CAPITAL ADEQUACY RATIO AND FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN NIGERIA

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ABSTRACT
The stability of a bank is said to be a function of its Capital adequacy which in turn influences its performance. Commercial Banks in Nigeria operate under different levels of capital adequacy. This study therefore sought to examine the effect of capital adequacy ratio on the performance of listed commercial banks in Nigeria proxied by return on capital employed from 2014-2019. Data for this study, collected from the sampled commercial banks annual financial reports for the period covered, were analysed using panel regression. The study found that capital adequacy ratio had significant and positive effect on return on capital employed of listed commercial banks in Nigeria. Based on this finding, the Central Bank of Nigeria is advised to increase the Capital Adequacy Ratio of commercial banks and ensure that they are complied with. This is expected to bring about improved performance of the banking sector.
Keywords: Capital Adequacy Ratio, Return on Capital Employed, Commercial Banks.
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1. INTRODUCTION
Capital adequacy is the level of capital necessary for a bank as determined by the regulatory and supervisory authorities to assure the banks financial health and soundness. Capital adequacy, the measure of the solvency of a bank, tells whether a bank has enough capital to support the risks in its balance sheet. Adequate capitalization is an important variable in business, and is more so in the business of using other peoples' money such as banking. According to Onoh (2002), bank capital is considered adequate if it is enough to cover the banks operational expenses and protect depositors against total or partial loss of deposits in the event of liquidation or loss sustained by the bank. Prudential guidelines on capital adequacy sets out the three main elements that determine a bank's capital adequacy, these are: credit risk associated with exposures; market risk arising from banking activities and the form and quality of capital held to support these exposures. Since the banking sector plays vital roles in an economy, the question that then avoid is its efficiency and operational mechanism. More specifically, how should the banking sector operate: under a controlled or a market- based framework (Izevbigie & Arodoye, 2016).

Capitalization is an important component of reforms in the Nigerian banking industry, owing to the fact that a bank with a strong capital base has the ability to absolve losses arising from non-performing liabilities. Attaining capitalization requirements may be achieved through consolidation of existing banks or raising additional funds through the capital market. The primary goal of recapitalization exercises in Nigeria has been to guarantee an efficient and sound financial system. The reforms are designed to enable the banking system develop the required flexibility to support the economic development of the nation by efficiently performing its functions as the pivot of financial intermediation (Lemo, 2005). Thus, the reforms were to ensure a diversified, strong and reliable banking industry where there is safety of depositors' money and position banks to play active developmental roles in the Nigerian economy.

A number of studies have been carried out on the effect of prudential ratios on financial performance of Deposit Money Banks in Nigeria using Return on Assets and Return on Equity as proxy variables for performance (Okafor, Ikechukwu & Adebimpe 2010; Onaolapo & Olufami 2012; Torbira & Zaagha 2016).

This study makes a slight departure by focusing on capital adequacy ratio and Return on Capital Employed. Hence, the primary objective of this study is to assess the effect of capital adequacy on financial performance of quoted commercial banks in Nigeria. It is therefore hypothesized that Capital adequacy ratio has no significant effect on return on capital employed of listed commercial banks in Nigeria.

The motivation of this study is due to the crisis associated with the COVID-19 pandemic which affected all industries in Nigeria. It is particularly noticeable in the banking sector, which is exposed to the risk of losing financial liquidity.

This paper is organized into five sections: section one introduces the paper while the review of relevant literature is done in section two; the methodology is discussed in section three while section four presents the results; section five concludes the paper with useful recommendation.

2. LITERATURE REVIEW

Concept of Capital Adequacy

Capital adequacy can be defined as the sum of the bank's paid-up share capital and its accumulated capital reserves. This capital is important for the protection of bank depositors and for the maintenance of public confidence in the operations of the bank. Regulators view capital as a necessary buffer to absorb possible losses before such losses will be charged against deposits. Regulatory capital is the amount of capital required by regulators or considered adequate to ensure a safe and sound banking system. The Basel capital accords envisages that the higher the risk of loss, the higher the qualifying capital base of banks to maintain the stipulated capital adequacy ratio (Casu, Girardone & Molyneux, 2006).

Kishore (2007) views capital adequacy as the quantum of fund which a financial institution should have and plan to maintain in order to conduct its business in a prudent manner Adequate is regarded as the amount of capital that can effectively discharge the primary function of preventing banking industry's failure by absorbing losses. It is seen as a way of providing the ultimate protection against insolvency arising from the risk in the banking sector. It is the least amount necessary to inspire and sustain confidence in the banks, (Akintoye & Somoye, 2008).

According to Jensen and Mark (1997), capital adequacy refers to a relative measure which establishes the maximum level of leverage that a financial institution is allowed to reach on its operations. It is measured by the ratio of risk weighted assets relative to regulatory equity, which has been internationally recommended to be equal to 12.5 times, or commonly known as a capital adequacy of 8%.

Concept of Financial Performance

Financial performance, measured by profitability, is the primary goal of all commercial banks. The business will not survive without financial performance in the long run. Bank performance could be looked upon from a market perspective, by looking at stock returns and interpreting changes in these as the market's opinion of the performance and future prospects of the banks, or alternatively the starting point can be taken in accounting figures and using accounting returns as indicators of bank performance. Terance (1989) defined performance measurement as a way of ensuring that resources available are used in the most efficient and effective way. The essence is to provide for the organization the maximum return on the capital employed in the business. Financial performance for banks is very important because managers need to know how well the banks are performing.

According to Rahul (1997) a company's performance is its ability to achieve its target objectives from its available resources. Suleiman (2013) viewed a firm's performance as the result of a company's assessment or strategy on how well a company accomplished its goals and objectives. Financial performance provides a deductive measure of how well a company can use assets from business operations to generate revenue.

Van Horn (2005) defined financial performance as a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. It is a factor that shows the effectiveness and efficiency of an organization in order to achieve its objectives.

Theoretical Literature

The Buffer Theory

The Buffer Theory of Capital adequacy was proposed by Berger and DeYoung in 1997. The view of Berger and DeYoung is that banks may hold large capital to explore future unforeseen investment opportunities. According to Berger and DeYoung, banks can opt to have a capital buffer to reduce the likelihood of their capital dropping below the statutory requirement, mainly if the ratio is very unsteady. Another possible reason for holding buffer capital is related to the level of risk of the bank's total capital. Buffer's theory postulates that banks with their capital marginally above the regulatory minimum ratios should always increase the capital ratio and cut risk to avoid compliance penalty by the regulator.

According to Milne and Wiley (2001), buffer is a term used to show the excess capital held by the bank beyond the minimum requirement. This implies that banks are forced to raise the level of their capital ratio when coming close to the required minimum level assets. Compared to banks with lower portfolio risk, banks with a highly risky portfolio hold a higher level of buffer capital because their capital is likely to fall below the statutory minimum requirement. During financial crises, banks with small amount of capital may escalate systemic risk and hence hamper financial stability. Conversely, if banks have already complied with the regulatory minimum capital as well as have buffer capital, then any changes in capital requirements will have less impact on bank behavior. Banks may prefer to hold a buffer of excess capital to reduce the probability of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile.

Trade-Off Theory

This theory was presented by Robichek and Myers (1966). The theory expresses that there is an ideal capital structure that expands the estimation of a firm. It is of the view that the administration will set an objective influence proportion and afterward progressively move towards that. Davis and Cosenza (2014) have shown that organizations select objective influence proportions dependent on a compromise between the advantages and expenses of expanded influence, he referenced duty, money related pain expenses and office costs as three factors that impact the decision of this objective influence proportion. Directors will in this way pick the blend of obligation and value that accomplishes a harmony between the advantages of obligation through duty advantage and the different expenses related with obligation. The theory recommends that organizations focus on an ideal degree of liquidity to adjust the advantage and cost of holding money.

Empirical Review

Al-khawaldah, Al-tarawneh and Ghazi-alassaf (2020) examined the effect of the capital adequacy on the return on equity for the largest 16 Islamic banks in Gulf Cooperation Council in terms of market value, using panel data analysis during the period (2010-2014) and size, inflation, and GDP as a control variables, The study collected data from published annual reports of banks and found that there is a significant relationship between capital adequacy and return on equity. Size has a statistically significant positive effect on the return on equity, inflation has a statistically significant negative effect on the return on equity while GDP has a statistically significant positive effect on the return on equity.

Torbira and Zaagha (2016) investigated the impact of capital adequacy measures and bank financial performance in Nigeria for the period 2008-2012. The ratio of Shareholders fund to bank total assets was used as a proxy for capital adequacy while the proxy used to measure bank financial performance was net profit margin, earning per share and return on assets (ROA). The augmented Dickey-Fuller unit root test results indicated that the data series achieved stationarity after first differencing at the order 1(1). The

analysis revealed the existence of significant long run relationship between bank financial performance variables and capital adequacy indicators in the Nigerian banking industry. The granger causality test results revealed that there is unidirectional causality flowing from the ratio of shareholders' fund to bank total assets. These suggest that capital adequacy strongly and actively stimulate and improve the financial performance of banks in Nigeria.

Mugwang (2015) examined the effect of Capital Adequacy on Commercial Banks performance in Kenya for the period 2009 – 2013 using Multiple Linear Regression Analysis and the Pearson Correlation Coefficient. The target population comprised all registered commercial banks in Kenya in a five year period 2009 to 2013. Secondary data was used from Nairobi Securities Exchange for listed banks and management of banks that are not listed. The overall conclusion of the study was that there is a significant relationship between the Liquidity Risky Assets, Credit Risks, Capital Risks, Interest Rate Risks, Return on Asset Ratio, Return on Equity Ratio and Capital Adequacy.

Jha and Hui (2012) conducted a study on the effect of capital adequacy on financial performance of commercial banks in Nepal utilizing multivariate regression analysis. The research results revealed that return on assets was significantly influenced by capital adequacy ratio, interest expenses to total loan and net interest margin, while capital adequacy ratio had significant effect on return on equity.

3. METHODOLOGY

The study employed Ex post-Facto research design using panel data for the period of six years (2014-2019) to explore the effect of independent variable (Capital adequacy ratio) and a moderating variable (liquidity ratio) on the dependent variable (return on capital employed), and the nature of the relationship that exist between the variables. The population of the study is the 13 banks quoted on the floor of the Nigerian Stock Exchange as at 2019 (Access Bank Plc, Eco Bank Plc, Fidelity Bank Plc, First Bank of Nigeria Plc, First City Monument Bank Plc, Guaranty Trust Bank Plc, Stanbic IBTC Bank, Sterling Bank Plc, UBA Plc, Unity Bank Plc, Wema Bank Plc, and Zenith Bank Plc).

Purposive sampling technique was used to select banks based on the criteria that, the bank has availability of consistent data-set over the period and is quoted on the Nigeria Stock Exchange. With the source from bank's Annual Reports, twelve quoted commercial banks were selected as sample. The panel regression model was used with the aid of E-views version 10 to determine and analyze the effect of capital adequacy on the financial performance of quoted DMBs in terms of ROCE.

The ordinary least square (OLS) method of regression was adopted to measure the impact of capital adequacy on financial performance. Regression Analysis is a statistical technique for modeling and investigating the cause-effect relationship between two or more variables. Also, many of the forecasting techniques use regression methods for parameter estimations. It is a means of viewing the cause-effect relationship that exist between two or more independent variables.

The Theoretical framework shows the building block of the model and methodology adopted. Considering the theoretical bases, the study adopted the Buffer Theory of Capital Adequacy which will coincide with the findings of the study.

The Panel Regression Models are:

$ROI_{it} = a_0 + a_1CAR_{it} + a_2LQR_{it} + U_{it}$……i

Where:

a0 = intercepts,

a1, a1, a2, = slopes or coefficients

Uit = error term.

ROCEit = Return on capital employed of bank i at time t

CARit = Total capital / Total risk weighted assets of bank i at time t (Capital adequacy ratio)
LQRit = Liquidity ratio of bank i at time t (current assets and liability ratio).

4. RESULTS AND DISCUSSION OF FINDINGS

Table 1 Descriptive Analysis

	ROCE	CAPITAL ADEQUACY RATIO	LIQUIDITY RATIO
Mean	1.697808	8.286085	15.37935
Median	1.338800	13.27110	15.00110
Maximum	5.616700	23.75350	29.40590
Minimum	-9.531800	-154.7496	0.579000
Std. Dev.	1.848018	27.20746	6.450470
Skewness	-2.683131	-4.790478	0.055838
Kurtosis	20.43727	25.44417	2.742431
Jarque-Bera	998.5658	1786.607	0.236441
Probability	0.000000	0.000000	0.888500
Sum	122.2422	596.5981	1107.313
Sum Sq. Dev.	242.4770	52557.46	2954.208
Observations	72	72	72

Source: E-Views 10

The descriptive statistics test provides brief descriptive coefficients that summarize the data set used in this study. It is a representation of the entire population of the study. The descriptive statistics is broken down into measures of central tendency and measures of variability, or spread. The descriptive statistics shows the mean, maximum, minimum, standard deviation, Jarque-Bera, skewness and kurtosis with one seventy-two (72) observations of the variables used in the study. The mean describes the average value of the series and the standard deviation measures the deviation of the data from the average.

Return on capital employed (ROCE) has a Mean of 1.697808 with Standard Deviation of 1.848018. It also has Skewness of -2.683131 with Kurtosis of 20.43727. In a like manner, capital adequacy ratio has a Mean of 8.286085 with Standard Deviation of 27.20746. Also, it has a Skewness of -4.790478 with Kurtosis of 25.44417. Liquidity ratio has a mean of 15.37935 with standard deviation of 6.450470. It also has a Skewness of 0.055838 with Kurtosis of 2.742431. This implies that, the data were normally distributed.

Table 2: Correlation Matrix

Covariance Probability	ROCE	CAPITAL_ADEQUACY_RATIO	LIQUIDITY_RATIO
ROCE	3.367736		

CAPITAL_ADEQUACY_RATIO	30.44014	729.9648	
	0.0000	-----	
LIQUIDITY_RATIO	4.557604	59.21803	41.03067
	0.0008	0.0033	-----

Source: E-Views 10

The table above explained the relationship between capital adequacy and financial performance measures of deposit money banks in Nigeria where capital adequacy ratio was correlated with return on capital employed to the extent of 30.44014, While the liquidity ratio was correlated with return on capital employed to the extent of 4.557604. The correlation matrix result suggests that there is no multicollinearity among the independent variables of interest.

Table 3: Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.834222	2	0.0001

Source: E-Views 10

The Hausman test was used to decide the best out of the result. The test enabled the researcher to choose the most appropriate between the fixed and random effect models. With the probability of 0.0001, the fixed effect was rejected. Therefore, the random effect estimator was used to run the regression.

Table 4: Panel Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.799776	0.577056	3.118895	0.0027
CAPITAL_ADEQUACY_RATIO	0.066098	0.008837	7.480060	0.0000
LIQUIDITY_RATIO	-0.009594	0.027928	-0.343529	0.7323
Effects Specification				
			S.D.	Rho
Cross-section random			1.170378	0.6597
Idiosyncratic random			0.840561	0.3403
Weighted Statistics				
R-squared	0.501348	Mean dependent var		0.477692
Adjusted R-squared	0.479349	S.D. dependent var		1.308795
S.E. of regression	0.944376	Sum squared resid		60.64557
F-statistic	22.78923	Durbin-Watson stat		1.386067
Prob(F-statistic)	0.000000			

Source: E-Views 10

The result from the table above also reveals that capital adequacy ratio has significant effect on return on capital employed with a p-value of 0.0000 and a coefficient of 0.066098. This implies that as capital adequacy ratio increases, return on capital employed increases by 0.066098. Capital adequacy ratio has a corresponding t-value statistic of 7.480060 and the hypothesis is therefore rejected. However, the liquidity ratio has no significant effect on return on capital employed with p-value of 0.7323 and a coefficient of -0.009594.

The R-squared explains variation on return on capital employed to the extent of approximately 50% while the remaining variation is explained by other variables not captured in the model. The f-statistic, which reveals the joint significance of all estimated parameters in predicting the values of the variables, is statistically significant with a value of 22.78923 and a p-value of 0.00000.

Therefore, since the p-values is less than 0.05, which is the accepted level of significance for this study, the null hypothesis is rejected leading to the conclusion that capital adequacy has a significant effect on the financial performance of commercial banks in Nigeria. This finding is in line with the work of Al-khawaldah, Al-tarawneh and Ghazi-alassaf (2020) who reached a similar conclusion that capital adequacy significantly influences banks financial performance.

5. CONCLUSION AND RECOMMENDATION

This study examined the effect of capital adequacy on financial performance of quoted commercial banks in Nigeria for a period of 6 years (2014 – 2019). The study found that capital adequacy ratio has a significant effect on return on capital employed of quoted commercial banks in Nigeria implying that the capital adequacy ratio significantly contributes to the financial performance in the banking industry. Therefore, an increase in capital adequacy ratio will most likely increase financial performance of commercial banks in Nigeria.

Based on the results of the study, it is recommended that the Central Bank of Nigeria should consider increasing the capital adequacy ratio of commercial banks operating in Nigeria in order to ensure their improved performance. However, the better the bank's performance, the more the returns obtained by investors.

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