

# EFFECT OF CAPITAL STRUCTURE ON FINANCIAL PERFORMANCE OF SELECTED COMMERCIAL BANK IN NIGERIA

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## ABSTRACT

This study examined the effect of capital structure on financial performance of Selected Commercial Banks in Nigeria with emphasis on the extent to which debt ratio, equity ratio, and debt equity ratio affect financial performance of commercial banks in Nigeria. The study adopted *expost facto* research design. Use was made of secondary data obtained from annual report and accounts of selected commercial banks in Nigeria. Panel regression method was used to estimate the variables in addition to the descriptive statistics analysis used carry out to describe ascertain the characteristics of the dependent and independent variables. Findings reveal that debt ratio has negative significant impact on financial performance of selected commercial banks in Nigeria while, equity ratio has positive and significant effect on financial performance. The debt equity ratio also has positive significant impact on financial performance of selected commercial banks in Nigeria. The study consequently recommends that there should be an optimal debt mix that will improve financial performance of commercial in Nigeria. More so, there should be an increase in the level of equity ratio in order to improve on the profitability of commercial banks in Nigeria. Finally, commercial banks in Nigeria should increase the level of debt equity ratio in order to allow a positive liquidity.

**Keywords:** *debt ratio, equity ratio, debt equity ratio, financial performance*

## 1.1 INTRODUCTION

In modern business organizations, there are cases of separation of ownership from management. Major management decisions involve directing and controlling flow of business resources. The management plans the organization's funds flow, allocation of such funds to various users, sourcing and efficient utilization of the funds to maximize the indicated objectives of the business. The determination of capital structure is one of major functions of managers. Capital structure decision involves how to raise the right combination of equity and debt.

Capital structure, a term interchangeably used with financial structure by most authors, is one of the most important effective parameters on the valuation and direction of economic enterprises in the capital markets. In recent times, changing business environment demand that written companies depends partly on their capital structure and strategic planning required in selecting effective resources to achieve objective of shareholders' wealth maximization Drobotz and Fix,( 2003).

In pursuit of this goal, Managers face the task of determining the best combination of capital resources of the firm. The decision on how to finance the firm's asset from stakeholders and how much debt equity the firm will require to finance its assets is very crucial in the determination of corporate capital profitability, Ebaid (2009). Since the company's cost of capital is seen as a function of its capital structure, choice of optimal capital structure or

adequate and appropriate capital and investment reduce the company's cost of capital and increase its market value which also increase shareholders wealth.

The theory of capital structure has remained an area of interest for researchers of corporate finance over the years. As Pandey (2005) observed, it is the most contentious area in the study of finance. The most models discussing capital structure of firms identify tax savings bankrupt costs, transaction costs, adverse selection and agency costs etc. as the dominant factors influencing a firm's choice of debt and also its impact on the firms' profitability. In practice, different firms may pursue different goals but the core objective of any firm is to minimize its cost and maximize its revenue.

The creditors and investors in the capital market are interested in the financing cost of funds of firms quoted in Nigeria. This is because debt to equity (leverage) ratio enables the creditors to predict the likelihood of default for varying levels of leverage in firms. In the same vein, to know the expected returns on their risk bearing activities, investors and traders in the stock market are interested in the relative impact of debt on bank profitability. Both investors and traders examine the daily performance of banks listed on stock exchange markets and rank them accordingly. It is on the basis of this ranking and historical prices of stocks that they decided to invest their funds in relatively high profitable firms.

Equity also could be a unit of ownership interest in a firm. It consists of common stock, retained earnings and preferred stock. (Okeke,2005).However, Watson and Head (2007) explained that equity financing is raised through initial public offer, right issues sale of existing shares of the floor of the stock exchange. The riskiness of a bank or the system as a whole is substantially reduced by a significant increase in the levels of equity of finance (Imeokparia, 2015).

Theories relating to capital structure in modern times have bearing with the Modigliani and Miller (1958) proposition which states that in a world of perfect capital and no taxes, a firm's capital structure will not influence its value. This proposition submitted that firms in a given risk class would be unaffected by capital gearing Weston and Copeland, (1998). Brigham and Gapanski (1996) argued that an optimal capital structure can be attained if there exists tax sheltering benefits. They suggested that managers of a firm should be able to identify when the optimal capital structure is attained and try to maintain it at that level. At this point, the financial cost and cost of capital are minimized, thereby increasing the firm's value and profitability Osuji and Odita, (2012). The choice of a firm's capital structure is a function of its long-term goals and the amount of control management wishes to maintain.

In Nigeria, as in some other places, most corporate finance decision is dictated by managers. Equity issues are often favored over debt even when debt is a cheaper source of fund. Where debts are employed, it is usually on the short term basis. This could be as a result of the manager's tendency to protect his undiversified human capital and avoid the performance pressure associated with debt commitment. More often, when debts are issued voluntarily, particularly long term debt, it is used as an anti-take-over device against the

challenges of potential corporate riders Ogebe, Ogebe, and Alewi, (2013). The choice of financing mix not only depends on profitability performance, corporate tax and bankruptcy costs, but also on the firm's size which is measured by the total assets – the sum of current and non-current assets at the end of the firm's reporting years. Whatever capital structure decision is taken by the management, the central goal is to maximize shareholders' wealth. Ogebe, Ogebe, and Alewi, (2013).

Ideally, growth in active business environment of financial institutions depend on the management being able to successfully evaluate the appropriate and optimum capital mix that is needed to make sure that the shareholders acquire and achieve good returns. Financial institutions rely on their capability to assess, manage, monitor and identify risks in a sophisticated and sound way. In return to manage and assess risks banks must have successful means of evaluating the suitable capital amount that is needed to attract losses that are unexpectedly arising from their credit, operational risk and market exposures. According to Ondiek (2010), postulated that capital structure is influenced by size, profitability and tangibility of assets. The private sector in Nigeria is characterized by a large number of firms operating in a largely deregulated and increasingly competitive business environment .since 1987 when the structural adjustment programmed (SAP) was introduced in Nigeria, financial liberalization changed the operating environment of the firm Ogebe, Ogebe and Alewi, (2013).the liberalization policies of SAP increased lending rate from 1.5 percent in 1980 to 29.8 percent in 1992 and declined to 16.69 percent In 2011. The high lending rate implies that cost of borrowing is on the high side in the organization capital market, thus increasing the cost of capital and business operations in Nigeria.

Most businesses suffer from inadequate funds to carry on their operations. Prolonged processes of raising funds through the capital market, coupled with lack of collateral securities when debt source of funds is involved, have compounded some firm's problems. These problems do not only reduce the profitability of firms, but also leads to the insolvency of some growing small firms in Nigeria. An appropriate capital structure decision is critical for the survival of every business organization. There are a number of arguments bothering on leverage ratio of the firm's capital decision. One school of thought notes that given certain conditions, there should be less emphasis on the level of leverage ratio of a firm. On the other hand, another school of thought emphasizes the effect of leverage ratio on firms' capital profitability. There exists another school of thought which struck a balance by maintaining that a given leverage ratio gives firms better returns on their operations.

Literatures on the relationship between capital structure and firm's capital profitability mainly adopted specific measures such as Return on Equity (ROE), Return on Asset (ROA), and Earning per share (EPS) et cetera, to measure capital performance with little emphasis on profitability measured by profit before tax which represents a more comprehensive capital profitability indicator. In view of the foregoing, this study examines the effect of capital structure on the financial performance of selected commercial banks in Nigeria.

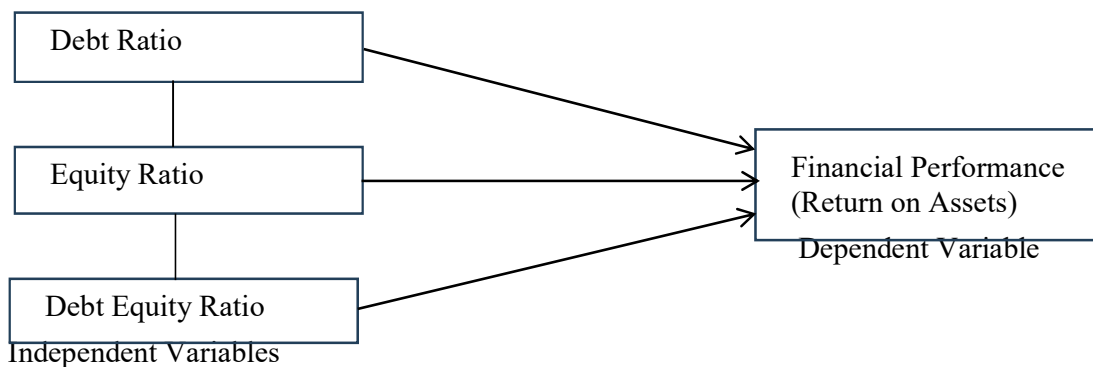
## 2.0 LITERATURE REVIEW

### 2.1 Conceptual Review

#### 2.1.1 Capital Structure

A firm's capital structure is the mix of its' financial resources available for carrying on the business and is a major determinant on how the business operates. As financial capital is an uncertain but critical resource for all firms, suppliers of the finance are able to exert control over firms. The capital structure of a firm is described as the components of its sources of financing, broadly categorized as equity and debt finance. Emenuga (2019) has it that equity finance is finance provided by owners of the business and it is the risk bearing finance. The holders of this finance own the portion of the firm denominated in shares and they are entitled to dividends.

Debt finance however, is finance generated through borrowing from external sources such as banks or from issues of bonds, all of which attract a fixed return. Debt may be short term, (repayable over periods shorter than one year) or longer term, (repayable over periods longer than one year). The lender does not gain a control of the business, but is paid interest for the use of his funds. The borrower has a contractual obligation to pay the interest and to repay the principle when due. In spite of the performance or profitability of the business. It is a mixture of different securities such that a firm may issue dozens of securities, but its attempts to find a combination that maximizes its overall market value by minimizing the cost of capital Brealey and Meyers, (2003).When the firm is financed entirely by common stock, all its resultant cash flows will go to the stock holders.



**Figure 1: Conceptual Framework**

**Source: Researchers' Conceptualization, 2020**

#### 2.1.2 Concept of Debt Ratio

Brealey and Myers (2003) defined debt ratio as an expression of connection between a firm's total debt and assets. It shows how much of a firm's financing asset is from debt. It serves better to have a lower ratio of debt. It is a measure of the financial stability of a company, a common evaluation for any investment which requires a loan. The lower the company's reliance on debt for asset formation, the less risky the company is. On the other hand, the higher ratio means a company has high insolvent risk since excessive debt can lead to a heavy debt repayment burden.

#### 2.1.3 Equity Ratio

Cooperate finance institute, (2022) stated that Equity ratio is an investment leverage that measures the amount of assets that are financed by owners' investments by comparing the

total equity in the company to the total assets. The equity ratio highlights two important financial concepts of a solvent and sustainable business. The first component shows how much of the total company assets are owned outright by the investors. In other words, after all of the liabilities are paid off, the investors will end up with the remaining assets.

The second component inversely shows how leveraged the company is with debt. The equity ratio measures how much of a firm's assets were financed by investors. In other words, this is the investors' stake in the company. This is what they are on the hook for. The inverse of this calculation shows the amount of assets that were financed by debt. Companies with higher equity ratios show new investors and creditors that investors believe in the company and are willing to finance it with their investments.

#### **2.1.4 Debt-Equity Ratio**

Debt-Equity ratio is a long term solvency ratio that indicates the security of long-term financial policies of a company. It shows the connection between the portion of assets financed by creditors and the portion of assets financed by shareholders. As the debt to equity ratio expresses the relationship between external equity (liabilities) and internal equity (shareholders' equity), it is also known as "external-internal equity ratio". Debt to equity ratio is calculated by dividing total liabilities by shareholders' equity. When the firm is facing different stages of debt-equity ratio used in the capital structure it is said that the managers may employ firm-specific strategies to gain firm performance. Therefore, to increase firm's performance attaining the appropriate mix of debt to equity ratio is not easy Ukaegbu & Oino,(2014).

#### **2.1.5 Financial performance**

Performance is a concept that consist of two namely, Effectiveness and Efficiency. Efficiency is the ratio between input and output, effectiveness is the degree of goal achievement for an organization .Damodaran, A, (2001) based on the motivation theory in management sciences, performance is stated as a price of work completed by an employee Damodaran, (2001). According to Dictionary of Accounting and finance (2010),

Performance is the degree of a company getting to its strategic goals, as well as an indicator for the examination of the company's overall competitiveness when conducted in a good way. The evaluation of the firm performance will give the firm's manager an idea of current condition of his/her firm. Again, financial performance has so many other meanings in the field; this is measured either from financial perspectives or organizational viewpoints Zeituna & Tian (2007).

Bhunia et al, (2011), defined financial performance as firm's financial health over a given period of time. The researcher stated that the analysis of financial performance is aimed at assessing the feasibility, solidity and fertility of business. In the same way, Nyor and Yunusa (2016) explained that financial performance of a firm over a specified period of times explained in terms of overall profit or losses during that time. It is measuring the results of a firm's policies and operations in monetary terms.

## **2.2 Empirical Review**

Arbor (2005) studied the effect of capital structure on profitability of 20 companies listed on the Ghana stock exchange. The researcher made use of ROE as the dependent variable and debt assets. The researcher uses the regression analysis method in estimating the relationship between ROE and Capital structure. The results revealed that debt-to-assets and

short-term-debt to total assets have a relevant impact on the ROE. Moreover, the long term debt is negatively related to ROE. This also shows that the profitability of companies positively depends on debt.

Berger and Patti (2006) researched on the relationship between capital structure and firm performance. The sample was the retailers and the firm performance. The sample was the retailer in the United States in the period between 1990 and 1995. The study therefore suggested a new technique using a simultaneous model of two equations to show causal relationship. The result showed that the higher the leverage is, the higher the company's profit.

Amject (2007) investigated the relationship between capital structure and financial performance of enterprises. The sample consisted of 100 companies in the textile industry of Pakistan listed on the Karachi stock exchange 1999-2014. The dependent variable was the ROE, and the independent variables were short term debt, long term debt and total debt. The research made of ordinary least square method (OLS). The result shows a positive and significant relationship between short term debt and profit, and negative significant relationship between long term debts, this reduces the cost of capital, using more short term debt in the capital structure increases profit. Moreover, because the long-term-debt increases cost, so the higher the long term one firm has, the lower the level of return the firm gets.

Madan (2007) investigated the relationship between the capital structure and the overall performance of Indian firms. Study further assessed how different debt-equity combinations play an important part in firm's overall performance and expansion. Measures of performance are Return on Assets and Return on equity. Multiple linear regression method was used. The findings revealed that both lower and higher gearing ratios are not enviable for the firms. Companies which operate at break-even point also use debt in capital structure to insure the profits. Indian firms use 30/70 or 40/60 percent of debt and equity combination, other need is fulfilled through the reserves and capital and surplus.

Zeitun, Tian and Keen (2007) showed the relationship between capital structure and performance 167 companies in Jordan between 1989 and 2003. The dependent variables were ROE, ROA and Tobin's Q. The independent variables were debt-to-assets, the short-term debt total assets, and the long term debt to assets. Correlation analysis was used to analyze the research work. The result revealed that capital structure has a positive effect to firm performance measured by ROE, ROA. However, the short term debt to total assets, long term debt to total assets, and the total debt to total assets have the positive effect on the Tobin's Q.

Gill, Bigger and Mathur (2011) researched on the effect of capital on the profit of 272 services and manufacturing companies on the New York stock exchange between 2005 and 2007. The study made use of the ROE as a dependent variable and independent variable includes short term debt to total assets, debt to assets and long term debt to total assets. The study equally made use of correlation and regression analysis. The research reviewed a

positive relationship between debt and ROE and the long term debt inversely related to the ROE.

Delcours, (2007), used panel data techniques to investigate the relationship between firm's capital structure and its performance. Ordinary least square regression was used on 36 engineering sector firms in Pakistan. The result showed a negative relationship between the firm's performance measured by the (ROA), (GPM) and Tobin's Q, while a negative but not statistical relationship between financial leverage and firm performance measure by ROE.

Ebaid (2009) studied the relationship between the different debt-equity combinations with companies financial performance listed on Egyptian stock exchange market from 1997-2007. Measures of performance are; Return on equity, Return on Assets and gross profit Margin. Multiple regression technique was used to find out the impact of debt policy on company's performance. Findings of the study reveal that both short-term debt and total debt are negatively related by return on assets. Capital structure including total debt (TTD) is not significantly related with Return on Equity and Gross profit margin (ROE and ROA). Findings of the study reveal that ROA and firm performance are negatively related.

Richard, et al. (2009), examined a study on effect of capital structure on the financial performance of listed commercial banks in Kenya. Regression analysis was used in this research work. The finds revealed that capital structure listed commercial banks in Kenya is significant and affect financial performance of commercial banks negatively.

Tiwari and Krishmankathy (2010), conducted on a study of determinants of capital structure on 90 selected firms traded at the BSE stock Exchange on the period 2002-2009. The study made use of panel data techniques. The result reveals that there is a negative and statistically significant association between non-debt tax shield, size and debt: a positive and statistically significant relationship between growth and ratio of fixed assets to total assets; insignificant relationship between profitability and debt. The findings also includes; positive statistically significant relationship between assets structure and debt. This entails that the assets structure of firms plays dominant role in debt.

Safarova (2010), researched on the factors that determine firm performance of New Zealand. Listed companies found out that size is the most important factor determining firm performance, followed by growth and leverage, while other factors such as tangibility, corporate governance, cash on hand and risk appeared to be marginally related to firm operating performance. Regression analysis was used in the methodology.

Stulz, (2011), investigated on the impact of capital structure on the financial performance of listed trading companies in srilanka. They extracted data from the annual report of the sample companies from 2006-2010. Correlation and multiple regression analysis were used. Findings revealed that there was a significant negative relationship between leverage and return on equity. Also there was no significant relationship between leverage and return on assets.

Gohar & Shoaib, (2011) researched on the impact of capital structure on the performance of twenty five Pakistani banks for the period of (8) years. The regression result shows that equity capital ratios statistically related with profit efficiency, negative relationship exists between profit efficiency and earnings, risk and high market value and bank performance. The research suggested that future research should include other measures of leverage.

Sliha & Abdessatar (2011), studied on the determinant of financial performance. A sample of 40 quoted and unquoted Companies in Tunis found that debt and the form of control influences the level of performance measured by return on equity. Negative relationship between capital structure and financial performance shifting from the positive strand of relationship between capital structure and financial performance. In Pakistani, Khan et al (2014) studied the effect of capital Structure Composition (CSC) on the corporate financial performance of potential. 151 textile companies listed at Karachi stock exchange. Secondary data for the period of 2008-2014 was used for the analysis. The regression results reveal that capital structure composition has negative impact on corporate financial performance.

Kaumbutthu (2011) examined on the relationship between debt to equity ratio and return on equity for the industrial sector in the Nairobi securities exchange (NSE), the research found the negative relationship between debt to equity ratio and return on equity. The study used correlation and regression tests on financial data to explore the relationship between capital structure and financial performance of companies. The study found that there was a significant positive relationship between financial leverage, financial performance, growth and size of the companies. The findings were consistence with agency theory.

Mahfuzah and Yadav (2012) examined the relationship between capital structure and firms performance. They made use of panel data procedure for a sample of 237 Malaysian listed companies on the Bursa Malaysia stock exchange during 1995-2011. Four performance measures including (return on equity, return on assets, Tobin's Q and earnings per share) were used as dependent variables. The five capital structure measures includes (long term debt, short term debt, total debt ratios and growth) were used as the independent variables, Size is a control variable. The findings indicates that firm's performance has a negative relationship with short term debt (STD), long term debt (LTD), total debt (TD). However, they found positive relationship between the growth and performance for all the studied sectors. Tobins Q showed a significant positive relationship between short term debt and long term debt. This also showed that total debt has a significant negative relationship with the performances of the firm.

Osuji and Odita (2012) researched on the impact of capital structure on corporate performance of Nigerian firms. They studied on 30 non –financial firms listed on Nigerian stock exchange from 2004-2010. Multiple regression method was used to ascertain the relationship between corporate performance and capital structure. Their result entails that capital structure constituted by debt ratio had a significant negative impact on firm's financial performance. Measures of performance are; Return on Assets, Return on Equity,



and Price per share, Earning per share and Tobin's Q. Again capital structure is proxy by debt to equity ratio.

In Australia, Skopijack and Luo (2012) investigated the relationship between capital structure and firm performance of Australian Deposit-taking institutions (ADIS). Regression analysis was used in this research. The study reveals a significant relationship between capital structure and firm performance of Australia ADIS at relatively low levels of leverage and increase in debt leads to increased profit efficiency, hence, superior bank performance at relatively high levels of leverage increased debt leads to decreased profit efficiency as well as bank performance.

Olokoyo (2012) researched on the capital structure and cooperate performance of Nigeria quoted firms. A panel data approach for the period 2003-2007. The researcher made use of panel data of 101 quoted firms as well as employing descriptive and economic analytical tools. The result indicates that a firms capital structure has a significant and a negative impact on the firms ROA; the leverage measures has a positive and highly significant relationship with the market performance measures.(Tobin's Q) which to some extent support Meyers(1977) argument that firms with high short term debt to total assets have a high growth rate and high performance; size has a positive and highly significant relationship with accounting performance measures and the market performance measures; tax has no significant relationship on firms performance.

Pouraghjan and Malekian (2012) studied on the impact of capital structure on the financial performance of companies listed on the Terhan stock exchange. They used 400 firm-years among the companies listed on the Terhan stock exchange of 12 industrial groups during the year from 2006- 2010. Variables were used to measure the financial performance of companies, the return on assets and return on equity. The study made use of linear regression analysis. Its findings showed that there is a significant negative relationship between debt ratio and financial performance of companies. And that there is a significant positive relationship between assets tangibility ratio and growth opportunities with financial performance measures. Furthermore, the relationship between ROA and ROE measures with the firm age is not significant.

Chechet, Garba & odudu (2013) conducted a study on the determinants of Capital structure in Nigerian Chemical and paints companies for a period of five years from 2005-2009 using the sample size of twelve companies. Secondary data was used in the study. The ordinary least square (Ols) results shows that tangibility and profitability have negative significant relationship with debt ratio, whereas, size. Growth and age have insignificant relationships with the debt ratio.

Fosu (2013) studied the 257 South African listed firms using panel data to investigate the relationship between capital structure and firm performance, paying particular attention to the degree of industry competition found out that financial leverage has a significant positive effect on the performance. He researched on the impact from capital structure to corporate performance between Chinese and European listed firms. The researcher used

data from more than 1200 listed companies in Germany and Sweden and more than 100 listed companies in China covering the period from 2003-2012. Panel regression analysis was used as the methodology. The researcher found that capital structure has a significant positive effect in 2 European countries before financial crisis happened in 2008.

Thamila and Arulvel (2013) did a study on the relationship between capital structure and financial performance on listed companies traded in Colombo stock exchange. They made use of secondary data with a period from 2007-2011 financial statements of the respective companies. 30 companies were selected for analysis and net profit ratio, return on capital employed and return on equity were used as indicators of financial performance. The researcher found out that there is a negative relationship between capital structure and firms performance. Correlation analysis was used in the study.

Saeed et al (2013), used multiple regression models, studied on the impact of capital structure on performance of Pakistani banks. They used data of banks listed on the Karachi stock exchange for the period 2007-2011. Performance was measured by return on assets, return on equity, and earnings per share and the determinants of capital structure, including long term debt – capital ratio, short term debt-capital ratio and total debt to capital ratio. Their result indicated that there is a positive relationship between determinants of capital structure and performance of banking industry.

Nirajini and Piriya (2013) studied on the impact of capital structure on the financial performance on trading companies in Sri Lanka. They got their data from the annual reports of sample companies from 2006-2010. The researchers made use of correlation and multiple regression analysis. Findings were that there was a positive between capital structure and financial performance. They also found that capital structures significant impact on financial performance on the firm showed that debt ratio, debt equity ratio and long term ratio correlated with gross profit margin(GPM), net profit margin(NPM), Return On Capital Employed(ROCE), Return on asset(ROA) and Return on Equity(ROE), Return on Assets at a significant level of 0.05 and 0.1.

An empirical analysis of capital structure on firm performance in Nigeria for the time horizon of 5 years with panel least square regression was analyzed by Taiwo Adewale Muritala (2013). The researchers aim was to analyze the firm's operational performance affected by capital structure. The study concluded that the results from panel least square indicated that assets turn over sizes, firms age and firms assets tangibility are positively related to firms performance and the researcher found out that there is negative significant relationship between assets tangibility and Return on assets (ROA). He recommended that assets tangibility should be a driven factor to capital structure because firms with more tangible assets are less likely to be financially constrained.

Aremu, Ekpo Mustapha, Adedoyin (2013) conducted a study on the determinants of capital structure in Nigerian banking sector with the aim of examining the relationship between the level of leverage ratios with "size", "Dividend payout", "Profitability", "Tangibility", "Liquidity", "Growth" and "Tax charge" in Nigerian banking industry between 2006 and

2010. The study econometric procedure in estimating the relationship between banks capital structure and its key determinants. The pooled ordinary least square (pooled OLS) technique was employed in obtaining the numerical estimates of the coefficients in different equations. Findings revealed that the main determinant factor which contribute to the bank leverage level of banking industry in Nigeria between the years 2006 to 2010 are mainly bank size, dividend payout, profitability, tangible assets, growth, business risk and tax charge factors. The paper recommended that bank managers financial analysts and policy makers need to have better understanding about the factors which may influence the capital structure of the Nigerian banking sector and enhance competitiveness in the banking sector.

Goyal (2013), studied on the impact of capital structure on profitability of public sector banks in India listed on national stock exchange for the period of 2008-2012, a sample size of 19 banks was used in the study. Regression analysis was equally used and the result stated that positive relationship was present between short term debt and return on assets (ROA). (ROE) and earnings per share have negative relationship between total debt to capital and profitability ratios of ROA, ROE and earnings per share. However, the result shows that control variable that was measured by size and assets growth have significant positive relationship with the dependent variable measures of ROA and EPS. The study suggested that profitable firm depends more of equity financing.

Akiyom (2013), examined on the Relationship between capital structure and performance of manufacturing companies in Nigeria. The study showed that panel data of five year period from 2007-2011 for three food and beverages manufacturing companies in Nigeria. Correlation analysis model was used, whereas evidence of the findings showed the negative relationship between capital structure and firm performance.

Mubeen and Akhtar, (2014) used the overall textile sector, return on assets, return on equity and earnings per share ratios as accounting measures to evaluate the impact of capital structure on the financial performance of firms and shareholders wealth in Pakistan. The researchers conducted regression analysis on a sample of 155 textile firm for the year 2006-2011. The results show that capital structure positively impacts firm financial performance and shareholders wealth.

Doan (2014) studied the impact of capital structure on the financial result of enterprise after privatization. The data was 217 companies listing on Vietnam stock exchanges in the period of 2007 to 2012. The independent variables used in the research includes short term debt, long term debt, total debt and dependent variables used in measuring performance including ROE and ROE. The research shows that the negative relationship between capital structure and business result with significant level of 1%. The regression result shows that long term debt has a positive impact on ROA and ROE while short term debt and total debt have a significant negative impact on the business performance of enterprises measured by ROE and ROA.

Chechet and Olayiwola (2014) studied on the capital structure and profitability of Nigerian quoted firms using the agency cost theory perspective, with panel data on a sample of 70 out

of the 245 listed firms on the Nigerian stock exchange(NSE) for 10 from 2000-2009. The researcher made use of two independent variables Debt ratio and equity ratio. This was used to replace the capital structure, and then profitability was used as a dependent variable. With the use of fixed-effects, random and Hausman Chi-square estimations the result revealed that debt ratio is negatively related with profitability while equity is positively related to profitability. The findings and conclusion recommended that experiencing agency conflicts and hoping to increase fund for operations or expansions, the researcher also revealed the higher the debt ratio should be given priority the right combination of equity and debt must be observed.

Akeem et al (2014), investigated at the effect of capital structure on firms performance of ten quoted non-financial companies in the Nigerian stock market for a period of ten years 2003-2012. Data used for the study were generated from annual report of listed Nigerians companies. The study applied descriptive statistics, correlation and regression analysis as its estimation techniques. The evidence of the findings showed a negative relationship between capital structure and firm performance.

Yousef (2014) investigated the impact of capital structure on profitability, an empirical analysis of cement sector of Pakistan. The aim of the study was to examine the relationship between capital structure and profitability of cement manufacturing firms listed in Karachi stock exchange (KSE) during a 6 year period. The population of the study was a 21 companies listed under cement sector of KSE, 16 companies were used as sample for the study. Data from year 2005 to 2010 was collected from financial statements of the sampled companies listed and analyzed using fixed and random effect regression with the aid of state II. The result of the study showed debt equity ratio (DER) is significantly and negatively associated with ROE.

Siddik, Kabiraji and Joghee, (2015) reveals the impact of capital structure on performance of banks in Bangladesh using the panel data of 22 banks for the period 2005-2014. They made use of ordinary pool square method. The result from the pool square showed that capital structure inversely affects banks performance. All capital structure variables, TDTA, LTDTA and STDTA have significant inverse impact on ROA while TDRA and STDTA have a negative significant impact on ROE. Again, LTDTA and STDTA have significant negative impact on Eps; growth, opportunities, size and inflation have positive relationship, whereas liquidity and GDP have negative impact on the performance of banks in Bangladesh.

Adesina et al (2015), also looked at the impact of post consolidation capital structure on the financial performance on Nigeria quoted banks. A sample of 10 banks was used for the period of 8years. Profit before tax was used as a dependent variable and two capital structure variable (equity and debt) and independent variable. OLS regression was used to analyze data. The findings shows that the capital structure has a significant positive relationship with financial performance of Nigeria quoted banks.

Cheruyot Ronoh (2015) studied on effect of capital structure on financial performance of listed commercial banks in Kenya. Correlation analysis was used in this study. The study revealed that capital structure of listed commercial banks in Kenya is significant and affects financial performances of commercial banks negatively.

Abubakar (2015) studied the Relationship between Capital Structure and Financial Performance in Nigerian Banks. The researcher studied on the relationship between financial leverage and financial performance of deposit money banks in Nigeria. A sample of 11 deposit money banks was used for 8 years starting from 2005–2013. Debt Equity ratio and debt ratio was used as a substitute of capital structure and return on equity to replace the performance. Descriptive and correlation analysis was used to analyze data. The result stated that there was a significant negative relationship between debt equity and return on equity.

An empirical analysis of capital structure on the financial performance in Nigeria bank for the period of 8 years with OLS method was analyzed by Adesina & Nwidobie (2015). This research aimed to determine the impact of post consolidation capital structure on the financial performance of Nigeria quoted banks. The study used profit before tax as a dependent variable and two capital structure variables (equity & debt) as the independent variables. The findings showed that capital structure has a significant positive relationship with the financial performance of Nigerian quoted banks.

Getahun (2016) examined the effect of capital structure on the financial performance of insurance companies in Ethiopia for the period of 10 years 2004-2013. The study showed that regression analysis is model as estimation techniques. The findings also shows that firm leverage, size, business risk has significant effect on performance of insurance companies in Ethiopia.

Nwude and Anyalechi (2018) evaluated the influence of financing mix on the performance of commercial banks, with the aim of ascertaining the casual link between debt equity ratios. Data collected were analyzed using correlation analysis and pooled OLS regression as well as post estimation test such as restricted F-Test of heterogeneity and Hausman test. The findings shows that while debt finance exert negative and significant impact on return on assets, the debt equity ratio has positive and significance influence on return on equity. The study recommends that management of commercial banks should ensure that the right optimum capital structure is always engaged by varying the debt equity ratio at intervals, in order to enhance the performance of the banks in terms of ROA and ROE. Nwude and Anyalechi (2018).

Emenuga (2019) evaluate equity financing and bank performance in Nigeria emphasizing special performance to first bank in Nigeria. The study sought to ascertain the impact of equity financing on bank performance in Nigeria. Applying secondary data and expos facto research design, the study revealed that there is a positive significant impact between equity financing proxy with total fund (TFD) and bank performance proxy with return on equity in Nigeria. It recommended that bank board appropriate committee and policy maker have a lot to do in term of formulating and implementing appropriate policy that will stabilize the

bank performance improvement in Nigeria by improving the position of exogenous of the study.

Serwadda (2019) researched on the effect of capital structure on banks performance on Uganda banks for a ten year period from 2006-2015. Panel regression method was used to determine the effects of capital structure on banks performance. Result shows that there is a positive relationship between capital structure variables and bank performance. This is between long term debts, total debt with net interest margin. Also there is a positive relationship between total debts and return on assets.

Adebayo and Olojede (2019) revealed on the effect of capital structure on the financial performance of some selected banks in Nigeria. The studied also revealed the relationship that exists between capital structure and financial performance of quoted deposit money bank in Nigeria. A cross sectional time series secondary data covering the period of seven years (2012-2018). This was gotten from the audited financial statement of (10) years banks listed on the floor of stock exchange. The descriptive correlation result stated that capital structure is negatively correlated with financial performance (ROA) and (ROE). Panel regression showed the debt to equity theory has significantly impacted negatively on ROA and ROE. Assets, tangibility significantly impacted return on Assets but insignificantly impacted on return on shareholders' assets. Age has a significant impact too on the return on assets and insignificant effect on ROE. The study concluded that capital structure have a negative effect on the financial performance of deposit money banks in Nigeria. The study also recommended that appropriate proportion of capital should be tailored towards viable investment opportunities for maximum return on shareholders' wealth and increase in value of the firm. Again, the financial manager made known the movement in the stock market. More so, banks should be careful for mitigating credit risk associated with lending and borrowing.

Adeniyi. Marsidi, Babatunji, (2020) studied capital structure and commercial banks performance in Nigeria. The study used profit after tax and earnings per share as a measure of performance, also employed panel regression method to analyze data collected from the sample of fourteen quoted commercial banks between 2009 and 2016. The result reveals that there is a significant relationship between debt and profitability of commercial banks in Nigeria. The study concluded that debt can be significantly influenced by liquidity and shareholders wealth. Furthermore, the study recommended that the commercial bank managers should not depend on debt capital as a source of financing the organizational capital structure but rather use retain earnings of the business and consider debt as the least alternatives.

Olatunji & Olufemi (2022) examined on the capital structure and financial performance of manufacturing company in Nigeria. Descriptive and inferential statistical analysis was used. The findings revealed that financing debt in relation to equity has insignificant adverse effect on return on assets of the selected firms, debt equity has direct significant effect on return on equity.

Renato, Taiwo & Yisau (2023) studied on the impact of capital structure on financial performance of oil and gas firm in Nigeria. The descriptive statistics and panel regression was used during the analysis. Findings revealed that while long-term debt to total assets has a negative significant influence on return on asset, short-term debt to total asset and total debt to total equity has positive insignificant impact.

### 2.3 Theoretical Framework

#### Modigliani Miller Irrelevance Theory

Modigliani - Miller (1958) theorem is considered the greatest breakthrough in theory of optimal capital structure. The theorem specifies the financial decisions by firms that are irrelevant to the firm's value. Modigliani- It has four prepositions which are;

- i) The value of a firm is the same regardless of whether it finances itself with debt or equity. The weighted average cost of capital is constant. The assumptions of Modigliani-Miller theorem are; Perfect and Frictionless markets, no transaction costs, no default risk, no taxation, both firms and investors can borrow at the same interest rate; there is homogeneous expectation homogeneous risk and equal access to all relevant information.
- ii) The rate of return on equity grows linearly with the debt ratio implying that the higher the debt equity ratio the higher the expected return on equity. iii) The distribution of dividends does not change the firm's market value it only changes the mix of Equity and Debt in the financing of the firm.
- iv) In order to decide an investment, a firm should expect a rate of return at least equal to cost of capital no matter where the finance would come from. Hence the marginal cost of capital should be equal to the average cost of capital. The constant cost of capital is sometimes called the "hurdle rate" (the rate required for capital investment). Thus, the theory states that the value of a firm is invariant with respect to its leverage policy in an arbitrage free market when there is no corporate income tax and no bankruptcy cost: whether firm is financed through debt or equity, its value remains the same.

The theory is quite relevant to the study as it emphasizes the perfect and frictionless market, no transaction cost, no default risk, no taxation, both firms and investors can borrow at the same interest rate: there is homogeneous expectation, homogeneous risk, and equal access to all relevant information.

### METHODOLOGY

The study adopted *expos facto* research design. The *expos facto* research design method was used because of already existing dependent variables, which looked at the time series nature of the study that sought the influence of the capital structure on financial performance (dependent variables) of commercial banks operating in Nigeria. The study sourced data from secondary sources. Thus, the study generated data from the annual reports and accounts of selected banks in Nigeria from 2005-2022.

The study adopted multiple regression model expressed as stated below;

$$Y_{it} = \alpha_0 + \beta x_{it} + U_t \quad \text{-----} \quad 1$$

To empirically investigate the effects of capital structure on firm's financial performance proxy by debt ratio, equity ratio and debt-equity combinations (independent variables) and return of asset (dependent variables), the above model is modified as stated below:

Thus,

$$ROA_{it} = \alpha_0 + \alpha_1 DETR_{it} + \alpha_2 EQTR_{it} + \alpha_3 DETQR_{it} + U_t$$

Where, ROA = Return On Assets  
 DETR = Debt Ratio  
 EQTR = Equity Ratio  
 DETQR = Debt Equity Ratio

$\alpha_0$  = Intercept or average SHP when other variables are not applied  
 $\alpha_1$  = Coefficient of the explanatory variable, DETR  
 $\alpha_2$  = Coefficient of the explanatory variable, EQTR  
 $\alpha_3$  = Coefficient of the explanatory variable, DETQR

Descriptive statistics was used to depict the characteristics of the variables while, multiple regression analysis using OLS was used to estimate the effect of capital structure on financial performance of commercial banks in Nigeria for the period under consideration from 2005 – 2022.

## RESULTS AND DISCUSSION

Descriptive statistics test was carried out to examine the characteristics of the dependent and independent variables. The descriptive result is presented in the table 1 below.

**Table 1: Descriptive statistics result**

	ROA	EQTR	DETR	DETQR
Mean	0.007937	0.003968	0.010000	0.069524
Median	0.000000	0.000000	0.010000	0.040000
Maximum	0.340000	0.020000	0.090000	1.400000
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.045229	0.005547	0.010776	0.174193
Skewness	6.676890	0.985718	6.547900	7.232003
Kurtosis	48.23651	2.939199	49.87500	55.78474
Jarque-Bera	5839.746	10.21192	6218.010	7863.020
Probability	0.000000	0.006061	0.000000	0.000000
Sum	0.500000	0.250000	0.630000	4.380000
Sum Sq. Dev.	0.126832	0.001908	0.007200	1.881286
Observations	68	68	68	68

**Sources:** Researcher' Computation using E-view 9.0, 2023

Table 1 above shows the descriptive statistical analysis between the dependent and independent variables. The mean is the average value of the series which is determined by dividing the total value of the series by the number of observations. The average percentage of return on assets (ROA) across the selected Banks within the period under review (2005-2021) stood at 1%. This indicates that the volume of profitability among the banks is very low with respect to the independent variables. Profitability measured as return on assets has minimum and maximum values of 0.0000 and 0.3400.

The Equity Ratio (EQTR) averaged 3% over the study period. It implies that Nigerian banks might have not taken advantage of the provisions of CBN guideline with regards to equity in relation to the dependent variable. The minimum and maximum values of Equity Ratio are 0.00000 and 0.02000 respectively. The value of Debt Ratio (DETR) stood at 10% on average and this shows that Debt Ratio exert no high influence on the return on assets of banks in Nigeria. This suggests that the selected banks in Nigeria spend moderate part of their income



(profit) on servicing debt. Debt Ratio has the minimum value of 0.00000 and the highest maximum value of 0.0900.

The value of Debt Equity Ratio (DETQR) stood at 7% on average and this shows that Debt Equity Ratio exert no high influence on the return on assets of banks in Nigeria. This suggests that the selected banks in Nigeria spend moderate part of their income (profit) on servicing debt and shareholders. Debt Equity Ratio has the minimum value of 0.00000 and the highest maximum value of 1.40000. The standard deviation is a measure of spread or changes in a series of data. The standard deviation for ROA, EQTR, DETR, and DETQR are 0.045229, 0.005547, 0.010776 and 0.174193, respectively. The value of all the independent and dependent variables recorded low standard deviations. This shows that there is no threat of rising debt servicing costs and shareholders' income as expenditure which might decrease the profitability of banks in Nigeria.

The study used correlation test to ascertain the strength and magnitude of the influence of the independent variables on the dependents. The correlation test result is presented in table 2 below.

**Table 2: Correlation Test**

	ROA	EQTR	DETR	DETQR
ROA	1.000000	0.101834	3.64E-32	0.002535
EQTR	0.101834	1.000000	2.93E-17	0.163257
DETR	-3.64E-32	-2.93E-17	1.000000	7.45E-18
DETQR	0.002535	-0.163257	7.45E-18	1.000000

**Sources:** Researcher' Computation using E-view 9.0, 2023

The correlation test result in table 2 above indicates that EQTR has positive relationship with ROA of selected banks in Nigeria. This is confirmed by the value of the coefficient estimate of 0.101834. This implies that equity ratio has direct relationship with return on assets of selected banks in Nigeria meaning that increase in the level of equity ratio leads to the increase in profitability of selected banks in Nigeria. The correlation test result also shows that Debt Ratio (DEBT) has negative relationship with the performance of selected banks in Nigeria. This is confirmed by the value of the coefficient estimate of -3.64E-32. This implies that moderate debt ratio has inverse relationship with the profitability of selected banks in Nigeria indicating that increase in the level of debt ratio leads to decrease on the profitability of the selected banks in Nigeria.

In the same vein, the correlation test result shows that Debt Equity Ratio (DETQR) has positive relationship with the performance of selected banks in Nigeria. This is confirmed by the value of the coefficient estimate of 0.002535. This implies that moderate debt equity ratio has direct relationship with the profitability of selected banks in Nigeria indicating that increase in the level of debt equity ratio leads to increase on the profitability of selected banks in Nigeria. Meanwhile, table 3 below presents the baseline regressions results using Pooled OLS. Fixed Effect Model (FEM) and Random Effect Model (REM).

**Table 3: Panel Regression Results**

Series	Pooled OLS	FE OLS	RE OLS
	(1)	(2)	(3)
C	2.88045 [0.0055]	2.68150 [0.0098]	2.68150 [0.0095]
DETR	-9.90450 [0.0000]	-9.22061 [0.0000]	-9.22061 [0.0000]
EQTR	16.1549 [0.0000]	15.0390 [0.0000]	15.0390 [0.0000]
DETQR	12.1542 [0.0000]	13.0331 [0.0000]	11.3120 [0.0000]
Observations	68	68	68
R-Squared	0.81705	0.81705	0.81705
Adj. R-squared	0.81067	0.78105	0.81067
F-Value	133.9822 [0.0000]	23.2358 [0.0000]	133.9822 [0.0000]
Hausman Test =	0.0000	p-value = 1.000	

**Sources:** Empirical Analysis, 2023 From E-view 9.0 version

In table 3, the study considered the pooled regression result, fixed effect and random effect ordinary least square (OLS) regression results. Observing this result, the study pools all the 63 observations together and ran the regression model, neglecting the cross section and time series nature of the data. It was found that the R-squared value for the pooled regression model was 0.81705 indicating that 81.71% of the total variation in return on assets (ROA) of selected banks in Nigeria is explained by the explanatory variables such as Debt Ratio (DETR), Equity Ratio (EQTR) and Debt Equity Ratio (DETQR). The three variables, Debt Ratio (DETR), Equity Ratio (EQTR) and Debt Equity Ratio (DETQR) were found to have significantly influenced on the return on assets of selected banks in Nigeria. This is confirmed by their respective P-values [0.0000], [0.0000] and [0.0000]. The major problem with pooled regression model is that it does not distinguish between the various banks that are in the sample. In other words, by combining different commercial banks by pooling, the heterogeneity or individuality that may exist among the four (4) selected banks is not considered.

In order to allow for heterogeneity or individuality among the banks by allowing each bank to have its own intercept value; the fixed effect model (FEM) was applied. Fixed effect model was therefore applied because it is time invariant indicating that although the intercept may change across the cement companies, it however does not change over time. The R-squared value of 0.81705 indicates that 81.71% of the total variation in return on assets (ROA) is explained by the explanatory variables namely, Debt Ratio (DETR), Equity Ratio (EQTR) and Debt Equity Ratio (DETQR). However, all the explanatory variables, Debt Ratio

(DETR), Equity Ratio (EQTR) and Debt Equity Ratio (DETQR) were found to have significant influence on return on assets (ROA as confirmed by their respective P-value of [0.0000], [0.0000] and [0.0000].

The random effect regression model was also applied in order to account for the unobserved effects in fixed effect model. The random effect model shows that the R-squared value of 0.81705 indicates that 81.71% of the total variations in return on assets (ROA) is accounted for, by the explanatory variables, Debt Ratio (DETR), Equity Ratio (EQTR) and Debt Equity Ratio (DETQR). Furthermore, it was found that all the explanatory variables (Debt Ratio, Equity Ratio, and Debt Equity Ratio) have significant influence on ROA as confirmed by their P-values of [0.0000], [0.0000] and [0.0000] respectively.

The study applied the Hausman test to select the model (fixed effect or random effect) that will be mostly appropriate for estimation. Hausman test null Hypothesis states that Random effect model was appropriate while its alternative hypothesis states that fixed-effect model was appropriate. The selection of either fixed effect model or random effect model is based on the statistical significance of the P-value. From table 3 above, the Hausman test statistics P-value is [1.0000]. It implies that its P value is insignificant because it is greater than 5% (0.05) chosen level of significance. Thus, the null hypothesis cannot be rejected. Therefore, it is concluded that random effect model was desirable for prediction.

The panel (random effect) regression result presented in table 3 above, reveals that Debt Ratio (DETR), Equity Ratio (EQTR) and Debt Equity Ratio (DETQR) have significant impact on return on assets of selected banks in Nigeria. This result is in conformity with the prior expectation that rising level of capital structure affects the profitability of commercial banks in Nigeria. The result shows that a unit increase in the debt ratio leads to 9.22061 unit decrease in the profitability of banks in Nigeria. It is a strong indication of inverse relationship between Debt Ratio (DETR) and Return on Assets (ROA) of banks in Nigeria.

The panel (random effect) regression result presented in table 3 also revealed that Equity Ratio (EQTR) has positive and significant impact on return on assets (ROA) of banks in Nigeria. This result is in conformity with the prior expectation that rising level of Equity Ratio (EQTR) brings about positive liquidity which consequently affects the return on assets (ROA) of the selected banks in Nigeria. The result shows that a unit increase in the level of Equity Ratio (EQTR) leads to 15.0390 unit increase in the profitability (ROA) of banks in Nigeria. It is a strong indication of direct relationship between Equity Ratio (EQTR) and return on assets of banks in Nigeria.

In the same vein, the panel (random effect) regression result presented in table 3 also revealed that Debt Equity Ratio (DETQR) has positive and significant impact on Return on Assets (ROA) of selected banks in Nigeria. This result is in conformity with the prior expectation that rising level of Debt Equity Ratio (DETQR) brings about positive liquidity which consequently affects the Return on Assets (ROA) of the selected banks in Nigeria. The result shows that a unit increase in the level of Debt Equity Ratio (DETQR) leads to 11.3120 unit increase in the profitability (ROA) of banks in Nigeria. It is a strong indication

of direct relationship between Debt Equity Ratio (EQTR) and return on assets of banks in Nigeria.

The study investigated the effect of capital structure on the financial performance of selected commercial banks in Nigeria. The data was gotten from bank financial annual report of the selected commercial banks in Nigeria. The findings of this study are in line with the objectives of the study. The study found that debt component has significant and negative effects on the financial performance of selected commercial banks in Nigeria. This means that debt ratio has influence on the financial performance of selected commercial banks. Moreover, many other commercial banks believe to have more maximum mix of debt and improves more in the financial performance of banks, though as regards to this study the effect of financial performance is statistically significant. This is in agreement with Olokoyo (2012) shows that a firm's capital structure has a significant negative impact on firm and that the market performance measures tax has no significant relationship on firm's performance.

The study also revealed that Equity ratio has significant positive relationship with (ROA) Return on Assets of selected banks in Nigeria. This shows that Equity ratio has a relationship with return on Assets. Therefore, a positive relationship is expected between firm performance and profitability of selected commercial banks in Nigeria. This study is in agreement with the findings of Adesina and Nwidobie (2015), whose study revealed a significant positive relationship between capital structure and financial performance of Nigerian quoted banks. This disagrees with the findings of Yousef (2014) that has a negative relationship between capital structure and profitability of cement sector of Pakistan. Moreover, higher equity ratios may probably increase banks funding costs with adverse consequences of credit availability. This may help the banks to have a decrease in the riskiness of equity returns this implies that there should be an increase funding cost and further supports the regulators concentrate on the higher equity requirements.

Finally, the study found that Debt-Equity ratio has a positive and significant impact on return on Assets (ROA) of banks in Nigeria. This implies that the increase in the level of Debt-Equity Ratio result to positive liquidity. This is in disagreement with the findings of Abeboyo and Olojede (2019) with the panel regression found that Debt-Equity ratio has significant impact negatively on (ROA) and (ROE) return on Assets and return on Equity. However, the debt-equity shows how much the commercial banks performances comes from debt or equity. This shows that more of banks finances is from debt versus issuing shares of equity. Commercial banks tends to have higher debt equity because they borrow capital for them to lend their customers.

## **CONCLUSION AND RECOMMENDATIONS**

The study examined the effect of capital structure on financial performance of selected commercial banks in Nigeria. From the findings, it is inherent that debt ratio affects financial performance of Banks in Nigeria. More so, equity ratio affects financial performance of banks in Nigeria just as debt-equity ratio affects financial performance of selected commercial banks in Nigeria. The study found out that there is a significant negative relationship and positive relationship between debt ratio and equity ratio respectively. Also a positive significant relationship on debt-equity ratio on the financial performance of selected commercial banks in Nigeria. This also shows that moderate debt ratio has inverse relationship with the profitability of selected banks in Nigeria showing the

high level of debt ratio which leads to the decrease on the profitability of the selected banks in Nigeria.

The study therefore recommends the following that:

1. There should be more optimum debt mix structure and improves more financial performance of commercial banks in Nigeria.
2. The commercial banks should increase the level of equity ratio in order to improve on the profitability of commercial banks in Nigeria.
3. That the commercial banks should increase the level of debt-Equity in order to allow a positive liquidity.

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