 712064692 |
| 136094 | 50961 | 17451 | 541686 |
| 362579 | 223043 | 42641 | 2178986 |
| 148637409 | 51412299 | 22962196 | 617979790 |
| 278520814 | 87767021 | 7098448 | 1275681135 |
| 135898 | 56099 | 16934 | 312797 |
| 290019 | 123950 | 28899 | 1071859 |
| 403343 | 153887 | 30770 | 1729507 |
| 76882 | 55051 | 15994 | 644635 |

**Appendix-II continued**

| | | | |
|---|---|---|---|
| 221333 | 28607 | 43614 | 930956 |
| 130654 | 57901 | 17951 | 407418 |
| 24787 | 17498 | 7492 | 288599 |
| 103679220 | 41934413 | 9678127 | 371246273 |
| 77071490 | 31218101 | 46788857 | 219335346 |
| 42186867 | 36824061 | 5996332 | 149293849 |
| 302061975 | 174524744 | 19966521 | 1303630030 |
| 196867016 | 87868457 | 49712646 | 648971379 |
| 146891 | 60122 | 20776 | 578203 |
| 396190 | 206627 | 139722 | 1817271 |
| 152507947 | 50333320 | 25370162 | 592957417 |
| 301850111 | 100090754 | 12408194 | 1371925547 |
| 117211 | 53864 | 25937 | 366721 |
| 314844 | 128672 | 27081 | 1036637 |
| 432535 | 157450 | 44896 | 1989313 |
| 58551 | 43615 | 2135 | 80780 |
| 242065 | 30987 | 90118 | 885701 |
| 140027 | 62066 | 27036 | 380295 |
| 20976 | 16860 | 12759 | 261403 |
| 110193835 | 40204098 | 15648585 | 338726271 |
| 78173941 | 36000798 | 65754418 | 246143129 |
| 45869441 | 40573888 | 4852664 | 185596590 |
| 381320783 | 250421396 | 31546928 | 1854662174 |
| 187279015 | 83204638 | 90225152 | 856330435 |
| 152021 | 62893 | 24719 | 718401 |
| 405281 | 304674 | 226037 | 2083894 |
| 176351973 | 50458465 | 25474529 | 659937237 |
| 414615587 | 100003645 | 314197050 | 1589429834 |
| 129606 | 57094 | 37026 | 507190 |
| 263970 | 93225 | 54247 | 1505319 |
| 507997 | 163407 | 71374 | 2289365 |
| 57615 | 2850 | 12060 | 624369 |
| 259584 | 50271 | 23574 | 834425 |
| 156425 | 69041 | 18675 | 368229 |
| 13833 | 9975 | 9687 | 255896 |
| 111440 | 42242 | 8464 | 468250 |
| 84012662 | 30127089 | 36913983.4 | 277214521 |
| 54361250 | 48395207 | 2832431 | 227008550 |

**Appendix-II continued**

| | | | |
|---|---|---|---|
| 459075779 | 331118074 | 82496444 | 2064101703 |
| 203348983 | 88373235 | 119976134 | 814352391 |
| 179896 | 61302 | 26578 | 768737 |
| 469586 | 356238 | 150424 | 2001223 |
| 169881972 | 49503725 | 33221362 | 649796726 |
| 419226271 | 115692353 | 361708208 | 1448533430 |
| 163844 | 59090 | 110911 | 517103 |
| 325657 | 126514 | 61387 | 1650891 |
| 745189 | 212805 | 105865 | 2100362 |
| 32697 | 17843 | 6562 | 654679 |
| 251061 | 41382 | 78382 | 918068 |
| 212434 | 86026 | 31712 | 381711 |
| 14499 | 10120 | 8679 | 285553 |
| 133490 | 42882 | 19504 | 598073 |
| 65026818 | 41841729 | 19057908 | 309501121 |
| 65268831 | 57761822 | 4236001 | 215840031 |

## Appendix-III

## Logarithm of Nigeria Deposit Money Banks Financial Ratios

| GROUP | CAR | LAR | LEV | ROA | ROE | AQ | EXPEREV |
|---|---|---|---|---|---|---|---|
| **INT'L=1** | 0.2599 | 0.9464 | 0.9335 | 0.8178 | 0.8025 | 0.8709 | 0.9609 |
| 1 | 0.1729 | 0.9939 | 0.9635 | 0.7983 | 0.7798 | 0.8905 | 0.9624 |
| 1 | 0.4356 | 0.961 | 0.8927 | 0.8137 | 0.6645 | 0.8368 | 0.9236 |
| 1 | 0.2035 | 0.9367 | 0.8715 | 0.7105 | 0.7083 | 0.8244 | 0.9456 |
| 1 | 0.3072 | 0.9412 | 0.9091 | 0.7973 | 0.7908 | 0.8561 | 0.9617 |
| 1 | 0.2324 | 0.9586 | 0.925 | 0.8732 | 0.8379 | 0.799 | 0.9845 |
| 1 | 0.0951 | 0.9656 | 0.9121 | 0.8283 | 0.8557 | 0.9537 | 0.9862 |
| 1 | 0.1723 | 0.9581 | 0.8916 | 0.824 | 0.455 | 0.8231 | 0.9474 |
| 1 | 0.2998 | 0.9615 | 0.9463 | 0.7904 | 0.7285 | 0.7919 | 0.9443 |
| **NAT.=2** | 0.1706 | 0.9756 | 0.4722 | 0.5904 | 0.2537 | 0.7969 | 0.9469 |
| 2 | 0.2251 | 0.9234 | 0.9859 | 0.7876 | 0.5673 | 0.8967 | 0.941 |
| 2 | 0.3223 | 0.8676 | 0.8954 | 0.7495 | 0.7119 | 0.7656 | 0.9539 |
| 2 | 0.1839 | 0.9049 | 0.9496 | 0.6555 | 0.6309 | 0.6577 | 0.9012 |
| 2 | 0.1281 | 0.9658 | 0.9297 | 0.7804 | 0.7869 | 0.8836 | 0.9597 |
| 2 | 0.1085 | 0.9506 | 0.849 | 0.84 | 0.8364 | 0.9052 | 0.9609 |
| 2 | 0.4383 | 0.9709 | 0.9783 | 0.8555 | 0.868 | 0.9155 | 0.8808 |
| 1 | 0.1721 | 0.9954 | 0.9203 | 0.8117 | 0.8137 | 0.8482 | 0.9508 |
| 1 | 0.1347 | 0.9957 | 0.9057 | 0.882 | 0.8268 | 0.881 | 0.9509 |
| 1 | 0.2981 | 0.9628 | 0.8658 | 0.802 | 0.6368 | 0.6711 | 0.9472 |
| 1 | 0.2042 | 0.9401 | 0.8848 | 0.7489 | 0.7247 | 0.7335 | 0.9429 |
| 1 | 0.2727 | 0.9543 | 0.7332 | 0.8042 | 0.7975 | 0.8215 | 0.9508 |
| 1 | 0.2068 | 0.9641 | 0.9151 | 0.8684 | 0.8379 | 0.8238 | 0.9821 |
| 1 | 0.2079 | 0.9674 | 0.8434 | 0.7672 | 0.8303 | 0.7561 | 0.8323 |
| 1 | 0.2173 | 0.9633 | 0.8614 | 0.8177 | 0.6393 | 0.7575 | 0.9471 |
| 1 | 0.303 | 0.9592 | 0.9182 | 0.8023 | 0.7363 | 0.8026 | 0.94 |
| 2 | 0.1699 | 0.9225 | 0.4284 | 0.5149 | 0.6261 | 0.769 | 0.5942 |
| 2 | 0.1131 | 0.954 | 0.9068 | 0.7365 | 0.5561 | 0.7842 | 0.9517 |
| 2 | 0.2293 | 0.9067 | 0.8655 | 0.6972 | 0.6741 | 0.7729 | 0.9543 |
| 2 | 0.1756 | 0.8784 | 0.9408 | 0.6631 | 0.6392 | 0.6437 | 0.9106 |
| 2 | 0.1677 | 0.9758 | 0.9327 | 0.7514 | 0.7661 | 0.843 | 0.955 |
| 2 | 0.1201 | 0.9645 | 0.8225 | 0.7574 | 0.7447 | 0.8503 | 0.9784 |
| 2 | 0.2662 | 0.9665 | 0.9743 | 0.8782 | 0.844 | 0.9731 | 0.8728 |
| 1 | 0.2062 | 0.9898 | 0.9754 | 0.8234 | 0.8169 | 0.8435 | 0.9521 |
| 1 | 0.1732 | 0.9616 | 0.9883 | 0.881 | 0.8159 | 0.8452 | 0.9477 |
| 1 | 0.2876 | 0.9582 | 0.8653 | 0.766 | 0.7135 | 0.7451 | 0.9269 |

**Appendix-III continued**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 0.1908 | 0.9498 | 0.8446 | 0.764 | 0.7506 | 0.7412 | 0.9449 |
| 1 | 0.232 | 0.9693 | 0.9289 | 0.8049 | 0.8014 | 0.816 | 0.9078 |
| 1 | 0.238 | 0.9593 | 0.9078 | 0.8673 | 0.8592 | 0.66 | 0.9512 |
| 1 | 0.2156 | 0.9766 | 0.9123 | 0.5757 | 0.5967 | 0.8687 | 0.9594 |
| 1 | 0.235 | 0.968 | 0.8199 | 0.8157 | 0.7464 | 0.7225 | 0.9288 |
| 1 | 0.3061 | 0.9619 | 0.9057 | 0.8098 | 0.7798 | 0.7513 | 0.9247 |
| 2 | 0.1726 | 0.9591 | 0.437 | 0.746 | 0.3466 | 0.7575 | 0.9705 |
| 2 | 0.1843 | 0.9515 | 0.8806 | 0.8287 | 0.6358 | 0.7581 | 0.8812 |
| 2 | 0.2128 | 0.9795 | 0.8773 | 0.6959 | 0.6872 | 0.9347 | 0.9317 |
| 2 | 0.1345 | 0.8829 | 0.7607 | 0.7368 | 0.6375 | 0.6873 | 0.9614 |
| 2 | 0.1458 | 0.972 | 0.7771 | 0.7845 | 0.7808 | 0.8189 | 0.9528 |
| 2 | 0.1335 | 0.948 | 0.8376 | 0.7921 | 0.7899 | 0.8687 | 0.9607 |
| 2 | 0.1686 | 0.9592 | 0.8897 | 0.7978 | 0.6796 | 0.8803 | 0.9964 |
| 1 | 0.1775 | 0.9676 | 0.9682 | 0.8121 | 0.8116 | 0.8334 | 0.958 |
| 1 | 0.1729 | 0.9672 | 0.9034 | 0.861 | 0.8193 | 0.911 | 0.9459 |
| 1 | 0.2585 | 0.9588 | 0.8671 | 0.7439 | 0.6443 | 0.7495 | 0.9286 |
| 1 | 0.1773 | 0.9547 | 0.8314 | 0.753 | 0.7361 | 0.7436 | 0.9474 |
| 1 | 0.175 | 0.9662 | 0.9219 | 0.8063 | 0.8001 | 0.8383 | 0.9224 |
| 1 | 0.2185 | 0.956 | 0.9052 | 0.8613 | 0.8532 | 0.7177 | 0.9523 |
| 1 | 0.2511 | 0.9732 | 0.9514 | 0.5959 | 0.5972 | 0.7768 | 0.9397 |
| 1 | 0.1955 | 0.9644 | 0.8077 | 0.7394 | 0.7269 | 0.6877 | 0.9234 |
| 1 | 0.2588 | 0.961 | 0.8867 | 0.7763 | 0.7663 | 0.7364 | 0.9259 |
| 2 | 0.1501 | 0.9594 | 0.4331 | 0.6837 | 0.6592 | 0.7237 | 0.9594 |
| 2 | 0.1739 | 0.9492 | 0.849 | 0.8024 | 0.6597 | 0.7836 | 0.8662 |
| 2 | 0.2452 | 0.9671 | 0.8824 | 0.7465 | 0.734 | 0.8626 | 0.9296 |
| 2 | 0.18 | 0.8834 | 0.7593 | 0.7332 | 0.6216 | 0.6976 | 0.9572 |
| 2 | 0.1404 | 0.9668 | 1.1339 | 0.7875 | 0.7817 | 0.792 | 0.9508 |
| 2 | 0.1381 | 0.944 | 0.966 | 0.8746 | 0.8545 | 0.9026 | 0.9707 |
| 2 | 0.1333 | 0.965 | 0.8639 | 0.7382 | 0.7281 | 0.8314 | 0.9974 |
| 1 | 0.1721 | 0.9573 | 0.9478 | 0.8244 | 0.8205 | 0.8083 | 0.9489 |
| 1 | 0.1845 | 0.971 | 0.9205 | 0.7993 | 0.7945 | 0.8555 | 0.9609 |
| 1 | 0.2387 | 0.952 | 0.8461 | 0.7719 | 0.6815 | 0.7398 | 0.9169 |
| 1 | 0.1578 | 0.9495 | 0.8229 | 0.817 | 0.6298 | 0.7305 | 0.962 |
| 1 | 0.1925 | 0.9574 | 0.9077 | 0.8138 | 0.81 | 0.8373 | 0.9436 |
| 1 | 0.214 | 0.9425 | 0.8958 | 0.8606 | 0.8506 | 0.7524 | 0.9406 |
| 1 | 0.1639 | 0.9338 | 0.8162 | 0.74 | 0.7376 | 0.7695 | 0.9251 |
| 1 | 0.1677 | 0.9601 | 0.8132 | 0.7374 | 0.7266 | 0.7398 | 0.9324 |
| 1 | 0.1992 | 0.9558 | 0.871 | 0.7724 | 0.7601 | 0.7195 | 0.9253 |

**Appendix-III continued**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 0.1453 | 0.9599 | 0.4778 | 0.7471 | 0.6185 | 0.7237 | 0.9703 |
| 2 | 0.1603 | 0.9425 | 0.8664 | 0.7996 | 0.7159 | 0.7773 | 0.8338 |
| 2 | 0.2036 | 0.9515 | 0.8048 | 0.7765 | 0.7595 | 0.7583 | 0.9309 |
| 2 | 0.1671 | 0.952 | 0.7444 | 0.7274 | 0.5856 | 0.7096 | 0.9656 |
| 2 | 0.1388 | 0.9668 | 0.8997 | 0.7886 | 0.78 | 0.8152 | 0.951 |
| 2 | 0.0202 | 0.9416 | 0.8719 | 0.8281 | 0.8158 | 0.9196 | 0.9502 |
| 2 | 0.1654 | 0.9662 | 0.8711 | 0.7548 | 0.7414 | 0.8292 | 0.9923 |
| 1 | 0.1804 | 0.9575 | 0.9288 | 0.8328 | 0.83 | 0.8009 | 0.9719 |
| 1 | 0.1636 | 0.9681 | 0.9182 | 0.7304 | 0.7163 | 0.8734 | 0.9578 |
| 1 | 0.1893 | 0.9976 | 0.8502 | 0.7855 | 0.6803 | 0.7493 | 0.9249 |
| 1 | 0.1708 | 0.9576 | 0.8327 | 0.8193 | 0.6315 | 0.822 | 0.9495 |
| 1 | 0.1688 | 0.9595 | 0.911 | 0.7602 | 0.7367 | 0.844 | 0.9412 |
| 1 | 0.1817 | 0.9437 | 0.8998 | 0.8596 | 0.8503 | 0.7763 | 0.9435 |
| 1 | 0.153 | 0.9276 | 0.8148 | 0.6915 | 0.6887 | 0.7933 | 0.9334 |
| 1 | 0.1995 | 0.9609 | 0.8224 | 0.7509 | 0.7482 | 0.7369 | 0.9293 |
| 1 | 0.213 | 0.9509 | 0.8811 | 0.7723 | 0.7609 | 0.7386 | 0.9221 |
| 2 | 0.1492 | 0.959 | 0.4398 | 0.7484 | 0.6795 | 0.6785 | 0.9732 |
| 2 | 0.1872 | 0.9512 | 0.8783 | 0.8147 | 0.6481 | 0.8331 | 0.8342 |
| 2 | 0.1744 | 0.9543 | 0.8054 | 0.7324 | 0.7161 | 0.7942 | 0.9313 |
| 2 | 0.1948 | 0.9497 | 0.7578 | 0.7206 | 0.5755 | 0.7579 | 0.978 |
| 2 | 0.1749 | 0.969 | 0.9105 | 0.791 | 0.7877 | 0.8434 | 0.9456 |
| 2 | 0.2146 | 0.9391 | 0.9117 | 0.7367 | 0.7715 | 0.9317 | 0.9573 |
| 2 | 0.1509 | 0.9565 | 0.8651 | 0.754 | 0.7405 | 0.8086 | 0.993 |
| 1 | 0.1954 | 0.9608 | 0.9442 | 0.8328 | 0.8275 | 0.8091 | 0.9787 |
| 1 | 0.1501 | 0.9234 | 0.9126 | 0.8696 | 0.6856 | 0.8906 | 0.9574 |
| 1 | 0.1723 | 0.9375 | 0.8398 | 0.7838 | 0.6524 | 0.7501 | 0.926 |
| 1 | 0.1779 | 0.9579 | 0.8367 | 0.8214 | 0.5943 | 0.8473 | 0.9779 |
| 1 | 0.1654 | 0.9537 | 0.9185 | 0.7951 | 0.7891 | 0.8397 | 0.9341 |
| 1 | 0.1979 | 0.964 | 0.9019 | 0.8656 | 0.8551 | 0.9235 | 0.9283 |
| 1 | 0.1329 | 0.9156 | 0.8544 | 0.6883 | 0.6867 | 0.8008 | 0.9304 |
| 1 | 0.197 | 0.9565 | 0.8106 | 0.7973 | 0.7854 | 0.7664 | 0.9166 |
| 1 | 0.2289 | 0.9529 | 0.8857 | 0.7782 | 0.7659 | 0.7632 | 0.9137 |
| 2 | 0.1424 | 0.9448 | 0.8137 | 0.4742 | 0.4513 | 0.7042 | 0.7257 |
| 2 | 0.1672 | 0.9447 | 0.8791 | 0.814 | 0.6012 | 0.7384 | 0.8683 |
| 2 | 0.2277 | 0.961 | 0.8464 | 0.7589 | 0.7397 | 0.7674 | 0.9316 |
| 2 | 0.2132 | 0.9624 | 0.7547 | 0.7125 | 0.3926 | 0.7371 | 0.9657 |
| 2 | 0.1116 | 0.9299 | 0.8363 | 0.8027 | 0.627 | 0.6926 | 0.9165 |
| 2 | 0.047 | 0.9392 | 0.9621 | 0.7201 | 0.7293 | 0.8963 | 0.9438 |

**Appendix-III continued**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 0.1107 | 0.9491 | 0.8663 | 0.7547 | 0.7428 | 0.7722 | 0.9935 |
| 1 | 0.1818 | 0.9607 | 0.9538 | 0.8336 | 0.8165 | 0.8499 | 0.9836 |
| 1 | 0.1674 | 0.9362 | 0.9203 | 0.8815 | 0.6546 | 0.9067 | 0.9564 |
| 1 | 0.1603 | 0.9377 | 0.832 | 0.791 | 0.6964 | 0.7517 | 0.911 |
| 1 | 0.1774 | 0.9653 | 0.8367 | 0.8216 | 0.6964 | 0.8216 | 0.9788 |
| 1 | 0.1688 | 0.9538 | 0.9201 | 0.778 | 0.7685 | 0.8535 | 0.9349 |
| 1 | 0.255 | 0.9713 | 0.9063 | 0.8715 | 0.864 | 0.9342 | 0.9352 |
| 1 | 0.178 | 0.9224 | 0.8796 | 0.68 | 0.6757 | 0.883 | 0.9151 |
| 1 | 0.2016 | 0.9589 | 0.8038 | 0.8045 | 0.7605 | 0.7701 | 0.9255 |
| 1 | 0.2663 | 0.965 | 0.9048 | 0.7867 | 0.7781 | 0.7948 | 0.9073 |
| 2 | 0.1731 | 0.9588 | 0.8159 | 0.6158 | 0.5729 | 0.6563 | 0.9417 |
| 2 | 0.1598 | 0.9488 | 0.8719 | 0.809 | 0.6875 | 0.8208 | 0.855 |
| 2 | 0.2352 | 0.9713 | 0.8447 | 0.7793 | 0.7627 | 0.8064 | 0.9263 |
| 2 | 0.21 | 0.958 | 0.7572 | 0.7137 | 0.533 | 0.7219 | 0.9625 |
| 2 | 0.1221 | 0.9342 | 0.8263 | 0.7937 | 0.6518 | 0.7427 | 0.9038 |
| 2 | 0.047 | 0.9222 | 0.8447 | 0.7409 | 0.7357 | 0.8574 | 0.9755 |
| 2 | 0.1432 | 0.9401 | 0.879 | 0.7543 | 0.7397 | 0.7952 | 0.9932 |

## Appendix-IV

**Diagnostic Results from Statistical Package for Social Sciences Student (SPSS) -Version23**

Basic assumption of standardized linear regression:

**The variables approximately conformed to the following assumptions:**

- ✓ **Continuous data**
- ✓ **Homoscedasticity,**
- ✓ **Linearity,**
- ✓ **Independence,**
- ✓ **Multi-collinearity & Normally distributed.**

# Basic Assumptions and Diagnostic test of Regression Analysis

# Expense-revenue

| Model | Durbin-Watson |
|---|---|
| 1 | 2.020[a] |
| a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio | |
| b. Dependent Variable: **Expense-revenue** | |

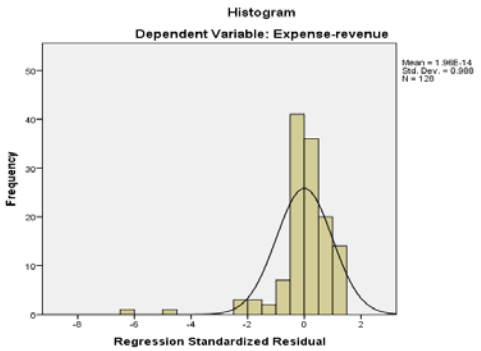
| Coefficients[a] | | | |
|---|---|---|---|
| Model | | Collinearity Statistics | |
| | | Tolerance | VIF |
| 1 | Capital Adequacy Ratio | .964 | 1.037 |
| | Liquid Asset Ratio | .982 | 1.018 |
| | Leverage Ratio | .971 | 1.030 |

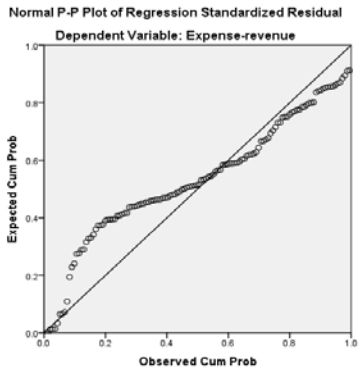
**Collinearity Diagnostics**

| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | | |
|---|---|---|---|---|---|---|---|
| | | | | (Constant) | Capital Adequacy Ratio | Liquid Asset Ratio | Leverage Ratio |
| 1 | 1 | 3.923 | 1.000 | .00 | .01 | .00 | .00 |
| | 2 | .066 | 7.693 | .00 | .99 | .00 | .02 |
| | 3 | .010 | 19.401 | .01 | .00 | .01 | .98 |
| | 4 | .000 | 127.879 | .99 | .01 | .99 | .00 |

| Residuals Statistics[a] | | | | | |
|---|---|---|---|---|---|
| | Minimum | Maximum | Mean | Std. Deviation | N |
| Predicted Value | .894656 | .969951 | .937074 | .0126099 | 128 |
| Residual | -.3004096 | .0635343 | .0000000 | .0462392 | 128 |
| Std. Predicted Value | -3.364 | 2.607 | .000 | 1.000 | 128 |
| Std. Residual | -6.420 | 1.358 | .000 | .988 | 128 |

# Charts- Expense-revenue



## Asset Quality

| Model | Durbin-Watson |
|---|---|
| 1 | 1.845[a] |

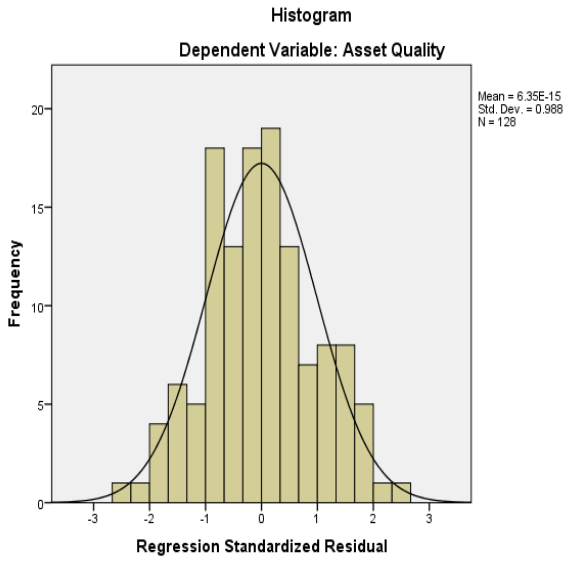
| |
|---|
| a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio |
| b. Dependent Variable: Asset Quality |

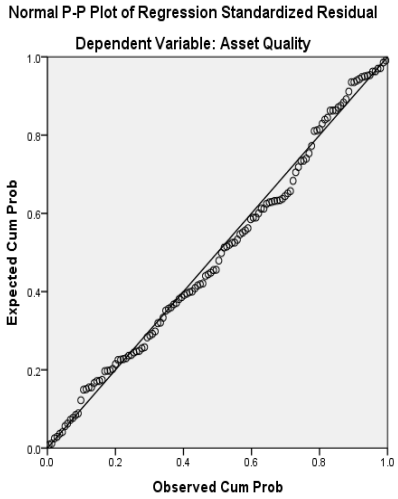
| Coefficients[a] | | | |
|---|---|---|---|
| Model | | Collinearity Statistics | |
| | | Tolerance | VIF |
| 1 | Capital Adequacy Ratio | .964 | 1.037 |
| | Liquid Asset Ratio | .982 | 1.018 |
| | Leverage Ratio | .971 | 1.030 |

| Collinearity Diagnostics[a] | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | | |
| | | | | (Constant) | Capital Adequacy Ratio | Liquid Asset Ratio | Leverage Ratio |
| 1 | 1 | 3.923 | 1.000 | .00 | .01 | .00 | .00 |
| | 2 | .066 | 7.693 | .00 | .99 | .00 | .02 |
| | 3 | .010 | 19.401 | .01 | .00 | .01 | .98 |
| | 4 | .000 | 127.879 | .99 | .01 | .99 | .00 |

| Residuals Statistics[a] | | | | | |
|---|---|---|---|---|---|
| | Minimum | Maximum | Mean | Std. Deviation | N |
| Predicted Value | .667556 | .890940 | .800141 | .0343762 | 128 |
| Residual | -.1485357 | .1467278 | .0000000 | .0615277 | 128 |
| Std. Predicted Value | -3.857 | 2.641 | .000 | 1.000 | 128 |
| Std. Residual | -2.385 | 2.356 | .000 | .988 | 128 |

### Charts-: Asset Quality



**Appendix-IV continued**

## Return on Equity

| Model | Durbin-Watson |
|---|---|
| 1 | 1.887[a] |

a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

b. Dependent Variable: Return on Equity

**Coefficients[a]**

| Model | | Collinearity Statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| 1 | Capital Adequacy Ratio | .964 | 1.037 |
| | Liquid Asset Ratio | .982 | 1.018 |
| | Leverage Ratio | .971 | 1.030 |

a. Dependent Variable: Return on Equity

**Collinearity Diagnostics[a]**

| Model | Dimension | Eigen value | Condition Index | Variance Proportions | | | |
|---|---|---|---|---|---|---|---|
| | | | | (Constant) | Capital Adequacy Ratio | Liquid Asset Ratio | Leverage Ratio |
| 1 | 1 | 3.923 | 1.000 | .00 | .01 | .00 | .00 |
| | 2 | .066 | 7.693 | .00 | .99 | .00 | .02 |
| | 3 | .010 | 19.401 | .01 | .00 | .01 | .98 |
| | 4 | .000 | 127.879 | .99 | .01 | .99 | .00 |

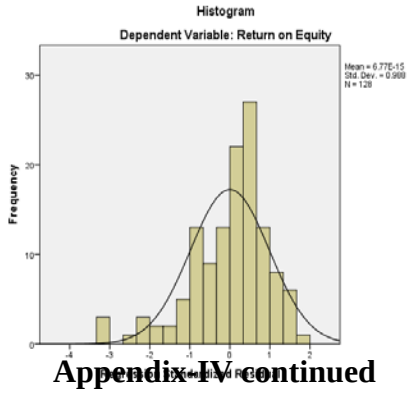
a. Dependent Variable: Return on Equity

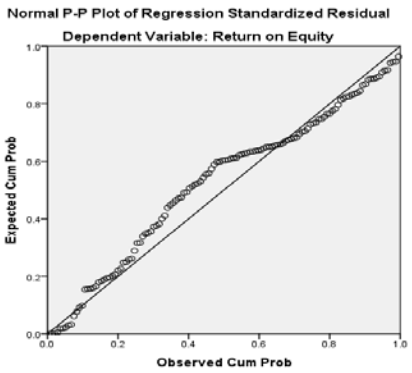
**Residuals Statistics[a]**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | .481659 | .864199 | .718063 | .0573284 | 128 |
| Residual | -.2929929 | .1620778 | .0000000 | .0889361 | 128 |
| Std. Predicted Value | -4.124 | 2.549 | .000 | 1.000 | 128 |
| Std. Residual | -3.255 | 1.801 | .000 | .988 | 128 |

**a. Dependent Variable: Return on Equity**

**Charts**




**Appendix-IV continued**

## Return on Assets

| Model | Durbin-Watson |
|---|---|
| 1 | 2.243[a] |

a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio
b. Dependent Variable: Return on Assets

**Coefficients[a]**

| Model | | Collinearity Statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| 1 | Capital Adequacy Ratio | .964 | 1.037 |
| | Liquid Asset Ratio | .982 | 1.018 |
| | Leverage Ratio | .971 | 1.030 |

a. Dependent Variable: **Return on Assets**

**Collinearity Diagnostics[a]**

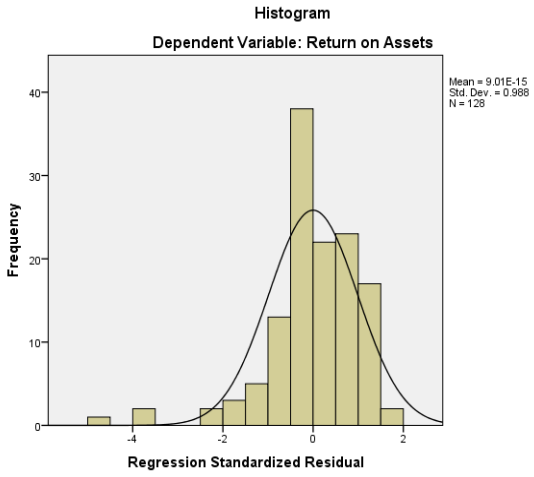
| Model | Dimension | Eigen value | Condition Index | Variance Proportions | | | |
|---|---|---|---|---|---|---|---|
| | | | | (Constant) | Capital Adequacy Ratio | Liquid Asset Ratio | Leverage Ratio |
| 1 | 1 | 3.923 | 1.000 | .00 | .01 | .00 | .00 |
| | 2 | .066 | 7.693 | .00 | .99 | .00 | .02 |
| | 3 | .010 | 19.401 | .01 | .00 | .01 | .98 |
| | 4 | .000 | 127.879 | .99 | .01 | .99 | .00 |

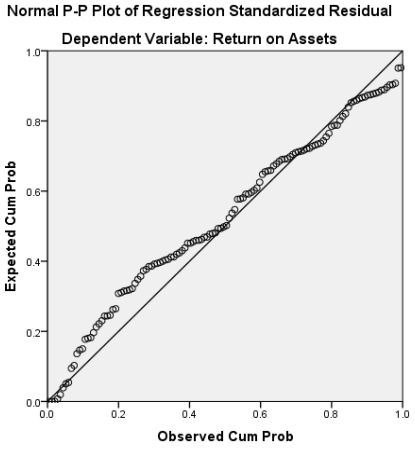
a**. Dependent Variable: Return on Assets**

**Residuals Statistics[a]**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | .643384 | .851990 | .775028 | .0327907 | 128 |
| Residual | -.2813530 | .1034266 | .0000000 | .0615439 | 128 |
| Std. Predicted Value | -4.015 | 2.347 | .000 | 1.000 | 128 |
| Std. Residual | -4.517 | 1.661 | .000 | .988 | 128 |

**Charts**




## Appendix-V

**Data Analysis from Statistical Package for Social Sciences Student (SPSS) -Version23 Output**

# REGRESSION

## Regression-RETURN ON ASSET

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .470[a] | .221 | .202 | .0622840 | 2.243 |

a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

b. Dependent Variable: Return on Assets

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | .137 | 3 | .046 | 11.734 | .000[b] |
| | Residual | .481 | 124 | .004 | | |
| | Total | .618 | 127 | | | |

## Coefficients-ROA

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | |
| 1 | (Constant) | -.093 | .252 | | -.368 | .714 | | |
| | Capital Adequacy Ratio | .043 | .094 | .037 | .459 | .647 | .964 | 1.037 |
| | Liquid Asset Ratio | .671 | .265 | .203 | 2.533 | .013 | .982 | 1.018 |
| | Leverage Ratio | .255 | .051 | .399 | 4.960 | .000 | .971 | 1.030 |

## Regression-RETURN ON EQUITY

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .542[a] | .294 | .276 | .0900055 | 1.887 |

a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

b. Dependent Variable: Return on Equity

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .417 | 3 | .139 | 17.174 | .000[b] |
| | Residual | 1.005 | 124 | .008 | | |
| | Total | 1.422 | 127 | | | |

## Coefficients-RETURN ON EQUITY

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -.481 | .364 | | -1.322 | .189 | | |
| | Capital Adequacy Ratio | -.012 | .136 | -.007 | -.085 | .933 | .964 | 1.037 |
| | Liquid Asset Ratio | .819 | .383 | .163 | 2.137 | .035 | .982 | 1.018 |
| | Leverage Ratio | .490 | .074 | .505 | 6.591 | .000 | .971 | 1.030 |

a. Dependent Variable: Return on Equity

## Regression-ASSET QUALITY

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .488[a] | .238 | .219 | .0622676 | 1.845 |

b. Dependent Variable: Asset Quality

**Appendix-V continued**

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Model | Sum of Squares | df | Mean Square | F | Sig. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Residual | .481 | 124 | .004 | | |
| | Total | .631 | 127 | | | |

## Coefficients-ASSET QUALITY

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -.242 | .252 | | -.963 | .338 | | |
| | Capital Adequacy Ratio | -.191 | .094 | -.162 | -2.031 | .044 | .964 | 1.037 |
| | Liquid Asset Ratio | .905 | .265 | .270 | 3.415 | .001 | .982 | 1.018 |
| | Leverage Ratio | .252 | .051 | .389 | 4.893 | .000 | .971 | 1.030 |

a. Dependent Variable: Asset Quality

## Regression-EXPENSE-REVENUE

**Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .263[a] | .069 | .047 | .0467952 | 2.020 |

a. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

b. Dependent Variable: Expense-revenue

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | .020 | 3 | .007 | 3.074 | .030[b] |
| | Residual | .272 | 124 | .002 | | |
| | Total | .292 | 127 | | | |

## Coefficients- Expense-revenue

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | .579 | .189 | | 3.057 | .003 | | |
| | Capital Adequacy Ratio | -.126 | .071 | -.157 | -1.783 | .077 | .964 | 1.037 |
| | Liquid Asset Ratio | .328 | .199 | .144 | 1.648 | .102 | .982 | 1.018 |
| | Leverage Ratio | .081 | .039 | .184 | 2.090 | .039 | .971 | 1.030 |

## Descriptives statistics of Nigeria Deposit Money Banks Financial Ratios

| | Minimum | Maximum | Mean (N=128) | Std. Deviation (N=128) |
|---|---|---|---|---|
| Capital Adequacy Ratio | .0202 | .4383 | .190146 | .0598582 |
| Liquid Asset Ratio | .8676 | .9976 | .953308 | .0210423 |
| Leverage Ratio | .4284 | 1.1339 | .859591 | .1089503 |
| Return on Assets | .4742 | .8820 | .775028 | .0697344 |
| Return on Equity | .2537 | .8680 | .718063 | .1058120 |
| Asset Quality | .6437 | .9731 | .800141 | .0704797 |
| Expense-revenue | .5942 | .9974 | .937074 | .0479278 |
| Valid N (listwise) | | | | |

**Karl Pearson Product Moment Correlations Coefficient Between Capital Adequacy, Return Asset & Asset Quality**

| | | Asset Quality | Return on Assets |
|---|---|---|---|
| | Sig. (2-tailed) | .436 | .165 |
| | N | 128 | 128 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Appendix-V continued**

# Chow-Test for comparison of Regression models

## Regression-Return on Assets

### International DMBs- Return on Assets

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .262[b] | .069 | .028 | .0579930 |

### National DMBs- Return on Assets

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .017 | 3 | .006 | 1.673 | .181[c] |
| | Residual | .229 | 68 | .003 | | |
| | Total | .246 | 71 | | | |

a. Nigeria Deposit Money Banks = international DMBs
b. Dependent Variable: Return on Assets
c. Predictors: (Constant), Leverage Ratio, Capital Adequacy Ratio, Liquid Asset Ratio

| Coefficients[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .246 | .418 | | .589 | .558 |
| | Capital Adequacy Ratio | -.040 | .132 | -.036 | -.302 | .763 |
| | Liquid Asset Ratio | .336 | .457 | .090 | .735 | .465 |
| | Leverage Ratio | .265 | .147 | .221 | 1.803 | .076 |

## National DMBs- Return on Assets

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .487[b] | .237 | .193 | .0671047 |

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .073 | 3 | .024 | 5.382 | .003[c] |
| | Residual | .234 | 52 | .005 | | |
| | Total | .307 | 55 | | | |

a. Nigeria Deposit Money Banks = national DMBs
b. Dependent Variable: Return on Assets
c. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

| Coefficients[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.041 | .349 | | -.116 | .908 |
| | Capital Adequacy Ratio | .023 | .144 | .019 | .157 | .876 |
| | Liquid Asset Ratio | .633 | .361 | .213 | 1.753 | .085 |
| | Leverage Ratio | .226 | .061 | .450 | 3.686 | .001 |

## Univariate Analysis of Variance-Return on Assets

| Between-Subjects Factors | | | |
|---|---|---|---|
| | | Value Label | N |
| | 2 | International DMBs | 56 |

| Tests of Between-Subjects Effects | | | | | |
|---|---|---|---|---|---|
| Dependent Variable: Return on Assets | | | | | |
| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
| Corrected Model | .155[a] | 7 | .022 | 5.731 | .000 |
| Intercept | .001 | 1 | .001 | .138 | .711 |

## Appendix-V continued

| | | | | | |
|---|---|---|---|---|---|
| G | .001 | 1 | .001 | .269 | .605 |
| CAR | 3.045E-5 | 1 | 3.045E-5 | .008 | .929 |
| LAR | .010 | 1 | .010 | 2.673 | .105 |
| LEV | .033 | 1 | .033 | 8.610 | .004 |
| g * CAR | .000 | 1 | .000 | .104 | .748 |
| g * LAR | .001 | 1 | .001 | .250 | .618 |
| g * LEV | .000 | 1 | .000 | .054 | .816 |
| Error | .463 | 120 | .004 | | |
| Total | 77.503 | 128 | | | |
| Corrected Total | .618 | 127 | | | |

a. R Squared = .251 (Adjusted R Squared = .207)

# Custom Hypothesis Tests- Return on Assets

| Contrast Results (K Matrix)[a] | | | |
|---|---|---|---|
| Contrast | | | Dependent Variable: Return on Assets |
| L1 | Contrast Estimate | | .286 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .286 |
| | Std. Error | | .552 |
| | Sig. | | .605 |
| | 95% Confidence Interval for Difference | Lower Bound | -.806 |
| | | Upper Bound | 1.379 |
| L2 | Contrast Estimate | | -.063 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -.063 |
| | Std. Error | | .195 |
| | Sig. | | .748 |
| | 95% Confidence Interval for Difference | Lower Bound | -.448 |
| | | Upper Bound | .323 |
| L3 | Contrast Estimate | | -.297 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -.297 |
| | Std. Error | | .593 |
| | Sig. | | .618 |
| | 95% Confidence Interval for Difference | Lower Bound | -1.471 |
| | | Upper Bound | .877 |
| L4 | Contrast Estimate | | .039 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .039 |
| | Std. Error | | .167 |
| | Sig. | | .816 |
| | 95% Confidence Interval for Difference | Lower Bound | -.292 |
| | | Upper Bound | .370 |

### a. Based on the user-specified contrast coefficients (L') matrix: Chow Test-ROA

| Test Results-Return on Assets | | | | | |
|---|---|---|---|---|---|
| Dependent Variable: Return on Assets | | | | | |
| Source | Sum of Squares | df | Mean Square | F | Sig. |
| Contrast | .018 | 4 | .005 | 1.178 | .324 |
| Error | .463 | 120 | .004 | | |

# Regression-ROE

## International DMBs- Return on Equity

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .357[b] | .127 | .089 | .0769581 |

a. Nigeria Deposit Money Banks = international DMBs

b. Predictors: (Constant), Leverage Ratio, Capital Adequacy Ratio, Liquid Asset Ratio

## Appendix-V continued

### International DMBs- Return on Equity

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .059 | 3 | .020 | 3.311 | .025[c] |
| | Residual | .403 | 68 | .006 | | |
| | Total | .462 | 71 | | | |

a. Nigeria Deposit Money Banks = International DMBs
b. Dependent Variable: Return on Equity
c. Predictors: (Constant), Leverage Ratio, Capital Adequacy Ratio, Liquid Asset Ratio

### International DMBs- Return on Equity

| Coefficients[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.278 | .554 | | -.502 | .618 |
| | Capital Adequacy Ratio | -.092 | .175 | -.060 | -.524 | .602 |
| | Liquid Asset Ratio | .637 | .607 | .125 | 1.049 | .298 |
| | Leverage Ratio | .491 | .195 | .298 | 2.517 | .014 |

### National DMBs- Return on Equity

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .548[b] | .300 | .260 | .1041109 |

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .242 | 3 | .081 | 7.442 | .000[c] |
| | Residual | .564 | 52 | .011 | | |
| | Total | .806 | 55 | | | |

a. Nigeria Deposit Money Banks = national DMBs
b. Dependent Variable: Return on Equity
c. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

### International DMBs- Return on Equity

| Coefficients[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.236 | .542 | | -.436 | .665 |
| | Capital Adequacy Ratio | -.089 | .224 | -.046 | -.397 | .693 |
| | Liquid Asset Ratio | .596 | .560 | .124 | 1.063 | .293 |
| | Leverage Ratio | .444 | .095 | .545 | 4.665 | .000 |

# Univariate Analysis of Variance-ROE

| Between-Subjects Factors | | | |
|---|---|---|---|
| | | Value Label | N |
| Nigeria Deposit Money Banks | 1 | International DMBs | 72 |
| | 2 | National DMBs | 56 |

| Tests of Between-Subjects Effects | | | | | |
|---|---|---|---|---|---|
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
| Corrected Model | .456[a] | 7 | .065 | 8.081 | .000 |
| Intercept | .003 | 1 | .003 | .416 | .520 |
| g | 2.203E-5 | 1 | 2.203E-5 | .003 | .958 |
| CAR | .003 | 1 | .003 | .413 | .521 |
| LAR | .017 | 1 | .017 | 2.068 | .153 |
| LEV | .120 | 1 | .120 | 14.949 | .000 |
| g * CAR | 8.535E-7 | 1 | 8.535E-7 | .000 | .992 |
| g * LAR | 1.875E-5 | 1 | 1.875E-5 | .002 | .962 |

| | | | | | | |
|---|---|---|---|---|---|---|
| g * LEV | .000 | 1 | .000 | .038 | .845 |
| Error | .966 | 120 | .008 | | |
| Total | 67.421 | 128 | | | |
| Corrected Total | 1.422 | 127 | | | |

a. R Squared = .320 (Adjusted R Squared = .281)

## Custom Hypothesis Tests-Return on Equity

| Contrast Results (K Matrix)[a] | | | |
|---|---|---|---|
| Contrast | | | Dependent Variable: Return on Equity |
| L1 | Contrast Estimate | | -.042 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -.042 |
| | Std. Error | | .797 |
| | Sig. | | .958 |
| | 95% Confidence Interval for Difference | Lower Bound | -1.621 |
| | | Upper Bound | 1.537 |
| L2 | Contrast Estimate | | -.003 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -.003 |
| | Std. Error | | .281 |
| | Sig. | | .992 |
| | 95% Confidence Interval for Difference | Lower Bound | -.560 |
| | | Upper Bound | .554 |
| L3 | Contrast Estimate | | .041 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .041 |
| | Std. Error | | .857 |
| | Sig. | | .962 |
| | 95% Confidence Interval for Difference | Lower Bound | -1.655 |
| | | Upper Bound | 1.738 |
| L4 | Contrast Estimate | | .047 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .047 |
| | Std. Error | | .242 |
| | Sig. | | .845 |
| | 95% Confidence Interval for Difference | Lower Bound | -.431 |
| | | Upper Bound | .526 |

### a. Based on the user-specified contrast coefficients (L') matrix: Chow Test-ROE

| Test Results | | | | | |
|---|---|---|---|---|---|
| Dependent Variable: Return on Equity | | | | | |
| Source | Sum of Squares | df | Mean Square | F | Sig. |
| Contrast | .038 | 4 | .010 | 1.185 | .321 |
| Error | .966 | 120 | .008 | | |

# Regression-Asset Quality

## International DMBs-Asset Quality

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .533[b] | .284 | .252 | .0550208 |

### Asset Quality

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .082 | 3 | .027 | 8.990 | .000[c] |
| | Residual | .206 | 68 | .003 | | |
| | Total | .288 | 71 | | | |

| |
|---|
| a. Nigeria Deposit Money Banks = international DMBs |
| b. Dependent Variable: Asset Quality |
| c. Predictors: (Constant), Leverage Ratio, Capital Adequacy Ratio, Liquid Asset Ratio |

**Coefficients[a,b]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .278 | .396 | | .702 | .485 |
| | Capital Adequacy Ratio | -.323 | .125 | -.266 | -2.577 | .012 |
| | Liquid Asset Ratio | .055 | .434 | .014 | .126 | .900 |
| | Leverage Ratio | .607 | .139 | .467 | 4.354 | .000 |

## National DMBs- Asset Quality

**Model Summary[a]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .585[b] | .342 | .304 | .0658159 |

## Asset Quality

**ANOVA[a,b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | .117 | 3 | .039 | 9.024 | .000[c] |
| | Residual | .225 | 52 | .004 | | |
| | Total | .343 | 55 | | | |

| |
|---|
| a. Nigeria Deposit Money Banks = national DMBs |
| b. Dependent Variable: Asset Quality |
| c. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio |

## Asset Quality

**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.644 | .343 | | -1.878 | .066 |
| | Capital Adequacy Ratio | .013 | .142 | .011 | .094 | .926 |
| | Liquid Asset Ratio | 1.317 | .354 | .419 | 3.719 | .000 |
| | Leverage Ratio | .231 | .060 | .436 | 3.849 | .000 |

| |
|---|
| a. Nigeria Deposit Money Banks = national DMBs |
| b. Dependent Variable: Asset Quality |

# Univariate Analysis of Variance- Asset Quality

**Between-Subjects Factors**

| | | Value Label | N |
|---|---|---|---|
| Nigeria Deposit Money Banks | 1 | International DMBs | 72 |
| | 2 | National DMBs | 56 |

## Asset Quality

**Tests of Between-Subjects Effects**

Dependent Variable: Asset Quality

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | .200[a] | 7 | .029 | 7.943 | .000 |
| Intercept | .002 | 1 | .002 | .470 | .494 |
| g | .011 | 1 | .011 | 2.995 | .086 |
| CAR | .010 | 1 | .010 | 2.721 | .102 |
| LAR | .021 | 1 | .021 | 5.746 | .018 |
| LEV | .097 | 1 | .097 | 26.970 | .000 |
| g * CAR | .012 | 1 | .012 | 3.207 | .076 |
| g * LAR | .017 | 1 | .017 | 4.866 | .029 |
| g * LEV | .019 | 1 | .019 | 5.414 | .022 |
| Error | .431 | 120 | .004 | | |
| Total | 82.580 | 128 | | | |
| Corrected Total | .631 | 127 | | | |

| a. R Squared = .317 (Adjusted R Squared = .277) |
|---|

## Custom Hypothesis Tests-Assets Quality

| Contrast Results (K Matrix)[a] | | | |
|---|---|---|---|
| Contrast | | | Dependent Variable: Asset Quality |
| L1 | Contrast Estimate | | .922 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .922 |
| | Std. Error | | .533 |
| | Sig. | | .086 |
| | 95% Confidence Interval for Difference | Lower Bound | -.133 |
| | | Upper Bound | 1.976 |
| L2 | Contrast Estimate | | -.336 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -.336 |
| | Std. Error | | .188 |
| | Sig. | | .076 |
| | 95% Confidence Interval for Difference | Lower Bound | -.708 |
| | | Upper Bound | .036 |
| L3 | Contrast Estimate | | -1.263 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -1.263 |
| | Std. Error | | .572 |
| | Sig. | | .029 |
| | 95% Confidence Interval for Difference | Lower Bound | -2.396 |
| | | Upper Bound | -.129 |
| L4 | Contrast Estimate | | .376 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .376 |
| | Std. Error | | .161 |
| | Sig. | | .022 |
| | 95% Confidence Interval for Difference | Lower Bound | .056 |
| | | Upper Bound | .696 |

### a. Based on the user-specified contrast coefficients (L') matrix: Chow Test-Asset Quality

| Test Results | | | | | |
|---|---|---|---|---|---|
| Dependent Variable: Asset Quality | | | | | |
| Source | Sum of Squares | df | Mean Square | F | Sig. |
| Contrast | .050 | 4 | .012 | 3.457 | .010 |
| Error | .431 | 120 | .004 | | |

## Regression-Expense-revenue

### International DMBs-Expense-revenue

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .395[b] | .156 | .119 | .0219820 |

### International DMBs-Expense-revenue

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .006 | 3 | .002 | 4.203 | .009[c] |
| | Residual | .033 | 68 | .000 | | |
| | Total | .039 | 71 | | | |

| a. Nigeria Deposit Money Banks = international DMBs |
|---|
| b. Dependent Variable: Expense-revenue |
| c. Predictors: (Constant), Leverage Ratio, Capital Adequacy Ratio, Liquid Asset Ratio |

### International DMBs-Expense-revenue

| Coefficients[a,b] | | | | | |
|---|---|---|---|---|---|
| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | B | Std. Error | Beta | | |

## Appendix-V continued

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | (Constant) | .797 | .158 | | 5.035 | .000 |
| | Capital Adequacy Ratio | -.093 | .050 | -.208 | -1.857 | .068 |
| | Liquid Asset Ratio | .020 | .173 | .014 | .118 | .906 |
| | Leverage Ratio | .163 | .056 | .340 | 2.917 | .005 |

## National DMBs-Expense-revenue

| Model Summary[a] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .247[b] | .061 | .007 | .0671267 |

## National DMBs-Expense-revenue

| ANOVA[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | .015 | 3 | .005 | 1.127 | .347[c] |
| | Residual | .234 | 52 | .005 | | |
| | Total | .250 | 55 | | | |

a. Nigeria Deposit Money Banks = national DMBs
b. Dependent Variable: Expense-revenue
c. Predictors: (Constant), Leverage Ratio, Liquid Asset Ratio, Capital Adequacy Ratio

## National DMBs-Expense-revenue

| Coefficients[a,b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .551 | .350 | | 1.577 | .121 |
| | Capital Adequacy Ratio | -.179 | .144 | -.167 | -1.239 | .221 |
| | Liquid Asset Ratio | .376 | .361 | .140 | 1.040 | .303 |
| | Leverage Ratio | .066 | .061 | .146 | 1.080 | .285 |

# Univariate Analysis of Variance- Expense-revenue

| Between-Subjects Factors | | | |
|---|---|---|---|
| | | Value Label | N |
| Nigeria Deposit Money Banks | 1 | International DMBs | 72 |
| | 2 | National DMBs | 56 |

| Tests of Between-Subjects Effects | | | | | |
|---|---|---|---|---|---|
| Dependent Variable: Expense-revenue | | | | | |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
| Corrected Model | .025[a] | 7 | .004 | 1.576 | .149 |
| Intercept | .023 | 1 | .023 | 10.338 | .002 |
| g | .001 | 1 | .001 | .343 | .559 |
| CAR | .008 | 1 | .008 | 3.383 | .068 |
| LAR | .002 | 1 | .002 | .773 | .381 |
| LEV | .007 | 1 | .007 | 3.238 | .074 |
| g * CAR | .001 | 1 | .001 | .337 | .562 |
| g * LAR | .001 | 1 | .001 | .621 | .432 |
| g * LEV | .001 | 1 | .001 | .573 | .450 |
| Error | .267 | 120 | .002 | | |
| Total | 112.690 | 128 | | | |
| Corrected Total | .292 | 127 | | | |

a. R Squared = .084 (Adjusted R Squared = .031)

## Custom Hypothesis Tests- Expense-revenue

| Contrast Results (K Matrix)[a] | | |
|---|---|---|
| Contrast | | Dependent Variable |
| | | Expense-revenue |
| L1 | Contrast Estimate | .246 |
| | Hypothesized Value | 0 |

| | | | |
|---|---|---|---|
| | Difference (Estimate - Hypothesized) | | .246 |
| | Std. Error | | .419 |
| | Sig. | | .559 |
| | 95% Confidence Interval for Difference | Lower Bound | -.585 |
| | | Upper Bound | 1.076 |
| L2 | Contrast Estimate | | .086 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .086 |
| | Std. Error | | .148 |
| | Sig. | | .562 |
| | 95% Confidence Interval for Difference | Lower Bound | -.207 |
| | | Upper Bound | .379 |
| L3 | Contrast Estimate | | -.355 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | -.355 |
| | Std. Error | | .451 |
| | Sig. | | .432 |
| | 95% Confidence Interval for Difference | Lower Bound | -1.247 |
| | | Upper Bound | .537 |
| L4 | Contrast Estimate | | .096 |
| | Hypothesized Value | | 0 |
| | Difference (Estimate - Hypothesized) | | .096 |
| | Std. Error | | .127 |
| | Sig. | | .450 |
| | 95% Confidence Interval for Difference | Lower Bound | -.155 |
| | | Upper Bound | .348 |

**a. Based on the user-specified contrast coefficients (L') matrix: Chow Test-Expense-revenue**

**Test Results**

Dependent Variable: Expense-revenue

| Source | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Contrast | .004 | 4 | .001 | .490 | .743 |
| Error | .267 | 120 | .002 | | |