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THE ROLE OF CAPITAL ADEQUACY IN ENHANCING THE FINANCIAL HEALTH OF NIGERIAN LISTED INSURANCE COMPANIES

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Abstract: The study examines how capital adequacy measures impact the insurance industry's financial performance. The financial reports of the listed insurance companies from 2012 to 2021 served as the source of panel data. When it came to capital adequacy ratios, Tier I, Tier II, adjusted capital ratio, and capital to asset served as proxies. While for financial performance, the insurance industry's return on equity served as proxy. The E-View statistics tool was used to facilitate the application of panel regression analysis. The research explored the implication of capital sufficiency on the profit of insurance companies using R-square, modified R-square, regression coefficient, probability value, Durbin Watson, and F-statistic. According to the research, variations in capital adequacy measures accounted for 79.4% of the variance in the listed insurance businesses' return on equity. This suggests that capital adequacy played a considerable role in clarifying the variation in ROE. The ROE of the insurance firms is meaningfully correlated with the Tier One capital; the quoted insurance firms' return on equity is meaningfully connected with the Tier Two capital; the quoted insurance firms' ROE is favourably and considerably correlated with the adjusted capital ratio; and the quoted insurance firms' ROE is positively and meaningfully connected with the capital to risk asset. The research concludes that capital adequacy has a considerable implication on the return on equity of the listed insurance businesses, based on the regression summary. To improve the financial outcome of the insurance companies.

Keyword: Capital, Profitability, Return on Equity

INTRODUCTION

Over the years, the insurance industry has seen significant growth and contributed positively to the development of the Nigerian economy. In 2016, Nigeria's sector gross written premium increased by 13% to 195.2 billion from 172.5 billion in 2015. In general, insurance is beneficial to the economy. With life insurance, main policyholders and their heirs can protect themselves against unplanned income loss due to disability or untimely death. Property insurance acts as a buffer against the loss of private and commercial assets. According to Cornett and Saunder (2003), liability insurance offers protection against exposure to legal responsibility. Long-term savings from insurance firms are one way to finance long-term projects with extended maturity dates. Institutional investors, including insurers, pension trusts, and sovereign wealth funds, oversee over 80 trillion dollars' worth of assets worldwide, which they may use to finance long-term initiatives. Because of this, the insurance industry's viability is crucial to every economy. A measurable relationship exists between a company's financial success and

Original Article

sustainability. Despite the insurance sector's significance in Nigeria, little is known about the factors that affect insurance companies' financial success. Financial firms in Nigeria operated unregulated until the Banking Ordinance of 1952. A high number of financial sector crises caused by insufficient capital occurred during what is known as the "Free Era." The history of the capital issue in the Nigerian financial market begins with the Banking Ordinance of 1952, which required banks to have a £12,500 capital base for the first time (Akani & Lucky, 2016). To accomplish their goals for monetary and economic policy, as a regulatory instrument, capital adequacy policies have been implemented by regulatory agencies. This is one of the most proactive ways to reposition the financial sector. All commercial banks use profitability as their key metric for measuring financial success. In the long term, a firm cannot exist without financial performance. Bank performance can be viewed from the standpoint of the market by examining stock returns and deducing variations in these as the market's assessment of the banks' performance and prospects going forward. Alternatively, accounting figures can be used as the starting point, and accounting returns can be used as signs of bank viability. Terance (1989) described performance measurement as a means of guaranteeing the most effective and efficient use of the resources at hand. The main goal is to provide the organization with the highest possible return on the cash invested in the enterprise. Financial viability is critical for banks because management must be aware of the institution's performance level. The Nigerian monetary authorities used capital as an additional tool for monetary policy. Capital adequacy is one of the tools of the regulatory agencies at the national and international levels. The regulatory body's policy framework has required insurers to have sufficient capital. The insurance business, as a part of the financial system, brought about several improvements. NAICOM suggested recapitalization as an economic tactic with several advantages, including increased growth potential, reduced risk, and more liquidity (Alani & Sani, (2019). In 2012, NAICOM launched the Market Reconstruction and Development Initiative (MRDI) to improve the enabling environment. The gross premium income (GPI) increased by around 25% annually for five years as a result of this policy move, reaching N300 billion in 2012 (Abiodun, 2013). According to the IMF and World Bank (2013), the total premium revenue in 2010 was ₦201 billion, or 0.7% of GDP. According to Akani (2016), every commercial enterprise's primary goal is to earn a profit from its activities. It is important to remember, nevertheless, that a variety of variables, chief among them the capital structure, often influence a company's profitability. Capital is also a crucial factor in preserving the financial safety and soundness of a business. A review of the current study information demonstrates that a firm’s financial performance is considerably impacted or affected by capital sufficiency. This means that capital sufficiency is a vital part of an organization’s success, especially financially. The rating of insurance capital adequacy is ascertained by various factors, such as the amount and calibre of capital, the institution's general financial health, the management's capacity to meet future capital requirements, the kind and quantity of problematic assets, the sufficiency of provisions for lease and loan losses, and other valuation reserves, as well as the risk exposure associated with off-balance sheet activities (Akani & Lucky, 2015).). The best defence against bankruptcy and liquidation brought on by the risk involved in the insurance industry is enough capital. By safeguarding the interests of stakeholders and preserving the stability of insurance companies, insurance capital sufficiency plays a crucial role in keeping insurance from going bankrupt. State and federal authorities have established regulations to guarantee the secure functioning of financial institutions (Tadesse, 2014). Because insurance offers protection against failure, it needs sufficient money to function effectively (Gudmundsson, 2013).

PROBLEM STATEMENT AND HYPOTHESES FORMULATION

Original Article

The contemporary global business landscape is characterized by intense competition and constant change. The current financial climate is more unstable than it has ever been, which means that insurance companies need a robust financial infrastructure to support their operations. Therefore, the profits that insurance companies generate are mostly dependent on how well insurance handles its role as a financial intermediary. For insurance to maintain integrity with different stakeholders, it must be able to effectively manage risks linked with insufficient capital (Ogboi &Unuafe ,2013). Maintaining a successful business is the most crucial element in attracting prospective and interested investors. As a result, strong financial performance becomes a crucial component in luring investors to a company. To achieve their investment goals over time, insurance companies need funds from their investors. Several weak points in financial institutions might compromise the stability of the insurance system. The main cause of this is rent extraction, which is made possible by a lax regulatory and supervisory framework, an inadequate safety net system, inadequate crisis resolution strategies, inadequate corporate governance, and the design of the insurance system. In light of the aforementioned, the insurance sector's reforms included measures to ensure capital sufficiency, a regulatory framework, safety net provisions, crisis resolution techniques, a structure for ownership, and the implementation of sound corporate governance procedures (Mutumira, 2019). A capital increase will allow the Nigerian insurance sector to finance large-scale, profitable projects, take on more risk, and conduct strict insurance underwriting, all of which will improve the sector's capacity to generate profits and foster long-term, sustainable growth. Stated differently, an enhanced capital foundation within the insurance industry will engender a more meaningful scale efficiency benefit and better profit efficiency associated with enhanced risk diversification. In the literature, there has been much research on the interplay among level of profit and capital sufficiency. The majority of research, meanwhile, focused on the viability of deposit banks and capital sufficiency. Berger (2013) discovered a direct relationship and significant effect of capital sufficiency on the profit of global banks, but Akani and Lucky (2016) found a robust connection among capital sufficiency ratios and the profit level of deposit banks in Nigeria. Since there isn't much noteworthy research that looks at the interplay among listed insurance businesses' profitability and capital adequacy, this one focused on how capital adequacy affects quoted insurance firms' performance in Nigeria.

The following null hypotheses are form out of the specific objectives of the study:

H_{O1}: Tier 1 capital has no significant effect on the return on equity of quoted insurance firms in Nigeria.

H_{O2}: Tier II capital has no significant effect on the return on equity of quoted insurance firms in Nigeria.

H_{O3}: Adjusted capital ratio has no significant effect on return on equity of quoted insurance firms in Nigeria.

H_{O4}: Capital to risk asset has no significant effect on return on equity of quoted insurance firms in Nigeria.

LITERATURE REVIEW

Conceptual review

Capital Adequacy Ratio

The capital adequacy ratio, or CAR, is a metric that the banking industry's regulating body sets and uses to evaluate the firmness of the banking operations. Because of this, the capital sufficiency ratio for financial institutions is a vital issue that has drawn a lot of interest in the literature. Ezike &Oke, (2013) defines capital sufficiency as a gauge of a bank's risk exposure. In estimating the capital adequacy ratio, banks' risks are divided into four categories: credit, market, interest rate, and exchange rate. Because capital is seen as a buffer for covering losses, regulatory agencies consider the capital sufficiency ratio a crucial indicator of safety and soundness for banks. It is an estimate of a firm's capital as a amount of its ten risk-weighted assets, according to Berger (1995).

Original Article

Since these ratios show how much capital a financial institution has compared to its credit exposures, the NBE monitors a bank's CAR to guarantee a satisfactory level of loss and conforms to statutory capital conditions. Minimum capital sufficiency ratios help to maintain the financial system's firmness and effectiveness by lowering the chance of businesses going bankrupt. When an insurance company goes bankrupt, it may cause other businesses to have financial difficulties and even jeopardize the stability of the financial markets by eroding public trust in the financial structure. Because, the regulatory body's implementation of minimum capital adequacy ratios helps to keep the financial system stable and effective. Furthermore, it offers depositors some safety. Depositors' money comes before capital in the case of a winding-up; therefore, they would only lose money if the bank had a loss greater than its capital. The capital adequacy idea states that a company's capital should be commensurate with its risks. Since money is the most costly and scarcest resource, risk monitoring and evaluation are crucial. One important motivator for the formation of new instruments and management approach is the regulatory framework's emphasis on risk-based capital. The VaR idea for evaluating capital needs is unquestionably one of the most significant innovations in the modelling toolset in recent years. The VaR idea is the foundation of risk-based capital, or more accurately, economic capital (Tesu ,2002). VaR recognizes that a loss across a portfolio of transactions may include the whole portfolio; nevertheless, given banks' good portfolio diversification, this is an event with zero probability. Thus, for a diversified portfolio, determining the possible loss size necessitates the use of some criterion. VaR stands for the maximum amount of losses that, in the majority of possible future events, shouldn't be incurred. For this tiny fixed proportion, known as the "confidence level," which gauges a bank's willingness to take on risk, management and regulators establish metrics. Economic capital is based on value at risk (VaR) and measures the present value of possible future loss to guarantee banks have sufficient fund to withstand severe losses. This kind of risk assessment may shield all noteworthy hazards.

Tier 1 capital

Tier 1 capital is a key regulatory requirement for financial institutions, particularly banks, to ensure their stability and ability to withstand financial stress. It is the core measure of a bank's financial strength and is composed of shareholders' equity and retained earnings. Tier 1 capital is considered the highest quality capital as it can absorb losses without a bank needing to cease its operations. Regulators require banks to maintain a minimum level of Tier 1 capital to ensure that they have enough capital to absorb potential losses. The minimum requirement is typically expressed as a percentage of a bank's risk-weighted assets, which are assets adjusted for credit and market risk. Having an adequate level of Tier 1 capital is crucial for banks to maintain the confidence of depositors, investors, and regulators. Banks with higher levels of Tier 1 capital are seen as more stable and better able to weather economic downturns or financial crises. Regulatory authorities continuously monitor banks' capital adequacy to ensure they are operating within the required thresholds. Banks that fall below the minimum Tier 1 capital requirements may face restrictions on their operations or be required to raise additional capital to meet regulatory standards.

Tier 2 capital

Tier 2 capital is another component of a bank's regulatory capital requirement, alongside Tier 1 capital. Tier 2 capital is considered less secure than Tier 1 capital but still plays a vital role in ensuring a bank's financial stability and capacity to absorb losses (Onaolapo and Adebayo, 2012). Tier 2 capital is subject to stricter regulatory requirements compared to Tier 1 capital. It is typically limited to a certain percentage of a bank's total risk-weighted assets. Tier 2 capital provides an additional cushion for absorbing losses beyond Tier 1 capital and

Original Article

enhances the overall resilience of a bank's balance sheet (Robert & Daniel, 1991). While Tier 2 capital is considered less secure than Tier 1 capital, it still plays a crucial role in supporting a bank's operations and ensuring its financial soundness. Regulators closely monitor both Tier 1 and Tier 2 capital levels to ensure that banks maintain sufficient capital to withstand financial shocks and protect depositors and creditors. Banks that fail to meet Tier 2 capital requirements may face regulatory sanctions or be required to raise additional capital to comply with regulatory standards (Paolo, 2011).

Adjusted capital ratio

The adjusted capital ratio assesses a financial institution's balance sheet resilience, with a focus on capital resources, in the face of an economic risk or recession. The higher the institution's capital ratio, the more likely it is to remain stable in the case of a severe economic slump. The denominator in this ratio is quite challenging, as each asset must be evaluated based on its ability to perform as planned. For example, an income-producing plant is not guaranteed to produce positive cash flow. Capital costs, facility repairs and maintenance, labour negotiations, and a variety of other factors may all contribute to positive cash flow (Perry, 1992).

Capital to risk asset

The capital-to-risk weighted assets ratio, often known as the capital adequacy ratio, is a key financial ratio for investors and analysts. The ratio assesses a bank's financial stability by calculating its available capital as a proportion of its risk-weighted credit exposure. The ratio's goal is to help banks protect their depositors while also promoting financial soundness. A bank's capital-to-risk weighted assets ratio is often represented as a percentage. According to Basel III, the current minimum capital-to-risk weighted assets ratio is 10.5%, including the conservation buffer.Having a global standard improves the stability and efficiency of global financial systems and banks (Berger, 2013).

Financial Performance

Businesses employ two sorts of measurements to assess their performance. Financial measures are the primary category of measurement, followed by nonfinancial measures. Businesses evaluate an organization's ability to meet its performance goals based on these two factors. Since both of these kinds of metrics have been determined to be significant in determining an organization’s financial health, none of them can be discounted. Management's observable advantages, however, are often contingent on how profitable a business is. Performance-based perks, including bonuses and promotions, may also be contingent on the firm's performance. This finding highlights the need to ensure that businesses operate profitably even more (Paolo, 2011). According to Onje (2008) findings, a business may achieve optimal performance when two critical aspects, namely the ownership structure and the firm's degree of performance and accumulation, align. The actual output of an organization as compared to its expected result make up its organizational performance. The insurance industry's profitability is ascertained by measuring premium and investment revenue, underwriting results, and total operational efficiency. The business strategy of the insurance sector may be summed up in a simple equation. Two ways that insurers generate income are by investing the premiums they receive from covered parties and by underwriting, which is the process by which they choose which risks to insure and how much to charge for taking those risks. The insurance industry's most intricate part is policy underwriting. Insurers forecast the possibility of a claim being filed against their policies using a variety of data sources and then set the price of their products appropriately. In order to do this, insurers measure the risk they are ready to take on and the premium they will demand using actuarial science.

Original Article

Nonetheless, the minimum rate that insurers are not permitted to charge as a premium is established by the insurance-regulating organizations (Thumb,2013)).

Return on equity

Return on equity is an estimation of a firm's profit level relative to equity. To put it simply, the ROE ratio determines the level of return that shareholders in a firm get on their investment. It shows how well the business is doing at earning returns on the capital that its shareholders have invested in it. One of the most popular and maybe most extensively utilized measures of corporate financial success overall is return on equity (ROE) (Paolo, 2011). Any company that seeks to maximize profits must ultimately aim to enrich its shareholders. Perry, (1992) posits that a corporation generates shareholder value when the returns on its equity outweigh the equity's cost. It is also known as the present value of future cash inflows minus interest expense. These days, all parties with an interest in the company are considered when running a firm, not just the shareholders. Therefore, in keeping with their economic principles, businesses should also acknowledge in their annual reports the social and environmental effects of their operations on the host communities in order to protect the environment, foster peaceful coexistence, uphold the organization's reputation, and foster public trust.

Theoretical review

Buffer Theory of Capital Adequacy

Calem and Rob (1996) proposed the buffer hypothesis, which states that a financial institution going for the legal least capital ratio may be incentivized to reduce risk and boost capital to avoid the financial penalties associated with a capital requirement violation. A mixture of excessive risk-taking and inadequate capitalization has been linked to the failure of many Nigerian banks. The goal of ensuring sufficient insurance capital is to protect banks from macroeconomic and monetary shocks, to which they are particularly vulnerable. However, insurance firms may decide to hold onto an excess capital reserve in order to lessen the financial consequences of not meeting regulatory capital conditions (Ikpefan, 2013). Capital sufficiency has changed in importance in recent years, moving from being an instrument for regulating banks to one for monetary policy and achieving financial stability.

Empirical Review

In a study conducted by Al-khawaldah et al. (2020), panel data analysis was employed to examine the interplay among capital sufficiency and ROE for the largest 16 Islamic banks in the Gulf Cooperation Council. The paper utilized size and inflation covering the period from 2010 to 2014. The focus of the research was on the market value of these banks. The research, which gathered information from banks' publicly available annual reports, discovered a strong correlation among capital adequacy and ROE. They discovered that, whereas GDP has a noteworthy favorable impact on ROE, size has a substantial favorable effect, and inflation has an important adverse effect. While the current research concentrated on insurance corporations, the previous study was more broadly focused on Islamic banking. Uwalomwa, Uwuigbe, and Olusanmi (2016), panel data analysis was employed to examine the impact of capital adequacy and Financial Performance of Quoted Deposit Money Banks in Nigeria. Which includes Tier 1 capital, on the financial performance of quoted deposit money banks in Nigeria. The research focuses on the relationship between Tier 1 capital (core capital), which consists of common equity and disclosed reserves, and key financial performance metrics such as return on equity (ROE) and return on assets (ROA). Their findings indicate that there is a positive and significant relationship between Tier 1 capital and return on equity. This suggests that higher levels of core capital enhance the financial stability and profitability of banks, which can be similarly applied to insurance firms given their comparable capital structure requirements.

Original Article

Torbira and Zaagha (2016) examined the interplay capital sufficiency standards and bank viability in Nigeria between 2008 and 2012. A representation for capital sufficiency was the ratio of shareholders' funds to the total assets of the bank, while a proxy for bank financial viability was the net profit margin, earnings per share, ROA. The data series reached stationary after initial differencing at order 1, according to the findings of the enhanced Dickey-Fuller unit root test (1). The investigation's findings demonstrated a notable and enduring correlation among capital adequacy indicators and bank financial outcome factors in the Nigerian banking industry. According to the Granger causality test, the ratio of stockholders' money to bank total assets indicates unidirectional causation, according to the findings of the causality test. These imply that capital sufficiency actively and powerfully encourages the improvement of Nigerian banks' financial performance. This investigation focuses on the commercial banks of 2008–2012. The current research focused on quoted insurance businesses in Nigeria from 2012 to 2021 and utilized panel regression with an enhanced Dickey-Fuller unit root as the test hypothesis. Mugwang (2015) used linear regression analysis to look at how capital sufficiency affected Kenyan commercial banks' performance between 2009 and 2013. During the five years from 2009 to 2013, all Kenyan registered commercial banks made up the target population. The Nairobi Securities Exchange provided secondary data for management. The study's main finding was that there is a substantial correlation among the risky assets associated with liquidity, credit, capital, interest rate, ROA, ROE, and capital adequacy. This research focuses on commercial banks, whereas the previous study examined listed insurance companies in Nigeria. Mutumira (2019) looked at how capital adequacy affected Kenyan insurance firms' financial results. The population comprised of 54 insurance businesses that had a license to do business in Kenya from 2014 to 2018. The yearly reports of the insurance firms provided secondary data. We chose a sample of 46 insurance firms using a purposeful sampling approach, we selected 46 insurance firms. To take part in the research, insurance firms had to have comprehensive financial statements for all five years. Analysing the gathered data, including panel data, tables and figures presenting the study's results. Based on the survey findings, insurance firms in Kenya demonstrate a favourable ROA, indicating their ability to generate a minimum of 20 percent profit from assets. From 2014 to 2018, the insurance businesses maintained a portfolio of high calibre assets, enabling them to generate substantial profits. There was a noticeable dissimilarity in the overall amount of assets that insurance companies had, with some companies amassing enormous amounts of assets while others had smaller amounts. The asset quality of Kenyan insurance businesses and cash flow. Only cash flow exhibited a statistically meaningful association with the insurance companies' financial performance among the three indicators of capital adequacy, according to the research. An important association exists between capital sufficiency and Kenyan insurance businesses' financial success. This research, which is international, concentrated on insurance businesses in Nigeria. Alani and Sani (2019) evaluated how recapitalization affected the financial viability of Nigerian insurance houses. The specific goals were to evaluate if the shareholders' fund significantly affects insurance firms' profitability and turnover. The value-enhancing idea served as the study's foundation. A sample of 14 insurance companies was purposefully chosen. The variables were given annual time series data, and the model's parameters were estimated using the OLS technique with a focus on the structural stability of the Chow Test. The investigation's conclusions demonstrated that the recapitalization of insurance businesses had no appreciable impact on the firms' turnover and profit level. The consequence is that the recapitalization plan has caused insurance businesses to be more appropriately financed and less risky, but it has no meaningful influence on turnover and level of profit. According to the research, managers should focus on increasing their management efficiency to increase the profitability of

Original Article

insurance firms. In the end, this will maximize shareholder value by stabilizing the insurance sector. The current research examines capital sufficiency ratios and the financial viability of insurance businesses in Nigeria, with a focus on the issue of recapitalization and profitability. Agbeja, Adelakun and Olufemi (2015) examine whether or not the capital adequacy ratio affects bank profitability. The study also analyses the impact of capital adequacy ratio on banks‟ exposure to credit risk. Using secondary data from financial statements of commercial banks, the study shows a positive and significant relationship between capital adequacy and bank profitability. This suggests that banks with more equity capital are perceived to have more safety, and such an advantage can translate into higher profitability. Mamoud (2017) examines the impact of capital adequacy on the performance of Nigerian banks using the Basel accord framework. Data from nine deposit money banks with significant foreign operations were used in the study. The ordinary least square (OLS) regression results show that a positive relationship exists between capital adequacy and profitability. Furthermore, the results indicate that all the sampled banks were far more stable and diversified than deposit money banks with national authorization only in Nigeria. It was clear that deposit money banks with foreign operations tend to attract large deposits and high customer confidence than those with domestic operations only. It was concluded that capital adequacy has a significant impact on the performance of banks with international authorization in Nigeria.Michael, Etukafia, Akpabio and Etuk (2018) examine capital adequacy and the value of banks in Nigeria using secondary data from the financial statements of selected banks for the period spanning 2006 to 2016. The data were analyzed using Ordinary Least Square (OLS) regression technique, and the results showed that capital has a positive and statistically significant relationship with deposit money banks‟ total assets. Abba, Okwa, Soje & Aikpitanyi (2018) attempt to analyses the bank-specific determinants of capital adequacy ratio (CAR) in the Nigerian Deposit Money Banks (DMBs) using balanced panel data from financial statements of 12 selected listed DMBs over ten years 2005-2014. The study found that the capital adequacy ratio of Nigerian DMBs is well above the regulatory minimum set by the CBN and the Basel Accord require the and the Basel Accord requirements was concluded that CAR is primarily determined by the banks risk portfolio, deposit level, profitability and asset quality. Another study, Ini, and Eze (2018) examines the effect of capital adequacy requirements on the performance of commercial banks in Nigeria. The study employed the ordinary least squares regression method to analyses data of commercial banks for the period 1986 to 2016 obtained from the NDIC and CBN Annual and Bank Supervision Reports. The results show that capital adequacy impacts positively on the financial performance of commercial banks in Nigeria. Onafowokan and Olaniran (2020) examine the impact of capital adequacy on the financial performance of commercial banks in Nigeria.They used panel data regression techniques, focusing on data from 2006 to 2017.The study found that capital adequacy positively influences the financial performance of banks, with adequately capitalized banks showing higher profitability and lower risk of failure.Udom and Akani (2018), looks into the effect of capital adequacy on the performance of deposit money banks in Nigeria, examining both pre- and post-implementation periods of the Basel II Accord.The study employed a comparative analysis using regression techniques to assess the impact of capital adequacy before and after the adoption of Basel II guidelines.It was found that capital adequacy had a significant positive effect on the performance of banks, particularly after the implementation of stricter capital requirements under Basel II.Akinlo and Asaolu (2012), evaluates the determinants of capital adequacy in Nigerian banks and its effect on their performance.The authors use a dynamic panel data model to assess data from 1998 to 2008.They conclude that capital adequacy, among other factors like bank size and liquidity, significantly influences the performance of banks in Nigeria.Chowdhury, Ahmed, and

Original Article

Sultana (2018), examines the effect of capital adequacy on bank profitability, offering a comparative perspective for the Nigerian context. Using panel data analysis over a period from 2000 to 2015, the study evaluates how capital adequacy affects return on assets (ROA) and return on equity (ROE).The results show a positive relationship between capital adequacy and profitability, reinforcing the importance of adequate capital buffers in enhancing bank performance.Ukinamemen and Ozekhome (2019) explore the influence of capital adequacy on the financial performance of listed banks in Nigeria. Regression results revealed that banks‟ capital adequacy ratio has a positive and significant impact on the financial performance of banks in Nigeria. Agu and Nwankwo (2019) investigate capital adequacy on a commercial bank‟s financial performance in Nigeria in a separate study. The study used secondary data obtained from the audited financial report banks audited financial reports covering 2010 - 2017. The regression model was applied on the data in determining the extent of the effect of loans and advances, owners‟ equity and total deposits on commercial bank financial performance in Nigeria. It was found that the owner‟s equity has a positive but no significant impact on the net interest income of commercial banks in Nigeria.Enekwe, Agu and Nnagbogu (2014) found that the amount of debts in the firm's capital structure bears a negative insignificant relationship with the financial performance. This entails that firms do not assign much value to the debt financing for their growth. In a similar view, an empirical evidence provided by Sadiq, et al. (2017) have applied Pearson correlation coefficient and GLS regression model to examined the effect of capital structure on profitability of listed DMBs, the study found that capital structure has an effect on the financial performance of listed deposit money banks in Nigeria. The study recommends that deposit money banks in Nigeria should employ an In their study, Akani and Lucky (2015) explored capital adequacy measures and how they affected Nigerian commercial banks' profitability between 1980 and 2013. The goal is to determine if capital adequacy ratios and commercial bank profitability have a dynamic, long-term connection. The research used data from Stock Exchange factbooks and financial statements to examine financial metrics like ROI, ROE, and return on equity. It also considered independent factors like capital to total asset ratio, adjusted capital to risk asset ratio, and capital to risk asset ratio. The outcome clearly showed in the models that, in contrast to the other relationships, which are negatively associated, ROA and the ratios of capital to risk and deposit have a favourable long-term dynamic and substantial connection. Additionally, the outcomes showed that there is a bidirectional causal interplay among ROA and both ACRR and CNLAR. This research focuses on commercial banks, whereas the previous study examined insurance houses in Nigeria. Using secondary data from 2006 to 2010, Asikhia and Sokefun (2015) investigated the impact of capital sufficiency on the profit of banks in Nigeria. Although there is no discernible association among capital adequacy and bank profitability in the original data, there is a positive and substantial relationship in the secondary data results. This research focuses on commercial banks, whereas the previous study examined listed insurance companies in Nigeria. Ikpefan (2017) used data from the CBN bulletin and the yearly financial statements of selected banks to ascertain the effects of Nigerian commercial banks' capital sufficiency, management, and performance from 1986 to 2006. The study's overall capital adequacy ratios demonstrate that ROA is negatively impacted by shareholders' funds and total assets, which evaluate the bank's capital adequacy (risk of default). Operating expenditures, as a measure of management effectiveness, have a negative influence on ROC. This research focuses on commercial banks, whereas the previous study examined insurance houses in Nigeria. Using a study of four Indian banks, Narasimhan and Goel (2016) examined capital sufficiency and its significance to the country's banking industry. This research investigated the banks' leverage and capital sufficiency, correlating the results with the institutions' expansion. Debt to equity and capital adequacy

Original Article

ratio are the variables that have been used as a proxy for capital sufficiency and structure. Performance is represented by earnings per share, while bank margin is determined by the interest spread. Their findings aimed to show that the capital structure and regulatory framework of Indian banks contribute to their stability during such times of crisis. This research focuses on commercial banks, whereas the previous study examined insurance enterprises in Nigeria.Pastory and Mutaju (2016) examined the link among Tanzanian commercial banks' asset quality and capital sufficiency. The regression was used to examine the interplay among the two variables in the research, which included data from 33 banks within the time frame of 2006–2011. The results show that capital sufficiency significantly affects asset quality. A five-year period, from 2007 to 2011, saw the majority of asset quality productivity decline due to capital ratio increases. As a result, it was shown that risk and banks' capital adequacy ratios were negatively correlated, meaning that as risk increases, so does the ratio in the banking sector. Given the strong correlation among the capital adequacy ratio and banking risks, the research suggests that Nigerian banks switch from their current practice of concentrating on paid-up capital and reserved profits to a risk-based strategy for capital management. Considering that the study has further shown an adverse correlation among deposits and the capital adequacy ratio. This research focuses on commercial banks, whereas the previous study examined insurance houses in Nigeria. Ezike and Oke (2015) looked at how Nigerian banks performed after adopting the Capital Adequacy Standards. The paper used the OLS estimating technique to analyse and ascertain the impacts of numerous variables on earnings per share (EPS) and profit after tax, including loans and advances, shareholders' money, total assets, and customer deposits. The analysis's findings demonstrated that capital adequacy requirements have an important implication on banks' operational success. Additionally, it was discovered that the implementation of the Basle Agreement framework enhanced the influence of the Nigerian Monetary Authority on the increased capital conditions. The study's conclusion also suggests that the CBN should focus on effective and efficient bank supervision and risk management rather than only using banks' capitalization as a measure of their success. This research focuses on commercial banks, whereas the previous study examined listed insurance companies in Nigeria.

METHODOLOGY

In order to compare the regression result analysis with the relevant empirical literature on the interplay among capital sufficiency and the financial viability of insurance businesses in Nigeria, the researcher used an ex-facto research design.The Ex-post facto research design is used because it allows the researcher to study independent variables effects on dependent variable(s) using already available data. The study's population consists of all of the insurance businesses quoted on the Nigerian exchange group. As of 2021, the NXG listed a total of 25 insurance enterprises (NXG, 2021). Out of the 25, or 60% of the total, the researchers selected 15 quoted insurance businesses using random selection techniques. The researcher used inferential statistics (Huasman test and Panel regression Analysis) to test the study outcome and arrived at a conclusion for the study. The regression model employed for the study is thus:

ROE = f (Tier1, Tier 2, AJC, CRA)

By allowing each entity to have its own value of intercept, as stated in the model, the least squares dummy variable (LSDV) model allows for subject heterogeneity.

$$ROE_{it} = \beta_1 + \beta_1 Tier1it + \beta_2 Tier2_{it} + \beta_3 ADJ_{it} + + \beta_2 CRA_{it} + \mu_{it}$$

Observe that the intercept term has a subscript i added to it to imply that the regression model's intercepts

Original Article

$$ROE_{it} = \beta_1 + \beta_1 Tier1 + \beta_2 Tier2_{it} + \beta_3 ADJ_{it} + + \beta_2 CRA_{it} + \mu_{it}$$

Where α_1 = regression intercept, α_2 = oil price, α_3 = exchange rate.

Where:

ROE = Return on equity
Tier I = Tier I capital
Tier II = Tier II capital
ADJ = Adjusted Capital ratio
CRA = Capital to risk assets

RESULTS AND DISCUSSION

Results

Hausman Test and Cross-Sectional Comparism of Fixed and Random Effect Models

Hausman Test				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		11.01854	5	0.0091
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var (Diff.)	Prob.
Tier 1	-0.045265	-0.042794	0.000260	0.8781
Tier 2	0.104120	0.119823	0.033116	0.9312
ADJ	0.080341	0.080521	0.000340	0.9922
CRA	2.324194	2.229964	0.022997	0.5344

Source: E-View 9.0, 2023

The efficient REM and the consistent FEM estimate the identical coefficients, which is the null hypothesis that the Hausman test checks. This means that the more appropriate it is to use random effects, a probability >chi2 greater than 0.05, and an insignificant P-value, But because the P-value for this study is considerable, the researchers need to employ fixed effects models. The Hausman specification test for the dependent and independent variable regression models yields a result of p = 0.0091, as shown in Table 4.1. Because the null hypothesis was rejected, the FEM is more suitable. Consequently, when the P-value is negligible and the prob>chi2 is greater than 0.05, using REM makes more sense. However, in the event that our P-value is significant, we must use fixed effects models. The research uses a fixed effect model because, according to the table, the probability coefficient of the Hausman test (0.0091) is smaller than the critical value of 0.05.

Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Fixed Effect Regression Results				
Tier 1	3.045265	0.078454	3.576956	0.0050
Tier 2	0.104120	1.188455	0.087610	0.9303
ADJ	0.080341	0.077231	1.040279	0.3002
CRA	2.324194	1.105988	2.101463	0.0375
C	-3.737078	23.52733	-0.158840	0.8740

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Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.794748	Mean dependent var	34.44430
Adjusted R-squared	0.576145	S.D. dependent var	14.10143
S.E. of regression	13.55392	Akaike info criterion	8.175551
Sum squared resid	23698.43	Schwarz criterion	8.578765
Log likelihood	-589.0786	Hannan-Quinn criter.	8.339370
F-statistic	3.642020	Durbin-Watson stat	1.909493
Prob(F-statistic)	0.005392		

Source: E-View 9.0, 2023

Analysis of Results

F-Test: Using the fixed regression findings, the F-cal. value is 3.642020, and the F-statistic P-value is 0.005392 at the 5% level of significance. Taking into account the P-value, the selected $\alpha = 0.05$ [5%], is smaller than the F-statistic P-value. The regression model's statistical significance has been concluded. This suggests that the explanatory factors' joint effect on the dependent variable is important. The computed (R^2) of 0.794748, based on the fixed effect, indicates that the explanatory variables account for 79.4% of the total variations in the ROE, with the remaining portion being attributed to variables affected by other elements not in the regression model. Watson Durbin statistics: Based on 150 observations and two explanatory factors, the estimated DW from the fixed findings is 1.909493 at the 5% level of significance. The calculated DW value is higher than the bottom limit. Consequently, there's no proof of a favourable first-order serial association. Regression Coefficient and T-Statistics: The t-stat. indicate that tier 1 capital has a positive and significant interplay with the ROE of the quoted insurance firms ,while tier 2 has a positive but no significant effect on the ROE of the quoted insurance firms. Similarly, adjusted capital has an affirmative but no substantial relationship with the ROE of the quoted insurance firms.While Capital ratio has significant effect of return of equity.The positive effect of Tier 1 capital validates the opinion of Gordon on capital structure relevance as opposed to Miller and Modigliani on capital structure irrelevance. It confirms the empirical findings of Akani & Lucky (2015), on the effects of capital adequacy ratios and its impacts on the profitability of listed commercial banks in Nigeria. It is in line with the findings of Uwalomwa, Uwuigbe, and Olusanmi (2015), on the Capital Adequacy and Financial Performance of Quoted Deposit Money Banks in Nigeria.

Conclusion

In conclusion, capital adequacy, particularly Tier 1 capital, plays a crucial role in determining the profitability of quoted insurance firms in Nigeria.The findings align with existing literature and emphasize the importance of maintaining adequate capital levels to improve financial performance of quoted insurance firms in Nigeria.

Recommendations

The study makes the following recommendations;

1. The regulatory bodies should enforce and enhance regulations requiring insurance firms to maintain robust Tier 1 capital levels. So, they ensure that firms have the financial stability needed to operate efficiently.

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2. The government should reassess the regulatory framework concerning Tier 2 capital to ensure that it aligns with the overall stability and growth objectives of the insurance sector. Insurance organizations and companies could utilize Tier 2 capital for purposes where it is most effective, such as covering specific regulatory capital requirements or supporting growth initiatives.
3. The government could support research initiatives aimed at understanding how adjusted capital can be more effectively utilized within the insurance industry. Insurance companies can also implement robust monitoring and reporting systems to track how adjusted capital is being used and its impact on the company's performance.
4. To help companies meet required capital ratios, the government should work on policies that facilitate easier access to capital markets. Insurance Companies should focus on strategically allocating capital to areas that will optimize their capital ratio and enhance ROE.

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