



Bank Size and Deposit Money Banks Performance in Nigeria.

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Abstract

The study mainly assessed the role of bank size on deposit money banks performance and GDP growth rate in Nigeria. The Panel ARDL method was deployed to analyse the relationship between capital adequacy, bank performance, and selected macroeconomic variables. The study utilized data from the Annual Reports of banks in Nigeria spanning from 2008 to 2022. Various diagnostic tests, including stationarity tests and co-integration tests, were conducted to ensure the appropriateness of the Panel ARDL technique. The study revealed that asset quality significantly influence GDP growth rate in Nigeria. Larger banks with adequate capital adequacy ratio tend to exhibit higher profitability. Capital adequacy ratio was found to have any significant impact on GDP growth rate in the short run and not significant long run model considering the p-value of 0.0347 and 0.0649 percent respectively. Inflation rate was found to impact GDP growth rate in the long run and in the short run as the p-value of inflation rate of 0.035 and 0.0000 respectively. It is recommended that the Central Bank of Nigeria (CBN) should encourage mergers and acquisitions among smaller deposit money banks (DMBs) to create larger, more efficient institutions. Larger banks benefit from economies of scale, reducing operational costs and improving overall performance.

Keywords: Bank Size, Deposit Money Bank Performance, GDP Growth Rate, Capital Adequacy Ratio

I. Introduction

The financial sector is globally recognized as a foundation of any economy, enabling the movement of funds from surplus to deficit spending units. This function of capital allocation shows the indispensable role of the sector in stimulating growth and driving development. The development of the banking systems, encompassing both institutions and markets, are widely acknowledged by economists and financial experts as pivotal in the growth path of a nation's economic advancement.

Large Banks have an advantage of a large number of borrowers, economies of scale and

diversification, leading to low funding cost and consequently higher profits (Akhavain et. al., 1997; Bikker and Hu, 2002). On the other hand; the opposing view is that an increase in bank size leads to higher levels of marketing, operational, asymmetric information and bureaucratic costs, and results in a negative link between profitability and size (Barros et, al., 2007; Tan, 2016; Djalilov and Piesse, 2016). In the existing empirical literature, some of the studies find a positive relationship between bank size and profitability.

Bank size is an important indicator in measuring assets of a bank. Company size can be measured by total assets (Barus and Erick, 2016). With large assets, banks have large volumes of credit to distribute and subsequently reduce the interest rate. The existence of such low-interest rates will facilitates credit payments that will reduce the problematic loans faced by banks. The size of a bank can be assessed from the total assets owned by the banks. Banks with large assets have the possibility to generate greater profits when followed by the results of their activities. The results of research conducted by Astriniet, al (2014) and Barus and Erick (2016) revealed that bank size has a positive and partially significant effect on Non-Performing Loan (NPL).

The effectiveness of the banking system in Nigeria hinges on how confident and satisfied bank clients (customers) are with services provided by the banks. Customer satisfaction is based on expectations and knowledge of the services being provided by the bank. Without doubt, the use of electronic payment systems has improved customer satisfaction with the variety of services offered by financial institutions to their clients. Due to the fact that most tasks are completed at the customer's convenience, the banking hall queuing system, customers perceive operating in modern banking to be highly simple and satisfy.

Moreover, aside a bank having adequate capital, its asset quality is also very important and key for the survival of the bank since asset quality involves the examination of the bank asset in a bid to ascertain the size and level of credit risk linked with its activities. A key component of the credit profile of a bank is the asset quality and poor asset



quality is often regarded as one of the root causes of bank going distress. Hence, bank regulator is also concerned of the asset quality of banks since a weak asset quality not only affects the profitability and operations of the banks but also affects the financial stability of the economy (Abata, 2014; Richard Prakash, 2019). For instance, as documented by Yin (1999), one of the immediate causes of the Asian financial crisis was the deterioration of the asset quality of the bank.

The study is to examine the impact of bank size on deposit money banks performance in Nigeria. The study achieved the following specific objectives: determine the impact of cash adequacy ratio on GDP growth rate in Nigeria, ascertain the effect of bank size on GDP growth rate in Nigeria, evaluate the association between GDP growth rate and deposit money banks performance in Nigeria, establish the link between inflation and GDP growth rate in Nigeria, evaluate the association between asset quality and GDP growth rate in Nigeria and ascertain the effect of loan equity ratio on GDP growth rate in Nigeria.

This study is structured into five sections. Section One is the introduction. Section Two reviews relevant literatures. Section Three provides the methodology for the study. Section Four covers empirical analysis and results. Section five concludes, and provides recommendations.

Concept of Size of the Bank (BS)

Large firms according to Kudzai, and Althenia, (2016), are expected to have a higher debt capacity and are able to be more highly geared of the risk of bankruptcy. They may also be able to reduce transaction costs associated with long-term debt issuance. As stated by Chen (2004) the firm's size has been the critical point of capital structure decision. Small firms have restricted access to the funding, that is why they face higher interest rate as component to larger firms and their growth is ultimately influenced. The relations between the bank-size and profitability can be measured by economies of scale (Muradoglu and Sivaprasad, 2009).

The size of a bank is helpful because larger banks pay less due to the allocation of their fixed cost and also they are in a position to capture a large market share. According to Berryman (2002), Lending to small businesses is riskier because of the strong negative correlation between the firm size and the probability of insolvency. Haron (2004) found out that the size of banks and the industrial structure of banking industry depend on factors including the degree of macro-economic or cyclical

uncertainty as well as the regulatory framework. The regulatory framework exerts pressure on banks to maintain a minimum level of safety or soundness. The indicator of size used in this study was loan growth of the commercial banks.

Concept of Financial Performance

Concept of financial performance, measured by profitability, is the primary goal of all financial institutions. 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 bank or alternatively the starting point can be taken in accounting figures and using accounting returns as indicators of bank performance. Terence (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 bank is very important because managers need to know how well the banks are performing.

Rahal (1997), opines that, 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.

In another vein, 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 revenue. It is a factor that shows the effectiveness and efficiency of an organization in order to achieve its objective. In assessing financial performance, a wide range of indicators are available for reporting by financial institutions. The most important are the macro-prudential indicators broadly defined as indicators of the health and stability of the financial system that help countries to assess their banking systems vulnerability to crisis. These indicators are commonly known as the CAMELS framework.

The use of the framework was recommended by the Basel committee on banking supervision and covers risk monitoring factors for evaluating the performance of banks. The framework involves the analysis of six groups of indicators reflecting the health of financial



institutions and includes; capital adequacy, assets quality, management soundness, earnings, liquidity and sensitivity to market risk. Each of these indicators is further discussed below.

Theoretical Literature

Theory of Economies of Scale

The theory of economics of scale illustrates a perfect link of bank size and financial performance. It states that as the bank size increases the efficiency increases, and finally efficiency levels off over time and then begins to fall as the bank becomes extremely large. A large bank can lend too many numbers of borrowers which leads to diversification of its loan portfolio risk which further decreases the expected cost of overcoming information asymmetries. As a result, more, cost savings and hence higher profit margins. Large banks will be advantage of economies of scale. The opposite is true as a bank become too big the profits will start to fall because of bureaucratic reasons. The theory economies of scale are important because it helps a financial institution to gain competitive advantage; larger banks have more cost savings and higher production levels (McLean, 2014).

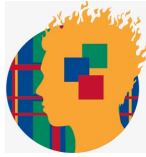
Amadeo (1994) advocated for economies of scale theory because larger firms tend to receive huge cheap deposits from wider array of clients. They receive low interest rates and, an advantage of better bargains. The major problem with this theory is that it assumes a perfect competitive market environment which is not possible in a real world. The theory touches all the four variables studied in the study. If the bank increases the branches. It will see its profit up to a certain point. If the bank receives huge customer's deposit and capital it will see its profits rise up to a certain point because the high interests, cheap deposit will be extended as loans and advance. Huge deposits are disadvantages when it becomes too expensive to hold the holding costs. Loans advances will result into an increase in profit up to a certain level when the loan looks unsustainable.

Table 1: Empirical Literature Review

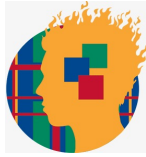
Author(s)	Location of Study	Topic	Variables of the Model	Method of Analysis	Findings
Mulbah, Kurbonov, & Nasriddinov, (2024)	Tanzania,	new evidence of the effect of bank size, capital adequacy ratio (CAR), and net interest margin (NIM) on banks' return on assets	size, capital adequacy ratio (CAR), and net interest margin (NIM)	Random Effect, and the Generalized Least Squares (GLS) regression	The result found inconsistent results for the effect of NIM; while the random effect model shows a



		(financial performance)		models	marginally significant positive effect on ROA, the GLS regression shows a significant negative effect, indicating that the effect of NIM could be either positive or negative depending on the context
Erlangga,&Mawardi , (2016)	Indonesia	the impact of the variables firm size, liquidity, capital adequacy and financing fraud on Sharia Bank profitability	firm size (asset total), Liquidity (FDR), financing fraud (NPF), capital adequacy (CAR)	Linear Regression Analysis	the effect of firm size (asset total), Liquidity (FDR), financing fraud (NPF) on Sharia Bank profitability partially significant. Meanwhile, the effect of capital adequacy (CAR) on Sharia Bank profitability not too significant
Pratiwi, (2023).		the influence of capital adequacy, liquidity, bank size, and profitability on credit risk in Commercial Banks	CAR, LDR, BS, and ROA, Non-Performing Loans	panel data regression	results indicate that ROA has a negative and significant effect on NPL in BUKU IV Commercial Banks. However, CAR, LDR, and BS do not have a significant impact on NPL in BUKU IV Commercial



					Banks.
Yudistira, and Ristati, (2022)	Indonesia	the effect of the capital adequacy ratio, non-performing financing, bank size and financing to deposit ratio on financial performance of Islamic banks	capital adequacy ratios, non-performing financing, bank size	Panel data regression analysis method	The results of the study find that capital adequacy ratio has positive and significant effect on financial performance, while non-performing financing has negative and significant effect on financial performance. Bank size and financing to deposit ratio have no significant effect on financial performance.
Liu and Chen (2023)	Japanese	the relationship between bank size, capital adequacy, and systemic risk	bank size and capital adequacy	econometric techniques	the findings showed that bank size and capital adequacy were key determinants of systemic risk.
Okonkwo, Babatunde and Ibrahim (2023)	Nigeria	impact of bank size and capital adequacy on bank stability in Nigeria.	bank size and capital adequacy	regression analysis	The findings revealed that bank size and capital adequacy had significant impact on bank stability.
Rodriguez and Martinez (2023)	Mexico.	the impact of bank size and capital adequacy on shareholder value	bank size, capital adequacy, shareholder value	regression analysis	The study found bank size and capital adequacy to positively



					impact shareholder value.
Ahmed, Yusuf and Abubakar (2023)	Nigeria	the influence of bank size and capital adequacy on financial performance factors influencing banking profitability	bank size and capital adequacy, Net interest margin	Quantitative analysis and interviews a form of mixed-methods approach	Their findings showed that bank size and capital adequacy were significant determinants of financial performance
Ojo and Adebayo (2020)	South Africa	impact of bank size and capital adequacy on bank performance in South Africa.	bank size, capital adequacy, and bank performance	panel estimation techniques.	. The result showed a positive relationship between bank size, capital adequacy, and bank performance.
Adewale, Adebayo and Ojo (2019)	Nigeria	the impact of bank size and capital adequacy on bank performance in Nigeria	bank size, capital adequacy, and bank performance	quantitative research approach	The findings revealed a positive relationship between bank size, capital adequacy, and bank performance.

Source: Authors Compilations (2024)

II.

III. Methodology

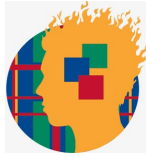
Model Specification

The functional relationship between the endogenous variable and its explanatory variables shall be expressed in line with the analytical framework (Agyei, 2018; Ogboi and Unuafé, 2013; Suka, JustuNzioki, 2011) who carried out an analytical impact of capital adequacy on the financial performance of commercial banks in Nigeria. The study utilized panel data covering the period between 2008 to 2022

$$GDPR = f(BS, CAR, AQ, LER, INF, ROA) \quad (3.1)$$

Consequently, the ARDL Specification for the study is given as:

Since there is co-integration among the variables, the error correction form of model 3.2 is given as:



Data Sources

CBN statistical bulletin, Financial Reports are the sources of the data gathered for this study. Thus, the data are completely secondary data.

Table 2: Apriori Expectation

Variable	Explanation	Expected
CAR	A rise in CAR will increase GDP growth rate	Positive
BS	A rise in the size of a banks improves GDP growth rate	Positive
AQ	A rise in asset quality would increase GDP growth rate	Positive
LER	A rise in LER will increase GDP growth rate	positive
GDPGR	A rise in GDPGR will increase GDP growth rate	Positive
INF	A rise in INF will reduce GDP growth rate	Negative

Source: Author's compilation

Estimation Techniques

This study employs a panel ARDL model. Panel ARDL extends the applicability of the ARDL approach to panel datasets, enabling researchers to account for cross-sectional heterogeneity, individual-specific effects, and time-varying dynamics. By incorporating panel data structures, Panel ARDL models facilitate more robust and comprehensive analyses, capturing both within-group and between-group variations in the data. This adaptation enhances the efficiency and accuracy of empirical investigations, particularly in studies involving multiple entities or observational units.

Despite its many strengths, Panel ARDL analysis is not without its challenges and limitations. One of the primary concerns relates to the potential for model misspecification, particularly in the presence of omitted variables, endogeneity, and model instability. Researchers must exercise caution in selecting appropriate lag structures, conducting diagnostic tests, and interpreting results to mitigate these risks. Moreover, the computational complexity of estimating Panel ARDL models for large datasets may pose practical challenges, necessitating the use of specialized software and computational resources. Additionally, the interpretation of coefficient estimates and inference in Panel ARDL models requires careful consideration of underlying assumptions and potential sources of bias.

IV. Results and Discussion

Stationarity Test

Table 3: Unit root test results in levels and difference

	Levin Lin and Chu at level (Prob-value)	Im, Pesaran and Shin W-stat at level	ADF - Fisher Chi-square at level	Order of co-integration
ROA	-6.18403	-2.47473	49.3551	I(0)



	(0.0000)	(0.0011)	(0.0007)	
GDPGR	-12.0616	-6.45569	81.2442	I(1)
	(0.0000)	(0.0000)	(0.0000)	
BS	-1.99466	-2.21079	47.3023	I(1)
	(0.0230)	(0.0135)	(0.0013)	
CAR	-2.34748	-3.59702	54.2820	I(1)
	(0.0095)	(0.0002)	(0.0002)	
AQ	-6.75881	-3.15236	46.7334	I(0)
	(0.0000)	(0.0008)	(0.0016)	
LER	-2.12655	-3.20437	47.9605	I(1)
	(0.0167)	(0.0007)	(0.0011)	
INF	-8.14731	-3.00123	44.4238	I(1)
	(0.0000)	(0.0013)	(0.0031)	

Source: Computed by the researcher using Eviews 12 Software from data obtained from the Annual Reports of Banks (2008-2022).

Table 4: Kao Residual Cointegration Test (MODEL 2 : GDPGR INF BS CAR AQ LER ROA)

	t-Statistic	Prob.
ADF	-4.007881	0.0000
Residual variance	4.929270	
HAC variance	3.917114	

Source: Computed by the researcher using Eviews 12 Software from data obtained from the Annual Reports of Banks (2008-2022).

The result in Table indicated strong evidence of long run relationship as the probability values are lesser than 0.05.

Panel Regression Results (Model 2: Objective 3)

Table 5: Dependent Variable: D(GDPGR: (1 lag, automatic)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
ROA	60.77691	22.58090	2.691519	0.0089
INF	0.714244	0.236043	3.025908	0.0035
BS	5.161532	2.400123	2.150528	0.0349
CAR	10.88872	5.806182	1.875367	0.0649
AQ	-2.171645	2.643806	-0.821409	0.4142
LER	-0.599197	0.168999	-3.545557	0.0007
Short Run Equation				
COINTEQ01	-0.255124	0.049881	-5.114664	0.0000
D(ROA)	-5.892690	16.04187	-0.367332	0.7145
D(INF)	-0.651766	0.038583	-16.89278	0.0000
D(BS)	5.144848	3.011556	1.708369	0.0919
D(CAR)	51.91270	24.11434	2.152773	0.0347
D(AQ)	39.73584	42.35592	0.938141	0.3514
D(LER)	2.504122	1.637686	1.529061	0.1307



C	-27.10425	6.023372	-4.499847	0.0000
Root MSE	1.251447	Mean dependent var		-0.292806
S.D. dependent var	2.770992	S.E. of regression		1.907767
Akaike info criterion	4.020535	Sum squared resid		258.4099
Schwarz criterion	5.789982	Log likelihood		-237.6941
Hannan-Quinn criter.	4.738815			

Source: Computed by the researcher using Eviews 12 Software from data obtained from the Annual Reports of Banks (2008-2022).

Table 4.3 represents Gross Domestic product growth as dependent variable; having specific financial variables such as: returns on asset, inflation, bank size, capital adequacy ratio, asset quality and loan to equity ratio within deposit money bank in Nigeria. From the result, return on asset showed positive significant changes gross domestic product growth rate in the long run by about 60 per cent, on average. While, same value yielded inverse but significant relationship with 5.8 per cent coefficient changes, on average. Inflation rate been a long run phenomenon results in significant positive changes in gross domestic product growth rate by about .71 per cent, on average. While the short run impact exhibited decreasing effect on GDPGR by about 0.65 per cent, on average. Bank size increases GDP growth rate by about 5.16 per cent in the long run but, the short run dynamics exhibited insignificant but positive relationship by about 5.14 per cent.

Capital adequacy ratio results in about 10.8 per cent changes in GDPGR in the long run while, the short run responses yielded positive and significant relationship with GDPGR.

Asset quality is negatively related with GDPGR in the long run. Changes of about 2.17 per cent of GDPGR is elicited by a unit change in asset quality whereas, the short run dynamics of GDPGR responses with asset quality yielded about 39 per cent, on average.

Loan to equity ratio exhibited inverse but significant relationship with GDPGR; accounting for 0.59 per cent changes. But, in the short run loan to equity ratio exhibited positive relationship with GDPGR.

V. Conclusion

The main objective of the study was to assess the impact of bank size on bank performance and GDP growth rate in Nigeria using the Panel Autoregressive Distributed Lag (ARDL) approach. This analytical technique allowed for the investigation of both the long-run and short-run effect. The theoretical framework underpinning this

research included the importance of capital adequacy in ensuring macroeconomic stability and the influence of bank size on profitability. The main findings of the study revealed several significant relationships between the variables under investigation. Economic variables such as cash adequacy ratio, inflation and asset quality and loan equity ratio to impact GDP growth rate, both in the short and long run. However, the study did not find a significant effect of capital adequacy ratio on bank performance, highlighting a potential area for further investigation.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The Central Bank of Nigeria (CBN) should encourage mergers and acquisitions among smaller deposit money banks (DMBs) to create larger, more efficient institutions. Larger banks benefit from economies of scale, reducing operational costs and improving overall performance.
2. The regulatory framework should adopt a tiered approach where larger banks face stricter prudential requirements, while smaller banks have more flexible regulations. This will help maintain financial stability and allow smaller banks to grow and compete effectively without excessive regulatory burdens.
3. Large banks should be required to implement more robust risk management practices to mitigate systemic risks. Given their size, poor performance by large banks could have far-reaching effects on the economy. The CBN should strengthen oversight of risk management systems in large deposit money banks.
4. Banks, regardless of their size, should be incentivized to lend to key sectors of the economy, such as agriculture, manufacturing, and small businesses. This could involve providing tax incentives or regulatory advantages to banks that meet certain lending targets aimed at boosting Nigeria's real economy.



5. The CBN should promote the adoption of digital banking and fintech solutions across both large and small banks to improve efficiency and customer service. Investments in technology can help smaller banks compete with larger ones by improving their operational efficiency and expanding their customer base.

6. The CBN should ensure that all banks, regardless of size, are transparent about their financial performance, risk exposure, and governance structures. Regular and transparent disclosures will improve investor confidence, making it easier for both large and small banks to access capital and grow sustainably.

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