IJAAR PUBLISHING®

Scholarly Journal of Management Sciences Research | ISSN: 2955-0793
Vol. 5, Issue 1 (2026) | www.ijaar.org/sjmsr

BASEL III COMPLIANCE AND CAPITAL ADEQUACY OF QUOTED COMMERCIAL BANKS IN NIGERIA.

BY

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ABSTRACT

This study examined the effect of Basel III Compliance on the capital adequacy of quoted commercial banks in Nigeria. Cross-sectional data were obtained from 14 quoted commercial banks for 2016-2025. Tier I and Tier II capital were modeled as a function of credit risk compliance, asset management compliance, and liquidity compliance. Using a Regression Discontinuity Design (RDD), data from 14 banks were analyzed to assess the effect of this Basel III compliance on the capital adequacy of quoted commercial banks. From the findings, the study concludes that credit compliance has a positive and significant effect on tier I capital but a negative and insignificant effect on tier II capital. This implies that an increase in the variables will significantly affect tier I but not tier II. Asset quality compliance has a positive and significant effect on tier I capital but a negative and insignificant effect on tier II capital. This implies that an increase in the variables will significantly affect tier I but insignificantly affect tier II, while asset quality compliance has a positive and significant effect on tier I capital but a negative and insignificant effect on tier II capital. This implies that an increase in the variables will significantly affect tier I but not tier II. It recommends that the banking sector's capital base be further reviewed and increased to enhance banks' operational efficiency and improve capital adequacy. There should be full compliance by the deposit money banks with all capital adequacy reforms to hedge against shocks and losses that could negatively affect capital adequacy. The regulatory authorities should formulate policies that will enhance the Tier 1 capital of the listed commercial banks and regulatory capital of the banking industry should be enhanced, assets should be reduced from the portfolio of the commercial banks and management of commercial banks should have the habit efficiency and effectiveness in bank management to reduce operational and administrative cost of the banking sector to enhance capital adequacy. There should be an effective risk management mechanism in the banking sector to mitigate the negative effect of risk assets on capital adequacy.

Keywords: *Basel III Compliance, Capital Adequacy, Credit Risk, Asset Management, Liquidity, Commercial Banks*

Achaka, C. F. (2026). Basel III compliance and capital adequacy of quoted commercial banks in Nigeria. *Scholarly Journal of Management Sciences Research, 5*(1), 12-32. https://doi.org/10.46654/4ptq2607

INTRODUCTION

The history of bank regulation in Nigeria can be traced to the Banking Regulation of 1952, when, for the first time, banks were allowed to meet a certain capital base. The ordinance was designed to ensure orderly commercial banking and to prevent the establishment of unviable banks. Draft legislation to establish the Central Bank of Nigeria was presented to the House of Representatives in March, 1958. The Tier 1 Capital Ratio measures the proportion of a bank's core capital, comprising equity and disclosed reserves, to its risk-weighted assets (BCBS, 2022). This ratio ensures that banks maintain sufficient high-quality capital to absorb potential losses and sustain operations during economic downturns. On the other hand, the Leverage Ratio, a non-risk-based metric, compares Tier 1 capital to total exposure, including both on- and off-balance-sheet items (Basel 2022). It serves as a backstop to risk-weighted capital measures, preventing excessive leverage that could undermine financial stability. While these regulatory measures are primarily designed to safeguard the banking system, they may also have unintended consequences for bank profitability, as maintaining higher capital buffers may constrain lending capacity and increase operational costs. The Nigerian banking sector has undergone significant reforms over the past two decades, transitioning from a fragmented system of numerous small banks to a more consolidated and resilient sector. The Central Bank of Nigeria (CBN) directive to banks in 2021 to implement Basel III marked a significant shift in the regulatory landscape of the banking sector (CBN, 2021). The Tier 1 capital ratio, which focuses on high-quality capital such as common equity and retained earnings, is critical in ensuring that banks can withstand losses during periods of economic distress (Yunana, 2025).

Basel III was introduced in 2008 after the global financial crisis. It requires banks to be more stringent by refining capital structure and building mechanisms for risk management, such as liquidity coverage ratio, net stable funding ratio, to manage liquidity risk, and an additional non-risk-based leverage ratio was suggested as a security measure against any capital requirement deficiencies (Dell'Ariccia & Marquez, 2004). It incorporates the lessons learned from the global financial crisis, which resulted in liquidity and credit crunch. This includes capital conservation buffer, countercyclical capital buffer, leverage ratio cover, liquidity cover ratio, and risk-weighted assets. Increase in Tier I and Tier II capital makes banks capital adequate and able to withstand shocks in the operating environment. Compliance with capital reserves can enhance commercial banks' liquidity, credit, and operating risk, while compliance with capital can affect operating risk positively (Admati et al., 2010). The impact of Basel III regulations on bank profitability has been the subject of considerable debate, particularly in the context of developed economies (Banerjee & Mio, 2015). However, less attention has been given to how these regulations affect banks in emerging markets like Nigeria, where the financial sector is still evolving. This paper contextualizes the findings within the unique economic and regulatory environment of Nigeria. Unlike studies conducted in developed economies, where banks operate in relatively stable conditions, this study accounts for the volatility and systemic risks inherent in the Nigerian banking sector. Also, this study distinguishes itself from previous research by focusing explicitly on the Tier 1 capital ratio and leverage requirements, which are central to the Basel III framework but have received limited attention in the context of Nigerian banks. Most existing studies have concentrated on the overall impact of capital adequacy on profitability, often neglecting the individual components of the regulation and their specific effects on profitability.

Basel III is the third installment of the Basel Accords and is a global regulatory standard set by the BCBS on capital adequacy (including a new leverage ratio and capital buffers), market liquidity risk (with new short-term and long-term liquidity ratios), and stress testing focusing

on stability. The Basel III reforms to global regulatory standards were agreed by the G-20 in November 2010and were then issued by the Basel Committee on Banking Supervision in December 2010 (BCBS, 2010a). The key aim of these reforms is to strengthen the capital adequacy requirements with regard to the quality and quantity of capital which banks must hold in order to absorb losses. The Basel III framework, whose main thrust has been enhancing the banking sector's safety and stability, emphasizes the need to improve the quality and quantity of capital components, leverage ratio, liquidity standards, and enhanced disclosures. Basel III is therefore an effort to control the causes of the most recent crisis. Regulation of this sort has been effective in the past (BCBS, 2010).Basel III introduces new and enhanced rules, which include the introduction of a new and stricter definition of capital designed to increase consistency, transparency, and quality of the capital base and the introduction of a global liquidity standard (BCBS, 2010). The two new liquidity ratios, the longer-term Net Stable Funding Ratio (NSFR) and the short-term Liquidity Coverage Ratio (LCR) call on banks to raise high-quality liquid assets and acquire more stable sources of funding, ensuring that they agree with the principles of liquidity risk management. In addition, Basel III introduces a new leverage ratio, a substitute to the risk-based Basel II framework setting 3 percent as the ratio of Tier 1 Capital to total exposure; the new leverage ratio may limit banks' scope of action (BCBS, 2010c). Moreover, Basel III increases capital requirements for securities financing activities, repurchase agreements, and counterparty credit risk arising from derivatives. Additionally, the new framework has formulated ways of reducing systemic risk and the cyclical effects of Basel II. For instance, it introduces a countercyclical capital buffer and capital conservation, and discusses "through the cycle" provisioning. The bursting of the credit bubble led to a rapid decline in asset prices, combined with a reduction in what Wilmot, Sweeney, Klein & Lantz (2009) dubbed the stock of shadow money, liquid assets that take up the role of money to finance the expansion during an economic boom.

The procyclicality amplification of the financial shocks throughout the banking system, financial market, and the broader economies requires a well-structured and regulated banking environment to manage risk and achieve financial system stability. The objective of the Basel Committee was to devise measures to make banks more resilient to proclivity dynamics in the operating environment (Ayadi, Naceur, Casu & Quinn, 2015). Systemic risk is the essential feature of a systemic banking crisis. It is characterized by the spread of shocks throughout the entire financial system, which affects the entire financial system. The arrival of Basel III signals an unprecedented rise of the bar for risk management practice to support the comprehensive nature of the new requirement. However, volatility of the global market, technological advancements, innovative new financial products, and changing regulatory environments have made risk management a critical task for banking institutions. Policy inconsistencies, policy mismatch, business cycle, and macroeconomic challenges create more risk to the banking sector. For instance, the withdrawal of public funds from the banking sector creates liquidity risk to Nigerian banks. The above makes compliance with Basel an important task for the banking institution. This creates a knowledge gap on the effect of Basel III compliance on the tier one capital of quoted commercial banks in Nigeria.

LITERATURE REVIEW

Basel III

The lesson from the financial crisis which began in 2007 has reminded regulators of the existence of moral hazard and forbearance in bank regulation (Feess & Hege, 2012,). Many banks failed during the crisis while many others, including some of the largest banks in the world, only survived by the substantive government "bailout" (Feess & Hege, 2012). As a

result, the Basel Committee realized that the prudential regulation of banks has come under renewed scrutiny and a major overhaul of Basel II was on the call. This led to the new Basel III Accord with enormously stricter capital requirements and new rules. The Basel III framework imposes tighter capital ratios and new criteria, but majorly follows the direction adopted by the Basel II Accord. However, the capital requirements became more accurate which subject to the true credit risk afforded by each individual bank asset (Feess & Hege, 2011). According to Hull (2012), the final version of Basel III was published in 2009 and there are six parts in the regulations:

1. Capital definition and requirements
2. Capital conservation buffer
3. Countercyclical buffer
4. Leverage ratio
5. Liquidity ratio
6. Counterparty credit risk

The 2008 crisis demonstrated that credit losses and write-downs come out of retained earnings, which is part of banks' tangible common equity base (BCBS, 2011). Besides, the inconsistency in the definition of capital across jurisdictions and the lack of disclosure that could have enabled the market to fully assess and compare the quality of capital between institutions are other aspects that need to be considered during the crisis (BCBS, 2011). Therefore, the new Basel Accord requires that a bank's total capital should consist of Tier 1 equity capital (at least 4.5% of risk-weighted-assets at all times), additional Tier 1 capital and Tier 2 capital. Tier 1 capital includes share capital and retained earnings but does not include goodwill or deferred tax assets (Hull, 2012). The additional tier 1 capital then consists of non-cumulative preferred stocks which are previously tier 1 capital but are not common equity. Tier 2 capital includes debt that is subordinated to depositors with an original maturity of five years (Hull, 2012).

Capital conservation buffer is designed to ensure that banks build up capital buffers outside periods of stress which can be used to absorb losses when things happen (BCBS, 2011). Countercyclical buffer aims to ensure that banking sector capital requirements take account of the macro-financial environment in which banks operate (BCBS, 2011). In addition, Basel III requires a non-risk based leverage ratio that is designed to act as a credible supplementary measure to the risk based capital requirements (BCBS, 2011). Another major improvement of Basel III is that it introduces a global liquidity standard including two liquidity ratios that are designed to make sure banks can have sufficient high quality liquid resources to survive under acute stress scenarios. The two ratios are Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFL) (BCBS, 2011). The last part of Basel III is the CVA, which is the expected loss due to the possibility of a default by the counterparty.

Basel III Framework Capital

$$CAR = \frac{Tier1 + Tier2}{RWA} \geq 8\% \qquad 1$$

- Higher and stricter condition for Tier 1 and Tier 2 requirements
- Risk Weighted Asset is to be increased for some asset classes

$$NSFR = \frac{\sum_i W_i L_i}{\sum_i W_i A_i} \geq 1 \qquad 2$$

- NSFR is the ratio of the sum of weighted (W_i) liabilities (L_i) divided by the sum of weighted (W_j) Assets (A_j)

- Weights are between 0 and 1. On the asset side larger weights imply a less liquid position. On the liability side, larger weights imply more stable funding sources.
- A higher value of NSFR signifies that a bank is more stable.

$$STFR = \frac{Liabilities < 1 year}{Total\ Liabilities} \geq 1 \qquad 3$$

- A higher value of STFR imply a higher reliance on short term funding and a greater financial fragility (Vasquez and Federico, 2012).

$$LR = \frac{Capital\ Measure}{Exposure\ Measure} \geq 3\% \qquad 4$$

- Capital measure will be computed by using regulatory common equity ratio, the Tier 1 Capital Ratio or the Total Capital Ratio.
- Exposure Measure represents the on-and off-balance sheet exposures.

Basel III Countercyclical Capital Buffers

The primary aims of introducing countercyclical capital buffer (CCB) are to accomplish a supervisory regime which shields banking sector from the build - up of the system-wide risk that characterized period of excessive aggregate credit growth. Secondly, in the previous section, we argued that prior to the crisis period, there was excessive credit growth. This exacerbated procyclicality in banking, a phenomenon which is inherent and its eradication may be impossible. Countercyclical capital buffer is therefore aim to lessen the severity of the procyclicality in the banking sector. Additionally, Basel Committee on Banking Supervision (BCBS) introduced the countercyclical capital buffer to ensure that credit is available during crisis period; banking sector is protected during the period of stress from losses that excessive credit growth trigger; and to discourage excessive bank lending during economic boom or build up phase by requesting for higher capital defence from banks. In line with Basel III, countercyclical capital buffer range from 0 to 2.5% of the risk weighted assets (RWA) at consolidated level or at solo level national supervisors deem it appropriate to conserve resources in a particular segment of the group.

The 0- 2.5% rule depends on the extent of the system wide risk build up in a particular jurisdiction as opined by the local regulator. National supervisors may implement CCB in excess of 2.5% in their jurisdiction provided it is considered appropriate. CCB is expected to be fulfilled with common equity capital (CET1) or other fully loss absorbing capital. BCBS define countercyclical capital buffer as the proportion (in percentage) of bank's total credit risk charge that relates to private sector credit exposures in a jurisdiction4 to the bank's total credit risk charge for private sector credit exposures across all jurisdictions. In setting up countercyclical capital buffer, a good indicator of increase in systemic risk that triggers cyclicality in banking sector is credit – to - GDP ratio , the credit gap (Drehmann et al., 2010). This has been adopted by the BCBS with a caution that the national regulators should use their judgement in adopting it. Even though the implementation of countercyclical capital buffer will phase in between 1 January 2016 and December 2018 and will become fully effective on 1 January 2019, countercyclical capital buffer has the tendency to shrink credit growth particularly in the time of credit boom and at the same time eliminate or at least, ease credit contraction when the buffer is released thus lessen procyclicality effect in banking.

Money enters the economy in three ways. First, it may be present at the outset (t = 0) in the private endowments of agents and commercial banks. Agent h $\in$H has an endowment m^h of money, $\forall s \in S^*$ and commercial banks have initial capital endowment $e_s^b, \forall_s \in S^*$, part of

which may be held in cash or deposits at the Central Bank. Second, when the Central Bank lends on the interbank market, or purchases bonds with currency or the government engages in money financed fiscal transfers, then the money stock increases. Third, previously issued Central Bank bonds, or interbank loans, are repaid; money then exits the system via redemptions of debt from investors and from commercial banks. Agents are permitted to borrow from, and deposit with, each particular commercial bank. However, borrowers are distributed initially to a particular bank from which they borrow. This may be a result of relationship banking, or some other informational advantage that a commercial bank has with particular borrowers. This restricted participation assumption generates different interest rates charged by commercial banks, but could be relaxed in more complicated versions of the model.

So, let us partition H = {1, ..., H} to $\{h^{\alpha}_1, \ldots, h^{\alpha}_k\} \cup \ldots \cup \{h^{B}_1, \ldots, h^{B}_m\}$ disjoint sets whose union is H. Let the generic element of a subset H^b be h^b indicating the particular agent who can borrow from b ∈B. Note that h ∈H can deposit in any commercial bank she wishes.
(A7) Each $h^b \in H^b$ can only borrow from b ∈B (i.e. restricted participation in lending markets)
Let μ^{hb} be the amount of fiat money agent $h^b \in H^b$ chooses to owe on the loan market of bank b. If all agents repay exactly what they owe, then $\forall b \in B$ we must have that,

$$1+r^b = \frac{\sum_{h^b \in H^b} \mu^{hb}}{\overline{m}^b} \tag{5}$$

Where $\overline{m}^b$ is the amount of credit that commercial banks extend which is also subject to their capital requirements set by the regulator.
Thus, the ratio of nominal value of loans over loans supply (commercial banks credit extension) determines the gross nominal interest rate. We add that r^b is the extant nominal interest rate that incorporates both the liquidity and default premium of loans since default is permitted in equilibrium. The effective (ex post) interest is suitably adjusted to account for default on loans.
Similarly, there exist B deposit markets, one for each commercial bank, in which investors may deposit funds. Note, that we do not impose the limited participation assumption on the different deposit markets.

Let μ^b_d be the demand of deposits by each b ∈B and d^h_b the number of deposits that each h ∈H deposits with each b ∈B. If all deposits are repaid fully by commercial banks, the $\forall b \in$B we must have that

$$1+r^b_{db} = \frac{\mu^b_d}{\sum_{h \in H} d^h_b} \tag{6}$$

The deposit rates need not be the same as the lending rate since the parties involved in each market will, in principle, manifest different default patterns in equilibrium. Moreover, even though we have removed the limited participation assumption, deposit rates would in general be different since different banks may make different choices as to their respective repayment rates. Thus, as with lending rates so the deposit rates would also incorporate default and liquidity premia in equilibrium. These financial assets, bank loans, bank deposits, and bank equities (but not commodities) can be inventoried; they are the only stores of value in our model.

Capital Requirements

The regulator sets the banks' minimum capital requirements. Given that the assets of commercial banks consist of loans (including interest rate payments), investments in marketable assets and some initial distribution of government bonds, the capital requirements constraint becomes,

$$\bar{k} \leq \frac{b_s^b + \sum_{\in H^b} \mu^{hb}}{\varpi_t(\eta,\sigma)\bar{R}_s^{-b}\bar{m}^{-b}(1+r^b) + \sum_{j\in J}\omega_{tj}(\eta,\sigma)R_{sj}(p_s A_s^j)\left(\frac{b_j^b}{\theta_j}\right) + \omega_t(\eta,\sigma)R_s^b d^b\ (1+\rho)}, \forall_s \in S^*, b \in B \quad (7)$$

The variables are defined as follows:

η	≡	set of macro variables,
σ	≡	choice variables of the investors and commercial banks,
$\bar{\varpi}_t(\cdot)$	≡	risk-weights for loans,
$\omega_{tj}(\cdot)$	≡	risk-weights for marketable assets,
$\omega_t(\cdot)$	≡	risk weights for interbank market deposits,
ψ_b^h	≡	equity of commercial banks,
p_s	≡	commodity prices, $\forall l \in L, s \in S$, (8)
ρ	≡	interbank interest rate
e_s^b	≡	Commercial banks' initial capital endowment $\forall_s S^*$,
d^b	≡	amount of money that b ∈B deposits in the interbank market
R's	≡	expected rates of delivery of various instruments

Capital requirements are set by the regulators at each t ∈T, $\forall_b \in$B. However, evaluation of the capital and the risk-weighted assets occur at each state's, s ∈S, prices, delivery rates, initial capital endowments and capital adjustments. Banks may not necessarily hold the same capital since precautionary capital over and above the regulatory minimum can vary across banks. In addition, as we will describe in the next section, banks are allowed to violate the capital requirements constraints, subject to a penalty payment.

Basel III Regulations

The global financial crisis in 2007/2008 that threatened the world economy brought another phase of bank policy called the BASEL III. The BCBS introduced several new regulations and supervisory tools for banks in order to improve their resilience to shocks. The new regulatory framework enhances the risk coverage and the consistency of the capital base, reduces the procyclicality, banks' liquidity risk, and their maturity mismatches. The three new sets of regulations are the Capital-to-Assets Ratio (CAR), the Liquidity Coverage Ratio (LCR), and the Net Stable Funding Ratio (NSFR).

The CAR is defined as Tier 1 capital divided by total assets. The current Basel III proposal demands banks to hold a CAR of 3%. It ensures that banks are able to cover a sufficient percentage of total assets with their own funds and constrains procyclicality by limiting the buildup of leverage. In addition, given that it is a non-risk-based capital requirement, it will also contribute to the dampening of the procyclical behavior of banks by delinking the level of total regulatory capital required from the evolution of risk perceptions. The LCR is introduced to improve banks' ability to cope with short-run liquidity needs and market liquidity risk. It is calculated as the ratio of the stock of high-quality liquid assets (HQLA)

over the net cash outflows that are expected to arise during one month under an acute stress scenario.

Capital Adequacy

Since the capital adequacy ratio (CAR) is the ratio that is set by the regulatory authority in the banking sector, it can be used to test the health of the banking system. Hence, the capital adequacy ratio for banking organizations is an important issue that has received considerable attention in finance literature. According to Al-Sabbagh (2004), capital adequacy is defined as a measure of a bank's risk exposure. Banks' risk is classified into credit risk, market risk, interest rate risk, and exchange rate risk, which are included in the calculation of the capital adequacy ratio. Therefore, regulatory authorities used the capital adequacy ratio as an important measure of safety and soundness for banks and depository institutions because they view capital as a buffer or cushion for absorbing losses.

CAR, also called Capital to Risk (Weighted) Assets Ratio (CRAR) is a ratio of a bank's capital to its risk. It is a measure of the amount of a bank's core capital expressed as a percentage of its risk-weighted assets (Berger et al., 1995). The NBE keeps track of a bank's CAR to ensure that it can absorb a reasonable amount of loss and comply with statutory Capital requirements, as these ratios are a measure of the amount of a bank's capital in relation to the amount of its credit exposures. They are usually expressed as a percentage. For instance, a capital adequacy ratio of eight (8) percent means that a bank's capital is eight percent of the size of its credit exposures (Alfon et al., 2004). The purpose of having minimum capital adequacy ratios is to ensure that banks can absorb a reasonable level of losses before becoming insolvent, and before depositors' funds are lost (Harley, 2011).

The Basel Capital Accord

Tier 1 Capital: This includes only permanent shareholders' equity (issued and fully paid ordinary shares/common stock and perpetual non-cumulative preference shares) and disclosed reserves (created or increased by appropriations of retained earnings or other surpluses). In the case of consolidated accounts, this also includes minority interests in the equity of subsidiaries that are not wholly owned. This basic definition of capital excludes revaluation reserves and cumulative preference shares. There is no limit on the inclusion of Tier 1 capital for the purpose of calculating regulatory capital. For this purpose, the equity shares with the following characteristics are included in Tier 1 capital: Issued directly by the bank;

i. Clearly and separately identified in the balance sheet –
ii. Have no maturity (are perpetual);
iii. Fully paid;
iv. Cannot be refunded beyond the possibility of the liquidation of the bank or reduction of share capital;
v. Do not give the holder the right to a minimum remuneration, nor are there any clauses that require the compulsory payment of dividends.
vi. The dividends are paid solely out of distributable profits or retained earnings; classified as equity instruments in accordance with IFRS.

Tier 2 Capitals

Revaluation Reserve

Fixed Asset Revaluation Reserve: This relates to the revaluation of fixed assets in line with market values reflected on the face of the balance sheet. Prior approval of the CBN must be obtained by any bank before the recognition of the revaluation surplus on fixed assets in its books, which can only be done by taking into consideration the following:

i. The valuation must be made by qualified professionals, and the basis of the revaluation, as well as the identities of the values, must be stated.
ii. The difference between the market and historic values of the eligible fixed assets being revalued shall be discounted by 55%.
iii. The revaluation of fixed assets applies to own premises only; and
iv. The revaluation of fixed assets (own premises only) is permissible within a minimum period of seven years after the date of the purchase of the asset or the last revaluation.

Other revaluation reserves: The inclusion of other revaluation reserves created by the adoption of the International Financial Reporting Standards (IFRS) as part of the Tier 2 capital shall be subject to the limitations that will be specified by the CBN from time to time.

General provisions/General loan-loss reserves: For the standardized credit risk measurement approach, provisions or loan-loss reserves held against future (presently unidentified), losses are freely available to meet losses that subsequently materialize and therefore qualify for inclusion in Tier 2 capital. Provisions ascribed to specific or identified deterioration of particular assets or known liabilities, whether individual or grouped (collective), are excluded. Furthermore, general provisions/general loan-loss reserves eligible for inclusion in Tier 2 will be limited to a maximum of 1.25 percentage points of credit risk-weighted assets and subject to the approval of the CBN.

Buffer Theory of Capital Adequacy

The objective of ensuring that bank capital is adequate is to withstand and absorb monetary and macro-economic shocks, which are very sensitive to bank operations. However, banks may prefer to hold a buffer of excess capital to reduce the risk of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile (Ikpefan, 2013). Capital adequacy has, in recent times, gone beyond that of banking supervision instruments and become a monetary policy tool for achieving financial stability. Section 7 (2) of BOFIA states that any bank that fails to comply with the capital adequacy within such period as may be determined by the CBN shall be a ground for revocation of license. Section 13 states that the bank shall maintain at all times capital funds unimpaired by losses in such ratio to all or any assets or to all or any liabilities or both such assets and liabilities of the bank and all its offices in and outside Nigeria as may be specified by CBN. The revocation of some banks' licenses in 2005 after the consolidation and recapitalization reforms referred to these sections (Akani and Lucky, 2015). The buffer theory of Calem and Rob (1996) predicts that a bank approaching the regulatory minimum capital ratio may have an incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirement. The collapse of some Nigerian Banks has been traced to high-risk taking coupled with poor capitalization.

Bank Run Theory

Diamond and Dybvig's paper points out that business investment often requires expenditures in the present to obtain returns in the future. Therefore, they prefer loans with a long maturity (that is, low liquidity). The same principle applies to individuals seeking financing to purchase large-ticket items such as housing or automobiles. On the other hand, individual savers (both households and firms) may have sudden, unpredictable needs for cash, due to unforeseen expenditures. So they demand liquid accounts which permit them immediate access to their deposits (that is, they value short maturity deposit accounts).

The banks in the model act as intermediaries between savers who prefer to deposit in liquid accounts and borrowers who prefer to take out long-maturity loans. Under ordinary circumstances, banks can provide a valuable service by channeling funds from many

individual deposits into loans for borrowers. Individual depositors might not be able to make these loans themselves, since they know they may suddenly need immediate access to their funds, whereas the businesses' investments will only pay off in the future (moreover, by aggregating funds from many different depositors, banks help depositors save on the transaction costs they would have to pay to lend directly to businesses). Since banks provide a valuable service to both sides (providing the long-maturity loans businesses want and the liquid accounts depositors want), they can charge a higher interest rate on loans than they pay on deposits and thus profit from the difference. Diamond and Dybvig point out that under ordinary circumstances, savers' unpredictable needs for cash are likely to be random, as depositors' needs reflect their individual circumstances. Since depositors' demand for cash is unlikely to occur at the same time, by accepting deposits from many different sources, the bank expects only a small fraction of withdrawals in the short term, even though all depositors have the right to withdraw their full deposit at any time. Thus, a bank can make loans over a long horizon, while keeping only relatively small amounts of cash on hand to pay any depositors that wish to make withdrawals. Mathematically, individual withdrawals are largely uncorrelated, and by the law of large numbers, banks expect a relatively stable number of withdrawals on any given day.

Empirical review

Agbeja, Adelakun, and Olufemi (2015) examined whether or not the capital adequacy ratio affects bank profitability in Nigeria. They obtained data from 5 banks covering five years (2010 to 2014). Using regression analysis, the study revealed a positive and strong relationship between the capital adequacy ratio and profitability. Also, Ini and Eze (2018) examined the effect of capital adequacy requirements on the performance of commercial banks in Nigeria. They used the ordinary least squares regression method, the Johansen co-integration technique, and the Granger causality procedure to analyze secondary time series data from 1996 to 2016 and reported that capital adequacy has a positive and significant effect on the Return on Asset (ROA) of commercial banks in Nigeria. Similarly, Obilikwu (2018) investigated the impact of bank consolidation on targeted variables (capital adequacy, concentration, bank size, and liquidity) in conjunction with economic growth and inflation on the industry's performance (ROE) in Nigeria. The study employed a vector error correction model to analyze data obtained from 1980 to 2010. Findings revealed that capital adequacy has a significant positive impact on performance. However, Aruwa and Naburgi (2014) evaluated the impact of capital adequacy on the profitability of quoted banks in Nigeria using the Ordinary Least Squares regression method to analyze data from 1997 to 2011 and found an insignificant impact of capital adequacy on financial performance.

Desta (2020) investigated the effect of financial leverage on the financial performance of Ethiopian commercial banks for the period of 10 years (2008-2017). Debt Ratio (DR), Debt Equity Ratio (DER), and Interest Coverage Ratio (ICR) were used as proxies for financial leverage, while return on assets (ROA) and return on equity (ROE) were used as proxies for financial performance. The ex-post facto and longitudinal research design were employed, and descriptive statistics and the Fixed Effect model were used to analyze data collected from the financial reports of 5 commercial banks in Ethiopia. The result of the study showed that the Debt Ratio has a negative and insignificant effect on banks' performance, while the Debt Equity Ratio and Interest Coverage Ratio have a significant positive effect on banks' performance. Shaik and Sharma (2021) examined the effect of leverage and capital on the profitability of banks in Saudi Arabia. The study employed Earnings per Share (EPS), Return on Assets (ROA), and Return on Equity (ROE) as proxies for profitability; while Total Debt Ratio (TDR), Tier 1 Capital Ratio (Tier 1 CAP), and Debt-Equity ratio (DE) as proxies for leverage ratio. Data covering the period 2014 to 2019 were collected from the annual reports

of five banks and analyzed using regression analysis. The study revealed that there is a significant positive relationship between the different profitability proxies and Debt to Equity Ratio; while the Total Debt Ratio has a positive association with ROA and ROE, and has an insignificant negative relationship with the EPS, and the Tier 1 capital ratio has a positive association with ROA and ROE, and has an insignificant relationship with the EPS. Rahim et al. (2021) investigated the impact of financial leverage on Islamic banks' performance in Asian countries using the fixed effect regression model to analyze data from 25 Islamic banks covering the period 2010 to 2019. The results showed that leverage has a significant and positive impact on the performance (ROA) of Islamic Banks in the Asian region.

Gabriel (2016) on the impact of the Basel III capital requirements on the performance of 58 European banks using regression analysis reported that a positive relationship exists between the level of capital, the return on assets, and the return on equity. Similarly, Karanja and Nasieku (2016) examined the effect of capital on the financial performance of commercial banks in Kenya. Data were collected from published annual reports of the 11 listed commercial banks in Kenya covering five years (2010-2014). They used multiple regression analysis to test the effect of the capital variables on the financial performance of the commercial banks in Kenya. The study concluded that the core capital level positively relates to the financial performance of commercial banks.

Gadagbui (2017) investigated the relationship between bank equity capital and profitability. Data covering eleven years (2005 to 2015) were collected from the annual reports of 14 banks in Ghana. The random-effects Generalized Least Squares (GLS) regression was adopted as an estimation technique for the research. The study revealed that equity capital is significantly and positively related to Net Interest Margin (NIM) and Return on Equity (ROE). Moreover, Faisal, Shahid, and Bilal (2019) investigated the impact of bank capital on the profitability of commercial banks in the post-crisis period between 2011 and 2017 in Asian developed economies compared with the US banking industry. Data from 942 large commercial banks were collected for the post-crisis period between 2011 and 2017 and analyzed using regression analysis and the Arellano-Bond Generalized Methods of Moments (GMM) estimator. The findings showed that bank capital positively impacts profitability in Asian developed economies like in the USA commercial banks in the post-crisis era.

Gadzo and Asiamah (2018) examined the relationship between leverage, other moderating variables and bank performance by collecting data from 15 unlisted universal banks in Ghana from 2006 to 2016. The fixed effect panel regression was used for the analysis and the results showed that the level of gearing for unlisted banks has a positive relationship with the bank performance variables which are return on asset, return on equity, and rate of profit. Okoye (2019) examined the nexus between financial leverage and financial performance of financial institutions in Nigeria with specific reference to selected Deposit Money Banks in Nigeria. Debt- Equity Ratio (DER) and Debt Ratio (DR) were used as surrogates for financial leverage and return on equity (ROE) as a proxy for profitability, while the size of the institution was used as a control variable. Data covering the period 2005 to 2017 were collected from the annual report and accounts of 8 banks. The result from the OLS regression revealed that there is a significant negative relationship between ROE and Debt-Equity Ratio. The findings also indicated that the relationship between ROE and Debt ratio is negative but insignificant.

Gudmundsson, Ngoka-Kisinguh and Odongo (2013) sought to find out the role of capital requirements on bank competition and stability in Kenya for the period 2000-2011. The study adopted the Lerner index and the Panzar and Rosse H-statistic to measure competition in Kenya's banking industry. Approximations of both the Lerner index and the H statistic

showed that competition in the Kenyan banking sector had reduced over the study period. The study approximated the fixed effects of capital requirements on bank competition and stability for the 36 commercial banks using a panel regression model. The panel estimates indicated that there was a significant non-linear effect of core capital on competition. The log of core capital was positive and significant while squared log of core capital was negative and significant which is an implication that an increase in core capital reduces competition up to a point and then increases competition. Therefore, the advantages of raising capital requirements on competitiveness are achieved after consolidation in the banking sector. Return on equity was used to capture bank performance and stability which showed a positive relationship in support of the evidence that capital regulation improves the performance of banks and financial stability.

Mutesi (2011) sought to investigate the relationship between risk management, information and financial performance of commercial banks. The research objectives that guided the study were, to examine the relationship between information sharing and risk management, to examine the relationship between information sharing and financial performance, to investigate the relationship between information sharing, risk management and financial performance. A sample of 104 commercial banks branches were selected from a total of all the branches of commercial banks in Kampala. The respondents were purposively selected from each branch. Across-sectional research design was used in this study. Questionnaires were used collect primary data. SPSS package was used to analyze data. Descriptive regression and correlation analysis were carried out. The findings revealed that there was a significant positive relationship between all the study variables: information sharing, risk management, and financial performance. The study recommended that banks should put up strong information sharing premises like credit bureaus, enrich their risk management committee, credit committee and audit function so as to minimize risks. The study also recommended that banks should recruit qualified staff and embrace training as a common practice in the banking industry in order to improve risk management policies and hence improve financial performance.

Mwangi (2012) examined the effect of credit risk management on the financial performance of commercial banks. The study used a descriptive research design. The study used secondary data which was obtained from the commercial banks' annual reports (2007-2011). Of the 43 commercial banks in Kenya, complete data was obtained from only 26 banks and thus the study concentrated on the 26 banks. The data obtained from the annual reports of the banks was analyzed using multiple regression analysis. Statistical Package for Social Sciences (SPSS version 18) was used to obtain the regression output. In the model return on equity (ROE) was used as the profitability indicator while non-performing loans ratio (NPLR) and capital adequacy ratio (CAR) as credit risk management indicators. Results revealed that there is a significant relationship between financial performance (in terms of profitability) and credit risk management (in terms of loan performance and capital adequacy). The results of the analysis revealed that both nonperforming loans ratio (NPLR) and capital adequacy ratio (CAR) have negative and relatively significant effect on return on equity (ROE), with NPLR having higher significant effect on ROE in comparison to CAR. The study recommended that all banks should take on a credit risk grading system. The system should define the risk profile of borrower's to ensure that account management, structure and pricing are proportionate with the risk involved. Risk grading is a key measurement of a Bank's asset quality, and as such, it is essential that grading is a robust process. All facilities should be assigned a risk grade. Where deterioration in risk is noted, the risk grade assigned to a borrower and its facilities should be immediately changed. Borrower Risk Grades should be clearly stated on Credit Applications.

Psillaki and Georgoulea (2016) investigated the effects of the Basel III leverage requirements on the profitability ratios (ROE, ROA) of Greek banks for the period 2004 to 2013. Data were obtained from 19 commercial and cooperative banks and analyzed using the regression analysis model. They found that leverage ratio has a statistically significant positive association with performance indicators (ROA and ROE). Similarly, Ali (2016) examined the determinants of banks' profitability in Jordanian commercial banks using multiple regression method to analyze data covering a period of 10 years (2005-2014) from 13 banks. The findings indicated that there is a positive association between leverage and banks' profitability (ROA and ROE). Nwanna and Ivie (2017) studied the effect of financial leverage measures on firm's performance. The study was carried out on 13 deposit money banks listed on the Nigerian Stock Exchange for a period of ten years from 2006 to 2015. Debt Ratio, Debt Equity Ratio, and Interest Coverage Ratio were used as proxies for financial leverage. Data were analyzed using the ordinary least square multiple regression technique. The findings revealed that financial leverage has positive effect on profitability. Interests that are tax-deductible were also found to reduce tax and improve profitability.

Owino (2013) investigated lending policies and their impact on the levels of non-performing loans among commercial banks in Kenya. A descriptive survey was employed in this study with the population of interest of being the forty three (43) commercial banks in Kenya. The study used primary data which was collected using questionnaires. Self-administration of the questionnaires was done through drop-and-pick later method. Descriptive statistics was used to summarize the data and findings presented using tables and other graphical presentations as appropriate for ease of understanding and analysis. The study found that there is a relationship between lending policies and non-performing loans, leading the banks to lend prudently. This lowers the risk level to the banks. Ada (2013) carried out a study seeking to establish the relationship between corporate governance practices on the dividend payout of commercial banks in Kenya. The study used a functional form relationship between corporate governance practices and dividend payout using a regression model that showed the relationship between board size, insider holding, board composition, CEO duality, leverage as well as ownership and control to dividend payout. A total of 17 commercial banks in Kenya that paid dividends in the year 2008 - 2012 were used to determine the relationship. Results revealed that 72.7% of dividend payout in Kenyan commercial banks could be explained by corporate governance practices. The study recommended that the government should ensure that the corporate governance practices as outlined by the CMA are followed by companies which in turn will certify that the dividend payout to investors is most favourable.

Thejane (2017) investigated the impact of bank regulation on banks performance. Data from 4 Lesotho commercial banks audited financial statements covering a period of 11 years from 2005 to 2015 were collected and analyzed using the ordinary least squares (OLS) regression model. The findings indicated that Capital Adequacy Ratio (CAR) has a negative and statistically significant influence on banks' performance measured by ROA. Also, Nisa and Darzi (2018) analyzed the impact of Basel III implementation (with a specific interest in capital adequacy) on the profitability of banks in India. Data from 13 banks covering seven years (2011 to 2017) were collected from secondary sources and analyzed using descriptive statistics. The proxies for profitability used include Return on Equity (ROE) and Net Interest Margin (NIM). The results revealed a decline in the profitability of Indian banks due to Basel III capital adequacy implementation. Haris, Tan, Malik and Ain (2020) evaluated the impact of capitalization on the profitability of banks in Pakistan. Data were collected from audited

financial statements of 29 domestic banks operating in Pakistan covering 2007 to 2018 and analyzed using an efficient two-step Generalized Method of Moments (GMM) system estimator technique. They reported an inverted U-shaped relationship between capitalization and profitability indicating that profitability increases with an increase in capitalization up to a certain level, and beyond that level, a further increase in capitalization decreases profitability.

Waithaka (2013) sought to investigate the effect of Basel II requirement on Kenyan commercial banks' lending. A descriptive research design was adopted for this study. The populations for this research are the 43 listed Commercial Banks in Kenya analyzed for a period from 2009–2012. The study found that adherence to Basel II requirements significantly influenced Kenyan commercial banks' lending behaviour, as tighter capital and risk-management standards led to more cautious lending decisions and a shift towards lower-risk portfolios.

Yunana et al., (2025) investigated the impact of Basel III Tier 1 Capital Ratio and Leverage Ratio on the profitability of banks in Nigeria, focusing on the period from 2009 to 2020. The Basel III framework, introduced to enhance the resilience of banks through stricter capital requirements, has generated interest in how these regulations affect bank performance, particularly profitability. Using a Regression Discontinuity Design (RDD), data from 14 banks were analyzed to assess the effect of these regulatory capital measures on two key profitability metrics: Return on Equity (ROE) and Return on Assets (ROA). The results reveal that both the Tier 1 Capital Ratio and Leverage Ratio have a significant positive impact on ROE, indicating that higher levels of core capital and more efficient leverage management enable banks to generate superior returns for shareholders. However, the impact of both the Tier 1 capital and leverage ratios on ROA is found to be statistically insignificant, suggesting that while these regulatory measures may boost equity returns, they do not necessarily enhance the overall efficiency of bank assets in generating returns. These results highlight the effects of Basel III capital requirements on different dimensions of bank profitability and underscore the importance of capital structure in enhancing shareholder value, without necessarily affecting operational efficiency. The paper's findings suggest that regulatory bodies should continue to enforce the Tier 1 Capital and Leverage ratios, as they enhance shareholder value. Additionally, bank management should consider capital structure optimization strategies to strengthen ROE and focus on other operational improvements to drive asset efficiency. This study contributes to the ongoing discourse on the effectiveness of Basel III capital and leverage requirements in promoting the profitability of banks in an emerging market context, particularly in Nigeria, where the banking sector is highly regulated and faces distinct economic challenges.

METHODOLOGY

This study uses a quasi-experimental research design approach for the data analysis. This approach combines theoretical consideration (a priori criterion) with empirical observation and extracts maximum information from the available data. It enables us, therefore, to observe the effects of explanatory variables on the dependent variables. However, for this study, the secondary data collection method was used, and multiple regressions. The two-tailed test was used to test the hypotheses formulated. The population of this study covers the commercial banks in Nigeria. However, the sample size consists of the fourteen (14) quoted commercial banks in the Nigerian Exchange Group. The reason for the sample size is for easy access and reliability of the required data from the annual reports submitted to Nigeria. The data in this study were sourced from the financial statements of banks and the Central Bank of Nigeria Statistical Bulletin.

Model Specification

TIER I= f (CDRC, ASMC, LIDQC) (9)

TIER II= f (CDRC, ASMC, LIDQC) (10)

Transforming equation 1 to econometrics form, we have:

$TIER\ I=\alpha_o + \alpha_1 CDRC + \alpha_2 ASMC + \alpha_3 LIDQC + \mu$ (11)

$TIER\ II = \alpha_o + \alpha_1 CDRC + \alpha_2 ASMC + \alpha_3 LIDQC + \mu$ (12)

Where:

TIER 1 = Tier I to Total Capital

TIERII=Tier II to Total Capital

CDRC = Compliance with risk management

ASMC = Compliance with asset quality

LIDQC = Compliance with liquidity

$\alpha_0, \beta_0, \chi_0$ = Regression Intercept

μ = Error term

Data Analysis Method

The method of data analysis used in this study was the panel data multiple linear regression using the Ordinary Least Squares (OLS) method. The study adopts the panel data method of data analysis, which involves the fixed effect, the random effect, and the Hausman Test. This approach, which is a quantitative technique, includes tables and the test of the hypotheses formulated by using ordinary least squares regression analysis at 5% level of significance. To arrive at a result that will not lead to spurious regressions, the study will test for stationarity at different levels in the variables making up the model. Other tests that will be carried out on the model include the test of Normality, Durbin Watson Test of serial correlation, test of heteroskedasticity, and test of model specification to achieve the objectives of our study, as well as answer the research question and hypotheses. Moreover, to undertake a statistical evaluation of our analytical model, to determine the reliability of the results obtained and the coefficient of correlation (r) of the regression, the coefficient of determination (r^2), the Student's T-test, and the F-test will be employed.

Coefficient of Determination (r^2) Test –This measures the explanatory power of the independent variables on the dependent variables. For example, to determine the proportion of economic growth in our model, we used the coefficient of determination. The coefficient of determination varies between 0.0 and 1.0. A coefficient of determination says 0.20 means that 20% of changes in the dependent variable is explained by the independent variable(s).

F-Test: This measures the overall significance. The extent to which the statistic of the coefficient of determination is statistically significant is measured by the F-test. The F-test can be done using the F-statistic or by the probability estimate. We use the F-statistic estimate for this analysis.

Student T-test: measures the individual statistical significance of the estimated independent variables at 5% level of significance.

Durbin Watson Statistics: This measures the collinearity and autocorrelation between the variables in the time series. It is expected that a ratio close to 2.00 is not auto correlated while ratio above 2.00 assumed the presence of autocorrelation.

Regression coefficient: This measures the extent in which the predictor variables affect the dependent variables in the study.

Probability Ratio: It measures also the extent in which the predictor variables can explain change to the dependent variables given a percentage level of significant.

Fixed Effect, Random Effect and FGLS Ordinary Least Square (OLS) are usually used to estimate the parameters of a single equation model. Besides, the estimator yields estimates that are best, linear, and unbiased estimators (BLUE) with the desirable properties of consistency, efficiency and being unbiased. However, these properties are made possible after all the assumptions of the OLS method have been satisfied, (Ifuero and Chijuka 2014). By following the path of (Jim, Eric, Tom and Choi 2006) in estimating the equation for the study, Feasible Generalized Least-Squares (FGLS) procedure was used in confirming further the output of FE model instead of applying the method of ordinary least squares (OLS) because estimators of the former (FGLS) are more efficient with a large sample.

A-priori Expectation of the Result

The elasticity parameter also known as the a-priori expectation of the variables proposes that an increase in the independent variables Basle compliance and will increase capital adequacy of commercial banks. Therefore, it can be mathematical stated as follows: - $\alpha_1, \alpha_2 < 0, \alpha_3 > 0$.

ANALYSIS AND DISCUSSIONS OF FINDINGS

Table 1: Presentation of Pooled Effect Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Model 1: Basle Compliance and Tier 1 Capital				
LIDQC	0.453724	0.702708	0.645680	0.5196
ASMC	0.354615	0.322025	1.101205	0.2728
CDRC	-0.405083	0.244256	-1.658436	0.0996
C	14.99530	9.280020	1.615869	0.1085
R-squared	0.047968	Mean dependent var		19.49079
Adjusted R-squared	0.026812	S.D. dependent var		14.39219
S.E. of regression	14.19794	Akaike info criterion		8.172425
Sum squared resid	27213.50	Schwarz criterion		8.256871
Log likelihood	-563.9836	Hannan-Quinn criterion.		8.206742
F-statistic	2.267333	Durbin-Watson stat		2.044446
Prob(F-statistic)	0.083540			
Model I1: Basle Compliance and Tier 2 Capital				
LIDQC	0.021157	0.410006	0.051602	0.9589
ASMC	1.845526	0.187913	9.821191	0.0000
CDRC	-0.984711	0.143068	-6.882816	0.0000
C	19.13467	5.414224	3.534148	0.0006
R-squared	0.658884	Mean dependent var		24.17145
Adjusted R-squared	0.651247	S.D. dependent var		14.02516
S.E. of regression	8.282606	Akaike info criterion		7.094749
Sum squared resid	9192.609	Schwarz criterion		7.179597
Log likelihood	-485.5377	Hannan-Quinn criterion.		7.129230
F-statistic	86.27600	Durbin-Watson stat		1.359382
Prob(F-statistic)	0.000000			

Source: Extract from E-view 12.0

Analysis from the table above reveals that 04 percent variation in the tier 1 capital of Nigerian commercial banks can be traced to variation in the components of Basel compliance, such as asset quality compliance, liquidity compliance, and credit compliance. The remaining 96 percent are explained by exogenous variables not captured in the regression model. The F-statistic, which measures the fitness of the regression model, shows

a coefficient of 0.965 and a probability of 0.43, which proves that the model is not significant and cannot predict variation in the dependent variable. The Durbin Watson statistics, which measures the serial autocorrelation, proved a coefficient of 1.957, which is greater than 1.00 and less than 2.00; this therefore indicates the presence of serial negative autocorrelation. The β coefficient of the independent variables reveals that the variables have a positive relationship with the dependent variable, except for asset quality compliance

Table 2: Presentation of fixed Effect Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Model 1: Basle Compliance And Tier 1 Capital				
LIDQC	0.869965	0.819783	1.061214	0.2907
ASMC	0.867477	0.661095	1.312182	0.1919
CDRC	-0.539803	0.324743	-1.662244	0.0990
C	7.773145	11.58309	0.671077	0.5034
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.205886	Mean dependent var		19.49079
Adjusted R-squared	0.101739	S.D. dependent var		14.39219
S.E. of regression	13.64043	Akaike info criterion		8.178105
Sum squared resid	22699.49	Schwarz criterion		8.536997
Log likelihood	-551.3783	Hannan-Quinn criterion.		8.323949
F-statistic	1.976891	Durbin-Watson stat		2.446965
Prob(F-statistic)	0.019687			
Model I1: Basel Compliance and Tier 2 Capital				
LIDQC	-0.850404	0.358641	-2.371187	0.0193
ASMC	-0.357178	0.289246	-1.234858	0.0193
CDRC	-0.748534	0.141949	-5.273242	0.0000
C	42.23657	5.075550	8.321574	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.840382	Mean dependent var		24.17145
Adjusted R-squared	0.819275	S.D. dependent var		14.02516
S.E. of regression	5.962339	Akaike info criterion		6.523717
Sum squared resid	4301.488	Schwarz criterion		6.884320
Log likelihood	-433.1364	Hannan-Quinn criterion.		6.670257
F-statistic	39.81619	Durbin-Watson stat		2.210338
Prob(F-statistic)	0.000000			

Source: Extract from E-view 12.0

Analyses from the table above reveal that 20 percent variation in tier 1 capital of Nigerian commercial banks can be traced to variation in the components of Basle compliance such as assets quality compliance, liquidity compliance and credit compliance. The remaining 80 percent are explained by exogenous variables not captured in the regression model. The F-statistics which measures the fitness of the regression model shows a coefficient of 0.965 and the probability of 0.43 which proved that the model is not significant and can predict variation on the dependent variable. The Durbin Watson statistics which measures the serial autocorrelation proved a coefficient of 1.957 which is greater than 1.00 and less than 2.00; this therefore indicates the presence of serial negative autocorrelation. The β coefficient of the independent variables reveals that the variables have positive relationship with the dependent variable except assets quality compliance.

Analysis from the table above reveal that 84 percent variation in tier 2 capital of Nigerian commercial banks can be traced to variation in the components of Basle compliance such as

assets quality compliance, liquidity compliance and credit compliance. The remaining 20 percent are explained by exogenous variables not captured in the regression model. The F-statistics which measures the fitness of the regression model shows a coefficient of 0.965 and the probability of 0.43 which proved that the model is not significant and can predict variation on the dependent variable. The Durbin Watson statistics which measures the serial autocorrelation proved a coefficient of 1.957 which is greater than 1.00 and less than 2.00; this therefore indicates the presence of serial negative autocorrelation. The β coefficient of the independent variables reveals that the variables have positive relationship with the dependent variable except assets quality compliance.

Table 4.3 Presentation of Random Effect Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Model 1: Basle Compliance and Tier 1 Capital				
LIDQC	0.550314	0.718162	0.766282	0.4448
ASMC	0.438978	0.389320	1.127549	0.0015
CDRC	-0.413221	0.260098	-1.588715	0.0145
C	13.38809	9.644025	1.388227	0.1674
Effects Specification				
			S.D.	Rho
Cross-section random			4.987337	0.1179
Idiosyncratic random			13.64043	0.8821
Weighted Statistics				
R-squared	0.335309	Mean dependent var		12.77364
Adjusted R-squared	0.213871	S.D. dependent var		13.61866
S.E. of regression	13.52467	Sum squared resid		24693.75
F-statistic	1.647059	Durbin-Watson stat		2.250768
Prob(F-statistic)	0.181509			
Unweighted Statistics				
R-squared	0.247268	Mean dependent var		19.49079
Sum squared resid	27233.51	Durbin-Watson stat		2.045136
Model I1: Basle Compliance And Tier 2 Capital				
LIDQC	-0.071588	0.321372	-0.222759	0.8241
ASMC	1.151439	0.188225	6.117347	0.0000
CDRC	-1.071312	0.118483	-9.041916	0.0000
C	25.57632	4.376751	5.843678	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			2.976101	0.1995
Idiosyncratic random			5.962339	0.8005
Weighted Statistics				
R-squared	0.442116	Mean dependent var		12.97626
Adjusted R-squared	0.429626	S.D. dependent var		9.342377
S.E. of regression	7.079744	Sum squared resid		6716.452
F-statistic	35.39779	Durbin-Watson stat		1.564538
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.620085	Mean dependent var		24.17145
Sum squared resid	10238.19	Durbin-Watson stat		1.028419

Source: Extract from E-view 12.0

Analyses from the table above reveal that 24 percent variation in tier 1 capital of Nigerian commercial banks can be traced to variation in the components of Basle compliance such as

assets quality compliance, liquidity compliance and credit compliance. The remaining 76 percent are explained by exogenous variables not captured in the regression model. The F-statistics which measures the fitness of the regression model shows a coefficient of 0.965 and the probability of 0.43 which proved that the model is not significant and can predict variation on the dependent variable. The Durbin Watson statistics which measures the serial autocorrelation proved a coefficient of 1.957 which is greater than 1.00 and less than 2.00; this therefore indicates the presence of serial negative autocorrelation. The β coefficient of the independent variables reveals that the variables have positive relationship with the dependent variable except assets quality compliance.

Analyses from the table above reveal that 44 percent variation in tier 2 capital of Nigerian commercial banks can be traced to variation in the components of Basle compliance such as assets quality compliance, liquidity compliance and credit compliance. The remaining 56 percent are explained by exogenous variables not captured in the regression model. The F-statistics which measures the fitness of the regression model shows a coefficient of 0.965 and the probability of 0.43 which proved that the model is not significant and can predict variation on the dependent variable. The Durbin Watson statistics which measures the serial autocorrelation proved a coefficient of 1.957 which is greater than 1.00 and less than 2.00; this therefore indicates the presence of serial negative autocorrelation. The β coefficient of the independent variables reveals that the variables have positive relationship with the dependent variable except assets quality compliance.

Table 4.4 Hausman Test Specification

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.866221	(13,122)	0.0405
Cross-section Chi-square	25.210541	13	0.0217
Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.739679	3	0.8638
Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	57.924961	3	0.0000
Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	10.583557	(13,121)	0.0000
Cross-section Chi-square	104.802544	13	0.0000

Source: Extract from E-view 12.0

The fixed effects model is better than pooled effect that the results of the likelihood ratio test were significant (p-value< 0.0000 for the three models. This result means that we reject the Pooled effect model and choose the fixed effects model for this study. The fixed effects model is more appropriate than the random effects model. As the result found that the results of this test were significant (p-

value = 0.0241). Hence, we reject the null hypothesis and conclude that the fixed effects model is the most appropriate of the three models.

Conclusion

This paper investigated the impact of the Basel III compliance on capital adequacy of quoted commercial banks in Nigeria using cross sectional data of 14 quoted commercial banks. Tier I and Tier II capital were modeled as the function of credit risk compliance, assets management compliance and liquidity compliance. From the finding, the study conclude that credit compliance has positive and significant effect on tier I capital but negative and insignificant effect on tier II capitals. This implies that increase on the variables will significantly affect tier I but insignificantly affect tier II. That asset quality compliance has positive and significant effect on tier I capital but positive and insignificant effect on tier II capitals. This implies that increase on the variables will significantly affect tier I but insignificantly affect tier II while asset quality compliance has positive and significant effect on tier I capital but negative and insignificant effect on tier II capitals. This implies that increase on the variables will significantly affect tier I but insignificantly affect tier II.

Recommendations

i. That banking sector capital base should further be reviewed and increase to enhance the operational efficiency of the banks for better capital adequacy and there should be full compliance to all capital adequacy reforms by the deposit money banks to edge and protect the banks against shocks and losses that will affect negatively the capital adequacy.

ii. The regulatory authorities should formulate policies that will enhance the Tier 1 capital of the listed commercial banks and regulatory capital of the banking industry should be enhanced and risk assets should be reduced from the portfolio of the commercial banks.

iii. The management of commercial banks should have the habit efficiency and effectiveness in bank management to reduce operational and administrative cost of the banking sector to enhance capital adequacy. There should be effective risk management mechanism in the banking sector to leverage banks the negative effect of risk assets on the capital adequacy

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