

THE IMPACT OF BANK SIZE ON FINANCIAL PERFORMANCE: EVIDENCE FROM QUOTED COMMERCIAL BANKS IN NIGERIA USING PANEL DATA

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Abstract

This study investigated bank size and financial performance of quoted commercial banks in Nigeria for the period 2014-2023. The study employed ex post facto and correlational research design and the population comprised of all banks quoted on the Nigerian Exchange Group for the period under review. The sample consisted of ten (14) banks after data filtration using simple random sampling technique. The study collected data from secondary sources mostly the sampled banks financial statements. The secondary data obtained was analysed with using panel data Ordinary Least Square Methods. R-square, adjusted R-square, regression coefficient, Durbin Watson, F-statistic and F-probability was used to study the effect of bank size on financial performance. From model one; the study found that 75.1 and 67.1 percent variation in earnings per share was traced to banks size, bank assets size, bank deposit size and bank capital size have positive effect on earnings per share while bank loan size have negative effect on the return on assets of the quoted commercial banks. From model two, the study found that 66.4 and 53.9 percent variation in return on equity was accounted for by bank size. However, beta coefficient of the variables found that all the independent variables have positive effect on the return on equity of the quoted commercial banks. From the findings, the study conclude that bank size have significant effect on financial performance of the quoted commercial banks. It recommend that Commercial banks in Nigeria should improve their size of assets focusing more on earnings assets, reduce investment in nonearning assets but increase level of capitalization and ensure assets and liability management that affect financial performance positively. The quoted commercial banks should minimize their operational cost efficiency, increase capital adequacy and increase oversight in factors that capital composition and increase gearing ratio because excess expenditure does have negative and significant impact on banks performance and the banking institutions should ensure adequate deposit mobilization and minimize their non-performing loans through appropriate credit policies and procedures and consider other quantitative and qualitative approaches of profit improvement than bank size.

Keywords: Bank size, Financial Performance, Panel Data Study, Commercial Banks, Nigeria

INTRODUCTION

For more than two decades, the Nigerian banking sector has undergone notable fundamental changes in a bid to reposition the sector as the hub of economic development in the country. Before 2005, there were more than 89 banks in the country that were highly undercapitalised, distressed and grossly inefficient with a high percentage of nonperforming loans. In 2005, the Central Bank of Nigeria mandated all the commercial banks to increase their minimum capital base from N2billion to N25billion. One major objective of this exercise was to make the banking sector highly capitalized, stronger and more cost efficient (Kolapo, Ajayi & Aluko, 2016; Nyong, 2017). The recapitalization exercise forced many banks into a series of mergers and acquisitions. After 2005, only 25 banks emerged as commercial banks in the country.

Besides, the recapitalization exercise produced the emergence of large banks in terms of asset base as well as wider coverage.

The banking sector's financial performance is a key driver of a nation's economic development. Metrics like return on equity, return on assets and other ratios generated from financial statements are used to evaluate it (Adam, 2018). According to several studies, a bank's size significantly affects how financially stable it is (Muhindi & Ngaba, 2018; Lucky, & Tamunoiduabia, 2022). Bank size in various studies is often measured using indicators such as total assets, customer deposits, branch count, and employee numbers (Varotto & Zhao, 2018; Kasman & Kasman, 2016; Lucky & Phil-Olumba, 2020). Bank size and age are important factors related to bank profitability. Almazari (2018) argued that a bank's ability to sustain profits over time serves as its primary defense, absorbing unforeseen losses, strengthening the capital base, and enhancing future performance through reinvestment of retained earnings. According to Teimet and Lishenga (2019) the size of a bank significantly impact financial performance, especially in economies of scale. Larger banks can reduce costs per unit, improve efficiency, strengthen their capital base, and gain market share. They also have more influence on stakeholders, competitors, and overall profitability compared to smaller banks. Studies on deposit money banks' financial performance have examined the role of bank size and age as fundamental factors.

The size of a bank is relevant in relation to the profitability of banks. Almazari (2014), Teimet & Lishenga (2019) opined that the capacity to sustain profits over time remain the first bank's line of defense as it absorbs unexpected losses, strengthens banks capital base and in addition, used to improve future performance through re-investment of the retained earnings. Teimet & Lishenga (2019) bank size plays a significant role in the prediction of financial performance when economies of scale are considered. A bank may leverage on average cost reduction per unit while enhancing efficiency, capital base and market share. According to Babalola and Abiola (2013), larger bank is more influential in the strategic decision and have more influence upon its stakeholders, competitors, efficiency and in addition, more profitable relative to a small bank. Bank size uniqueness in terms of assets, capital, deposits and loans influence the quality of decisions on the activities undertaken by a bank, which in effect, affects the strength of financial performance (Olowokure, Tanko & Nyor, 2015).

Large banks can leverage their access to wholesale deposits and control interest rates, but this advantage only benefits their financial performance if they are also costefficient. While having many branches can attract more deposits, the cost of operating them can hurt financial performance if economies of scale aren't utilized (Isayas, 2023). Babalola and Abiola (2018) larger banks have greater influence over strategic decisions, stakeholders, competitors, and efficiency, leading to higher profitability compared to smaller banks. The uniqueness of a bank's size, including its deposits, assets, capital and loans can shape decision-making and, consequently, impact financial performance (Olowokure, Tanko & Nyor, 2015).

Bank size can be broken down into vertical integration within activities and products or horizontal expansion across multiple entities. This has led to an ongoing debate about the ideal bank size, management complexity, and risks associated with different activities. Larger banks increasingly

participate in non-traditional market activities, which have grown significantly over time (Teimet & Lishenga, 2019). Due to this change in activity in industrialized nations, limits have been put in place to limit the exposure and scale of banks (Vinals et al., 2013). In comparison to smaller banks, larger banks frequently have lower capital bases, less consistent funding, participate in more market-based operations, and are more sophisticated. Larger bank failures, however, have the potential to have a greater negative impact on the financial system than smaller bank failures (Laeven, Ratnovski, & Tong, 2014). The size of a business is determined by its capacity for production and the range of products or services it can offer to customers simultaneously (Sritharan, 2015). Bank size and age are studied to understand scale economies in banking. Larger banks cut costs due to scale and scope efficiencies, measured by metrics like sales, assets, employees, and turnover. Exceptionally large firms may face negatives like bureaucracy (Yuqi, 2017)

The nexus between bank size and financial performance of commercial banks in Nigeria is thus, necessary. Moreover, most of the empirical studies including Demirgüç-Kunt and Huizinga (2013), Obamuyi (2013), Saira, Jamil & Abdul (2011), Hoffmann (2011), Curak, Poposki et al. (2011), Berger, Klapper & TurkAsis (2009), Kamau and Were (2013), Onuonga (2014) and TurkAriss (2010); Eyigege (2018); Alex & Ngaba (2018), Zaagha, & Lucky, (2021), are mixed at best on their findings on the effect of bank size on financial performance. This study therefore examined the effect of bank size on the performance of quoted commercial banks in Nigeria.

LITERATURE REVIEW Bank Size

Bank size is a multidimensional measure. The size of a bank is used to capture economies and diseconomies of scale in the banking industry. The size of a bank is computed as the logarithm of total assets. Bank size plays an important role in the prediction of profitability when economies of scale are considered. A bank may leverage on average cost reduction per unit while enhancing efficiency, capital base and market share. Babalola and Abiola (2013) opined that a larger bank is more influential in the strategic decision and have more influence upon its stakeholders, competitors, efficiency and in addition, more profitable relative to a small bank.

Bank size uniqueness in terms of assets, capital, deposits and loans influence the quality of decisions on the activities undertaken by a bank, which in effect, affects the strength of financial performance (Olowokure, Tanko & Nyor, 2015). The largeness of a bank can be decomposed into; vertical on activities and products; or horizontal on the supply of a product or service across several entities. Thus, a puzzled endless debate on the optimal bank size, management complexity and exposures associated with activities ranges. Larger banks engage more in market activities outside their traditional lending, which of late, has escalated and grown significantly (Teimet & Lishenga, 2019). This paradigm shift of activities in the developed world has warranted restriction to reduce bank size exposure (Vinals et al., 2013). Accordingly, larger banks tend to have lower capital base, less-stable funding, engaging in more-market based activities as well as more complex than the small banks.

However, the failures associated with the larger banks tend to be more disruptive to the financial system than failures of small banks (Laeven, Ratnovski, & Tong, 2014). Muhindi & Ngaba (2018) used a panel data

from 2012 to 2016 to assess the influence of bank size on the financial performance of Kenyan banks using; the number of branches, capital base, number of customer deposit, loans and advances as the key variables.

Size of Loans

This ratio measured the liquidity risk of a bank. It arises when the bank is not able to accommodate declines in its obligations or to finance increases in loan demand. This variable is a major contributing factor of bank performance because the market for loans particularly credit to firms and individuals is precarious and therefore holds higher expected returns than other asset portfolio for instance, government securities.

The Size of Bank Capital

This ratio measured the total equity (total shareholders fund) to total bank assets or a ratio of capital reserves to total bank assets. It is expected that banks with high capital adequacy ratio will experience minor financial hardships during a financial crisis which will lead to higher profits. Onuonga, (2014) study of the performance of Kenyas top six commercial banks with internal factor analysis using Generalized Least Square method found out that capital adequacy had a positive impact of bank performance.

Size of Customer Deposit

Alex and Ngaba (2018) stated that studies have shown a relationship between deposit ratio and the financial performance of banks. According to Arsew et al (2020), banks with large total assets do have the leverage to provide credit to borrowers in sufficient quantity so as achieve better performance (Alper, et al, 2011). Kisman (2017) noted that the size of a bank's loan to deposit ratio influences the profitability of a bank. Arsew et al (2020) stated that the higher the loan deposit ratio of a bank influences the profitability of banks. Kisman (2017) further stated that loan deposit ratio significant and positively affects the return on assets of banks.

Financial Performance

The financial performance of deposit money banks has critical implications for the economic growth of any given country. Appah and Inini (2019) stated that financial performance of corporations construct has two different perspectives, namely, growth and profitability, and each of these perspectives might be operationalized by using one or more indicators. Firm financial performance is commonly reflected in the calculation of financial ratios that show the link between numbers in the financial statement. The financial ratios may include the computation of the profitability, efficiency, liquidity, gearing, and investment of a particular firm. Moreover, firm financial performance generally may also be reflected in market-based (investor returns) and accounting-based (accounting returns) measures. Examples of market-based indicators to measure firm financial performance are price per share and Tobin's Q which indicate the market value or the share of the firm as well as the financial prospect of the firm in the future.

The performance deposits money banks can be affected by internal and external factors (AlTamimi, 2010). These factors can be classified into bank specific (internal) and macroeconomic variables. The internal factors are individual bank characteristics which affect the bank's performance. These factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability of banks

Teimet & Lishenga (2019). The empirical results of the researches (Raza, Farhan & Akram, 2011) explained that a company, which has better efficiency, it does not mean that always it will show the better effectiveness. Alam, Raza & Akram (2011) study concludes that ranking of banks differ as the financial ratio changes. The ability to support the present and future operations of a bank depends on the quality of its earnings and profitability profile (Shar, Shah & Jamali, 2011). Kolapo & Ayeni (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010).

The results showed that an increase in non-performing loan and loan loss provision reduce profitability (ROA) of banks while an increase in total loan and advances lead to increase profitability. The determinants of bank performance can be put into three groups: variables that are induced by management decision and policy objectives (bank-specific factors), variables that capture the industry structure and market growth (industry-specific factors) and elements that reflect the economic atmosphere under which the bank operates (macroeconomic factors). Appah and Inini (2019) stated that financial performance of corporations construct has two different perspectives, namely, growth and profitability, and each of these perspectives might be operationalized by using one or more indicators. Profitability, for example, can be measured by variables such as return on equity (ROE), return on assets (ROA), or even the return on investments (ROI), while growth can be measured by increase in sales.

Theoretical Review

The study is anchored on the growth of firm theory and agency theory. Growth of Firm Theory: This theory was propounded by Penrose (1959) who offered durable principles governing the growth of corporations and the rate at which corporations can grow efficiently and be profitable. Corporations with huge resources and attract the best management are expected to perform better than their peers according to the growth of the firm theory. Olawale, Bamidele & Lawal (2017) stated that in the growth theory of corporations Penrose stated that management is a team effort in which each employee deploys specialized, functional skills as well as more highly-efficient teamspecific skills, which enable them to individually and collectively coordinate the many activities of the corporation in a coherent manner.

Eyigege (2018) noted that Penrose provided a wider explanation of the relationship between resource-based relationship and corporate level performance. The current knowledge bases and underutilized resources of the corporation determine the direction of corporate growth. Penrose (1959) in Eyigege (2018) not only explains why and how these drivers shape the rate and direction of growth, but also argued that ignorance of these limiting factors results in inefficiencies and loss of competitive advantage. Penrose (1959) in Eyigege (2018) also provided causal relationship between resources and the generation of productive opportunities for growth and innovation. The experience of managers with each other and other resources in the corporation influences their image of the unique productive opportunities available for their corporations. Managers function as a catalyst in the conversion of firm's resources into firm capabilities and new product applications. In the spirit of dynamic capabilities, new combinations of resources lead to innovation and economic value creation (Eyigege, 2018).

Empirical Review

Arsew, et al (2020) carried out a study of loan to deposit ratio, non-performing loans and capital adequacy ratio on return on assets with good corporate governance in Indonesia for the period 2014 to 2018. The study employed quantitative method and the population consisted of 45 banks and purposive sampling technique was utilized to arrive at a sample size of 10 of the best banks. The study collected data from secondary sources mostly from the published financial statements of sampled banks for the period under review. The study dependent variable was return on assets while the independent variable was loan to deposit ratio, nonperforming loan, capital adequacy ratio, and the intervening variable was corporate governance perception index. The data obtained from the financial statements was analysed using diagnostic test of normality, multicollinearity, and heteroscedasticity and path analysis. The path analysis result revealed that loan deposit ratio and non-performing loan influence good corporate governance negatively and significantly while capital adequacy ratio showed a positive and significant influence. The second model suggested a positive and significant relationship between non-performing loan, capital adequacy and corporate governance on return on assets while loan deposit ratio showed no significant influence.

Teimet and Lishenga (2019) investigated the effect of banks size on the profitability of 42 commercial banks in Kenya covering the period 2009 to 2018. The regressions analysis showed the direction and magnitude of the relationships while the autoregressive distributed lag model was used to establish the equilibrium steadiness as well as the speed of adjustment to equilibrium. The results showed that banks size had a positive significant effect on returns on assets. Their study concluded that the size of a bank is associated with profitability and as such, banks consolidation and other expansion strategies enhance bank profitability as evidenced by bidirectional causality between the variables.

Edison, et al (2019) examined capital adequacy, loan to deposit ratio, operational costs and return on equity in Indonesia for the period 2014 to 2016. The study employed quantitative research method and the population consisted of 43 banks and purposive sampling method was employed to derive a sample size of 40 banks. The study obtained secondary data from the published financial statements of sample banks for the period under review. The secondary data was analysed using multiple regression analysis. The dependent variable was return on equity while the independent variable was capital adequacy ratio and loan to deposit ratio, operational costs. The results revealed a positive and significant relationship between capital adequacy ratio and loan to deposit ratio on return on equity.

Teshome, et al (2018) examined the determinants of financial performance of commercial banks in Ethiopia for the period 2007 to 2016. Their investigation employed ex post facto research design and secondary data for eight commercial banks. The data for this study was obtained from the published financial statements of the sampled commercial banks with return on asset and return on equity as the selected dependent variables while non-performing loan, capital adequacy ratio, bank size, leverage ratio, credit interest income ratio, loan loss provision ratio and operation cost efficiency were the independent variables and the data obtained were analysed with correlation and multiple linear regressions of the panel data. The

findings of the investigation revealed that capital adequacy ratio (CAR), credit interest income (CIR) and size of the bank (SIZE) have positive and statistically significant effect on financial performance while non-performing loans (NPLs), loan loss provision (LLP), leverage ratio (LR) and operational cost efficiency (OCE) have negative and statistically significant effect on banks' financial performance.

Hapsari, (2018) conducted a study of loan to deposit ratio and non-performing loan on banking financial performance in Indonesia for the period 2012 to 2016. The study employed quantitative and descriptive research method. The population of the study consisted of 116 banks and purposive sampling method was used to obtain a sample size of 13 banks for the period under review. The dependent variable was return on assets and the independent variables were loan deposit ratio with non-performing loan while size was used as a moderation variable. The study collected data from the published financial statements of sample banks. The data collected from the sample banks were analysed with multiple regressions with absolute difference method. The result from the regression analysis suggested that loan to deposit ratio showed a positive influence on return on assets; nonperforming loan negatively affect return on assets while size does not moderate the effect of the relationship between loan to deposit and non-performing loan on return on assets.

Muhindi and Ngaba (2018) used a panel data from 2012 to 2016 to assess the influence of bank size on the financial performance of Kenyan banks using; the number of branches, capital base, number of customer deposit, loans and advances as the key variables. The study found a positive relationship between bank size and financial performance and revealed that larger banks exhibit higher ROA relative to medium and small. However, an earlier study by Mulwa and Kosgei (2016) found a negative relationship between bank size and financial performance, which conflict.

Eyigege (2018) analysed the influence of firm size on financial performance of banks quoted on the Nigeria Stock Exchange. The study employed ex post facto research design with secondary data obtained from the published financial statements of the five banks. The independent variable was firm size measured by log of total assets while the dependent variable was financial performance measured by return on asset. The model of the study was analysed using pooled ordinary least square regression and fixed effect/random effect regression with the aid of STATA for panel regression. Also descriptive statistics and correlation analysis were computed. The results suggest that firm size insignificantly and negatively influences financial performance of banks as a result of diseconomies of scale.

Akex and Ngaba (2018) examined firm size on financial performance of commercial banks in Kenya for the period 2012 to 2016. The study utilized descriptive survey research design and the data was collected from the published financial statements of the sampled banks. Also correlation analysis was applied in data analysis and the findings revealed that a positive association between firm size and financial performance of commercial banks in Kenya.

Kajola, et al (2017) carried out a study of corporate board size and financial performance of listed firm in Nigeria for the period 2003 to 2014 using ex post facto and correlational research designs. The study used secondary data obtained from the financial statements of sampled listed companies. The data obtained was

analysed with panel regression analysis and the result suggest a positive and significant association between board size and financial performance (return on assets and return on equity) of listed non-financial firms in Nigeria.

Olawale, et al (2017) also investigated the effect of firm size on the performance of firms in Nigeria using panel data set of 12 non-financial firms operating in Nigeria in the period of 2005-2013 and analyzing the panel data using a pooled regression model, fixed effect model and random effect model to identify the relationship between firm size and the performance of firms listed on the Nigeria stock exchange. The result of the study reveals that firm size in terms of total asset has a negative effect on performance while in terms of total sales firm size has a positive effect on performance.

Lemma and Rani (2017) analyzed the determinants of financial performance of commercial banks in Ethiopia data from two public and seven private banks for the years that were considered for the study. Return on assets was used as proxies of financial performance while the internal and external factors were considered to analyze the factors. Descriptive, correlation and regression analysis were used to analyze the data and the findings revealed that liquidity and earnings ratio have positive relation with return on assets. The findings further revealed that CAR, the ratio of non-performing loan to total loans, and industry growth has negative relation with profitability. Abel and Roux (2016) evaluated the relationships among efficiency, bank size and performance of banks in Zimbabwe between 2009 and 2014. The study found that efficiency relates positively to financial performance and economic stability. The study suggested that an increase in economic activities increases the demand for financial services, which increases efficiency.

Gemechu (2016) researched on determinants of profitability of bank industry in Ethiopia for the years 2002 to 2012 using return on assets and net interest margin as measure of performance. The finding revealed that loan to advances, efficiency and productivity, have positive effect on both return on assets and net interest margin. Liquidity risk and exchange rate have positive effect on return on assets but have no effect on net interest margin. Isik and Ince (2016) carried out a study of board size and board composition on performance of 30 commercial banks for the period 2008 to 2012 in Turkey. The study employed ex post facto and correlational research design. Secondary sources of data collection were employed from the sampled banks and panel regression analysis was used for data analysis. The independent variable used was bank size with several control variables such as credit risk, liquidity risk, net interest margin and non-interest income while the dependent variables include return on assets, and operating return on asset. The panel fixed effects regression result revealed that board size has a significant positive effect on bank's performance (return on assets and operating return on assets).

Munyaradzi and Nirupa (2016) investigated the effect of board composition and board size on financial performance of companies listed on the Johannesburg stock exchange in South Africa. The study employed ex post facto research design and correlational research design. The data for the study was collected from the financial statements obtained from the sampled companies. Panel multiple regression analysis was applied for the purpose of data analysis. The empirical result suggests that board size is not significantly associated with Tobin's Q and ROE (performance measures) while board size is found to be positively

associated with return on assets (ROA). Using panel data analysis, Pervan, et al (2015) studied profit persistence and factors determining bank profitability in Croatia within the period 2002 to 2010 and realized a positive and significant association between bank size and profitability. Total assets were log transformed to capture bank size and applied the GMM estimation technique. Their results postulate that banks should make use of their size to exploit cost advantages whose realization together with improved management would contribute to further increases in efficiency which would result into higher profitability.

Onuonga (2014) investigated the impact of the internal bank specific factors on the profitability of the top six commercial banks in Kenya over a six year period as from 2008-2013. The generalized least square method was used to estimate the impact of bank assets, capital, loans, deposits and asset quality on banks profitability. The paper used return on assets (ROA) as a measure of profitability. The findings revealed that bank assets, capital strength, ownership, operations expenses and diversification do significantly influence profitability of the sampled banks.

Kamau and were (2013) carried out a study on the factors behind the impressive banking sector performance in Kenya between 1997-2011. The study made use of structure conduct (SCP) literature that postulates that structure and efficiency play a role in determining performance measured by log of net interest margin (NIM) and the log profit before tax. Data envelopment analysis (DEA) was used to derive both the scale and technical efficiency scores. The efficiency scores were then incorporated into the main equation to test the four hypotheses in SCP literature. The results suggested that the source of superior performance in the Kenyan banking sector is structure/collusive power and not efficiency hence supporting SCP hypothesis. Among the control variables, the study found bank size to have a significant positive relationship with performance.

Akinyomi and Olagunju (2013) examined the effect of firm size on the profitability of Nigerian manufacturing sector. Panel data set over the period of 2005 to 2012 was obtained from the audited annual reports of the selected manufacturing firms listed in the stock exchange. Return on asset was the proxy for profitability while log of total assets and log of turnover were used as proxies for firm size. The results of the study revealed that the firm size both in terms of total assets and in terms of total sales has a positive effect on the profitability of Nigerian manufacturing companies.

Obamuyi (2013) investigated the effects of bank capital, bank size, expense management, interest income and the economic condition on banks' profitability in Nigeria as measured by the banks' return on assets (ROA). The fixed effects regression model was employed on a panel data obtained from the financial statements of 20 banks as from 2006 to 2012. The results indicate that improved bank capital and interest income, as well as efficient expenses management and favourable economic condition, contribute to higher banks' performance in Nigeria. Nonetheless, the relationship between bank size and profitability was found to be negative but statistically significant.

Curak, et al (2011) analyzed the bank-specific, industry-specific and macroeconomic determinants of bank profitability. Dynamic panel analysis was applied on the sample of 16 banks in the Macedonian banking

system in the period between 2005 and 2010. Their results revealed that operating expense, solvency risk, GDP, concentration, and liquidity risk are significantly related to bank profitability, whereas, both bank size and loan to asset ratio had statistically, insignificant negative effect.

Goddard, et al (2008) used panel data from US credit union covering 993 to 2004 to evaluate the influence of bank size on performance. The research found that a positive indirect exposure effect for large banks outweighed the negative direct exposure effects and found evidence that the relationship between performance and bank size positively correlates with performance through economies of scale and scope. Compared to small banks, large banks tend to have a larger market share because of better bargaining power, superior financing position, and more efficient cost control, thus, larger banks report higher returns. Lepetit, et al (2008) used a data set from 734 banks for the period between 1996 and 2002. In consideration of banks size effect, they found a positive link with the financial performance for smaller banks. However, they suggested that a larger share of trading activities might not be associated with higher performance for smaller banks, but in some cases.

METHODOLOGY

This study adopted descriptive research design to explore the relationship between bank size and banks performance and because it permitted the researcher to test specific hypotheses about the direction and magnitude of influences of variables such as bank size variables have on profitability. Some studies applied Person's Product Movement Correlation and especially the multiple regressions analytical model. The panel Least Square of Simple Regression analysis was applied in this study because the data sets on the variables have both time series and cross-sectional dimensions.

The data employed in this study are secondary data. The data were extracted from relevant publications of banks annual reports and financial statements. The study covered a period of 10 years (2014-2023). The period chosen for the study encompasses most of the major reforms in the Nigeria financial system. Secondary data was employed as it is useful to the researcher in answering research questions about social issues and significantly aid advancement of the social sciences. The choice of secondary data was made as it is faster, reduces time wastages in data gathering, it is non-reactive, often available for re-analysis, it also provides a broad background and readily improves one's learning curve. Secondary data is neither better nor worse than the primary data; it is simply different.

Hypothesized Model

$$\text{BFP} = f(\text{BS}) \quad (1)$$

Where

BFP = Bank Financial performance

BS = Bank Size

Decomposing BS and BFP into its various components, the functional relationship becomes

$$\text{EPS} = f(\text{BAS}, \text{BLS}, \text{BDS}, \text{BCS}) \quad (2)$$

$$\text{ROE} = f(\text{BAS}, \text{BLS}, \text{BDS}, \text{BCS}) \quad (3)$$

Analytical Model

From the hypothesized model, the model following multiple regression models were specified:

$$EPS = \beta_0 + \beta_1 BAS + \beta_2 BLS + \beta_3 BDS + \beta_4 BCS + \epsilon \quad (4)$$

$$ROE = \beta_0 + \beta_1 BAS + \beta_2 BLS + \beta_3 BDS + \beta_4 BCS + \epsilon \quad (5)$$

Where

EPS = Earnings per share

ROE = Return on equity

BAS = Bank assets size

BLS = Bank loan size

BDS = Bank deposit Size

BCS = Bank capital size

ϵ = Error Term

$\beta_1 - \beta_4$ = Coefficient of Independent Variables to the Dependent Variables

β_0 = Regression Intercept

Methods of descriptive and empirical analysis were used to analyze the data. The empirical investigation was based on a theoretical model of micro economic study of banking sector. Indeed, the financial sector in Nigeria is essentially constituted by banks and it is pertinent that a coherent study of bank size must consider the banking system. For this purpose, the theoretical model of Lucky and Akani, (2017) was adapted by taking into account the influence of bank size variables on banks performance. The model explains the theoretical link between bank size measures and financial performance measures of quoted commercial banks.

Due to the assumed linearity of the model specified; Ordinary Least Squares (OLS) estimation method was employed to obtain the intercept and coefficients of the model. The estimates were used to determine the relationship between bank size measures and financial performance measures of quoted commercial banks. Also the estimates and relevant statistics were used to evaluate the models for consistency or otherwise with expectations, statistical significance and explanatory power.

Log likelihood	-222.6476	Hannan-Quinn criter.	10.16276
F-statistic	1.228950	Durbin-Watson stat	2.309718
Prob(F-statistic)	0.305243		
Random Effect Model			
BAS	0.008990	0.021081	0.426437
BLS	-0.006158	0.025135	-0.244994
BDS	0.058286	0.028062	1.651613
BCS	0.062815	0.034161	1.838801
C	306.2540	12.87824	23.78075
			0.0000

Effects Specification			
		S.D.	Rho
Cross-section random	0.000000		0.0000
Idiosyncratic random	31.99706		1.0000
Weighted Statistics			
R-squared	0.751512	Mean dependent var	306.7377
Adjusted R-squared	0.670704	S.D. dependent var	32.86129
S.E. of regression	31.67828	Sum squared resid	42147.57
F-statistic	11.874961	Durbin-Watson stat	2.117445
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.151512	Mean dependent var	306.7377
Sum squared resid	42147.57	Durbin-Watson stat	2.117445
Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.127410	4	0.2745

RESULTS AND INTERPRETATIONS Table 1: Regression Analysis of Bank Size and Earnings per Share

The Hausman Specification Test was conducted, revealing that the random -effect regression model was more appropriate due to the non-random nature of the panel effect. Subsequently, the robust fixed-effect regression model was applied to address issues related to normality and heteroscedasticity. The Hausman test, with a chi-square statistic of 5.127410 and a p-value of 0.2745, suggests the preference for the Random Effect model, implying the presence of unobserved individual effects. The regression results presented in Table 1 provide insights into the relationships between the selected bank size variables and earnings per share, utilizing Random Effect Regression Regression models. In the Random Effect Regression, the constant (C) exhibited a coefficient of 306.2540 with a probability of 0.0000 which implies that holding other variables constant, earnings per share of the quoted commercial banks will be valued at 306.2. However, bank assets size, bank deposit size and bank capital size have positive effect on earnings per share while bank loan size have negative effect on the return on assets of the quoted commercial banks. This result is in line with Odundo and Orwaru (2018), Saira, Jamil, Khalid and Abdul (2011) that deposit ratio positively and significantly affect the financial performance of deposit money banks. On the other hand the result of Hoffmann (2011) suggested a negative and significant association between deposit ratio and financial performance of banks, Tam, Trang and Nanh (2017) that interest rate positively and significantly affects the financial performance of deposit money banks.

The Hausman test, with a chi-square statistic of 10.372743 and a p-value of 0.0089, suggests the preference for the fixed Effect model, implying the presence of unobserved individual effects. . The regression results presented in Table 2 provide insights into the relationships between the selected bank size variables and return on equity of the quoted commercial banks, utilizing fixed Effect Regression models, the constant (C)

exhibited a coefficient of 273.5241 with a probability of 0.0000 which implies that holding other variables constant, earnings per share of the quoted commercial banks will be valued at 273.5. However, beta coefficient of the variables found that all the independent variables have positive effect on the return on equity of the quoted commercial banks. This result is consistent with the findings of Teshome, et al (2018); Kamau and Were (2013) and Onuonga (2014) that the size of a bank positively and significantly affects the financial performance of deposit money banks. However, several other studies revealed a contrary results Eyigege (2018); Tam, Trang and Nanh (2017), Obamuyi (2013), Saira, Jamil, Khalid and Abdul, (2011) and Hoffmann (2011) found a negative and significant relationship between bank size and profitability. Curak, Poposki and Pepur (2011) study found a negative and insignificant relationship between bank size and profitability while Turk-Ariss (2010) found a positive and insignificant association between bank size and financial performance of deposit money banks.

Conclusion

This study investigated the effects of bank size on financial performance of quoted commercial banks in Nigeria. The study reviewed several prior empirical studies on bank size and bank profitability and the study anchored on growth theory of the firm. The secondary data obtained from the published financial statements of sample banks revealed that there is a positive and significant relationship between bank size and the financial performance of banks; positive and significant relationship between loan ratio and return on equity; positive and significant relationship between capital ratio and return on equity; positive and significant relationship between deposit ratio and return on equity. Hence, the paper concluded that the size of a bank positively influence commercial banks financial performance.

Recommendations

- i. Commercial banks in Nigeria should improve their size of assets focusing more on earnings assets, reduce investment in nonearning assets but increase level of capitalization and ensure assets and liability management that affect financial performance positively.
- ii. The quoted commercial banks should minimize their operational cost efficiency, increase capital adequacy and increase oversight in factors that capital composition and increase gearing ratio because excess expenditure does have negative and significant impact on banks performance
- iii. The banking institutions should ensure adequate deposit mobilization and minimize their non-performing loans through appropriate credit policies and procedures and consider other quantitative and qualitative approaches of profit improvement than bank size.

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