

Capital Adequacy and Return on Capital Employed of Quoted Deposit Money Banks in Nigeria

¹Oguntodu, James A. ²Osho, Lukman A. & ³Ogbebor, Peter I.

^{1,2&3}Department of Finance, School of Management Sciences,
Babcock University, Ilishan-Remo, Ogun State Nigeria

Abstract

This study examines the effect of capital adequacy on financial performance of Deposit money banks quoted in Nigeria. Two hypotheses were formulated following the dependent variable of Return on Capital Employed. The independent variable employed for this study is capital adequacy. Also control variables were introduced which are: Asset Quality, Bank Size, Inflation and Financial Development. The study is based on ex-post facto research design and employed a panel data set involving fourteen (14) deposit money banks quoted in Nigeria over a ten-year period ranging from 2009 to 2017 financial year. The data set was analyzed using descriptive statistics and inferential statistics. The findings revealed that capital adequacy has significant relation with financial performance of DMBs in Nigeria, and this goes in line with the theoretical expectation and in line with the findings of other authors. Banks with adequate capital are perceived to have more safety and such advantage can be translated into higher profitability. In accordance with the results obtained from the regression analysis, with positive and significant relationship between capital adequacy and return on capital employed suggested that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability if truly the capital employed is properly managed. The higher the capital employed, the more profitable a bank should be. The study recommended among others that policy makers in emerging markets such as Nigeria should effectively regulate the capital and the resources owned by the Deposit Money Banks (DMBs) in Nigeria by ensuring that a certain level of capital is kept with the Central Bank of Nigeria (CBN) for DMBs' financial soundness and stability. This will enable them to continue to absorb losses and manage risk exposure with shareholders. Therefore, due attention should be given in ensuring adequate capital, optimum liquidity and adequate size of assets by deposit money banks for better performance.

Keywords: *Assets quality, Bank size, Capital adequacy, Financial performance, Inflation*

Corresponding Author: **Oguntodu, James A.**

<http://internationalpolicybrief.org/journals/international-directorate-for-policy-research-idpr-india/intl-jrnl-of-advanced-research-in-accounting-economics-and-business-perspectives-vol4-no1-july-2020>

Background to the Study

Financial performance in an organization demonstrates the proficient use of resources and the organization capacity to generate profit. It is of considerable interest to stakeholders, including customers, creditors, shareholders, government, and managers in that it: shows shareholders the return on capital invested; sends signals to customers of the organization's capacity to meet their needs; shows government the capacity of the organization to pay its tax; and shows managers the value of their effort and human capital invested in the organization (Aymen, 2013). Return on capital employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed. ROCE is calculated as: $ROCE = \text{Earnings before Interest and Tax (EBIT)} / \text{Capital Employed}$. The term 'Return' means the profits available. Thus, the ROCE ratio points out the relation between the volume of capital invested and the amount of profits earned on such capital. Speaking otherwise, this ratio explicitly disclosed the profitability of a firm by establishing relationship between profits and capital invested. It is probably one of the most frequently used ratios for assessing the performance of organizations. ROCE, a member of the Return on Investment ratio, can be determined taking profits and capital employed of a given firm (Pradip, 2017).

The performance of a banking institution is largely driven by its ability to increase its customers' patronage, retain them and manage its assets and liabilities to enhance optimal returns. Banks function as a link between savers and borrowers and performs all tasks related to the profitable and safe channeling of funds. Outside their intermediation tasks, the performance of Deposit Money Banks (DMBs) has important implications for economic growth. Sound financial performance by DMBs rewards the interested party for their investments and reassures additional investments. On the other hand, poor performance might cause bank collapse and failure that can hamper the economic development of the country (Dell' Ariccia and Marquez, 2004).

The performance of banking institution is mostly determined by its ability to intensify its clients' patronage, keep them and handle its assets and liabilities to improve ideal yields. Additionally, opinions have been made to back up the point that elements that also increase a bank's financial performance include; institution size, management of asset, efficiency of operation and capital adequacy (Tarawneh, 2006; Sufian and Chong, 2008). Financial performance of banks gives a sign to depositors or investors to choose whether to put in or remove their capital from bank. Depositors need the prior financial analysis (if beneficial) to put in extra money to make profits. Regulators are expected to be concerned in understanding the financial performance to regulate accurately. The government may choose to improve the quality of banks or not. The examination of financial performance aids to identify where to put funds with more assurance. Financial performance of the bank as regards revenue and return mirrors its ability to assist current and prospective operations (Aymen, 2013).

ROCE highlights the earning potentiality of a firm's assets indicating the nature of profit earning capacity of a firm in response to its long-term sources of capital employed in the acquisition of its assets. It provides substantial clues to the nature of utilization of long-term

funds made available to the firm by owners and creditors. It also helps in evaluating how efficiently the funds are being managed by the management. The higher the ratio, the more efficiently the funds have been used by the management. In other words, a high ROCE achieved for a consecutive years indicates that the firm has a stable financial position with sound future prospect. ROCE provides an indication of the economic productivity of capital. Thus, it provides a standard measure of operating efficiency, which is very often applied regardless of the type of business or subdivision within a single organization in as much as it is not affected by the long-term capital structure and other factors external to the influence and immediate management (Pradip, 2017).

Arguments have been made to support the fact that factors that also improve a bank's financial performance apart from capital adequacy include: size of the institution, asset management, operational efficiency and other macro- economic variables (Tarawneh, 2006; Sufian and Chong, 2008). Obamuyi (2013) and Obadan (2004) agreed that there are other critical factors, which combined with capital adequacy, would guarantee a healthy banking sector. Obamuyi (2013), argued that indicators or measures of a bank financial condition and performance are based on capital adequacy, size, asset quality, managerial capability, liquidity and economic condition on the bank's profitability.

Capital adequacy indicates the capacity and efficiency of banks to measure direct and control the risks it faces, in order to be scaled, controlled and making decisions consistent with the strategy and policy and to strengthen the bank's competitiveness strategy. Capital adequacy is beneficial in appreciating banking services and analyzing returns from banks' operations, in addition to policy development and procedures necessary for the prevention of different types of risks, which arise as a result of technological and electronic evolution and increasing complexities in banking and competition among banks. Thus, DMBs are mandated to provide enough capital to cover for any possible problems that may occur, and develop the right approach to ensure the survival of the bank with a higher percentage than the specified percentage and in order to avoid the intervention of monetary authorities to prevent its decline, which is known as corrective actions (Lone and Ahmad, 2017).

Adequate capital is necessary and essential for DMBs to function efficiently because it provides safeguard against failure (Gudmundsson, Ngoka-Kisinguh and Odongo, 2013). The key issues are the type and amount of capital required by a bank in order to have ample protection (Kou, 2008). Capital signifies the part of the bank's liabilities that does not have to be repaid and consequently is seen as a cushion in a situation where the value of the bank's assets falls (Thumbi, 2014). Banks do not make profit at all times, so capital is essential to act as a cushion when banks' profits fall due to heavy losses but in the event that a bank's asset value is lower than its total liabilities, the bank becomes insolvent (McAleer, 2009).

Literature Review / Theoretical Underpinning

Financial performance of banks gives a signal to depositors or investors to choose whether to put in or remove their funds from the bank. Regulators are expected to be concerned about the financial performance of banks in order to effectively carry out their monitoring role. Financial performance of a bank as regards revenue and return mirrors its ability to assist current and prospective operations (Aymen, 2014).

Return on Capital Employed (ROCE) is a profitability ratio that helps determine the profit that a company earns for the capital it employs. ROCE is measured by expressing Net Operating Profit after Taxes (NOPAT) as a percentage of the total long-term capital employed. In other words, ROCE can be defined as a rate of return earned by the business as a whole. Like ROE (equity), calculates % return of equity shareholders, ROCE calculates % return of all the capital providers together. If a business is financed completely by equity, ROE and ROCE will be same. Return on Capital Employed: This can be described as the ratio that shows the overall profitability of a firm. It is otherwise known as Return on Investment (Olowe, 2011).

However, Uremandu, Ben-Caleb and Enyi (2012), disputes that the use of the ROCE as a performance indicator is though desirable but nevertheless spurious and is able to give misleading information. The study stated that the true measurement of efficiency in the use of capital resources cannot be made using capital employed as defined in a company's balance sheet. This is because the balance sheet capital employed is a fixed measure of capital employed at a date and not for the entire period. The study concluded that the result would invariably be influenced by the fixed nature of the value of capital employed as at that date and added that such a measure will produce a larger than life result as the capital employed at balance sheet date will always be accountable towards producing an average rather than the total resources employed.

Return on capital employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed (Pradip, 2017). Portfolio consisting of higher ROCE companies should outperform a portfolio comprising less ROCE firms over the long-term. ROCE compares a firm's earnings from its primary operations with the capital invested in the company and can serve as a reliable measure of corporate performance (Elliott and Elliott, 2001). ROCE measures how well a company invests funds in its basic business operation.

Adequate capital is necessary and essential for DMBs to function efficiently because it provides safeguard against failure (Gudmundsson, Ngoka-Kisinguh and Odongo, 2013). Adequate capital is regarded as the amount of capital that can effectively discharge the primary functions of banks and preventing bank failure by absorbing losses (Asikhia and Sokefun, 2013). Capital signifies the part of the bank's liabilities that does not have to be repaid and consequently is seen as a cushion in a situation where the value of the bank's assets falls (Thumbi, 2014). Banks do not make profit at all times, so capital is a significant parameter for adjudicating the strength and reliability of banking system. Banks with realistic capital can absorb the unexpected losses and their cost of funding can also minimize which ultimately can increase the profitability of banks (Lone & Ahmad, 2017).

Capital adequacy is a significant parameter for adjudicating the strength and reliability of banking system. Banks with realistic capital can absorb the unexpected losses and their cost of funding can also minimize which ultimately can increase the profitability of banks. The notion of capital adequacy is entrenched in the restructuring of the current capital structure of

banks to alleviate wide spread distress. Banks, as financial institutions and business establishments, gain more prospects in an atmosphere of adequate capital (Lone and Ahmad, 2017).

The influence of capital adequacy on banks performance cannot be underrated since adequate capital directly and inevitably impacts the sum of funds available for loans, which always affects the manner and level of risk absorption. Ezike and Oke (2013) opine that, notwithstanding its many roles and various functions, it is pure that bank capital is stand-in as defensive cushion against losses hastened by certain kinds of doubts. This view capital as a restraint to avoid default and capital also stands as a bolster to protect customers and other creditors against losses at the functional and liquidation period. Ezike and Oke (2013) further emphasize that, if depositor's funds are going to develop, capital must grow together with it and acknowledged that management competency also has an impact on capital adequacy.

According to Sangmi and Nazir (2010), the adequacy of capital is adjudged on the basis of capital adequacy ratio (CAR). Capital adequacy ratio demonstrates the internal power of the bank to survive losses during crisis. The capital adequacy ratio (CAR) is a measurement of a bank's available capital expressed as a percentage of a bank's risk-weighted credit exposures. The capital adequacy ratio, also known as capital-to-risk weighted assets ratio (CRAR), is used to protect depositors and promote the stability and efficiency of financial systems around the world (Sangmi and Nasri, 2010). Also, Pradhan and Shresttia (2017) revealed that there was significant impact of capital adequacy on the various aspects of the DMBs and it also helped in maintaining the stability of commercial banks in the financial market and to uplift the banking sectors in international standard.

Empirical Review of Related Studies

Gul, Faiza, S., Irshad and Khalid Zaman (2011), examined the relationship between bank-specific and macro-economic characteristics over bank profitability by using data of top fifteen Pakistani commercial banks over the period 2005-2009. The study adopted pooled Ordinary Least Square (POLS) method to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on major profitability indicators i.e., return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) separately. The empirical results disclosed strong evidence that both internal and external factors have a greater influence on profitability.

However, Onaolapo and Olufemi (2012) examined the effects of capital adequacy conditionality on the performance of selected banks within the Nigerian banking sector. The study employed mainly secondary data obtained from the publications of regulatory agencies like the Central Bank of Nigeria in a ten-year period 1999-2008. Ordinary Least Square (OLS) estimation obtained from an SPSS 17.0 package was adapted to analyze relationship between the variables while the Augmented Dickey Fuller (ADF) was used to test the stationary of the time series data employed. The study disclosed that all the performance indicators tested such as Returns on Assets, returns on Capital Employed and Efficiency Ratios among others did not reflect much on Capital Adequacy Ratio (CAR) of the Nigerian banking sector.

Meanwhile, the study by Ikpefan (2013), investigated the impact of shareholders' fund on bank performance in the Nigerian deposit money banks (1986-2006) captured performance indicators as Return on Capital (ROC) and employed cross sectional and time series of bank data obtained from Central Bank of Nigeria (CBN). The formulated models were estimated using ordinary least square regression method and identified a positive relationship between shareholders fund and bank loan. The study also found that there is significant relationship between shareholders' fund and banks' liquidity, bank deposits and bank loans. The efficiency of management measured by operating expenses was negatively related to return on capital. The implication of the study among others is that adequate shareholders fund can serve as a veritable stimulant in strengthening the performance of Nigeria deposit money banks and also heighten the confidence of customers especially in this era of global economic melt-down that has taken its toll in the Nigerian financial system.

Roman and Danuletiu (2013), investigated the factors that influence profitability of Romanian commercial banks between 2003 and 2011 by using multiple linear regression models to determine the relative importance (sensitivity) of each explanatory variable in the performance of selected banks. The study showed that Romanian banks' profitability was influenced by both bank-specific factors and changes in the external environment and identified asset quality, management quality and liquidity as bank-specific factors driving bank profitability while banking concentration and economic growth rate are the predictors of profitability among the external environmental factors.

Also, the study of Lawal (2019), examined the effect of asset quality on the operational efficiency of banks (DMBs) in Nigeria. Panel data was collected for 10 years from 2007-2016 for all the 15 deposit money banks (DMBs) in Nigeria operational as at 31st December, 2016. Quantitative research design employed with the aid of descriptive and inferential statistics to confirm the reliability and suitability of the results obtained. Panel least square regression was employed to analyze the panel data sourced from the bank financial statements and Central Bank Statistical bulletins. Results of the research revealed that asset quality has a positive significant effect on operational efficiency of Deposit Money Banks in Nigeria.

Additionally, Mwongeli (2016), investigated the nexus between regulations and financial performance among commercial banks in Kenya between 2010 and 2015 using qualitative methods with financial performance as the dependent variable and capital adequacy as one of the independent variables, the study confirmed compliance by most of the banks with the minimum capital requirement and urged strict compliance as a condition for the stability of the banking sector in Kenya.

Equally, Kadioglu, Telceken and Ocal (2017), investigated whether nonperforming loans affect bank's profitability in Turkey by applying a panel regression method to the quarterly data set that has 1809 observation belonging to 55 Banks in Turkey during the period from 1st quarter of 2005 to 3rd quarter of 2016. The study discovered that there is a significant, negative relationship between nonperforming loans and bank profitability which is measured by return on equity and return on asset. The higher the nonperforming loans; the lower the asset quality

which leads to the lower return on equity and return on asset, and the lower the nonperforming loans; the higher asset quality which leads to the higher return on equity and return on asset.

Amahalu, Emmanuel, Nweze, Obi and Okika (2017), ascertained the effect of Capital Adequacy on Financial Performance with a focus on selected quoted Deposit Money Banks in Nigeria from 2010-2015. The study made use of secondary data obtained from factbooks, annual reports and account of the Deposit Money Banks under study by engaging return on assets (ROA), return on equity (ROE) and return on capital employed (ROCE) to measure financial performance. The data were subjected to statistical analysis using Pearson Coefficient of Correlation, Multiple Regression Analysis, Variance Inflation Factors, Multicollinearity, Heteroskedasticity test and Hausman test. The study revealed that there is a positive significant relationship between Capital Adequacy and Financial Performance and also affirmed empirically that Capital Adequacy has a statistically significant effect on Financial Performance of Deposit Money Banks at 5% level of significance.

Methodology

Ex post facto research design was adopted in this study and secondary data were employed. Specifically, data were extracted from published financial statements of selected quoted DMBs, (various issues). The population of this study comprised deposit money banks quoted in Nigeria. as at 2017, there are twenty – one (21) of such banks out of which only 15 are quoted on the Nigeria Stock Exchange (NSE). This study focused on only fourteen (14) of the Deposit Money Banks quoted due to availability of data during the period: 2008- 2017. Purposive sampling technique was adopted, hence, the following 14 banks that met the criteria of data availability and continuous listing throughout the period of study constituted the sample size of the study: Access Bank Plc., Diamond Bank Plc., Ecobank Nigeria Plc., First Bank Nigeria Holding Plc., First City Monument Bank Ltd, Fidelity Plc., Guaranty Trust Bank Plc., STANBIC IBTC Plc., Sterling Bank Plc., United Bank for Africa Plc., Union Bank of Nigeria Plc., Unity Bank Plc., WEMA Bank Plc. and Zenith Bank Plc.

Functional Equation and Model

Hypothesized Relationship

The hypothesized relationship is functionally expressed as follows:

Y= Dependent variable (Financial Performance)

X= Independent variable (Capital Adequacy)

Z= Control variables (z_1 = Asset quality, z_2 = Bank size, z_3 = Inflation and z_4 = Financial)

$FP = f(CA)$

$FP = f(CA, AQ, BS, INF, FINDEV)$

Decomposing FP into its various components, it becomes:

$FP = ROCE$

$ROCE = f(CA)$

$ROCE = f(CA, AQ, BS, INF, FINDEV)$

Hence, the econometric model for the regression analysis is:

$$ROCE_{it} = \alpha_1 + \beta_1 CA_{it} + \mu_1 \dots \dots \dots (i)$$

$$ROCE_{it} = \alpha_1 + \beta_1 CA_{it} + \beta_2 AQ_{it} + \beta_3 BS_{it} + \beta_4 INF_{it} + \beta_5 FINDEV_{it} + \mu_1 \dots \dots \dots (ii)$$

Where:

FP = Financial Performance

CA = Capital Adequacy

ROCE = Return on Capital Employed

AQ = Assets Quality

BS = Bank Size

INF = Inflation

FINDEV = Financial Development

B, α = Coefficient of determinant

μ = Stochastic error term

i = Cross sectional data

t = Time Series

Results / Findings

Model Analysis

$$ROCE_{it} = \alpha_1 + \beta_1 CA_{it} + \mu_1 \dots \dots \dots (i)$$

$$ROCE_{it} = \alpha_1 + \beta_1 CA_{it} + \beta_2 AQ_{it} + \beta_3 BS_{it} + \beta_4 INF_{it} + \beta_5 FINDEV_{it} + \mu_1 \dots \dots \dots (ii)$$

Table 1: Regression and Diagnostics tests Results for the Model

Variables	ROCE	
	Baseline Model	Model with Control Variables
CA	0.105*	0.050
	(1.952)	(1.009)
AQ		-0.106
		(-1.199)
BS		3.356**
		(2.306)
INF		-0.368
		(-0.276)
FINDEV		-2.678***
		(-3.704)
Constant	6.128***	-5.052
	(3.982)	(-0.154)
F-Stat	3.812**	5.553***
R-squared	0.027	0.172
Hausman Test	13.71***	8.95
Breusch and Pagan Lagrangian multiplier test	1.25	0.02
Normality Test	0.19	0.23
Seriocorrelation Test	10.790***	11.314**
Heteroskedasticity Test	1.33	1.37
Observations	140	140
Number of crossed	14	14
Time Periods	10	10

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Return on Capital Employed and Capital Adequacy with and without control variable

Following the objective and hypothesis stated of this study, return on Equity (ROCE) is regressed on the Capital Adequacy to ascertain whether the effect of Capital Adequacy on Return on Capital Employed is significant. That is, this sub-section's panel data regression analysis focuses on making inference on coefficients of Capital Adequacy in relation to Return on Capital Employed. In view of this, the variable that is regarded as dependent variable is Return on Capital Employed (ROCE) while the explanatory variables are Capital Adequacy (CA), Asset quality (AQ), Bank size (BS), Inflation (INF) and Financial development (FINDEV) as case maybe.

According to the result in Table 1, the Breusch and Pagan Lagrangian multiplier (LM) [1.25 (P –value = 0.168); 0.02 (P – value = 0.441)] and Hausman [13.71 (P –value = 0.000); 8.95 (P – value = 0.111)] tests results for both the models without and with control variables. These indicate that the data is poolable. Thus, the Pooled results in columns (2) and (3) of the Table 1 are interpreted.

Again, after regressing ROCE on Capital Adequacy as well as the control variables; the regression the residuals (error terms) of the estimated models are checked for normality using Jarque-Bera statistic. Also, Breusch-Pagan / Cook-Weisberg test for heteroskedasticity is employed to check whether the models' residuals possess constant variances and the results are presented in Table 1. Econometrically, a model is said to possess heteroskedasticity if the variances of error term are not equal over the various values of the independent variables it implies that during regression analysis the variance would be found to be non - consistent. As in the Table, all the test statistics and their associated p-values are statistically insignificant. These mean that the residuals are normally distributed and have constant variance. Consequently, we conclude that the models are fit.

As in the Table 1, the F-statistic [F-test = 3.812 (P – value = 0.053); F – test = 5.553; (P – value = 0.000)] suggest that the models fit well and that the explanatory variables account for changes in the Return on Equity (ROCE) in both cases. Additionally, the R-squared value of 0.027 and 0.172 for the models without and with control variables respectively showed that the independent variables explain about 2.7% and 17.2% of variances in the dependent variable. Inference from the results showed that the coefficient of Capital Adequacy (CA) is positive and statistically significant in the model without control variables [coefficient = 0.155; P – value = 0.053] at 10% alpha levels. This indicates that CA shows positive and significant effect on ROCE when Asset quality (AQ), Bank size (BS), Inflation (INF) and Financial development (FINDEV) are not accounted for.

On the inclusion of control variables the regression analysis estimates in Table 1 showed that Capital Adequacy (CA) and Bank Size (BS) have positive effects on Financial Performance (ROCE). This is indicated by the sign of the coefficients, that is $\beta_1=0.054 < 0$ and $\beta_3= 3.356 > 0$, while Asset Quality (AQ), Inflation (INF) and Financial Development (FINDEV) have negative effects on Financial Performance (ROCE). This is indicated by the sign of the coefficients, that is $\beta_2= - 0.106 < 0$, $\beta_4= - 0.165 < 0$ and $\beta_5= - 2.678$. The size of the coefficient of the independent variable show that a 1 unit increase in Capital Adequacy (CA) and Bank Size (BS) will lead to a 0.054 and 3.356 unit increase in Financial Performance (ROCE) respectively. While a unit increase in Asset Quality (AQ) will lead to a 0.106 unit decrease in Financial Performance (ROCE), a unit increase in inflation (INF) will lead to a 0.165 unit decrease in Financial Performance (ROCE) and a unit increase in financial development (FINDEV) will lead to a 2.678 unit decrease in Financial Performance (ROCE).

The effect of the control variables is not obvious in this model because, Capital Adequacy (CA) was significant as well as positively related to Financial Performance (ROCE) in the base line model, and was not significant after the control variables were included into the model. The probability of the f-statistics for the baseline model showed 3.812 which is significant at 10% level of significance indicating that the baseline model was significant, likewise, the probability of the f-statistics for the model with the control variables showed 5.553 which is also significant at 1% level of significance which is an indication that the model is also statistically significant.

Decision: From the result of the regression analysis, Capital Adequacy (CA) controlled by Asset Quality (AQ) and Bank Size (BS) has a significant effect on Financial Performance (FP) for the sampled deposit money banks quoted in Nigeria. Therefore, the null hypothesis (H_{02}) which says Asset quality, Bank Size, Inflation and financial development have not significantly influence the effect of Capital Adequacy on financial performance of deposit money banks quoted in Nigeria is hereby rejected.

Discussion

Empirically, the findings of this research revealed that capital adequacy has significant relation towards financial performance of DMBs in Nigeria, and this goes in line with the theoretical expectation and in line with the findings of other authors. Banks with adequate capital are perceived to have more safety and such advantage can be translated into higher profitability. The higher the capital ratio, the more profitable a bank will be (Amahalu, Okoye, Nweze, Chnyere and Chirstian (2017). Apere (2016) also, revealed that there is a long-run significant positive relationship between capital adequacy and financial performance of banks in Nigeria over the period in their study under. Ekundayo and Odhigu (2016) believed in their study that adequacy of capital can help to improve and sustain the financial assets of a company with an idea to broadening the size of long-term capitals available to the company. Dietrich and Wanzenried (2011) in their study concluded that capital adequacy requirements achieve the objective of increasing banks' financial stability and reducing bank failure rates. Ogboi and Unuafe (2013) and Athanasoglou, Delis and Staikouras (2005) in their studies showed a positive relation between capital adequacy and return on capital employed. Almazari and Alamri (2016) showed in their study that capital adequacy, capital and leverage positively influenced banks profitability. This is also noted in the studies of Sheefeni (2015), Pasiouras and Kosmidou (2007), Aburime (2008); Askhia and Sokefun (2013), Onaolapo and Olufemi (2012), that capital adequacy is the main determinant of commercial bank's profitability. This suggests that the adequacy and loan portfolio management determine the profitability of banks. Moreover, the bank has the ability to fulfill its obligations to the depositors. Lastly, the banks will have required level of capital that enable them to withstand credit, market and operational risks they are exposed to in order to absorb the potential loses and protect the bank's debtors. Goddard, Molyneux, and Wilson (2004) examined the profitability of European banks, the result showed that the relationship between capital adequacy and profitability is positive for the UK and Berger and Bouwman (2013), suggested that capital improved the performance of medium and large banks primarily during banking catastrophes. The study found a direct relationship and significant impact of capital adequacy on international bank profitability.

Implications of Findings

The result obtained in the analysis depicted the true picture of incentive base theory; which projected that holding banks' assets and liabilities portfolios stable while there is higher capital would automatically entail a superior chances of performance. This logically means that capital either enhances a bank's incentive to check its relationship with borrowers, decrease the probability of non-payment, satisfy asset-substitution, reduces moral hazard or lessen the attractiveness of risky products. The implication of these findings is that Central

Bank of Nigeria should effectively regulate the capital and the resources owned by the Deposit Money Banks (DMBs) in Nigeria by ensuring that a certain level of capital is kept with the Central Bank of Nigeria (CBN) for DMBs' financial soundness and stability. This will enable them to continue to absorb losses and manage risk exposure with shareholders. Therefore, due attention should be given in ensuring adequate capital, optimum liquidity and adequate size of assets by deposit money banks for better performance in their own area of business.

Conclusion

In accordance with the results obtained from the regression analysis, with positive and significant relationship between capital adequacy and return on capital employed suggested that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability if truly the capital employed is managed well. The higher the capital employed, the more profitable a bank should be. Capital adequacy functioned in various ways such as providing cushion against losses not covered by current earnings. It has also been a confidence booster to the depositors, public and the regulatory authority in Nigeria.

Suggestion for Future Research

This study examined the effect of capital adequacy on financial performance of DMBs quoted in Nigeria and it revealed that capital adequacy provided a positive relationship towards financial performance. Therefore, there is a need for further studies whose data should be based on use of more variables, which should comprise of a larger sample size to help in more understanding and justification of results generalization. Furthermore, another study can be done on factors that influence the liquidity and capital adequacy of financial institutions by doing so, it might contribute to academic literature and add value to the banks' performance.

References

- Aburime, T. (2008). Determinants of bank profitability: Company-level evidence from Nigeria. *Second Annual Conference, Department of Finance, University of Lagos*, 1-6.
- Almazari, A. A., & Alamri, A. M. (2016). The effect of capital adequacy on profitability: a comparative study between samba and Saab banks of Saudi Arabia, *Global Journal of Business Research*, 8(4), 22-25.
- Amahalu, N., Okoye, E. I., Nweze, C., Chinyere, O., & Christian, O. (2017). Effect of capital adequacy on financial performance of quoted deposit money banks in Nigeria. In *Chapter 57 in the proceedings of the 2017 International Conference on African Entrepreneurship and Innovation for Sustainable Development (AEISD)*.
- Apere, T. O. (2016). The impact of microfinance banks on economic growth in Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 5 (4), 53-61.
- Asikhia, O., & Sokefun, A. (2013). Capital adequacy and banks' profitability; An empirical evidence from Nigeria, *American international journal of contemporary Research*, 3 (10), 91-92.
- Athanasoglou, P., Delis, M., & Staikouras, C. (2006). Determinants of bank profitability in the South Eastern European region, *Journal of international financial Markets, Institutions and Money*, 2 (2), 42-48.
- Aymen, B. M. M. (2013). Impact of capital on financial performance of banks: The case of Tunisia, *Banks and Bank Systems*, 8(4), 47-54.
- Berger (1995). The relationship between capital and earnings in banking. *Journal of money, credit and banking*, 27(2), 432-456.
- Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia, *Journal of Banking & Finance*, 13 (1), 65-79.
- Calomiris, C. W., & Mason, J. R. (2003). Consequences of bank distress during the Great Depression, *American Economic Review*, 93, 937-947.
- Calomiris, C. W., & Powell, A. (2001). Can emerging market bank regulators establish credible discipline? The case of Argentina, 1992-99. In *Prudential supervision: What works and what doesn't* (pp. 147-196). University of Chicago Press.
- CBN (2006). Annual report and statement of accounts, CBN, Abuja.
- Demirgüç-Kunt, A., Laeven, L., & Levine, R. (2003). *The impact of bank regulations, concentration, and institutions on bank margins*, The World Bank.

- Dell'Ariceia, G., & Marquez, R. (2004). Information and bank credit allocation, *Journal of Financial Economics*, 72(1), 185-214.
- Dietrich, A., & Wanzenried, G. (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland, *Journal of International Financial Markets, Institutions and Money*, 21 (3), 307-327.
- Elliott, B. & Elliott, J. (2001). *Financial accounting and reporting* (5thed.). Harlow, UK: FT Prentice Hall.
- Ekundayo, O. U. & Odhigu, F. (2016). Determinants of human capital accounting in Nigeria, *Journal of Accounting*, 1, 5-7
- Ezike, J. E., & Oke, M. O. (2013). Capital adequacy standards, Basle accord and bank performance: The Nigerian experience (A case study of selected Banks in Nigeria), *Asian Economic and Financial Review*, 3 (2), 146-149.
- Goddard, J., Molyneux, P., & Wilson, J. O. (2004). Dynamics of growth and profitability in banking, *Journal of Money, Credit and Banking*, 1069-1090.
- Gudmundsson, R., Ngoka-Kisinguh, K., & Odongo, M. T. (2013). The role of capital requirements on bank competition and stability: The case of the Kenyan banking industry. *Kenya Bankers Association-KBA Centre for Research on Financial Markets and Policy Working Paper Series*.
- Gul, S., Irshad, F. & Zaman, K. (2011). Factors affecting bank profitability in Pakistan, *The Romanian Economic Journal*, 14 (39), 61-87.
- Ikpefan, O. A. (2013). Capital adequacy, management and performance in the Nigerian commercial bank (1986-2006). *African Journal of Business Management*, 7 (30), 2938-2950.
- Kadioglu, E., Telceken, N., & Ocal, N. (2017). Effect of the asset quality on the bank profitability, *International Journal of Economics and Finance*, 9(7), 60-68.
- Kim, M., Kristiansen, E. G., & Vale, B. (2005). Endogenous product differentiation in credit markets: What do borrowers pay for?, *Journal of Banking & Finance*, 29(3), 681-699.
- Kou, J., & Varotto, S. (2008). Timeliness of spread implied ratings, *European Financial Management*, 14(3), 503-527.
- Lawal, T. T. (2019). *Influence of bank financial soundness on the operational efficiency of deposit money banks in Nigeria* (Doctoral dissertation, JKUAT-COHRED).Pg/Ph. D/2019/24768. Available at SSRN: <http://dx.doi.org/10.47689/ssrn,10.47689>.

- Lone, F. A., & Ahmad, S. (2017). Islamic finance: more expectations and less disappointment, *Journal of financial intermediation*, 5(2), 174-183.
- Lucky, L. A., & Nwosi, A. A. (2015). Asset quality and profitability of commercial banks: Evidence from Nigeria, *Research Journal of Finance and Accounting*, 6(18), 26-34.
- McAleer, M. (2009). The ten commandments for optimizing value-at-risk and daily capital charges, *Journal of Economic Surveys*, 23(5), 831-849.
- Muraina, S. A. (2018). Determinants of listed deposit money banks' profitability in Nigeria, *International Journal of Finance and Banking Research*, 4(3), 40-56.
- Mwongeli, A. J. (2016). The effect of regulations on financial performance of commercial Banks in Kenya, *Unpublished MBA thesis. The University of Nairobi, Nairobi*.
- Nouaili, M. A., Abaoub, E., & Anis, O. C. H. I. (2015). The determinants of banking performance in front of financial changes: Case of trade banks in Tunisia, *International Journal of Economics and Financial Issues*, 5(2), 410-417.
- Odundo, O. G., & Orwaru, M. J. (2018). Bank size and financial stability of commercial Banks in Kenya, *Research Journal of Finance and Accounting*, 3(13), 109-114.
- Obamuyi, T. M. (2013). Factors influencing investment decisions in capital market: A study of individual investors in Nigeria, *Organizations and markets in emerging economies*, 4(07), 141-161.
- Obadan, M. I. (2004). *Foreign capital flows and external debt: Perspectives on Nigeria and the LCDs Group* (1st ed.), Lagos: Broadway Press.
- Ogboi, C., & Unuafé, O. K. (2013). Impact of credit risk management and capital adequacy on the financial performance of commercial banks in Nigeria, *Journal of Emerging Issues in Economics, Finance and Banking*, 2(3), 703-717.
- Olowe, R. A. (2011). *Financial management; Concepts, financial system and business finance* (3rd ed.), Lagos: Nigeria: Brierly Jones Nigeria Limited.
- Onaolapo, A., & Olufemi, A. (2012). Effect of capital adequacy on the profitability of the Nigerian banking sector, *Journal of Money, Investment and Banking*, 24, 61-72.
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms, *International Review of Business Research Papers*, 2(2), 45-58.

- Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union, *Research in International Business and Finance*, 21(2), 222-237.
- Petria, N., Capraru, B., & Ihnatov, I. (2015). Determinants of banks' profitability: evidence from EU 27 banking systems. *Procedia Economics and Finance*, 20, 518-524.
- Pradip, K. D. (2017). Impact of return on capital employed on company performance – An Introspection in India, *Saudi Journal of Business and Management Studies*, 2 (9), 848-853
- Pradhan, R. S., & Shrestha, A. (2017). The impact of capital adequacy and bank operating efficiency on financial performance of Nepalese commercial banks, *Available at SSRN 3044068*.
- Roman, A., & Danuletiu, A. E. (2013). An empirical analysis of the determinants of bank profitability in Romania, *Annales Universitatis Apulensis: Series Oeconomica*, 15(2), 580.
- Sangmi, M. U. D., & Nazir, T. (2010). Analyzing financial performance of commercial banks in India: Application of CAMEL model. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 4(1), 40-55.
- Sheefeni, J. P. S. (2015). The macroeconomic determinants of profitability among commercial Banks in Namibia, *Journal of Emerging Issues in Economics, Finance and Banking*, 4 (1), 1414-1431.
- Sufian, F., & Chong, R. R. (2008). Determinants of bank profitability in a developing economy: Empirical evidence from the Philippines, *Asian Academy of Management Journal of Accounting & Finance*, 4(2), 546- 549.
- Tarawneh, M. (2006). A comparison of financial performance in the banking sector: Some evidence from Omani commercial banks, *International Research Journal of Finance and Economics*, 3(3), 101-112.
- Thumbi, G. (2014). *Effects of credit risk and working capital on capital adequacy for commercial banks in Kenya*, (Unpublished MBA thesis). University of Nairobi.
- Udom, I. S., & Eze, O. R. (2018). Effect of capital adequacy requirements on the profitability of commercial banks in Nigeria. *International Research Journal of Finance and Economics*, (165), 45-50.
- Uremandu, S., Ben-Caleb, E., & Enyi, P. E. (2012). Working capital management, liquidity and Corporate profitability among quoted firms in Nigeria: Evidence from the Productive sector. *International journal of academic research in accounting, finance and management sciences*, 2(1), 27- 30