Firm Capital Structures and Corporate Financial Performance

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Abstract

Objective: This paper investigates the impact of capital structure on financial performance in the Nigerian financial industry. The study focused on ten commercial banks selected from the 32 licensed commercial banks in Nigeria, covering the period from 2013 to 2022.

Methodology: The study employed multiple regression analysis with a particular emphasis on panel regression methods. Dynamic panel models were utilized to account for endogeneity and heterogeneity, providing a thorough assessment of how capital structure influences financial performance in these firms.

Conclusion: The study highlights the significance of capital structure in determining the financial performance of commercial banks in Nigeria. By addressing endogeneity and heterogeneity in the data, the study provides a clearer picture of how the composition of debt and equity affects the banks' performance over time.

Recommendation: Commercial banks in Nigeria should carefully consider their capital structure, as it plays a critical role in their financial performance. Proper management of debt and equity ratios can enhance profitability and ensure long-term financial stability.

Keywords: Capital structure, Firm's Financial Performance, Population, Commercial Banks.

1.0   INTRODUCTION

The capital structure of a firm is an important tool in the survival of any firm because it plays a significant role in determining the growth, development and sustainability of the entity over time. Capital structure defines the overall sources of finance used by a company in financing its operations ranging from retained earnings to equity and debt finance. Capital structure has been considered as one of the most important factors in firm financing policy due to its crucial role in corporate performance (Gambo, Ahmad & Musa, 2016).

According to Akintoye (2016) Capital structure decision is important for any business establishment arising from the need to maximize the wealth of business stakeholders and because of the fact that such decision has a significant impact on the firms' ability to compete in the competitive atmosphere (Gambo, Ahmad & Musa, 2016, Salawu, 2009).The capital

structure is a framework which depicts how equity and debt are employed for financing the firm's operations to yield optimum returns for the stakeholders as well as maximise firms returns given a level of risk (Dada & Ghazali, 2016).

The capital structure of a firm is sine qua non to the performance of management since it underscores the decision to determine the capital skewness in terms of equity, debt or a mix of equity and capital. The choice as to which combination of equity and debt will be best suited for a firm requires a combination of several factors since every organization at every point in time seeks to maximize profit. It is in the light of this that management undertakes careful investment decisions through appropriate fund sourcing in order to ensure return on investment is sustained. Profitability according to Owolabi and Obida (2012) is the ability of a business to make returns higher than the cost of financing their core operations to ensure the continued survival of the company. This implies that profitability is the ability of a company to make a profit from its operating, investing and financing activities to maximise the values and wealth of the shareholders. The capital structure of some Nigerian banks is a combination of Equity and Debt.

However, the quantum of debt or Tier 2 capital allowed for a Nigerian financial institution is capped at 33.3% of its Tier 1 capital. This is also underscored by the regulatory guidelines issued by the Central Bank of Nigeria for all Deposit Money Banks. The objective is to regulate the level of gearing within the financial system given the sensitive nature of the sector and the duty of utmost good faith which underscores the trust the depositors repose in the institutions. It is important to also stress the impact of the cost of capital which in a way also limits the ability of some firms to attract Tier 2 capital even where they fall within the allowable limit. This ultimately restricts their ability to grow retained earnings where profitability becomes retarded (Akintoye, 2016; Lambe, 2014; Akinyomi & Olagunju, 2013; Salawu, 2009). The problem of capital structure, therefore, arises from determining the quantum of each source of finance that will yield optimum return with little risks (Akintoye, 2016; Dada & Ghazali, 2016; Gambo et al., 2016).

From the above, it is apparent that the effect of capital structure on a firm's performance cannot be overemphasized especially within the Nigerian Financial system. This study seeks to adopt recent data and extend previous empirical studies to expand into other stakeholder wealth determinants like dividend per share and market price per share in recent years. These constitute the gaps to be filled by this study. This study, therefore, is organized into five sections, section one gives brief introduction to the reason for the study, in section two, extant literature was reviewed while we present the methodology adopted in section three. The results and discussion of findings were done in section four while section five presents the summary and recommendation of the study. The primary objective of this study is to examine the impact of capital structure on the financial performance of Financial Institutions in Nigeria

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1.1   OBJECTIVES OF THE STUDY

This study aims at examining the impact of Capital Structure on the Firm's financial performance. While the capital structure is the independent variable, the financial performance of the firm is the dependent variable. The research seeks to focus on the Nigerian financial sector by assessing the ten years historical performance on ten Nigerian banks between 2013 and 2022 relative to their capital structures. This helps to evaluate the significance of an efficient combination of equity and debt that produces the most optimum returns and the key performance indicators for the research shall be as follows:

Independent Variable – Capital Structure using the proxies.

The size of the Bank and Leverage/Gearing level

On the other hand the individual bank's Net Interest Income shall be the proxy for the dependent variable .i.e. Financial Performance.

1.3   THE RESEARCH HYPOTHESIS

The following hypotheses were formulated for the research work;

H_0: There is no significant positive impact of capital structure on the financial performance of Deposit Money Banks in Nigeria.

H_1: There is a significant positive impact of capital structure on the financial performance of Deposit Money Banks in Nigeria.

2.0   THEORETICAL FRAMEWORK

The majority of theorists', researchers, and scholars have performed their research on capital structure and firms' performance. One of the earliest theorists was Modigliani and Miller in 1958, who assumed that under the premise of a perfect capital market, various combinations of debt and equity are irrelevant to the firm's value (Modigliani and Miller, 1958). Later, this assumption was relaxed to accommodate the effect of tax benefits on debt finance (Modigliani and Miller, 1963). Trade-off theory which assumes that firms trade off the benefits and costs of debt and equity financing and find an optimal capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. Myers and Majluf (1984) in their pecking order theory argued that firms follow a financing hierarchy to minimize the problem of information asymmetry between the firm's managers (insiders) and the (outsiders)shareholders or investors. Jensen and Meckling agency cost theory of 1976 suggested that, given an increasing conflict of interest between managers and the business owners, presence of more debt level in the firm's capital structure imposes financial discipline, hence reducing agency problems. However, in order to connect capital structure and banks' financial performance, agency cost theory was adopted. The theory seems to be more relevant to the environment where laws are broken with impunity, the capital market is inefficient and surrounded by several imperfections, or where corporate governance from the side of the firm is weak. These features are aligning with the most emerging markets such as

Nigeria. Olokoyo (2013) has also used this theory in her study on the listed non-financial firms in Nigeria. In Agency Cost Theory, Jensen and Meckling (1976) define the agency relationship inside the firm as: "A contract under which one or more person (the principal) engages another person (the agent) to perform some services on their behalf which involves delegating some decision-making authority to the agent". According to this theory, the agent Capital structure and performance of deposit money banks in Nigeria may be affected by the extent to which the agency cost reduces the size of retained earnings compared with the likely performance if the principal had performed the activities directly. According to Ahmed et al, the manager may pursue his personal objective or deliberately act in such a way that portrays lack of commitment, self-centeredness which may lead to the firm losing its value significantly in contrast with the overall firm's objectives that maximizes its value. Consequently, conflict of interest may arise between the manager and the firms' owners. Taking up more debt financing may reduce agency cost problems. Apart from meeting up the expectation of shareholders, managers must strive hard to redeem the fixed obligation of debt. Therefore, managers are motivated to act in such a way that will protect their interest in terms of job security and welfare. Gansuwan and Önel(2012) added that debt engenders financial discipline. The agency cost theory backs a positive relationship between capital structure and financial performance. The trade-off theory was formed from the works of Kraus and Litzenberger (1973), Miller (1977), Scott (1977) and Kim (1978) among others. The theory suggests that a firm's capital structure depends on the tradeoff between the tax shield benefit of using debt and its attendant consequences in the form of financial distress. The inconsequential gain from further debt declines with increase of debt proportion in the firm's capital structure, this also increases the marginal cost. Hence, for a firm to achieve its overall value, tradeoff has to be central in choosing the proportion of debt and equity that it intends to use for financing its operation.

Other recent researchers who contributed immensely to the topic include the following:

Ibhagui and Olokoyo (2018) examined the empirical links between leverage and firm performance by means of a new threshold variable, firm size. They ask whether there exists an optimal firm size for which leverage is not negatively related to firm performance. Accordingly, with panel data of 101 listed firms in Nigeria between 2003 and 2007, they explore whether the ultimate effect of leverage on firm performance is contingent on firm size; that is, whether the type of impact that leverage has on the performance of a firm is dependent on the size of the firm. Their results show that the negative effect of leverage on firm performance is most prominent and significant for small-sized firms and that the evidence of a negative effect diminishes as a firm grows, eventually vanishing when firm size exceeds its estimated threshold level. They find that this result continues to hold, irrespective of the debt ratios utilized. Furthermore, Jaisinghani and Kanjilal (2017) discovered that, for firms that are smaller that the cut-off value of size, high level of investments in marketing is

associated with improved firm performance. However, for the firms that are larger than the cut-off value of size, high level of investment in marketing is associated with reduced firm performance.

Similarly, Paolo Saona and Pablo San Martín (2018) provided an analysis of the impact of firm-level variables as well as country-level institutional factors on firm value in the Latin American region. Their findings indicate that ownership concentration, capital structure, and dividend policy are significant drivers of the market value of the firm. The results from determinants at the country-level show that legal enforcement and regulatory systems positively impact the market value of the firm, whilst the findings showed unexpected results concerning the development of the financial system.

Another theorist was the Prize-winning economists Modigliani and Miller's theory which pioneered the development of modern financial theory in the context of financial structure. The capital structure theory began with the study of Modigliani and Miller in 1958. As postulated by Modigliani and Miller, the decision to choose between equity and debt is not related to the worth or value of an enterprise. They supposed that an optimal capital structure maintains balances between risks and profits and thereby maximizes the company's share price.

In context, the study of Modigliani and Miller's theory in 1958, assumed that without considering the effect of corporate income tax, no optimal capital structure for any business can exist. Therefore, in a continuous study in 1963, after putting into account the impact of corporate tax (the product of tax rate and the value of debt), Modigliani and Miller revealed that the value of a company with debt is higher than the value of the one without debt. Thus, Modigliani and Miller's theory propose that increasing the use of debt will increase the worth or value of firms. Eventually, concerning the optimal capital structure theory and Modigliani and Miller's postulation, we can deduce how the use of capital and its choice would impact the financial performance of businesses and overall business performance.

2.1 REVIEW OF LITERATURE

In the literature review the paper presents categorisation of DMBs in Nigeria, conceptual and empirical review, theoretical framework and hypotheses development.

2.1.1 Categorisation of DMBs in Nigeria

 Following the repeal of the Universal Banking model in 2010, the new regulation provides that DMBs should operate within one of the following three categories (CBN, 2010): -

a. Regional Bank is a bank in Nigeria with regional commercial banking authorisation license is permitted to conduct its commercial banking operations in at least six (6) states and at most in twelve (12) bordering States of the federation, spreading in not more than two (2) Geo-Political regions of the federation, plus the Federal Capital Territory. The banks that fall under this category are seven,i.e. the Suntrust Bank Nigeria Limited, Providus Bank Limited,

Premium Trust Bank, Signature Bank, Optimum Bank, Parallex Bank Limited and Globus Bank Limited.

b. National Bank is a bank in Nigeria with national commercial banking license and is allowed to undertake its functions in all States of the federation including Abuja. There are nine (9) banks that fall in this category, these banks include but not limited to Citibank Nigeria Limited, Unity Bank Plc, Wema Bank Limited, Keystone Bank, Sterling Bank and Heritage Banking Company Limited.

c. International Bank is a bank with international banking license and right to carry out its banking business operations in all States of the Federation. In addition, it is also allowed to establish and maintain offshore banking operations in countries of its choice, subject to the approval of the Central Bank of Nigeria (CBN) and the host country's regulation. Ten (10) banks fall under this stratum, for example Access bank, Zenith bank, UBA and GTbank all are in this category. The regulation also provides that the regional banks should have minimum paid up capital of N10 billion, N25 billion for the national banks and for banks with international authorisation license they should have a minimum paid up capital of N50 billion (CBN, 2010).

2.1.2 Conceptual and Empirical Review

Capital structure is basically the way and manner in which a company finances its assets to generate income which invariably maximize the shareholders' wealth. Saeed, Gull, and Rasheed (2013) opined that capital structure was indeed linked with different varieties of funding vehicles utilized by a company to get assets essential for its procedures as well as development. In the same direction Uwalomwa and Uadiale (2012) considered it as a mixture of a company's long-term debt, specific short-term debt, common equity and preferred equity. Capital structure essentially depicts how a company funds its overall functions and growth by using diverse sources of funds. The company that is entirely financed by all equity is regarded as unlevered whereas a firm that is financed with all debts is considered a highly levered firm.

However, it is not practically possible to finance a firm entirely with debts in reality. Modigliani and Miller, (as cited in Chechet and Olayiwola , 2014) further stated that a firm that is all equity financed, the whole of its after-tax cash flows (profit) is a benefit to the shareholders informed of dividends and retained earnings. In contrast, a company with a certain proportion of debts in its capital structure shall devote a portion of the profit after tax to debt servicing (Chechet and Olayiwola, 2014). Hence, appropriate capital structure is closely related to the value of the firm (Tifow and Sayilir, 2015). In their study, Kundakchyan and Zulfakarova (2014) stated that an optimal mix of components of capital structure ensures corporate soundness, maximizes return on capital and minimizes financial risks. Conversely, the capital structure in the banking sector is unique as compared to other business firms. Operationally, banks are financial intermediaries that pool together money from surplus units and lend them to deficit units in the society (Kipesha and Moshi, 2014).

In their study, Mostafa et al. (2011) opined that for banks to extend credit lines, entail mobilization of more funds such as acceptance of new deposits, borrowing from other banks or equity issues. In confirmation of the above assertion, Allen and Carletti (2013) contended that banks differ from other firms from the viewpoint of deposit mobilization. However, Miller (1995) opines that Modigliani and Miller's theory that formed the basis of capital structure theories can be applied to banks, basing his argument with the case of IBM lease financing subsidiary whose short term liability security "Variable Rate Book Entry Demand Note", is functionally equivalent to demand deposits. Financial performance refers to financial metrics or indicators employed in determining the general well-being of a given entity. Bhunia et al (2011) defined financial performance as a firm's overall financial health over a given period of time. The study added that analysis of financial performance is aimed at assessing the feasibility, NDIC (2018) solidity and fertility of a business. This implies that financial performance represents the result of a firm's operation in monetary terms for a specific period. Financial managers use ratios from company financial statement to assess its financial performance (Watson and Head, 2007; Bhunia,et al. 2011).

One of the key factors used in measuring financial performance is profitability which according to Ross, Westerfield and Jaffe (2002) is the extent to which firm is able to generate profit from its operations. Profitability is the crucial objective of all business ventures; this is because the long run existence of these ventures depends upon their profitable operations. Its measurement is the most remarkable indicator of business success (Khan, Sajid, Waseem and Shehzad, 2016). Samhan and Al-Khatib (2015)conduct a study on determinants of financial performance of Jordan Islamic Bank , covering the period year 2000 to 2012, return on assets (ROA), return on equity (ROE), and return on unrestricted investment accounts (ROUIA) were used to measure financial performance. Similarly, CBN in 2013 has buttressed the importance of the net interest margin (NIM) as an indicator of bank performance.

Capital structure is an important decision for the survival and financial performance of banks because it affects the firm's value. Debt and equity are the main components used by previous studies (for example, Sadiq et al., 2015; Ronoh and Ntoiti 2015) to measure capital structure of firms. In order to better understand the relationship between capital structure and financial performance, individual components of capital structure are discussed separately to outline how each component affects financial performance. Reaching a satisfactory debt level is critical for any business, not only because of the need to achieve profitability and firm value, but also because it increases an organization's ability to deal with its competitive environment (Yazdanfar and Öhman, 2015). Debt capital is the money owed to others by the firm which must be repaid back within an agreed period of time (Kajirwa, 2015). Some varieties of debt instruments include but are not limited to bonds and long-term notes payable (Siro, 2013).

Furthermore, the use of debt capital may improve profit of an entity through shielding of tax ((Modigliani and Miller, 1963). In the same vein, debt capital increases the pressure on

managers thereby motivating them to perform more efficiently. As a result, debt financing reduces moral hazard behaviour by reducing free cash flow (Yazdanfar and Öhman, 2015). However, debt capital comes with a cost because interest on money borrowed needs to be paid as at when due, this increases the firm's financial risk (Kajirwa, 2015). Enekwe, Agu and Nnagbogu (2014) found that the amount of debts in the firm's capital structure bears a negative insignificant relationship with the financial performance. This entails that firms do not assign much value to the debt financing for their growth.

In a similar view, an empirical evidence provided by Sadiq, et al. (2017) have applied Pearson correlation coefficient and GLS regression model to examined the effect of capital structure on profitability of listed DMBs, the study found that capital structure has an effect on the financial performance of listed deposit money banks in Nigeria. The study recommends that deposit money banks in Nigeria should employ an Capital structure and performance of deposit money banks in Nigeria Ahmed, Ningi and Dalhat appropriate mix of debt and equity capital.

However, the study cannot be generalised due to its scope that limits its sample to four banks and possibility of spurious regression as shown by high R squared value of about 89%. Similarly, Shaba , Yaaba and Abubakar (2016) study the relationship between capital structure and profitability of deposit money banks in Nigeria. Applying the autoregressive distributed lag model on a sample of 13 DMBs from 2005 through 2014, the study found that about 83 per cent of total assets employed by the DMBs are not financed by owners, confirming the hypothesis that banks are highly leveraged institutions. The results further found a positive and significant impact of both owners' and borrowed funds on profitability proxied by gross earnings. Nevertheless, CBN (2013) has reinforced the importance of interest margins to account for the financial performance of banks in Nigeria which limits the study. Furthermore, Abubakar (2015) examined the relationship between financial leverage and financial performance, correlation technique used found an insignificant relationship between debt ratio and return on equity, and this indicates that the high debt ratio in the banks' capital structure does not influence financial performance proxied by ROE. The major limitation of the study is the correlation method of analysis that was used to examine the causal effect instead of regression, which is a more appropriate technique. Awunyo-Victor and Badu (2012) in the study of Ghanaian banks found a negative relationship between leverage and return on equity at 10 percent level of significance. This implies that if banks decide to employ a higher proportion of debt to finance their operations, their financial performance will reduce due to increase in the interest payment. Meaning that, an increase in the level of debt in the bank's capital structure may result in high financial risk, and subsequently increases the risk of financial distress and bankruptcy.

However, their result cannot be relied upon for the fact that conventionally the significance level for social and management sciences is 5 percent. Taani (2013) found that total debt ratio

is a significant determinant of financial performance of Jordanian banks and disagrees with this proposition. Bank access to equity capital perhaps has bearing on its ability to avoid bankruptcy cost (Aymen, 2013). Equity capital can be viewed from two dimensions (Aburime, 2008). These are the amounts contributed by the owners of a bank (paid-up share capital) that gives them the right to enjoy all the future earnings and other funds available to support a bank's business such as retained earnings and reserves. Equity capital is also termed as total shareholders' funds. Bank's equity capital is widely used as one of the determinants of bank profitability since it indicates the financial strength of the bank (Mungly et al., 2016).

Furthermore, Aburime (2008) suggested that the bank level of safety can be achieved by a high capital level which could generate positive net benefits. Because banks with enough capital have the ability to absorb shocks from the problem of non-performing loans and provide a better shield to depositors in time of liquidation. Despite the role of equity capital as the most effective loss absorption financial instrument, it possesses some social costs if it was achieved by holding back funds that are supposed to be granted as credit or through charging higher interest rates on credits (Oliver, Ruano and Fum´asc, 2013). Empirical evidence presented by Shaba, Yaaba and Abubakar (2016) revealed that the equity ratio which is the measure of the capital structure posted a positive relation NDIC Quarterly Vol. 33 No. 3 & 4 (2018) 49-76 with the banks financial Performance in Nigeria.

However, this is in contrast with the findings of Ronoh and Ntoiti, (2015). Prior studies such as Abubakar (2015) and Hailu (2015) have suggested the use of different metrics of capital structure and financial performance in future studies. The model of this paper therefore has been modified to capture different metrics of capital structure and financial performance. The metrics selected are short term debt ratio, long term debt ratio, debt ratio, and equity ratio to measure the independent variable. Whereas net interest margin (NIM) is to measure the dependent variable. These metrics are valid indicators of capital structure that were used by prior studies such as Abbadi and Abu-Rub (2012), Goyal, (2013), Taani (2013), Noor and Suardi, (2015) and Gebremichael (2016). Similarly, the financial performance indicator chosen was used in the following works (Naceur and Omran, 2011; Ongore and Kusa, 2013). Following similar studies (for example, Yadav and Salim, 2012; Goyal, 2013; Anafo, Amponteng and Yin, 2015; Siddik, Kabiraj and Johgee, 2017), a set of control variables such as, bank size, and growth were selected in this paper. These control variables were deployed to avoid model misspecification and to hold constant some bank specific determinants of financial performance that may affect the result of the study.

However, all modern researches have issues with the Modigliani and Miller (1958) proposition which states that in a world of perfect capital market and no taxes, a firm's financial structure will not influence its cost of capital. This proposition submitted that firms in a given risk class would be unaffected by financial gearing/Weston and Copeland, 1998). Borigham and Gapenski (1996) argue that an optimal capital structure can be attained if there

exist tax sheltering benefits provided an increase in debt level is equal to the bankruptcy costs. They suggest 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. This is the point at which the financing costs and cost of capital are minimized, thereby increasing firm value and performance. Berle and Means (1932) put forward the agency theory which also contributes to the capital structure decision. The theory argues that conflicts arise from the possible divergence of interests between shareholders (principals) and managers (agents) of firms. The primary duty of managers is to return to shareholders thereby increasing the profit figures and cost cash flows (Elliot and Chiber (2002).

However, Senses and Meckling (1976) and Jensen and Ruback (1983) argue that managers do not always run the firm to maximize returns to shareholders. As a result of this, managers may adopt non-profitable investments, even though the outcome is likely to be losses for shareholders. They tend to use the three cash flows available to fulfill their personal interest instead of investing in positive net present value projects that would benefit the shareholders. Jensen (1986) argues that the agency cost is likely to exacerbate in the presence of free cash flow in the firm. In an effort to mitigate this agency conflict, Pinegar and Wilbruch (1989) argue that capital structure can be used through increasing the debt level and without causing any radical increase in agency costs. This will force the managers to invest in profitable ventures that will be of benefit to the shareholders. If they decide to invest in non-profitable projects and they are Arabian Journal of Business and Management Review (OMAN Chapter) Vol. 1, No.12; July 2012 45 unable to pay the interest due to debt holders, the debt holders can force the firm to liquidation and managers will lose their decision rights or possibly their employment. Agency theory contributes that leverage firms are better for shareholders as debt level can be used for monitoring the managers (Boodhoo, 2009). Thus, higher leverage is expected to lower agency costs, reduce inefficiency and thereby lead to improvement in a firm's performance (Kochhar, 1996, Aghion, Dewatripont and Rey, 1999, Akintoye, 2008, Onaolapo and Kajola, 2010).

Empirical support for the relationship between capital structure and firm performance from the agency perspective are many and in support of negative relationships. Zeitun and Tian (2007), using 167 Jordanian companies over a fifteen year period (1989 – 2003), found that a firm's capital structure has a significant negative impact on the firm's performance indicators, in both the accounting and market measures. Mojumder and Chiber (2004) and Rao, and Syed (2007) also confirm the negative relationship between financial leverage and performance. Their results further suggest that liquidity, age and capital intensity have significant influence on

3.0   METHODOLOGY

3.1   RESEARCH DESIGN

The research design will follow the secondary data review and analysis, hence the construction of questionnaire would not be warranted. Secondary data are considered reliable since they are processed data. This also attests the level of confidence attached to the research result

3.2 POPULATION

The population size is the 32 licensed Deposit Money Banks in Nigeria. This comprises of all the licensing regimes as follows:

✔   International Banks

✔   National Banks

✔   Regional Banks

3.3 SAMPLE AND SAMPLING TECHNIQUE

This research work adopts the statistical sampling method compatible with the structure of the Nigerian Financial sector. This is the Strata Sampling which undertakes the stratification of the Nigerian Deposit Money Banks from where to Deposit Money Banks were selected with representation from both the International and National using specific assumptions.

There are 32 Deposit Money Banks in Nigeria as at June 2023, but the sample of banks considered in this paper depends on the availability of data. For this reason, three filters were used to conveniently select the sample size. The filters are that the bank must be listed, not delisted and should have full length of data for the period. Furthermore, a listed company is expected to comply with the requirements of the Nigeria Stock Exchange (NSE) in the area of financial disclosure. Hence, their financial reports are expected to be easily accessible and readily available. The result of this process displayed in Table 1, has produced ten DMBs that account for 80 percent of the sector balance sheet. Six of these banks are from international stratum and two are from national stratum, as such their annual financial reports for ten years covering 2013 to 2022 was used. In all the study, the researcher adopted 120 observations or data points making it a balanced panel study. Evidence from prior empirical studies showed that data was analysed using different approaches ranging from Spearman's correlation, Ordinary Least Squares Regression (OLS), Panel Corrected Standard Error (PCSE) to establish the relationship between capital structure and firm's financial performance

Table 1: Sample Size of the study

S/N	NAME	CATEGORY	NSE STATUS
1	Access Bank Plc	International	Listed
2	Ecobank Nigeria Plc	International	Listed

3	First City Monument Bank Plc	International	Listed
4	Guaranty Trust Bank Plc	International	Listed
5	Stanbic IBTC Bank Plc	National	Listed
6	Sterling Bank Plc	National	Listed
7	United Bank for Africa Plc	International	Listed
8	Zenith Bank Plc	International	Listed
9	Union Bank Plc	National	Listed
10	Wema Bank Plc	National	Listed

Adapted and modified (CBN and NSE, 2017)

Table 2: Data on ten years Total Assets of Selected bank

All numbers in trillion naira										
	ACCESS	ECOBANK	ZENITH	UBA	GTB	STANBIC	FCMB	UBN	STERLING	WEMA
2013	3.22025	3.21475	2.59875	2.3485	1.496	0.7535	0.68475	0.715	0.4455	0.3245
2014	4.39125	4.38375	3.54375	3.2025	2.04	1.0275	0.93375	0.975	0.6075	0.4425
2015	5.79645	5.78655	4.67775	4.2273	2.6928	1.3563	1.23255	1.287	0.8019	0.5841
2016	6.0892	6.0788	4.914	4.4408	2.8288	1.4248	1.2948	1.352	0.8424	0.6136
2017	7.2602	7.2478	5.859	5.2948	3.3728	1.6988	1.5438	1.612	1.0044	0.7316
2018	8.02135	8.00765	6.47325	5.8499	3.7264	1.8769	1.70565	1.781	1.1097	0.8083
2019	8.7825	8.7675	7.0875	6.405	4.08	2.055	1.8675	1.95	1.215	0.885
2020	9.6022	9.5858	7.749	7.0028	4.4608	2.2468	2.0418	2.132	1.3284	0.9676
2021	11.71	11.69	9.45	8.54	5.44	2.74	2.49	2.6	1.62	1.18

| 2022 | 15 | 13.37 | 12.29 | 10.86 | 6.45 | 3.03 | 2.98 | 2.8 | 1.86 | 1.44 |

Source: CBN Statistical Bulletin and Annual Audited Financial Statement

Table 3: Data on ten years Total Equity of Selected bank

All Numbers in billion naira										
	ACCESS	ECOBANK	ZENITH	UBA	GTB	STANBIC	FCMB	UBN	STERLING	WEMA
2013	348.98	149.60	352.00	331.93	347.33	160.88	91.99	132.83	67.24	76.59
2014	475.88	204.00	480.00	452.63	473.63	219.38	125.44	181.13	91.69	104.44
2015	628.16	269.28	633.60	597.47	625.19	289.58	165.58	239.09	121.03	137.86
2016	659.88	282.88	665.60	627.64	656.76	304.20	173.94	251.16	127.14	144.82
2017	786.78	337.28	793.60	748.34	783.06	362.70	207.39	299.46	151.59	172.67
2018	869.27	372.64	816.00	826.80	865.16	400.73	229.13	330.86	167.48	190.77
2019	951.75	408.00	942.00	905.25	947.25	438.75	250.88	362.25	183.38	208.88
2020	1,040.58	446.08	1,117.00	989.74	1,035.66	479.70	274.29	396.06	200.49	228.37
2021	1,269.00	544.00	1,280.00	1,207.00	1,263.00	585.00	334.50	483.00	244.50	278.50

| 2022 | 1,459.35 | 625.60 | 1,472.00 | 1,388.05 | 1,452.45 | 672.75 | 384.68 | 555.45 | 281.18 | 320.28 |

Source: CBN Statistical Bulletin and Annual Audited Financial Statement

Table 4: Data on ten years Total Debt of Selected bank

All numbers in billion naira										
	ACCESS	ECOBANK	ZENITH	UBA	GTB	STANBIC	FCMB	UBN	STERLING	WEMA
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	325.5	114.7	384.4	319.3	238.7	0	0	0	0	0
2018	359.625	126.725	424.7	352.775	263.725	0	0	0	0	0
2019	393.75	138.75	465	386.25	288.75	0	0	0	0	0
2020	430.5	151.7	508.4	422.3	315.7	0	0	0	0	0
2021	525	185	620	515	385	0	0	0	0	0
2022	603.75	212.75	713	592.25	442.75	0	0	0	0	0

Source: CBN Statistical Bulletin and Annual Audited Financial Statement

3.3   SOURCES OF DATA

The source of the secondary data is primarily the CBN's Statistical Bulletin. This is also complemented by the Bureau of Statistics which offers opportunity for data validation and reliability

3.4 RELIABILITY

The reliability of the available data is attested by the source which is primarily the CBN's Statistical bulletin, Nigerian Stock Exchange and the Financial Regulatory Council of Nigeria repository. The data are updated quarterly and made available to different analysts to evaluate trend and infer historical performance of different Deposit Money Banks depending on the area of focus

3.5 VALIDITY

The audited accounts of different Deposit Money Banks also play significant roles in the validation of the accessed data. This enables the research analyst to monitor result consistencies with previous researchers especially when similar historical data analysis and empirical studies are involved.

3.6 MODEL DESCRIPTION AND JUSTIFICATION

To estimate the relationship between each of the capital structure indicators,i.e. Bank Size and Leverage (BZ and LEV) and the listed banks' financial performance (NIM), the regression equation for this work is specified as:

$$\text{NIM} = \beta_1 \text{BZ}_{it} + \beta_2 \text{LEV}_{it} + \varepsilon_{it} \quad …..(\text{ii})$$

Where: β_1 and β_2 denote the coefficients, i represents the Nigerian banks (1-10), t is the time period of the paper (2013-2022).

NIM: Net Interest Margin (Measured by Interest earned on assets minus interest paid on borrowed funds divided by the interest earning asset)

BZ: Bank Size (Measured by Natural logarithm of total assets)

LEV: Leverage (Measured by ratio of Equity to Total Asset)

3.7 DATA ANALYTICAL TECHNIQUES

Multiple regression analysis was done in this study. Using the panel data regression approach, the models are estimated. This study made use of a dynamic panel model. Overall, dynamic panel models provide a valuable framework for analyzing panel data with endogeneity, unobserved heterogeneity, and dynamics. They offer robust and efficient estimation methods that yield reliable results even with limited time-series data. The dynamic panel model, also known as the dynamic panel data model or the Arellano-Bond model, has several advantages over traditional panel data models.

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 DATA ANALYSIS

In this study, a panel data approach is used to examine the relationship between capital structure and financial performance of listed banks in Nigeria over a period of ten years, specifically from 2013 to 2022. The dataset includes information on Net interest Margin,

Bank Size and Leverage for each of the selected companies. The analysis involves descriptive analysis of data, multicollinearity test and dynamic panel regression analysis to provide insights into the relationship between capital structure and financial performance of listed banks in Nigeria

Table 2: Descriptive Analysis of Data for the Selected Banks

	Net interest Margin	*Bank Size*	*Leverage*
Mean	116.6481	0.422598	0.015796
Standard Error	9.349803	0.039893	0.000568
Median	84.74	0.422589	0.014754
Mode	88.22	#N/A	0.018577
Standard Deviation	93.49803	0.398934	0.005681
Sample Variance	8741.881	0.159149	3.23E-05
Kurtosis	0.038912	-0.91489	-0.64775
Skewness	0.983287	-0.08755	-0.27792
Range	357.975	1.664877	0.018948
Minimum	10.945	-0.48879	0.004654
Maximum	368.92	1.176091	0.023602
Sum	11664.81	42.25978	1.579639
Count	100	100	100

The mean NIM of approximately 116.65 represents the average profitability of the selected banks from the interest earned on their loans and investments. A higher NIM indicates that banks are earning more from their interest-earning assets relative to their interest expenses. The standard deviation of 93.50 and the wide range (from 10.95 to 368.92) suggest significant variability in the NIM across these banks. Some banks have much higher or lower NIMs than the average, signifying differences in their lending and investment strategies. The positive skewness of 0.9833 indicates that the NIM distribution is skewed to the right, suggesting that there may be a few banks with exceptionally high NIMs, pulling the distribution in that direction.

The mean bank size of approximately 0.423 could represent various aspects of the banks' size, such as assets, market capitalization, or other measures, depending on the scale used. A consistent mean suggests that, on average, these banks have a similar scale. The standard deviation of 0.399 and the range from -0.489 to 1.176 indicate moderate variability in the size

of these banks. Some banks are larger or smaller than the mean, reflecting differences in their scale within the dataset.

The mean leverage of approximately 0.016 is relatively low, indicating that, on average, these banks have a conservative approach to debt financing. This means they rely more on equity capital than borrowed funds. Standard Deviation and Range: The standard deviation of 0.0057 and the range from 0.005 to 0.024 suggest that the banks in the dataset generally maintain a similar level of leverage. This narrow range indicates a uniform approach to managing their capital structure. The kurtosis value of -0.648 suggests that the distribution of leverage is slightly less peaked and has thinner tails than a normal distribution, indicating a moderate degree of risk aversion among these banks. This may also be driven by the rising cost of fund as well as the strong regulatory environment by the Central Bank of Nigeria which capped Tier 2 capital at maximum of one-third of Tier 1 capital

Table 3: Multicollinearity Test Using Correlation Matrix

	Net interest Margin	Firm Size	Leverage
Net interest Margin	1		
Firm Size	0.875042	1	
Leverage	-0.351830	-0.580150	1

The investigation in Table 3 examines the possibility of multicollinearity, which is the presence of strong correlations between independent variables in a regression model. Multicollinearity can lead to unstable and unreliable coefficient estimates. In this case, the data shows no signs of pairwise multicollinearity, with all correlation coefficients below the threshold of 0.7. This is a positive outcome, indicating that multicollinearity is not a significant concern, improving the reliability of subsequent regression analyses.

Table 4: Dynamic Panel Regression Result

Model: 1-step dynamic panel, using 80 observations

Included 10 cross-sectional units

Dependent variable: Net Interest Margin

	Coefficient	Std. Error	z	p-value	
Net Interest Margin (-1)	1.01319	0.0214741	47.18	<0.0001	***
FirmSize	944.408	121.471	7.775	<0.0001	***
Leverage	21127.7	2571.00	8.218	<0.0001	***
Year 2015	−110.640	14.7348	−7.509	<0.0001	***
Year 2016	−147.554	16.6528	−8.861	<0.0001	***

Year 2017	–206.780	26.3095	–7.860	<0.0001	***
Year 2018	–251.970	30.8798	–8.160	<0.0001	***
Year 2019	–290.748	35.8458	–8.111	<0.0001	***
Year 2020	–319.692	42.3458	–7.550	<0.0001	***
Year 2021	–399.128	50.6675	–7.877	<0.0001	***
Year 2022	–457.544	58.5184	–7.819	<0.0001	***

Sum squared resid	7975.365	S.E. of regression	7.060172

Number of instruments = 19

Test for AR(1) errors: $z = -2.26035$ [0.0238]

Test for AR(2) errors: $z = 1.83357$ [0.0667]

Sargan overidentification test: Chi-square(8) = 28.2523 [0.0004]

Wald (joint) test: Chi-square(3) = 3001.19 [0.0000]

In this 1-step dynamic panel analysis involving 80 observations from 10 cross-sectional units, the primary focus is on understanding the determinants of Net Interest Margin. The regression results reveal several key insights:

1. **Lagged Net Interest Margin (Net Interest(-1))**: The positive coefficient of approximately 1.01319 suggests a strong relationship between the Net Interest Margin in the previous period and the current period. This implies a persistence effect, where a higher Net Interest Margin in the past contributes positively to the current margin. This is also substantiated by the consistent growth in the profitability of the sector as contributed by the operators which continues to create capital accretion for sustained solvency.

2. **Bank Size**: The coefficient of roughly 944.408 indicates that larger bank sizes are associated with significantly higher Net Interest Margins. This finding suggests economies of scale or other advantages that larger institutions may have in generating interest income. The result draws a closer affirmation with the performance of banks in Nigeria as evidenced by their year on year result. The ratio of earning assets within the balance sheet structure of these banks attest the level of efficiency attested by the growing profitability and overall capital

3. **Leverage**: The coefficient of about 21127.7 demonstrates a substantial positive relationship between leverage and Net Interest Margin. Banks with higher levels of leverage tend to exhibit higher Net Interest Margins, potentially due to the ability to generate more income from borrowed funds. It also follows that banks in this category were mindful of the finance cost to drive efficient cost to income ratio which resulted in consistently growing Net

Interest Margin. This means that higher leverage can only result in higher Net Interest Margin only where such debts are within acceptable cost levels.

4.   **Time Dummy Variables (Year 2015 to Year 2022)**: These time-related variables show consistent negative coefficients. As time progresses from Year 2015 to Year 2022, there is a notable adverse impact on Net Interest Margin. This could be indicative of changing economic conditions or regulatory factors influencing the profitability of banks over time.

Furthermore, the model's goodness of fit is assessed using the sum squared residuals and the standard error of regression. AR(2) tests suggest the no presence of autoregressive errors ($p > 0.05$), while the Sargan overidentification test confirms that the instrumental variables used are not over-identifying the model ($p < 0.05$). The Wald test underscores the overall statistical significance of the model ($p < 0.05$)

5.0   CONCLUSION

The objective of this paper is to examine the relationship between capital structure and financial performance of listed banks in Nigeria. In summary, the analysis indicates that capital structure, comprising bank size and leverage, has a substantial influence on bank performance, particularly with respect to Net Interest Margin. Larger banks tend to achieve higher Net Interest Margins due to economies of scale, diversification advantages, and enhanced access to capital. Moreover, a strong positive relationship exists between leverage and Net Interest Margin, implying that banks with higher leverage ratios tend to generate significantly greater interest income relative to expenses. Nonetheless, these advantages should be balanced with prudent risk management to mitigate the inherent financial risks associated with increased leverage. Ultimately, the findings underscore the importance of capital structure decisions in shaping bank performance.

5.1   RECOMMENDATIONS

Based on the analysis and conclusions drawn regarding the impact of capital structure (bank size and leverage) on bank performance (Net Interest Margin), the following recommendations can be made:

1.   **Optimize Capital Structure**: Banks should carefully assess their capital structures to strike a balance between leverage and equity capital. While leverage can enhance Net Interest Margin, it should be managed judiciously to mitigate financial risks. Banks should regularly review their capital adequacy ratios to ensure compliance with regulatory requirements while optimizing profitability. The cost to income ratio should also guide the desired balance between debt and capital in order to maintain very efficient enterprise

2.   **Risk Management**: Given the potential increase in financial risk associated with higher leverage, robust risk management practices are essential. Banks should implement effective risk assessment, monitoring, and mitigation strategies to safeguard against adverse

consequences. Regular stress testing and scenario analysis can help identify vulnerabilities and strengthen risk management frameworks.

3.   **Strategic Considerations**: Bank size has a positive influence on Net Interest Margin, primarily due to economies of scale. Smaller banks should consider strategic partnerships, mergers, or acquisitions to achieve economies of scale and compete more effectively. At the same time, larger banks should focus on maintaining operational efficiency and diversifying their portfolios to maximize Net Interest Margin. On the other hand, Nigerian banks should emphasise on their areas of comparative advantage as depicted by the licensing structure. For instance, regional banks should look more into the grassroot financial inclusion strategies to build strong retail banking strength. Those of national and international coverage should continue to harness potentials across various geo-political or jurisdictional markets. These will brede moderate cost to income ratio, engender sustained growth in the Net Interest Margin and reduce avoidable leverages on finance costs

4.   **Market Adaptation**: Recognizing the impact of time (as indicated by time dummy variables) on Net Interest Margin, banks should stay vigilant about changing market conditions and regulatory developments. Adapting to evolving economic environments and adjusting strategies accordingly is crucial for sustained performance. Periodic market intelligence, outlook analysis and proactive due diligence will foster timely and efficient responses to the changing market environment

5.   **Regulatory Compliance**: Banks must ensure strict adherence to regulatory requirements, especially in the context of capital adequacy and leverage ratios. Compliance not only helps avoid regulatory penalties but also contributes to financial stability and investor confidence.

6.   **Continuous Monitoring**: Regularly monitor and assess Net Interest Margin and other key

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