Profitability of Deposit Money Banks: Determinants of Growth in Nigeria

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Abstract

The banking industry is an engine of growth and development as determined by banks profitability. The paper analyzed the determinants of deposit money banks profitability in Nigeria between 2000 and 2022. Cross-sectional design was adopted. Data were sourced from CBN annual statistical bulletin (2021) and the National Bureau of Statistics (2022). Panel regression was adopted for data analysis. Hausamn Specification and Lagrangian Multiplier test results informed the adoption of the random effect method. Findings revealed that liquidity ratio, asset quality and financial structure are not significant determinants of deposit money banks profitability in Nigeria while asset structure and capital adequacy are significant determinants of deposit money banks profitability in Nigeria. The paper concluded that the profitability of deposit money banks has not responded significantly to key bank-specific determinants. This indicates that the profitability of these banks could be a function of a combination of industry – specific and macro-economic factors. In view of these findings, the study recommended that the management of deposit money banks should look beyond bank specific factors like liquidity, asset quality and financial structure. The macro-economic environment and other industry specific factors should be considered while making key decisions that involve the financial performance of the banks. Also regulatory agencies such as the Central Bank of Nigeria and the Nigerian Deposit Insurance Corporation should sustain rules (fiscal policy) regarding the level of asset structure and capital adequacy ratio of deposit money banks in Nigeria as these have contributed to the profitability level of deposit money banks in Nigeria.

Keywords: Deposit Money Banks, Profitability, Asset Structure, Asset Quality, Liquidity Ratio, Financial Structure, Capital Adequacy

Introduction

The banking sector is no doubt, a fundamental part of the financial architecture of any economy. The sector makes critical contributions to a nation's pursuit of economic growth and development, through the facilitation of the process of capital formation, monetary policy transmission and management, credit intermediation process, payment and settlement systems, amongst others (Sarkani, 2014; Scrinivasan & Saminathan, 2016; Chaudhuri, 2018). Their intermediation function serves as the backbone and catalyst for the growth of an economy (Jain & Jaiswal, 2016). As the financial health of an economy is intertwined with that of its banking system (Chaudhuri, 2018;

Samuel, 2018), it is unimaginable to visualize a modern economy bereft of the services of a bank (Rahman & Islam, 2018).

By virtue of the services they render and their roles in the economy, deposit money banks tend to have many, yet diverse, stakeholders (such as depositors, borrowers, government, employees, auditors, among others) who affect and are affected by the activities of these banks, hence the need for performance assessment, as doing this provides the stakeholders with flow of information necessary to guide their decision-making process. When these banks are unsound, unstable and unhealthy; that is, if they do not make adequate profit, the stakeholders' interests are jeopardized (Okoli, Ifurueze & Nweze, 2020).

The complexities in structures and operations of Deposit Money Banks (DMBs), precipitated by the effect of intensifying globalization has led to multiplicity of factors affecting the performance of DMBs, especially in emerging and developing economies. Therefore, it becomes crucial to continually x-ray the performances of these banks with a view to determining their profitability in order to help the stakeholders make informed decisions (Rahman & Islam, 2018). There is no gain-saying that the main aim of deposit money banks is to make profit by accepting deposits from customers and lending them to customers in form of mortgages, auto loans, business loans, and personal loans. To maximize profit, the deposit money banks pay less interest rate on the money they borrow than the rate charged on the money they lend (Dikko, Alifiah & Abdulahi, 2020).

Nevertheless, the determinants of profitability vary from one deposit money bank to another because of difference in shareholder and managerial decisions and activities. Previous studies suggest that capital size, size of deposit liabilities, size and composition of bank's credit portfolio, interest rate policy, exposure to risk, management quality, labour productivity, bank size, bank age, ownership, ownership concentration, and structural affiliation among others influence bank profitability. For other researchers such as Aburime (2008) and Echekoba, Egbunike and Ezu (2014), the determinants of bank profitability include the capital ratio, asset quality, loan-loss provisions and expense control, capital structure.

The preponderance of evidence on banking crises in Nigeria as captured by Echekoba, Egbunike and Ezu (2014) have shown that, DMBs are susceptible to significant factors, despite the 2004 consolidation of Nigerian banks. It is therefore imperative that the performances of the DMBs be kept under close surveillance at all times (Echekoba, Egbunike & Ezu, 2014). One of the ways this can be achieved is by assessing the factors affecting the profitability of deposit money banks in Nigeria. Although, previous studies have been conducted on the subject – matter involving profitability determinants captured in the CAMEL (capital adequacy, asset quality management efficiency, earning quality and liquidity ratio) model which yielded contradictory findings, there is need to conduct the study as a confirmatory test given the dynamic nature of the banking industry in Nigeria including other variables outside the CAMEL model.

The study of the determinants of deposit banks' profitability would provide policy implications which would assist bank regulatory authorities in Nigeria determine future policies and regulations to be formulated and implemented toward improving and sustaining banking sector profitability

and stability. The objective of this paper is to examine the contribution of factors to the variation in profitability across banks and over time in Nigeria. The remainder of the paper is as follows: section two reviews literature, section three deals with the methodology, section four provides the empirical findings, and section five gives conclusion and recommendations.

Hypotheses of the Study

The following formulated hypotheses guided the paper:

The focal point in this paper is to test the determinants of commercial banks' profitability in Nigeria. The significance of each variable portends that it is a determinant of profitability. The hypotheses formulated are stated in nulls;

$H0_1$: Liquidity ratio is not a significant determinant of banks' profitability in Nigeria.

$H0_2$: Asset quality is not a significant determinant on banks' profitability in Nigeria.

$H0_3$: Asset structure is not significant determinant on banks' profitability in Nigeria.

$H0_4$: Capital structure is not significant determinant on banks' profitability in Nigeria.

$H0_5$: Financial structure is not significant determinant on banks' profitability in Nigeria.

Conceptual Clarification

Profitability

Profitability is closely related to profit – but with one key difference. While profit is an absolute amount, profitability is a relative one. It is the metric used to determine the scope of a company's profit in relation to the size of the business. Profitability is a measurement of efficiency – and ultimately its success or failure. A further definition of profitability is a business's ability to produce a return on an investment and/or equity based on its resources in comparison with an alternative investment. Although a company can realize a profit, this does not necessarily mean that the company is profitable (Akinkunmi, 2017).

Banks Profitability

A bank is said to be 'profitable' if it can accrue financial gains from the capital invested into the operational activity of the bank. The success of a bank is determined by how well the bank made profits in the course of a financial period. For banks to be profitable, they have to assume a reasonable level of risk. If management of a bank decides to be risk averse, then such decision is at the detriment of the bank's performance (Albulescuab, 2015). According to Albulescuab (2015), profitability of bank relates to external and internal factors i.e. size, capital, loan and deposit generally. The measures of bank profitability outlined by Albulescuab (2015) include Return on Asset (ROA), Return on Equity (ROE), Gross Margin, and Net Income.

Return on Asset: This refers to the financial ratio that indicates how profitable a company is in relation to its total assets. Corporate management, analysts, and investors can use ROA to determine how efficiently a company uses its assets to generate profit.

Return on Equity: Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets.

Gross Margin: This refers to the profitability of a business after subtracting the cost of goods sold from the revenue. It is a reflection of the amount of money a company retains for every incremental dollar earned.

Net Income: Net income shows how much money a company is making after subtracting all expenses. It can also be referred to as "net profit" or "the bottom line."

Determinants of Deposit Money Banks Profitability:

In banking literature, the determinants of profitability are empirically well explored although the proxy of profitability varies among studies. The determinants of deposit money banks profitability based on Chen (2022) are considered in this study as discussed in this sub-section.

i. Asset Size: Chen (2022) defines asset size as the total market value of the securities in a fund. It can also be referred to as assets under management. Funds regularly report total assets which can be affected by supply, demand and market return. The asset size of a fund can be important for investors to consider for a few reasons: while asset size does not greatly influence a fund's performance, top investment managers and top-performing funds are likely to see greater fund inflows. Investors in funds with a larger asset size can also benefit from greater economies of scale which translate to lower fund expense ratios since the expense ratio is calculated as a percent of total assets. Larger funds also tend to be more actively traded in the market with higher average daily trading volume providing for greater market liquidity.

ii. Asset Quality: According to Chen (2022), asset quality is related to the left-hand side of the bank balance sheet. Bank managers are concerned with the quality of their loans since that provides earnings for the bank. Loan quality and asset quality are two terms with basically the same meaning. Government bonds and T-bills are considered as good quality loans whereas junk bonds, corporate credits to low credit score firms etc. are bad quality loans. A bad quality loan has a higher probability of becoming a non-performing loan with no return. Asset quality is a measure of strength of the bank. In this study, the ratio of non-performing loans to total loans and advance and advances to total assets is used.

iii. Asset Structure: As asserted by Chen (2022), asset structure refers to the proportion of various assets in an enterprise's total assets, essentially referring to the proportion of fixed investment, securities investment, and liquidity investment. Many scholars have researched the asset structure. Yang et al (2017) pointed out that market interest rates and national policies will affect bank investment's asset structure.

iv. Capital Adequacy: 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. Two types of capital are measured: tier-1 capital, which can absorb losses without a bank being required to cease trading, and tier-2 capital, which can absorb losses in the event of a winding-up and so provides a lesser degree of protection to depositors (Chen, 2022).

The capital adequacy ratio is calculated by dividing a bank's capital by its risk-weighted assets. The capital used to calculate the capital adequacy ratio is divided into two tiers.

$$CAR = \frac{Tier\ 1\ Capital + Tier\ 2\ Capital}{Risk\ Weighted\ Assets}$$

Bank capital to assets is the ratio of bank capital and reserves to total assets. Capital and reserves include funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments. Capital includes tier 1 capital (paid-up shares and common stock), which is a common feature in all countries' banking systems, and total regulatory capital, which includes several specified types of subordinated debt instruments that need not be repaid if the funds are required to maintain minimum capital levels (these comprise tier 2 and tier 3 capital). Total assets include all non-financial and financial assets.

v. Financial Structure: Financial structure according to Chen (2022) refers to the mix of debt and equity that a company uses to finance its operations. This composition directly affects the risk and value of the associated business. The financial managers of the business have the responsibility of deciding the best mixture of debt and equity for optimizing the financial structure.

The Debt/Equity Ratio is a ratio of ordinary shareholders' equity and the stake of creditors in a company. In other words, it is a measure of a company's financial leverage. Debt/equity ratio is calculated as long-term debt divided by common shareholders' equity.

Debt-to-equity (D/E) ratio is used to evaluate a company's financial leverage and is calculated by dividing a company's total liabilities by its shareholder equity. D/E ratio is an important metric in corporate finance. It is a measure of the degree to which a company is financing its operations with debt rather than its own resources. Debt-to-equity ratio is a particular type of gearing ratio.

$$Debt/Equity = \frac{Total\ Liabilities}{Total\ Shareholders'\ Equity}$$

Theoretical Framework

The correlation between capital and profitability is explained by signaling theory, bankruptcy cost hypothesis and risk-return hypothesis.

Signaling Theory

The signaling theory although initially developed by Michael Spence in 1073, based on observed knowledge gaps between organizations and prospective employees, its intuitive nature led it to be adapted to many other domains, such as Human Resource Management, business, and financial markets. The theory states that firms that are most profitable provide the market with more and better information. According to Tagiew, Ignatov and Delhibabu (2015), the signaling theory suggests that a higher capital is a positive signal to the market value of a bank. Lower leverage indicates that banks perform better than their competitors who cannot raise their equity without further deteriorating the profitability. The study was anchored on Signaling Theory as a basis for evaluating the determinants of Deposit Money Banks profitability in Nigeria. If the capital adequacy ratio is high, and its leverage is low, it would indicate higher profitability as a function of its selected determinants.

Stakeholders' Theory

Stakeholder theory was propounded by Edward R. Freeman in 1984. The theory questions the traditional assumption that management of business concerns such as banks should focus only on the goal of pursuit of profit which according to Jensen (2002), is the "single-valued objective" of any corporation. It is also important because it seeks to address the often overlooked, yet pertinent sociological question of how corporations affect society (Hinings & Greenwood, 2003; Stern &Barley, 1995; Laplume, Sompar & Litz, 2008). Freeman was first to fully articulate the stakeholder framework in his seminal book, Stakeholder Management: A Stakeholder Approach, in 1984. The theory draws strength on the literatures on corporate planning, systems theory and corporate social responsibility, amongst others.

A stakeholder-based Deposit Money Banks serve the interests of, not only shareholders but other subjects (such as depositors, personnel, creditors, borrowers, suppliers, local community, authorities, environment, business partners, and so on) who have relationship that are critical to the success of the banks. These banks, therefore, are duty-bound to create value, in a balanced and satisfactory way, for all their stakeholders (Marco & Luciano, 2015). Stakeholders' theory is relevant to this study because Deposit Money Banks in Nigeria have various stakeholders such as employees, depositors, borrowers, suppliers, the environment and even the monetary authorities. The activities of these banks tend to affect these stakeholders, such as it would be expected in other climes. When these institutions fail or are unable to effectively and efficiently carry out their activities, the brunt of the negative consequences is borne by the stakeholders. One way to avoid this scenario is to keep tap on the performances of the DMBs.

Review of Empirical Studies

The determinants of bank profitability have been widely studied due to the importance of profitability as a major factor for corporate growth and an index of corporate performance. The empirical studies reviewed below shows the evidence obtained from academic scholars.

Okoli, Ifurueze and Nweze (2020) examined the relationship between liquidity and performance of deposits money banks in Nigeria. The specific objectives of the study are to: determine the relationship between liquid assets to total assets and performance of deposits money banks; examine the relationship between liquid assets to short-term liabilities and performance of deposits money banks in Nigeria. Ten (10) banks were selected from the Nigeria Stock Exchange (NSE). The data used were drawn from 2009 to 2018. The panel data collected were analysed using Ordinary Least Square Method. The results show that liquid assets to total assets and liquid assets to short-term liabilities have insignificant relationship with performance of deposits money banks in Nigeria. The study, therefore among others recommends that the Regulatory agency such as the Central Bank of Nigeria and the Nigerian Deposit Insurance Corporation should formulate rules (fiscal policy) that will enable the deposit-taking sector to withstand unexpected financial shocks and also improve their performance.

Ogbona, Onwuchekwa and Eki-Allen (2020) examined the relationship between liquidity and performance of deposits money banks in Nigeria. The specific objectives of the study are to: determine the relationship between liquid assets to total assets and performance of deposits money banks; examine the relationship between liquid assets to short-term liabilities and performance of deposits money banks in Nigeria. Ten (10) banks were selected from the Nigeria Stock Exchange (NSE). The data used were secondary data and were drawn from 2009 to 2018. The panel data used were sourced from the bank's annual report and Nigerian Stock Exchange fact book. The panel data collected were analyzed using Ordinary Least Square Method. The results show that liquid assets to total assets and liquid assets to short-term liabilities have insignificant relationship with performance of deposits money banks in Nigeria. The study, therefore among others recommends that the Regulatory agency such as the Central Bank of Nigeria and the Nigerian Deposit Insurance Corporation should formulate rules (fiscal policy) that will enable the deposit-taking sector to withstand unexpected financial shocks and also improve their performance.

Aminu (2013) conducted a study to find out the impact of bank specific and macroeconomic factors on the profitability of seven banks from Nigeria for a period from 2005 to 2011. Using panel regression, the results showed that management efficiency has been the driving force in determining the profitability of banks in Nigeria. The findings also indicated that GDP growth had a negative impact on the profitability of Nigerian banks.

Ani, Ugwunta and Imo (2012) examined the determinants of bank profitability in Nigeria from 2001 to 2010. A sample of 15 deposit money banks (DMBs) was drawn which consisted of stand-alone banks and banks that retained their brand names after the 2005 bank consolidation exercise. Internal factors such as size, asset composition and quality, and capital adequacy was used in the model. The study found out that size has significant negative relationship and asset composition shows a significant positive relationship with profitability. Capital adequacy showed a positive correlation.

Andrea (2012) in the study determinants of bank profitability in USA covering the period 2007-2011 found that cost to income ratio, funding cost, loan loss provision and leverage had a negative

but significant influence on bank's return on asset (ROA), while interest income share had positive and significant influence on financial performance of banks in USA.

Salloum and Hayek (2012) conducted a study to identify the internal and external determinants of the profitability of commercial banks operating in Lebanon over the period 2000-2010. The empirical results generated by GMM method show a persistence of profitability and revealed how the internal and external factors affect positively or negatively the profitability of banks operating in Lebanon.

Babalola (2012) investigated the determinants of banks' profitability in Nigeria. Factors which are macroeconomic, financial and bank-specific in nature were employed and their significant impacts on return on assets were considered. The findings show that, in the short run analysis, capital adequacy ratio is actually the determining factor for banks' profitability while in the long-run relationships; the size as well as the tangibility of the banks is the determining factors of performance.

Deger and Adem (2011) examined the bank-specific and macroeconomic determinants of the banks' profitability in Turkey over the time period from 2002 to 2010. The bank profitability was measured by return on assets (ROA) and return on equity (ROE) as a function of bank-specific and macroeconomic determinants. Using balanced panel dataset, the results show that asset size and non-interest income have positive and significant effect on bank profitability. However, size of credit portfolio and loans under follow-up has a negative and significant impact on bank profitability. With regards to macroeconomic variables, only the real interest rate affects the performance of banks positively.

Dietrich and Wanzenried (2010) analyzed the profitability of 453 commercial banks in Switzerland over the period from 1999 to 2008. The study also took into account the impacts of the recent financial crisis. The profitability determinants include bank-specific characteristics as well as industry-specific and macroeconomic factors. The results clearly showed that there exist large differences in profitability among banks in the study sample and that a significant amount of this variation can be explained by factors included in the analysis. It was revealed that cost-income ratio is relevant for the return on assets before the crisis only and the negative impact of loan loss provisions relative to total loans is much stronger during the crisis. In addition, if a bank's volume is growing faster than the market, the impact on bank profitability is positive, at least before the crisis. Also, it was found that banks with a higher interest income share are less profitable, which holds again for the pre-crisis period only and the negative effect of state ownership on bank profitability does not hold any more during the crisis, and the same holds for foreign bank ownership.

Ramlall (2009) analyzed the determinants of profitability for the Taiwanese banking system using bank-specific, industry-specific and macroeconomic factors, under a quarterly dataset, for the period 2002 to 2007. The results showed that while credit risk triggers a negative impact on profitability, capital tends to consolidate profits. Overall, the results suggested that Taiwanese banking system is well-diversified. The implication of the findings is that it may be difficult to

mitigate the pro-cyclicality of banks' profitability in Taiwan subject to a non-concentrated banking system.

Vong and Chan (2009) examined the impact of bank characteristics as well as macroeconomic and financial structure variables on the performance of the Macau banking industry. Employing five cross-sectional units involving 15 years data, the regression results estimated by the fixed effect model show that capital strength of a bank is of paramount importance in affecting its profitability. Also, asset quality, as measured by loan-loss provisions, affects the performance of banks adversely. With regard to macroeconomic variables, only the rate of inflation exhibits a significant relationship with banks' performance.

Gap in Literature

The study has been researched by many authors but all those who conducted this research work looked at it from the macro-economic, industry-specific or bank-specific views, however, these bank specific studies focused primarily on the CAMEL model. It is therefore, pertinent to look at other determinants of deposit money banks profitability such asset quality and asset structure. This study will add to the body of knowledge by looking at some of determinants included in the CAMEL model alongside other bank-specific determinants. That is, focusing on the cross-sectional specific in the panel regression from 2000 to 2022 using a wider spectrum of bank specific variables, therefore, showing the effect of each variable on individual bank.

Materials and Methods

Cross-sectional research design was employed for this paper. The designs was considered appropriate for this study because it describes the statistical association between two or more variables using both time series data (on the variables between 2000 – 2022) and cross sections (between the five selected banks). It thus, allows for the panel testing of each variable on each of the selected deposit money bank in Nigeria within the study period. The purpose of this paper is to conduct a meta-analysis of the study variables and hence, the data used comprises secondary data collected from the publications of the Central Bank of Nigeria (CBN) statistical bulletin (2021), annual audited account and financial report of banks published in the Nigerian Stock Exchange fact book for a period of 22 years (2000-2022) and data sourced from the National Bureau of Statistics (2022). These data were generated on return on assets (ROA), asset quality, asset structure, capital adequacy and financial structure. Pooled Regression and Panel Regression were used to analyze data. This was analyzed using bank specific determinants like asset size and asset quality and asset structure.

Formal Pre-Estimation Tests

Correlated Hausman Specification Test (HST) was used to decide between fixed and random effect models while Lagrangian Multiplier Test for random effect was used to provide direction as to whether random effect regression or pooled OLS regression should be used.

Estimation Technique and Model Specification

Panel regression was adopted in the study due to the time series (2000 – 2022) and cross-sectional (across banks) nature of the data set. Consequently, Panel regression model was specified in the study.

Panel Regression Analysis

Panel Data Regression technique was preferred given its superiority over pure cross section or pure time series. The selection of variables for the estimated model was guided by relevant theories and existing empirical studies on the subject. The dependent variable is Return on Asset which is a proxy of profitability and it is defined as: Profit after tax.

The explanatory variables are; liquidity ratio, asset quality, asset structure, capital adequacy and financial structure.

The model is specified thus:

$$ROA_{it}= \alpha + \beta_1 LR_{it} + \beta_2 ASQ_{it} + \beta_3 AST_{it} + \beta_4 CAR_{it} + \beta_5 FNS_{it} + \pounds_{it} \ ...... \ .... \ .... \ .... \ (1)$$

Where
$i = 1, 2 ...... 6$
$t = 1, 2 ...... 21$
LR = Liquidity Ratio of Bank i^{th} at time, t.
ASQ = Asset Quality of Bank i^{th} at time, t.
AST = Asset Structure of Bank i^{th} at time, t.
CAR = Capital Adequacy of Bank i^{th} at time, t.
FNS = Financial Structure of Bank i^{th} at time, t.
£ = Stochastic error term
β_1, β_2, β_3, β_4 and, β_5 are regression parameters, also, the slope of each variable. On a-priori, the slope coefficients β_1, β_2, β_3 and β_4 is expected to have a positive relationship with bank's profitability, while β_5 on a priori is expected to inversely affect bank's profitability.

Description of Variables

Return on Assets (ROA)-Return on asset is primarily a measure of profitability. It can be presented by dividing net income of the bank by the total asset. It shows what earnings have been produced from the invested capital or asset.

Liquidity Ratio: It shows the bank's ability to repay short-term creditors out of its total cash. It is the ratio of current assets divided by current liabilities.

Asset Quality: This is an evaluation or assessment of the credit risk concerned with a particular asset. It shows the exposure of the bank to credit risk, which can be derived by dividing total loans and advances to the total assets. According to Kolapo, Ayeni and Oke (2012), credit risk is an internal determinant of bank performance

Asset Structure: This is the measure of current assets to total asset.

Capital Adequacy Ratio (CAR)-Capital adequacy ratio is mostly used as a measure of the financial strength of a bank or any financial institution. The ratio can be computed by dividing the total capital to total assets of the bank.

Financial Structure: Financial structure refers to the mix of debt and equity that the deposit money banks use to finance their operations. The Debt/Equity Ratio is a ratio of ordinary shareholders' equity and the stake of creditors in a deposit money bank. In other words, it is a measure of a company's financial leverage. It is measured as the ratio of total liabilities to total shareholders' equity.

Results and Discussion

This paper started by conducting descriptive statistics to examine the mean, standard deviations and auto-correlation properties of the dataset. This is followed by trend analyses of the study variables before carrying out pre-estimation test to ascertain the choice of model. The outcome of Hausman Specification and Lagrangian Multiplier Test results led to the adoption of random effect model. The result of descriptive statistics is presented in Table 1.

Table 1: Summary of Descriptive Statistics of the Study Variables

	ROA	_LR	ASQ	AST	CAR	FNS
Mean	3.220227	35.96284	36.04989	11.25511	30.16784	9.891705
Std. Dev.	17.66465	10.06149	20.37249	2.000204	17.99998	1.639547
Skewness	5.392421	0.120065	1.127486	0.997122	1.524247	0.618008
Kurtosis	34.92015	2.857017	3.426206	4.666625	5.407894	3.138160
Jarque-Bera	4162.432	0.286392	19.31069	24.76705	55.33465	5.671688
Probability	0.000000	0.866584	0.000064	0.000004	0.000000	0.058669
Observations	89	89	89	89	89	89

Source: Extract from Results of E-views 10. (2023)

Statistics presented in Table 1 on the summary description of the variables used in the paper showed that the mean values for each variable were higher than their respective standard

deviations, except for return 0n assets. This suggests that the values of the independent variables were clustered around the mean while that of the dependent was widely dispersed. This means the return of assets differ significantly across the selected deposit money banks in Nigeria. The paper examined the normality and other properties of residuals in the data set. To achieve this purpose, the paper compared skewness values with the standard value of Skewness of a symmetric distribution, such as normal distribution, which is zero. Results reveal that the Skewness values for all the series, except hose of ROA, were close to zero, suggesting that they were Skewness normal.

The Kurtosis of a distribution which measures the peakness of the distribution that is assumed to be normal is 3. In Table 1, the series values, except those of ROA, were close to 3. Thus, the series do not exhibit characteristic of a distribution with a high peak and flat tails called leptokurtic (k>3). They do not also have substantially flat-topped curves and thinner tails called platykurtic (k<3), but they have generally exhibited mesokurtic (k=3) characteristics, suggesting a normal distribution.

Jarque – Bera results show that, although ROA did not exhibit the characteristics of a normal distribution, the series in general, failed to reject the null hypothesis of a normal distribution. It is therefore, clear that the series are subject to distribution that is not different from the normal one. The paper proceeds to inspect the trend of the variables used.

Trend Analyses of the Study Variables

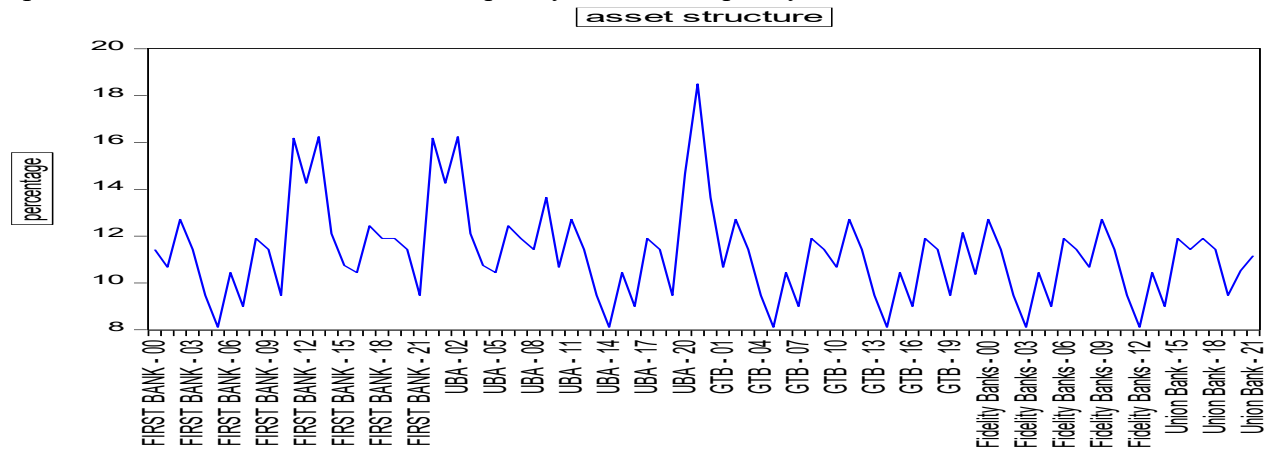This section focuses on the trend analyses of the study variables.
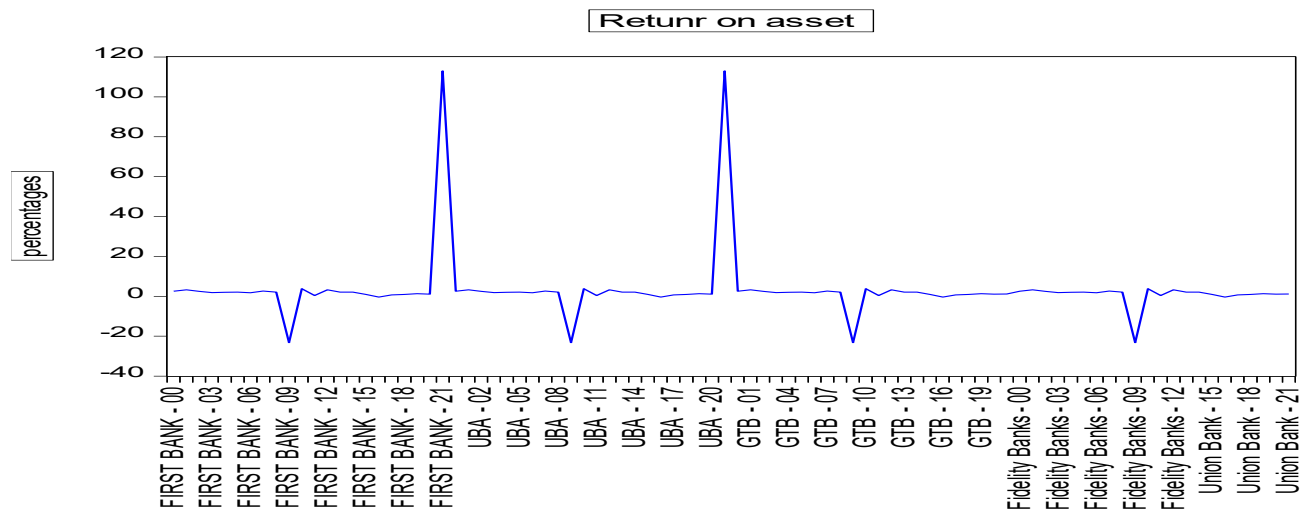
Figure 1: Disaggregated Trend of Return on Assets of Deposit Money Banks in Nigeria
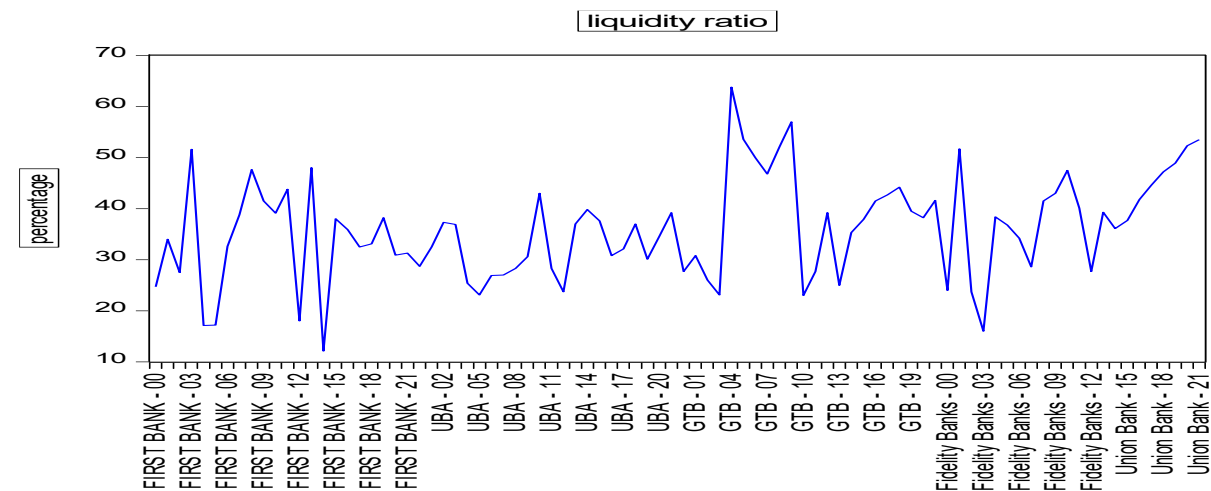***Source:*** *Extract from Results of E-views 10. (2023)*

Results presented in Figure I reveal a relatively stable trend of return on assets of Deposit Money Banks in Nigeria within the study period of 2000 – 2022. The Figure indicates the peak period of 2022 for First Bank of Nigeria Plc (FBN) and United Bank for Africa Plc (UBA). The year 2009 was indicated for low return on asset for all the banks. This suggests that Nigerian Deposit Money Banks' earnings from the invested capital or asset remains stable. Deposit Money Banks like First

Bank and UBA made more profits in 2022 than the past part of the study period. The implication is that the financial sector in Nigeria witnessed a low level of profitability especially during the global economic crisis that occurred between 2007 - 2009. Thus, economic crises do impact the profitability of Deposit Money Banks negatively irrespective of the performance level of bank specific factors like asset structure, liquidity ratio, asset quality and financial structure of the banks.


Figure 2: Disaggregated Trend of Return on Investment of Deposit Money Banks in Nigeria
Source: Extract from Results of E-views 10. (2023)

The trend analyses of Figure 2 reveal a dynamic trend of asset structure for all selected Deposit Money Banks in Nigeria within the study period. There were fluctuations in trend with the trends in First Bank, UBA and GTB rallying at higher rates while those of Fidelity Bank and Union Bank rallied at low rates. This suggests that the fixed investments, securities investment, and liquidity investments of deposit money banks were volatile but mega banks like First Bank, UBA and GTB accumulated more diverse investments than the rest of the banks. The implication of this on the financial sector is that the Deposit Money Banks with narrowed financial structure is subject to weak financial performance but some mega banks like First, UBA and GTB are exempted from such financial threat.

Figure 3: Disaggregated Trend of Liquidity Ratio of Deposit Money Banks in Nigeria
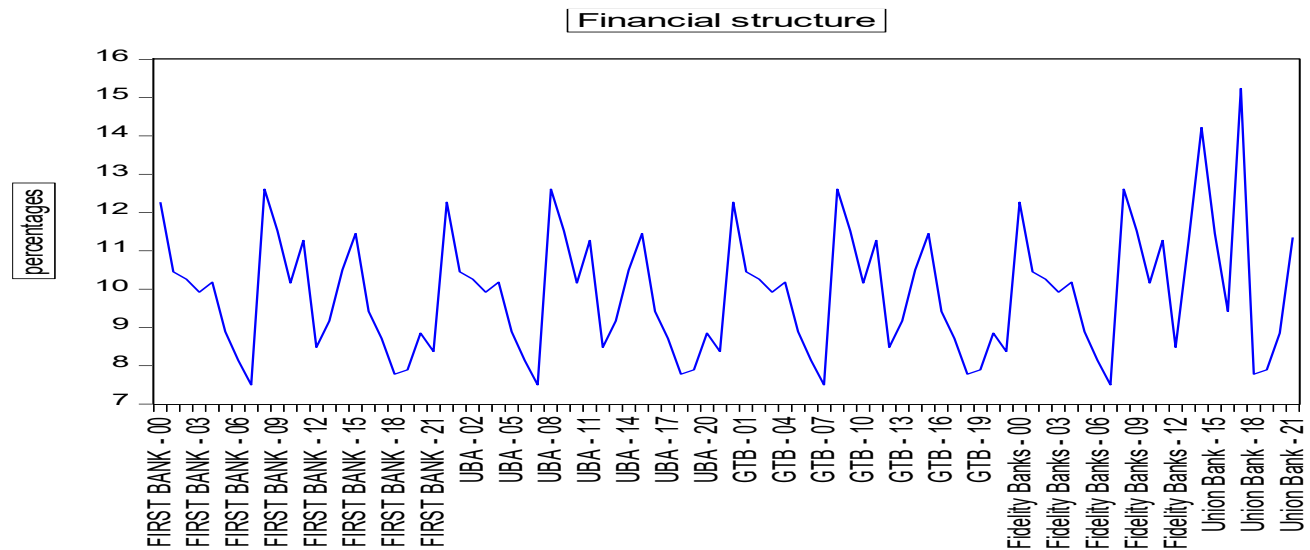*Source: Extract from Results of E-views 10. (2023)*

The trend of liquidity ratio of Deposit Money Banks in Nigeria as depicted in Figure 3 indicates an unsteady rise in liquidity ratio across the banks. However, GTB seems to record a higher growth in liquidity ratio compared to the other deposit money banks in Nigeria. However, First Bank and Fidelity Banks seemed to witness low liquidity rates in recent times. This suggests that GTB exhibited higher ability to repay short-term creditors out of its total cash than First Bank of Nigeria and Fidelity Bank of Nigeria Plc, among others. The implication of this is that Deposit Money Banks in Nigeria have a high risk of encountering difficulty meeting obligations irrespective of their sizes. This portents a negative impact of Deposit Money Banks' profitability in Nigeria.
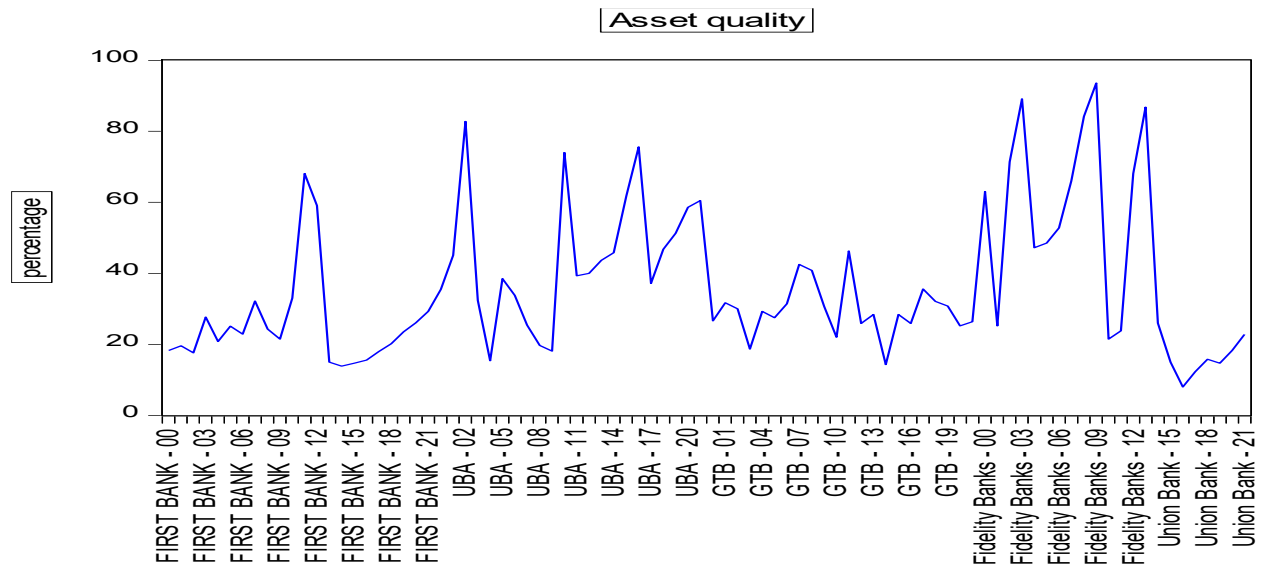
Figure 4: Disaggregated Trend of Asset Quality of Deposit Money Ba**nks in Nigeria**
Source: *Extract from Results of E-views 10. (2023)*

Figure 4 revealed a steady rise in asset quality of deposit money banks in Nigeria over the years. The figure shows Fidelity Bank exhibiting higher exposure to credit risks. First Bank of Nigeria was susceptible to credit risk in 2012 but this dropped precipitously thereafter. The exposure of UBA to credit risks remains high while that of GTB has been low, same as Union Bank of Nigeria Plc. This suggests that GTB and First Bank of Nigeria exhibited lower exposure to credit risk than UBA and Fidelity Bank of Nigeria Plc. This implies that majority of the Deposit Money Banks exhibited delayed recognition and poor management of deteriorating asset quality which could easily clog up their balance sheets with non-performing loans for a fairly long period of time, making it more difficult for the banks to support viable customers and underpin a faster economic growth.

Figure 5: Disaggregated Trend of Financial Structure of Deposit Money Banks in Nigeria
Source: *Extract from Results of E-views 10. (2023)*

Result of Figure 5 revealed a spark-like movement in financial structure among the selected Deposit Money Banks in Nigeria within the study period. The figure shows Union Bank of Nigeria Plc exhibiting higher leverage than all the selected deposit money banks in Nigeria. The implication of this is that Deposit Money Banks in Nigeria are moving with slow credit growth along with insufficient capitalization and weak funding positions.

Table 2: Hausman Specification Test

Variables	Difference	Prob.
LR	0.0000655	0.6634
ASQ	-1.50e+06	0.4403
CAR	-0.004364	0.9059
FNS	0.0092046	0.8272
Chi^2	1.03	
Prob.	0.9600	

Source: Extract from Results of E-views 10. (2023)

Considering the panel nature of the study, both fixed and random effect models were run. Hausman specification test was then conducted to decide between the two models, so as to select the preferred one. If correlation does not exist between the independent variables and the unit effects, then the estimates of beta coefficients in the fixed effects model should be similar to estimates of beta in the random effects model. As shown in Table 2, the result obtained from the test revealed a Chi^2 value of 1.03, which was not statistically significant

at 5%. This showed that the dataset did not meet the asymptotic assumption of Hausman Specification test. As a result, random effect model was chosen.

Table 3: Lagrangian Multiplier Test for Random Effect

Variables	Variance	S.D
ROA	0.0168044	0.1039443
E	0.0163294	0.1016337
U	0	0
Chi²bar	0.00	
Prob.> Chi²	1.000	

Source: *Extract from Results of E-views 10.(2023)*

Since results of Hausman test showed that Fixed Effect (FE) was not efficient, Lagrangian Multiplier test was carried out to provide direction as to whether random effect regression or pooled OLS regression should be used. The test is conducted after running the random effects model to see if there is presence or absence of cross-sectional effect in the panel dataset. Based on the result of the Lagrangian multiplier test, the null hypothesis is rejected and thus random effect model is opted (p, 1.00>0.05).

Table 4: Correlated Random Effects

Variables	Coefficient	t- Statistics	Prob.
LR	-0.080070	-1.105286	0.2722
ASQ	0.002906	-0.414639	0.6795
AST	1.585333	4.029717*	0.0464
CAR	0.133471	5.622236*	0.0041
FNS	-1.958089	-1.351695	0.1801
Intercept	-15.87466	-1.105286	0.2722
R^2	0.048532		
Adj R^2	0.002678		
F – Statistic	1.058409		

Source: *Extract from Results of E-views 10. (*) means significant at 5% (2023)*

The summary of panel regression results as presented in table 4 shows a unit increase in liquidity ratio (LR) results in 8% decrease in ROA which is not significant at 0.05% level. However, a unit increase in asset quality (ASQ) results in 0.2% increase in ROA which is still not significant at 5% level. A unit increase in asset structure (AST) results in 150% increase in ROA which is significant at 5% level. Again, a unit increase in capital adequacy ratio (CAR) results in 13% increase in ROA which is also significant at 5% level. Finally, a unit increase in financial structure (FNS) results in 190% increase in ROA which is still also significant at 5% level. These suggest that while asset structure and capital adequacy

contributed positively to the profitability of deposit money banks in Nigeria, liquidity ratio, asset quality and financial structure have not contributed positively to the profitability of deposit money banks in Nigeria.

Robustness Test Results

Robustness tests conducted in this study were Cross-sectional test of Dependence and Normality test.

Table 6: Cross-sectional Test of Dependence

Cross – sectional dependence test for panel data			
Equation: DOLS			
Null hypothesis: Cross-sectional	Independence		
Test	Statistic	d.f.	Prob.
Breusch – Pagan Chi-Square	324.0031	1485	1.0000
Pearson LM Normal	1.706551		0.08979
Pearson CD Normal	0.095298		0.9241
Friedman Chi-square	40.92872	87	0.5179

Source: *Extract from E-views 10. (2023)*

As presented in Table 6, the result of cross – sectional test of independence reveals some cross-sectional dependence between study variables. The panel regression was therefore, appropriate.

Table 7: Normality Test

Test		Outcomes	
		Coefficient	Probability
Normality test	Jarque-Bera	3.359363	0.1893

Source: *Extract from E-views 10. (2023)*

The results of post-estimation test of panel model presented in Table 7 show Jarque-Bera test result was 3.359363 with probability value of 0.1893 which has attained normality at 5% level.

 Discussion of Findings

The impetus to this paper was to find out the determinants of deposit money banks profitability in Nigeria. Results of the paper showed that liquidity ratio is not a significant determinant of deposit money banks profitability in Nigeria. This finding is in contrast to that conducted by Okoli, Ifurueze and Nweze (2020) on the relationship between liquidity and performance of deposits money banks in Nigeria which revealed that liquid assets to total assets and liquid assets to short-

term liabilities have insignificant relationship with performance of deposits money banks in Nigeria.

Also, the study found that asset structure is a significant determinant of deposit money banks profitability in Nigeria. This finding is consistent with that of Ani, Ugwunta and Imo (2012) whose study of the determinants of bank profitability in Nigeria from 2001 to 2010 found out that asset composition shows a significant positive relationship with profitability.

Another study finding was that capital adequacy is a significant determinant of deposit money banks profitability in Nigeria. This finding agrees partially with that of Babalola (2012) whose investigation of the determinants of banks' profitability in Nigeria showed that, in the short run analysis, capital adequacy ratio is actually the determining factor for banks' profitability while in the long-run relationships; the size as well as the tangibility of the banks is the determining factor of performance.

The study found that financial structure is not a significant determinant of deposit banks profitability in Nigeria. The finding is in line with that of Ogbona, Nwuchekwa and Eki-allen whose analysis of financial leverage and financial performance of listed deposit money banks in Nigeria found that total debt is positive and insignificant with return on asset.

Conclusion

The banking industry is an engine of growth and development. This growth of development is a function of the health of the banking system as determined by banks profitability. Thus, the profitability of the banking industry of each economy has its own peculiar determinants. The determinants of deposit money banks in Nigeria have been cross-examined by previous studies yielding inconsistent results. The meta-analysis of the subject-matter confirm asset structure and capital adequacy ratio as key determinants of deposit money banks in Nigeria. However, liquidity ratio, asset quality and financial structure are not significant determinants of deposit money banks profitability in Nigeria. Thus, the profitability of deposit money banks has not responded significantly to key bank-specific determinants. This indicates that the profitability of these banks could be a function of some industry – specific and macro-economic factors like inflation and economic growth (GDP).

Recommendations

In view of these findings, the following recommendations are made:

   i.   The management of Deposit money banks should look beyond bank specific factors like liquidity, asset quality and financial structure. The macro-economic environment and other industry specific factors should be considered while making key decisions that involve the financial performance of the banks.

   ii. Regulatory agency such as the Central Bank of Nigeria and the Nigerian Deposit Insurance Corporation should sustain rules (fiscal policy) regarding the level of asset

structure and capital adequacy ratio of deposit money banks in Nigeria as these have contributed to the profitability level of deposit money banks in Nigeria.

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