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FINANCIAL PERFORMANCE AND LEVERAGE STRUCTURE: A STUDY OF LISTED CONSTRUCTION FIRMS IN NIGERIA

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Abstract: The study examined how debt structure is shaping the financial performance of listed construction firms in Nigeria. Debt structure was measured with total debt to asset ratio, total debt to equity ratio and noncurrent debt to asset ratio while the proxy for financial performance was Return on Assets. Ex-Post Facto research design was deployed on a population of eight (8) construction companies listed on the Nigerian Exchange Group (NGX) at the end of December 2021. Purposive sampling technique was deployed to select six (6) companies with complete financial reports over the review period as the sample size of the study. Secondary data were obtained from annual reports of the sampled firms from 2012 to 2021. In addition to the descriptive analysis, the Fixed Effect approach of Panel Least Square was used to carry out the regression analysis in the study. The findings include: total debt-to-asset ratio has a significant negative effect on the return on assets of quoted construction firms in Nigeria (β_1 = -1.205775, p-value = 0.0000); the total debt-to-equity ratio has no significant negative effect on the return on assets of quoted construction firms in Nigeria (β_2 = -0.001072, p-value = 0.0542); noncurrent debt to asset ratio has no significant negative effect on the return on assets of quoted construction firms in Nigeria (β_3 = 0.078793, p-value = 0.4439). The study recommends that management should ensure that proper debt level is maintained to improve profitability and to ensure there are sufficient funds for business expansion.

Keywords: Debt structure, financial performance, total debt to asset ratio, total debt to equity ratio and noncurrent debt to asset ratio, return on assets.

1. Introduction

1.1 Background to the Study

In financial literature over time, the nature and extent of the relationship between corporate debt structure and the financial performance of firms have continued to attract enormous research interest. This relationship is predicated upon the fact that one of the most important goals of financial managers is to maximize shareholders' wealth through the determination of the best combination of financial resources for the firm, including corporate debts (Oladunjoye, Ogbebor & Alalade, 2021; Nazir, Azam & Khalid, 2021). The above link has for ages been

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the subject matter of the Modigliani and Miller (1963) theory, Trade-Off Theory, Pecking Order Theory, Traditional Theory, etc. (Hasan et al., 2021; Saka & Fatogun, 2021; Asen, Nwude, Idamoyibo, Ufodiama & Udo, 2021; Udisifan, Akeem, Bako & Olalere, 2021; Okeke, Okere, Dafyak & Abiahu, 2022). Maximization of the company's value can be done by determining from where to source funds or finances for investment. Historically, studies on the effect of debt structure on firm performance have varied perspectives on the direction of influence that corporate debt has on corporate financial outcomes (Udisifan, Akeem, Bako & Olalere, 2021). Thus, the use of debt in a firm's capital structure has been in different times and ages considered to have both positive and negative effects on corporate financial performance. Debt structure involves the decision about the combination of the various sources of funds a firm uses to finance its operations and capital investments (Akaji, Nwadialor & Agubata, 2021). These sources include the use of long-term debt finance called debt financing, as well as preferred stock and common stock also called equity financing. The term debt structure represents the major claims to a corporation's asset which includes the different types of equities and debts. The debate centres on its determination, evaluation, and accounting as well as its relationship with the outcome of a firm's operations particularly as it relates to financial performance (Omaliko & Okpala, 2020).

Furthermore, debt structure is usually expressed in form of a ratio of assets (total assets in most cases) and equity (or shareholders' equity) (Saka & Fatogun, 2021). However, recently, Lyndon and Sawyer (2019) posited that another way of expressing debt structure is the debt-to-capital employed ratio. The total debts to total assets measure the amount of the total funds provided by outsiders or creditors as a ratio of the total assets of the firm. A low debt ratio is ordinarily preferred by creditors for all debts because it provides a cushion against creditors' losses in the event of firm liquidation as a high ratio indicates greater financial risk. Additionally, debt ratios help investors in analyzing the overall debt burden on the company as well as a firm's ability to pay off its debt and returns on investment in the future, especially during uncertain economic times (Asen, Nwude, Idamoyibo, Ufodiama & Udo, 2021). Corporate financial performance measures how well an enterprise uses its assets and other resources from its business to generate revenues (Udisifan, Akeem, Bako & Olalere, 2021). The firm's debt structure is commonly financed with the combination of debt and equity, identified as the most important financing decision because it seems to drive the financial profitability of firms (Mamro & Legotlo, 2020). Debt financing is the main external financing used by companies (Baltaci & Ayaydian, 2014). The major increase in external financing over a longer period of years shows the economic expansion of firms. However, the use of debt financing has both advantages and disadvantages for the growth of the firms/companies and strategy. The mix of debt and equity of a firm and how it affects its financial performance has long been a subject of debate in finance literature. Modigliani and Miller (1963) suggested that firms should incorporate more debt in their capital structure to maximize its value which is manifested through high profits, increased share prices and management efficiency. However, firms with different cases of sub-optimal use of debt in their capital structure usually suffer from a variety of financial ailments, which are led by payment of high taxes, high proportions of accounts payable, large deficits in the firm cash flow and in some cases, corporate dissolution (Orichom and Omeke, 2021).

Most firms that went into insolvency failed to trade off the benefits of debts against their costs which resulted in an increased financial risk in a way that thwarted the firm's corporate performance (Abdulkarim, Ahmadu & Sulaiman, 2019). That was because the sub-optimal capital structure level mixes the permanent sources of funds used by the firm in a manner that fails to maximize the value of the firm. This defeats the major objective of the

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firm which is to maximize its value. Improper planning of the composition of debt and equity has jeopardized sound financial management among firms because the debt-equity mix has implications on shareholders' earnings and risk, which in turn will affect the cost of capital and the market value of the firm. A high ratio of debt content in the capital structure increases the financial risk of the firm which can lead to financial insolvency in bad times (Anyike & Agilebu, 2019; Adeoye, & Olojede, 2019). However, raising funds by debt is inexpensive as compared to raising funds by shares. This is because interest on debt is permitted as a cost for tax purposes. Dividend is considered to be an appropriation of profit; hence, payment of a dividend does not result in any tax benefit to the firm (Oladunjoye, Ogbebor & Alalade, 2021). Construction firms in Nigeria have a diverse level of leverage at their disposal which determines the best mix to enhance performance by managers and that remains a puzzle to be solved in corporate finance theory and finance literature. From the above mentioned, it is therefore imperative to understand how a firm's choice of debt is associated with its corporate financial performance using listed construction firms in Nigeria as a unit of analysis.

1.2 Statement of Problem

The debt structure of a firm is an important aspect of management decisions that are concerned with debt and equity mix which are optimally combined to meet the firm's objectives (Hasan et al., 2021). It is capable of influencing both the financial and operating performance of the organization as a result of its interest and dividends elements (Lyndon & Sawyer, 2019). The profitability of firms is ideally meant to meet the interest of various stakeholders through effective and efficient operating activities such as increased turnover and efficient asset utilization. The debt mix of a construction firm can take many forms but the most realistic is that which combines a proportion of debt and a proportion of equity in the capital structure to exploit the advantages of leverage. The main benefit of debt financing is the tax-deductibility of interest charges which results in a lower cost of capital. However, firms with different cases of sub-optimal use of debt in their capital structure usually suffer from a variety of financial ailments (Saka & Fatogun, 2021), which is led by payment of high taxes, high proportions of accounts payable, large deficits in the firm cash flow and in some cases corporate dissolution. Thus, a large number of business failures in the past were attributed to the inability of financial managers to properly plan and control their corporate debt. Inefficient management of corporate debt structure in the face of economic and political crises in Nigerian businesses today has led to a loss of profit owing to high bad debts, over/under stocking; liquidity problems; inability to expand; financial losses; vulnerability to liquidation and insolvency (Olaoye, Akintola, Soetan & Olusola, 2020).

In the past, similar studies on debt structure have been carried out. Oladunjoye, Ogbebor and Alalade (2021), Saka and Fatogun (2021), Asen, Nwude, Idamoyibo, Ufodiama and Udo (2021), Olaoye, Akintola, Soetan and Olusola (2020) focused on the Nigerian manufacturing firms; Nazir, Azam and Khalid (2021) and Abbas and Aziz (2019) focused on Pakistan firms; Hasan et al. (2021) focused on Malaysian firms; Udisifan, Akeem Bako and Olalere (2021) concentrated on non-financial companies in Nigeria; Akaji, Nwadialor and Agubata (2021); Abosede (2020) focused on Oil and Gas Sector, Health Care Sector and ICT Sector of NSE; Udobi, Gbajumo, Umoru, Babatunde and Ilimezekhe (2020) and Lyndon and Sawyer (2019) covered consumer goods firms; Mamro and Legotlo (2020) focused on retail firms in Johannesburg; Adegbola, Nwanji, Eluyela and Fagboro (2020) focused on Nigerian banks; Patjoshi and Nandini (2020) covered software firms in India, etc. However, to the best of the researchers' knowledge, existing studies failed to specifically derive their evidence from listed

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construction firms in Nigeria. It is a gap in knowledge that the influence of debt structure on the corporate financial performance of listed construction firms in Nigeria is yet to be ascertained, hence the motivation for this study.

1.3 Objective of the Study

The broad objective of the study is to examine the effect of debt structure on the corporate financial performance of listed construction firms in Nigeria. The specific objectives of the study are to:

i. Determine the extent to which total debt-to-asset ratio affects the return on assets of quoted construction firms in Nigeria.

ii. Examine the extent to which total debt-to-equity ratio affects the return on assets of quoted construction firms in Nigeria.

iii. Determine the extent to which noncurrent debt-to-asset ratio affects the return on assets of quoted construction firms in Nigeria.

1.5 Research Hypotheses

The following null and alternate hypotheses were formulated to guide the direction of the study:

1. H_{o1}: Total debt to asset ratio has no significant effect on the return on assets of quoted construction firms in Nigeria.
2. H_{o2}: Total debt to equity ratio has no significant effect on the return on assets of quoted construction firms in Nigeria.
3. H_{o3}: Noncurrent debt to asset ratio has no significant effect on the return on assets of quoted construction firms in Nigeria.

2.0 Review of Related Literature

2.1 Conceptual Review

2.1.1 Debt Structure

Debt structure involves the combination of the various sources of funds a firm uses to finance its operations and capital investments (Akaji, Nwadialor & Agubata, 2021). Debt structure is usually expressed in form of the ratio of assets (total assets in most cases) and equity (or shareholders' equity) (Saka & Fatogun, 2021). Pandey (2004) opines that debt structure is the proportionate relationship between debt and equity financing of firms. In the views of Ayange, Nwude, Idamoyibo, Ufodiama and Udo (2021), debt structure deals with the question of what happens to the total valuation of the firm and its cost of capital when the ratio of debt to equity or degree of leverage is varied. In other words, debt structure is a mix of equity and debt. Equity is taken to mean ordinary shares plus retained earnings while debt is taken to mean all fixed interest-bearing stock (Nenu, Vintila, & Stefan, 2018). Corporate debt structure is the mixture of both debt and equity used by any organisation to finance its business to generate profit or render service to consumers without expecting anything in return. In addition, short-term debt is as well part of the corporate debt structure (Udisifan, Akeem, Bako & Olalere, 2021). Debt is one of the sources from which companies can raise capital in the capital market. Firms sometimes preferred debt to equity to take advantage of tax. If a firm finances its business with debt, the interest on debt is exempted from tax while debt holders pay taxes on their interest income. Debt is the most available to be accessed and with low-interest rates while equity is quite more expensive than debt. Debt structure entails the approach a firm uses in financing its assets through a mixture of debt, equity, or hybrid securities (Uremadu & Onuegbu, 2018). Hybrid

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securities in this context mean a group of securities that combine the elements of both debt and equity, which have fixed or floating rates of return, and the holder has the option of converting it into the underlying company's share.

In a layman's understanding, the debt structure of a firm is simply how the firm finances its operations and assets purchases through the combination of both debt and equity. According to Binh and Tram (2020), debt structure of a firm refers to the mixture of short-term and long-term debt components that the firm utilises in the financing activities of the firm such as funding for productive assets, future growth, and operations. Abiahu, Egbunike, Udeh, Egbunike and Amahalu (2019) posited that firms in the growth stage of their cycle typically finance that growth through debt, borrowing money to grow faster. Similarly, Pais (2017) noted that corporate debt structure refers to the combination of the debt capital that a firm utilises for its financing purposes. Thus, Ullah, Pinglu, Ullah, Zaman and Hashmi (2020) simply define a firm's debt structure as an amalgam of the various sources by which the firm is financed. Tactically put, Akindele, Asri and Adedeji (2020) viewed the debt structure of a firm as the sum of the owners' rights and interests of creditors' proportional relationship. Categorically, Nguyen, Dao, Bui and Dang (2020) submitted that corporate debt structure entails two kinds of capital that contain debt capital and equity capital. The authors maintain that each of the capital components has not only advantages but also disadvantages for the firm's operational efficiency. Researchers believe that there is a point where the combination of both equity capital and debt capital will yield the highest profit at the barest cost of capital (Olarewaju, 2019). Rahman, Umme, Parvin and Ayrin (2019) view corporate debt structure as the monetary framework that is made up of equity, debt and retained earnings. It is the amount of debt-equity that a firm employs to finance its growth and operations.

2.1.2 Dimensions of Debt Structure

Debt structure is a mixture of a company's debts (long-term and shortterm), common equity and preferred equity. Debt structure is traditionally measured by several proxies such as debt-equity ratio, debt-asset ratio, interest coverage ratio, noncurrent debt-to-asset ratio, noncurrent debt-to-equity ratio, etc. However, recently, Lyndon and Sawyer (2019) posited that another way of expressing corporate debt structure is debt to capital employed ratio. On that side, measures of debt structure in the study include total debt to asset ratio, total debt to equity ratio and noncurrent debt to asset ratio.

2.1.2.1 Total Debt to Asset Ratio

The total debts to total assets measure the amount of the total funds provided by outsiders or creditors as a ratio of the total assets of the firm (Nazir, Azam & Khalid, 2021). Debt to equity ratio is the amount of debt a firm uses to finance its assets. Debt to asset ratio calculates the amount of asset financing that comes from debt (Olaoye, Akintola, Soetan & Olusola, 2020). Debt to asset ratio serves as a financial ratio that is used to determine the association between the external financing of a firm and its assets (Abbas & Aziz, 2019). The average expectation is that increasing debt to asset ratio of the firm will improve the market price of the firm's shares as well as the worth of the firm (Saka & Fatogun, 2021). In this study, debt to asset ratio is measured as the ratio of total liabilities to total assets of the firm in an accounting period. The formula is expressed thus:

$$\frac{Total\ Liabilities}{Total\ Assets}$$

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2.1.2.2 Total Debt to Equity Ratio

The debt-to-equity ratio of a firm refers to the ratio between a company's debt and equity. It denotes the presence of debt in a company's capital composition. Debt to equity ratio is the ratio of the total value of a company's debt capital to the total market value of its equity (Saka & Fatogun, 2021). A levered or geared firm essentially has some elements of debt in its capital structure, but unlevered firms are considered thus because they are all-equity firms. In this study, debt to equity ratio is measured as the ratio of total liabilities to total equity of the firm in an accounting period. The formula is expressed thus:

$$\frac{Total\ Liabilities}{Total\ Equity}$$

2.1.2.3 Noncurrent Debt to Asset Ratio

Long-term debt-to-asset ratio indicates the number of noncurrent liabilities that are used to acquire more assets (Adenugba, Ige & Kesinro, 2016). Also, long-term debt to asset ratio indicates the proportion of long-term debt per N1 of a firm's assets. This metric shows the number of assets that are financed using noncurrent liabilities. This can be a good financial leverage tool that is deployed to increase the firm's return on equity. Nevertheless, when the ratio of long-term debt to assets is excessively high, the risk of business failure in the firm increases. The formula for the long-term debt-to-asset ratio used in the study is given below:

$$\frac{Noncurrent\ Liabilities}{Total\ Assets}$$

2.1.3 Financial Performance

Financial performance measures how well an enterprise used its assets and other resources from its business to generate revenues (Udisifan, Akeem, Bako & Olalere, 2021). Corporate financial performance refers to the extent to which a firm achieves its financial objectives. It has over the years remained perceived only through the prism of profits. This has however changed in the current age. Corporate financial performance at this age has different meanings depending on the users' view of financial information (Sabri, Mohamed & Sahari, 2020). Managers are interested in profits because their targets are mostly tied to profits achieved. Shareholders are interested in wealth maximization through increased market capitalization and dividend payments. Commercial stakeholders are more interested in the solvency of the firm while creditors are interested in the capacity of the institutions to repay the loans on time. The firm employees desire a stable job accompanied by a high level of material benefits, while the government is interested in an efficient company that pays its taxes and other statutory fees. Financial indicators are used by companies' management to measure, report and improve their financial performance. Financial and nonfinancial ratios are used to get a multi-dimensional perspective on companies' corporate performance (Oladunjoye, Ogbebor & Alalade, 2021). This analysis is vital for all participants, particularly the stockholders. Abu, Okpeh and Okpe (2016) contend that the market value of a corporation which is also shareholders' wealth is based on several factors among which are the risks a company faces, the economic growth potential for future earnings, and its profitability. While these are the main issues swaying the market price of a corporation (Waqas, Khan & Ullah, 2020), the market position of a firm greatly tells on its corporate financial results.

The submission of Erikie and Osagie (2017) shows that corporate financial performance is the measure of the results of a firm's policies and operations in monetary terms. These results are reflected in the firm's return on

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investment, return on assets, and value-added. The term corporate financial performance refers to the benefits emanating from shares and those from the functioning and operational activities of a firm (Akaji, Nwadialor & Agubata, 2021). Corporate financial performance is also defined as firm effectiveness in some quarters which can be disintegrated into net turnover and the net profit margin.

2.1.4 Effect of Debt Structure on the Corporate Financial Performance of Firms

Corporate debt financing is one of the financing alternatives mostly used in a manufacturing company (Hasan et al., 2021). The terms of the debt include that the borrower needs to pay back the money along with agreed services charges and interest. If they do not pay the debt as promised, the lender can start and do collection proceedings such as claim the debt from the borrower (Olaoye, Akintola, Soetan & Olusola, 2020). Most entrepreneurs want to avoid this process since they can lose their business and non-business assets. The payback period for a long-term loan is usually more than 1 year. It depends on the deal negotiated by the borrowers and the lenders. These loans normally are secured and had a guarantee by the entrepreneur. Andow and Wetsi (2018) affirmed that corporate debt structure decisions are basic for the growth of any firm as it showed that management gives autonomy in choosing the mechanisms of their debt structure as long as they improve the firms' performance indices and at the same time attaining some of the core objectives and goals of firms. An increase in such a performance index is somewhat associated with risk and growth (Fruhan, 2015). This is because the market value is conditioned on the firm's financial results which are sensitive to the level of risk exposure (Olaoye, Akintola, Soetan & Olusola, 2020). Increasing debt components is a way of increasing the level of risk to which a firm is exposed, the risk of liquidation. However, firms leverage on debts regardless of the risk involved more because of the financial gains which an effective utilization of debts can bring.

The financial performance of firms is ideally meant to meet the interests of various stakeholders through effective and efficient operating activities such as increased turnover and efficient asset utilization. However, there are certain costs associated with debt financing. So, between the two extremes of whole equity financing and whole debt financing, a particular debt-equity mix is to be decided (Abbas & Aziz, 2019). Any attempt by a firm to design its debt-capital mix, therefore, is undertaken in the light of two prepositions, to yield optimal returns. First, poor debt structure decisions lead to a possible reduction in the value derived from strategic assets. Debt mix can be designed in such a way as to lead to the objective of maximizing shareholders' interest. Second, though the exact optimal debt structure may be impossible, efforts must be made to achieve the best approximation to the optimal debt structure to attain the long-term solvency and stability of the firm.

2.2 Theoretical Framework

2.2.1 Pecking Order Theory

The pecking order theory of debt structure as propounded by Donaldson (1961) is among the most influential theories of corporate leverage. It goes contrary to the idea of firms having a unique combination of debt and equity finance, which minimizes their cost of capital (Ayange, Nwude, Idamoyibo, Ufodiama and Udo, 2021). The theory suggests that when a firm is looking for ways to finance its longterm investments, it has a well-defined order of preference for the sources of finance it uses. It states that a firm's first preference should be the utilization of internal funds (i.e. retain earnings), followed by debt and then external equity. The theory postulates that the more profitable the firms become, the less they borrow because they would have sufficient internal finance to

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undertake their investment projects. It is further argued that it is when internal finance is inadequate that a firm should source external finance and most preferably bank borrowings or corporate bonds. Thus, after exhausting both internal and bank borrowing and corporate bonds, the final and least preferred source of finance is to issue new equity capital (Adeoye, & Olojede, 2019).

Pecking Order theory tries to capture the costs of asymmetric information which states that companies prioritize their sources of financing (from internal financing to equity) according to the principle of least effort, or of least resistance, preferring to raise equity as a financing means of last resort. Hence, internal funds are used first, and when that is exhausted, debt is issued, and when it is not sensible to issue any more debt, equity is issued. On the other hand, Pecking Order Theory according to Nenu, Vintila and Stefan (2018) captures the effect of asymmetric information upon the mispricing of new securities, which says that there is no well-defined target debt ratio. The theory believes that investors generally perceive that managers are better informed of the price-sensitive information of the firms. The theory postulates that the optimum capital structure of debt and equity maximizes the financial performance of firms only when firms have a targeted debt structure that is between the financial risk and the returns of the firm. Therefore, striking a balance between the risks and returns in a firm's operation is the purpose of debt structure (Ayange, Nwude, Idamoyibo, Ufodiama and Udo, 2021). This study concentrates on the pecking order theory to ascertain if debt structure affects the financial performance of firms. The relevance of pecking order theory to this study is predicated on the postulations of the theory which posits that debt structure imposes costs and obligations to the firm which in return influences the financial performance of the firm.

2.2.1 Agency Cost Theory

Agency theory was first propounded by Berle and Means in 1932 but was greatly improved upon by Jensen and Meckling, 1976. Jensen and Meckling (1976) posited that the conflict of interests between owners and managers of a firm will often lead to an increase in agency costs. This is consequent upon the need that there should be a separation of ownership from control or management. According to this theory, agency cost is the sum of monitoring expenditure by the principal with the bonding costs by agents and a residual loss. It is this agency cost that the theory suggests will be reduced using secured debt. Since payment of debt interest reduces available surplus cash, debt level places a sort of constraint on managers to take decisions that are more in line with the shareholders' interest (Akindele, Asri & Adedeji, 2020). Most notably, Agency Cost Theory hypothesized that an optimal debt level could be determined when the cost arising from the conflict of interest between managers and owners is minimized.

Furthermore, it was postulated in the theory that the main factor that spurs conflict of interest between managers (agents) and equity holders (principals) is debt. /When cash flow is available, managers who are after their interests can identify with numerous investments such that they may over-invest in projects that have negative Net Present values (NPV) which automatically impair the operational efficiency of the firm (Dahiru, 2016). In the same vein, the use of debt financing and the payment of the accrued interest on debt tend to reduce the agency conflict between management and shareholders. Outsiders from whom the firm borrows can seek legal redress in a case where management defaults in meeting up with payment of due interest. Agency cost theory postulates that managers would conduct their behaviour in such a way as to efficiently utilise the available resources to settle the interest payments when they are due. This invariably enforces management to have interests that align with those of the owners (Abu, Akinbola & Ojo, 2018; Akingunola, Olawale & Olaniyan, 2017). The relevance of this theory

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to the present study is that managers with greater debt finance in their debt structure are prompted more to reduce agency cost by the threat of liquidation which could result in some losses to the management as regards their reputation, salaries, etc. From the agency perspective, the effect of corporate debt structure on the corporate financial performance of construction companies is that managers would spend the amount of debt or corporate financial resources sensibly in a way as to generate enough revenues that would not only settle the debt but also meet up with the interest on debt as they mature (Vijayakumaran, 2017). Therefore, the present study is anchored on Agency Cost Theory considering the postulation it gave in terms of the link between debt structure and corporate financial performance.

2.3 Empirical Review

Oladunjoye, Ogbebor and Alalade (2021) examined the impact of the debt-equity ratio on the share price performance of manufacturing firms listed in Nigeria between 2010 and 2019. The study adopted an ex-post facto research design. A sample size of fifteen (15) listed manufacturing firms was used while panel regression models were estimated using the fixed effect model and random effect model, while the result of the Hausman test was utilized to select the appropriate model between the fixed effect model and random effect model. The findings of the study revealed that the total debt to equity ratio is a negative and significant influence on the performance of share price {Coef. = -0.009; P-value > 0.05}. Return on Assets is also seen to be positive and significantly influences the performance of the share price of listed manufacturing firms in Nigeria {Coef = 2.428; P-value = 0.000}. However, the size of firm {Coef. = -0.019; P-value = 0.344} is seen to have a negative but insignificant effect on the performance of the share price. The study, therefore, recommended that firm managers should be cautious while using debt finance. Firm managers were advised to consider the consequences of debt finance before making capital structure decisions.

Nazir, Azam and Khalid (2021) investigated the relationship between the listed firms' debt level and performance on the Pakistan Stock Exchange (PSX) over five years. This study used pooled ordinary least squares regression and fixed- and random-effects models to analyze a cross-sectional sample of 30 Pakistani companies operating in the automobile, cement, and sugar sectors during 2013–2017 (N 5 150). The results indicate that both short- and long-term debt have negative and significant impacts on firm performance in profitability. This suggests that agency issues may lead to a high-debt policy, resulting in lower performance. Hasan et al. (2021) examined the effect of debt financing on the firm profitability of manufacturing companies listed in Bursa Malaysia. The study applied the trade-off theory and pecking order theory. The research collected debt financing data of listed manufacturing companies in Malaysia and analyzed the relationship by descriptive analysis and regression analysis. This study used 23 companies to determine the debt financing towards firms' profitability of the listed manufacturing companies in Malaysia. The data was taken for the period of 8 years from 2010 to 2018. The independent variables were debt ratio, long-term debt, and short-term debt while the dependent variable was the return on equity and used to measure the firm's performance. The panel data regression analysis showed that the debt-to-asset ratio significantly and negatively affects the performance of firms.

Saka and Fatogun (2021) examined the effect of capital structure on the value of Nigerian manufacturing companies. Ex-post Facto design was employed for the random selection of 10 manufacturing firms across 6 real sectors of the Nigerian manufacturing industry. The study estimated balanced panel data with Panel (OLS) Regression techniques using 180 observations from 2015 - 2019. From findings, the results of preferred Random

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Effect estimation at 5% level of significance show that measures of capital structure such as debt-toequity and debt-to-total assets have insignificant effects on the value of firms when proxied by Tobin's Q. Thus, the study re-affirms the claim of M-M Approach that capital structure does not matter when it comes to firm's performance in term of stock market efficiency. In practice, therefore, management should consider the use of debt as the last option for financing profitable projects. Asen, Nwude, Idamoyibo, Ufodiama and Udo (2021) examined the effect of debt structure measures on manufacturing firms' performance in Nigeria using annualized panel data for a sample of 15 quoted firms from diverse sectorial classifications from 1999-2018. Regression analysis was used in carrying out the study. The regression results indicate that performance proxied by ROE, and Tobin's Q, are significantly influenced by SDTA, SIZE, LDTA, and TDTA while ROA is negatively influenced by LDTA, D_E, and TDTA. Findings revealed a robust relationship between Tobin's Q and financial performance compared to other book values. The study reveals that Nigerian firms are keenly financed by short-term debt supporting the Pecking Order Theory.

Udisifan, Akeem, Bako and Olalere (2021) examined the moderating effect of board financial literacy on the relationship between capital structure and firm financial performance of listed non-financial companies in Nigeria. Capital structure was measured by long-term debts to total assets, short-term debts to total assets, equity to total debt ratios and board financial literacy was measured by the ratio of board members that have professional and academic qualifications in accounting, finance, and economics. Meanwhile, financial performance was measured by return on assets. Secondary data was extracted from the 30 sampled firms' annual reports and accounts from 2009 to 2018 and analyzed using Panel Least Square. This study revealed a positive and significant relationship between long-term debt and ROA. It also shows that board financial literacy moderate capital structure significantly and increase firm performance. The study recommended that the management of Nigerian-listed non-financial firms should optimize the capital structure to increase financial performance. Akaji, Nwadialor and Agubata (2021) examined the effect of debt financing on the performance of Firms in Nigeria. The study measured debt financing using the variables of long-term debt financing (LTDF), short-term debt financing (STDF) and preferred stock financing (PSF) while Firm's Performance on the other hand was measured using Return on equity (ROE). The study focused on the Oil and Gas Sector, Health Care Sector, and ICT Sector of NSE. The statistical test of parameter estimates was conducted using OLS Regression Model. The research design used was Ex Post Facto design and data for the study were obtained from the 26 firms which formed the sample size with data spanning from 2013-2020. The findings of the study showed that Debt Financing has a significant and positive effect on Firms' Performance in Nigeria at 5% significant level. The study concluded that debt financing has improved firms' performance over the years. Based on this, it was recommended that firms should try to finance their investment activities with debt and consider either debt or equity as a last option. Firms should also be debt intensive in their financing decisions as it influences performance.

Abosede (2020) examined the impact of indebtedness on the performance of quoted Nigerian downstream oil and gas companies. The main objective of the study was to find out whether indebtedness has an impact on the financial performance of the quoted Nigerian downstream oil and gas companies, using Return on asset (ROA) and return on capital employed (ROCE) as proxies to financial performance. Secondary data from 11 listed oil and gas companies on the Nigeria Stock Exchange from 2007-2019 were used in the study. The data generated were analyzed using multiple regressions to examine the relationship between the variables. Indebtedness is

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proxied by long-term debt, short-term debt and total debt, using the pooled ordinary least square, fixed effect and random effect models. After the estimation, the study found that long-term debt negatively and significantly impacts the financial performance of quoted Nigerian downstream oil and gas companies. The study recommended that listed downstream oil and gas firms in Nigeria should make effective use of long-term debts to enhance their capital employed to generate more return on investment to cover the cost of capital and increase their retained earnings.

Udobi, Gbajumo, Umoru, Babatunde and Ilimezekhe (2020) investigated the impact of debt structure on the profitability of consumer goods firms in Nigeria for a period of eight years (20112018). Data from ten (10) randomly selected listed firms of the Nigeria Stock Exchange were derived from the firms' published financial reports for the period covered. The panel regression results revealed that Debt to Asset Ratio (DAR) is positively significant on Return On Asset (ROA) (Proxy for profitability), while other proxies of the capital structure show that Debt to Equity(DER), Liquidity Ratio(LIQ), are not statistically significant, Short Term Debt to Total Asset Ratio (SDTA) shows a negative connection, Firm Size (FS) has a weak correlation with profit and, Long Term Debt to Total Asset Ratio (LDTA) do not influence firms' profitability of the consumer goods sector of Nigeria economy. Mamro and Legotlo (2020) investigated the impact of debt financing on the financial performance of retail firms listed on the Johannesburg Stock Exchange. The study sampled seventeen (17) retail firms for the period 2010–2019. The fixed effects were applied using the financial performance ratios, return on equity is used as the profitability measure and is the dependent variable, whereas the lagged return on equity, long-term debt to total asset, and total debt to the total asset are used as independent variables, while size, sales growth is used as control variables. The lagged return on equity, total debt to total asset and growth in sales strongly influence the financial performance of return on equity with a high statistical significance of 1% level, whereas longterm debt to total asset and firm size negatively influences financial performance with a statistical significance of 1% and 5%, respectively.

Adegbola, Nwanji, Eluyela and Fagboro (2020) examined the extent to which capital structure impacted the profitability of Nigerian Deposit Money Banks considering the profitability of eight Nigerian Deposit Money Banks from 2003 to 2018 (16 years). A descriptive research design was adopted for this study, and data were analyzed using regression. The study used secondary data obtained from published annual reports of selected Nigerian Deposit Money Banks on the Nigerian Stock Exchange (NSE) for the years (2003–2018). The study concluded that the indicators used to measure capital structure (debt-equity ratio and leverage ratio) and profitability (returns on equity) had a negative relationship. This means that the use of debts mixed with equity (debt-equity ratio and leverage ratio) in improper proportion as financing methods can negatively affect profitability. Patjoshi and Nandini (2020) examined the impact of capital structure on the corporate performance of six software companies in India for the five years from 2016 to 2020. The study considered four corporate performance measures as dependent variables. The two main capital structure ratios are independent variables. The data were sourced from secondary sources and analyzed using different tools like descriptive statistics, correlation, and regression analysis for examining the impact of capital structure on the corporate performance of six software companies in India for the five years from 2015/16 to 2019/20. The findings revealed that capital structure significantly affects firm performance.

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Olaoye, Akintola, Soetan and Olusola (2020) evaluated the effect of capital structure on the financial performance of listed manufacturing companies in Nigeria. The study employed ex-post facto research design. The population of the study consisted of the quoted manufacturing companies in Nigeria made up of 71 companies at of 31st December 2017 according to the Nigeria Stock Exchange (NSE). The study employed convenience sampling in the selection of the 20 manufacturing companies as sampled companies from 2009-2018. Data from the research was obtained from the annual reports of the sampled companies. The study adopted descriptive and panel data regression analysis. The finding of the study indicated that capital structure influences the performance of the quoted manufacturing companies in Nigeria. The study concluded that capital structure has a significant relationship with the financial performance of listed manufacturing companies in Nigeria. The study recommended that management should ensure that proper capital structure is maintained to improve financial performance and to allow for an increase in dividend payment and retained earnings for expansion. Abbas and Aziz (2019) examined the effect of different debt financing on firms' performance in 14 sectors of Pakistan economy. Secondary data was collected from the sample of 360 companies listed on the Pakistan Stock Exchange, for the period of 9 years (2006 to 2014). The results of the panel least square regression showed that debt financing has a negative but also a significant impact on firm performance in Pakistan. The study recommended that companies should rely more on their internal source of finance because it is the cheap and reliable source of finance in the Pakistani context.

Lyndon and Sawyer (2019) investigated the effect of capital structure on firm performance using a sample of seven companies listed under the consumer goods sector of the Nigerian Stock Exchange. The study adopted return on assets as a proxy for performance (the response variable), while capital structure components such as debt to equity, debt to capital employed and equity to capital employed were used as the explanatory variables. Secondary data were collected from the published annual financial reports of the sampled consumer goods sector companies for the period 2009 to 2018. The study employed descriptive statistics and multiple regression techniques based on the E-view 9.0 software as the method of data analysis. The results revealed that debt to equity has an insignificant positive impact on return on assets, debt to capital employed and equity to capital employed had a negative but insignificant effect on return on assets. Overall, capital structure has no significant effect (at 5% level) on firm performance in the consumer goods sector. Based on the findings, the study recommended among others that the management of consumer goods sector companies should exercise caution in considering the use of debt finance (following the Pecking order theory) in their capital mix up to the optimal limits, as debt to equity ratio provided insignificant positive effect on performance; and that further studies be conducted on other sectors of the economy to provide more robust generalized inferences. Wambua (2019) examined the effect of debt financing on the financial performance of listed firms at the Nairobi Securities Exchange. A descriptive design was used in the study and the sample size entailed the 40 non-financial firms listed in the Nairobi Securities Exchange that had complete data for the period covering 2014 to 2018. To carry out the study secondary data was used which was extracted from the targeted firm's financial statements and reports. Analysis of data was carried out through descriptive statistical techniques, correlation analysis and multiple linear regression. The findings revealed that debt financing had a weak negative correlation that was significant ($r = -0.208$, $p=0.006$). Firm liquidity had a significant positive and weak correlation ($r = 0.205$, $p = 007$). Firm size had a weak negative but insignificant correlation ($r = -0.030$, $p = 0.692$) while asset tangibility had a

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strong negative but insignificant correlation (r=-0.092, p=0.227). The study concluded that the financial performances of non-financial firms that are listed on the Nairobi Stock Exchange are affected negatively and significantly by debt financing.

Aniefor and Onatuyeh (2019) examined the effect of debt financing on the corporate performance of listed consumer goods firms in Nigeria. Based on data gleaned from the audited annual reports of fifteen (15) consumer goods firms listed in the Nigerian Stock Exchange (NSE) for the period 2006 to 2017, results of the panel regression technique revealed that total debt, long-term debt, and short-term debt to asset ratios positively influence the performance of consumer goods firms in Nigeria. Based on the findings of the study, it was recommended, among others, that there is a need for Nigerian firms to rely less on short-term debts, which form a major part of their leverage and focus more on developing internal strategies that can help improve their performance. Yinusa, Adelopo, Yulia and Samuel (2019) examined the impact of debt structure on firm performance in Nigeria as well as tested the possibility of a non-monotonic relationship between capital structure and firm performance based on the prediction of the agency cost theory of capital structure when firms use debt financing excessively. The study used a dynamic panel model on panel data of 115 listed non-financial firms in Nigeria from 1998-2015. Specifically, the paper employed the two-step generalized method of moments (GMM) estimation method that recognizes the persistence of the dependent variable by including its lag value as an explanatory variable in the regression model. The major findings indicates a statistically significant relationship exists between capital structure and firm performance particularly when debt financing is moderately employed. However, the paper found evidence of a non-monotonic relationship between capital structure and firm performance when firms in Nigeria employed excessive debt financing which impinged on the performance of firms.

Aigbedo and Osazee (2019) examined the impact of capital structure on the performance of listed multinational firms in Nigeria. Panel data from 2008 to 2017 were sourced from twelve (12) listed multinational companies. Data were analyzed, using descriptive statistics, ADF statistics, Levin, Lin and Chut statistics, and correlation analysis and panel regression techniques. The findings revealed that capital structure is significant and negatively affects multinational firms' performance in Nigeria thereby confirming that the pecking order theory is valid in Nigerian multinational firms. Other firm-specific factors of board size, firm age, firm size, and board independence considered were positively related to the performance of multinational firms in Nigeria though not significant (except for firm size). It is, therefore, recommended that managers of multinational companies should continue to prioritize such that they make use of the internally generated funds (retained earnings) first and if this source of finance has been exhausted, then they resort to the use of debt capital and eventually equity source of financing. Qudus and Ajibola (2018) examined the impact of capital structure on the financial performance of quoted manufacturing firms in Nigeria over the period 2005-2014. Panel methodology was applied to analyse the impact of capital structure on the financial performance of a sample of ten (10) quoted manufacturing firms in Nigeria. The findings of the panel ordinary least square show that a positive statistically significant relationship exists between long-term debt ratio (LTD) (0.0001), total debt ratio (TD) (0.0065) and return on equity (ROE) while a positive statistically insignificant relationship between ROE (return on equity) and STD (Short term debt ratio). There was also a negative insignificant relationship exists between all the proxies of capital structure (LTD, STD and TD) and ROA which makes ROE a better measure of performance.

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Ajayi and Araoye (2017) investigated the effect of debt structure on the financial performance of manufacturing firms in Nigeria. Secondary data derived from the published annual reports of 10 listed manufacturing firms for the period 2008-2014 were employed as the key source of data for ten sampled manufacturing firms. The relationship between debt structure and financial performance was determined using panel least square regression, variables of return on assets and returns on equity were used to measure the financial performance, also variables of debt-equity ratio, asset turnover and age of the firm were used to measure the capital structure of the sampled manufacturing firms. The regression results showed that the debtequity ratio has a negative but statistically significant effect on financial performance. It was recommended that management should be careful when using debt as its source of financing its activities. Yimka, Oguntodu and Adelakun (2017) determined the relationship between firms' debt structure and its strength in improving the financial performance of food product firms in Nigeria. The sample size of the study comprised nine (9) food product companies that have been quoted on the floor of the Nigeria Stock Exchange over five (5) years between 2009 and 2013. The data were collected through the published annual reports of the firms selected. The study adopted the use of a multiple regression model as the tools of analysis. The findings revealed that firms' debt structure has no significant relationship with ROA, ROE, and ROCE. The study established that debt structure has a negative effect on Return on Assets and Return on Equity but a positive effect on Return on Capital Employed. It was recommended that the management should reduce the level of gearing to enhance profitability performance.

Oladele, Omotosho and Sarafadeen (2017) investigated the effect of debt structure on the performance of Nigerian listed manufacturing firms from 2004-2013. Secondary data obtained from the annual reports of 58 quoted manufacturing firms from 16 subsectors were utilized. The result of the multiple regression revealed that debt structure has no significant effect on return on equity but has a significant effect on return on assets, earnings per share and sales growth of listed manufacturing firms in Nigeria. It was recommended that the management of Nigerian quoted manufacturing firms should work very hard to optimize the capital structure of their quoted firms to increase the returns on equity, assets, and earnings per share.

3.0 Methods

Ex-post facto research design was adopted for the study. This design was chosen to establish what relationship exists between debt structure and corporate financial performance. Ex-post facto research is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated (Egbunike & Abiahu, 2017).

3.1 Population of the Study

The study population consists of all eight (8) construction/real estate companies that are listed on the floor of the Nigerian Exchange Group (NGX) as of the end of December 2021. The population of the study is shown in Table 3.1 below:

1.	Arbico Plc.
2.	Julius Berger Nig. Plc.
3.	SFS Real Estate Investment Trust
4. Smart Products Nigeria Plc.	
5. UACN Property Development Company Plc.	
6. Union Homes Real Estate Investment Trust	

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7. UPDC Real Estate Investment Trust
8. Roads Nig. Plc.

Source: Nigerian Exchange Group (2021)

Purposive sampling technique was deployed to select six (6) companies that made up the sample size of the study. Purposive sampling is a technique used to select sample participants based on a particular criterion or reason. UPDC Real Estate Investment Trust was excluded from the study on the grounds that it was listed on March 27, 2013, and so does not have complete data for the 2012 accounting period. Also, Roads Nig. Plc. was removed from the sample based on incomplete data. 2012 accounting period was chosen as the base year because, from that accounting year, quoted firms in Nigeria were mandated to be IFRS-compliant. In all, 6 quoted construction companies made up the sample size of the study and are listed below in Table 3.2.

Table 3.2: Sample Size of the Study

1. Arbico Plc.
2. Julius Berger Nig. Plc.
3. SFS Real Estate Investment Trust
4. Smart Products Nigeria Plc.
5. UACN Property Development Company Plc. (UACN)
6. Union Homes Real Estate Investment Trust

Source: Nigerian Exchange Group (2021)

The instruments used for the collection of data were the annual reports of the listed construction firms that made up the study sample. The instruments used covered the accounting period of ten years from 2012 to 2021 to generate sufficient data that could be used to make a reliable inference. Statement of financial position was the source of the information on the debt structure of the firms, while Income Statement was the source of the information on the corporate financial performance of the firms. Information about the firms' return on assets, debt-to-asset ratio, total debt-to-equity ratio, and noncurrent debt-toasset ratio were obtained. Mean, standard deviation, minimum and maximum values were used to carry out the descriptive analysis of the data. The descriptive analysis was used to summarize the data collected from the sampled firms to show their central tendencies and dispersion. The central tendency gave information as to how the data converged to a centre while the measures of dispersions showed how the data deviated from the mean value. In addition to the descriptive analysis of the sampled data, Panel Least Square Regression was deployed to determine whether the effect of debt structure on financial performance was positive or negative, significant, or non-significant. The level of significance used was 5% which otherwise means 0.05 alpha level. The statistical software used was Eviews version 10.

The proxies for the independent variables are debt to asset ratio, total debt-to-equity ratio, and noncurrent debt-to-asset ratio while the proxy for the dependent variable is the return on asset. Their measurements are given in **Table 3.3** below.

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Table 3.3 Measurement of Variables

Variable	Type	Measurement
1. Return on Assets	Dependent	$\frac{Earnings\ after\ tax}{Total\ Assets}$
2. Debt to Asset ratio	Independent	$\frac{Total\ Liabilities}{Total\ Assets}$
3. Debt to Equity ratio	Independent	$\frac{Total\ Liabilities}{Total\ Equity}$
4. Noncurrent Debt to Asset ratio	Independent	$\frac{Noncurrent\ Liabilities}{Total\ Assets}$

Source: Researchers' Compilation, (2022)

The model representing the relationship between the variables is given thus:

$$ROA_{it} = \alpha_0 + \beta_1 TDAR_{it} + \beta_2 TDER_{it} + \beta_3 NDAR_{it} + \mu_{it}. \quad \text{..... eqn (i)}$$

Where,

ROA = Return on Asset

TDAR = Total Debt to Asset Ratio

TDER = Total Debt to Equity Ratio

NDAR = Noncurrent Debt to Asset Ratio

α_0 = constant

β1-3 = coefficient of the independent variable

μ = Disturbance

i = Firm of interest

t = Period of interest

4.0 Data Analysis and Result

4.1 Data Presentation

Secondary data were obtained from the annual reports of six (6) listed construction firms on the floor of the Nigerian Exchange Group. The data covered a ten (10) year accounting period spanning 2012-2021.

The secondary data for the study are presented in the tables below.

Table 4.1 Presentation of Data of ROA

Year	Arbico	Julius Berger	SFS	Smart	UACN	Union Homes

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2012	-.02	.04	.05	.10	.04	.05
2013	.04	.02	.05	.11	.06	.04
2014	-.06	.03	.05	.11	.03	-.10
2015	.06	.01	.06	.13	.02	.04
2016	.00	-.01	.06	.09	-.03	.03
2017	.01	.00	.06	.05	-.03	.02
2018	-.14	.02	.06	.07	-.44	.03
2019	.08	.02	.06	.03	-.45	.03
2020	.13	.02	.06	.04	-.05	.03
2021	-.05	.02	.06	.04	-.78	.04

Source: Financial Reports of the Sampled Firms, 2012 to 2021

The maximum ROA of Arbico was .13 in 2020 while its minimum ROA was -.14 in 2018. Julius Berger's maximum ROA was .04 in 2012 while its minimum ROA was -.01 in 2016. The highest ROA for SFS Real Estate Investment Trust was .06 from 2015 to 2021 while its lowest ROA was .05 from 2012 to 2014. Smart Products Nigeria Plc. had its highest ROA of .13 in 2015 while it had its lowest ROA of .03 in 2019. The highest ROA of UACN Property Development Company Plc. was .06 in 2013 while it had its lowest ROA of -.78 in 2021. Union Homes Real Estate Investment Trust had its highest ROA of .05 in 2012 while it had its lowest ROA of -.10 in 2014. A cross-firm examination showed that Arbico and Smart Products Nigeria Plc had ROA of .13 in 2020 and 2015, respectively, and performed better than the rest of the firms for ROA. On the other hand, UACN Property Development Company Plc., which had a ROA of -.78 in 2021 performed worse than the rest of the firms in terms of ROA.

Table 4.2 Presentation of Data of Total Debt to Asset Ratio

Year	Arbico	Julius Berger	SFS	Smart	UACN	Union Homes
2012	1.09	.92	.02	.53	.54	.05
2013	.99	.93	.04	.44	.47	.05
2014	1.04	.92	.03	.46	.46	.09
2015	.98	.92	.11	.44	.50	.04
2016	.98	.95	.11	.49	.52	.04
2017	.98	.95	.12	.43	.47	.05
2018	1.19	.94	.13	.45	.65	.11
2019	1.10	.93	.13	.47	.92	.11
2020	.92	.92	.15	.47	.55	.10
2021	.99	.93	.16	.47	.92	.13

Source: Financial Reports of the Sampled Firms, 2012 to 2021

The maximum TDAR of Arbico was 1.19 in 2018 while its minimum TDAR was .92 in 2020. Julius Berger's maximum TDAR was .95 in 2016 and 2017 while its minimum TDAR was .92 in 2012, 2014, 2015 and 2020. The highest TDAR for SFS Real Estate Investment Trust was .16 in 2021 while its lowest TDAR was .02 in 2012. Smart Products Nigeria Plc. had its highest TDAR of .53 in 2012 while it had its lowest TDAR of .43 in 2017.

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The highest TDAR of UACN Property Development Company Plc. was .92 in 2019 and 2021 while it had its lowest TDAR of .46 in 2014. Union Homes Real Estate Investment Trust had its highest TDAR of .13 in 2021 while it had its lowest TDAR of .04 in 2015 and 2016. A cross-firm examination showed that Arbico had TDAR of 1.19 in 2018 the highest TDAR among all the firms while SFS Real Estate Investment Trust had TDAR of .02 in 2012 and had the least TDAR among all the firms for the period under study.

Table 4.3 Presentation of Data of Total Debt to Equity Ratio

Year	Arbico	Julius Berger	SFS	Smart	UACN	Union Homes
2012	-12.42	11.08	.02	1.13	1.19	.06
2013	71.57	12.50	.04	.79	.90	.05
2014	-23.51	11.78	.03	.84	.85	.10
2015	60.41	12.28	.12	.80	1.01	.04
2016	58.97	18.20	.12	.95	1.07	.05
2017	41.09	17.90	.13	.76	.88	.05
2018	-6.27	15.04	.16	.82	1.85	.12
2019	-10.91	12.38	.14	.89	11.20	.12
2020	10.97	11.80	.18	.88	1.21	.12
2021	105.60	14.21	.19	.90	11.83	.15

Source: Financial Reports of the Sampled Firms, 2012 to 2021

The maximum TDER of Arbico was 105.60 in 2021 while its minimum TDER was -23.51 in 2014. Julius Berger's maximum TDER was 18.20 in 2016 while its minimum TDER was 11.08 in 2012. The highest TDER for SFS Real Estate Investment Trust was .19 in 2021 while its lowest TDER was .02 in 2012. Smart Products Nigeria Plc. had its highest TDER of 1.13 in 2012 while it had its lowest TDER of .76 in 2017. The highest TDER of UACN Property Development Company Plc. was 11.83 in 2021 while it had its lowest TDER of .85 in 2014. Union Homes Real Estate Investment Trust had its highest TDER of .15 in 2021 while it had its lowest TDER of .04 in 2015. A cross-firm examination showed that Arbico with the TDER of 105.60 in 2021 had the highest TDER among all the firms while same Arbico with TDER of -23.51 in 2014 had the least TDER among all the firms for the period under study.

Table 4.4 Presentation of Data of Noncurrent Debt to Asset Ratio

Year	Arbico	Julius Berger	SFS	Smart	UACN	Union Homes
2012	.36	.54	.00	.21	.19	.00
2013	.66	.46	.00	.18	.09	.00
2014	.47	.45	.00	.17	.13	.00
2015	.47	.51	.00	.14	.10	.00
2016	.54	.56	.00	.13	.06	.00
2017	.36	.54	.00	.00	.01	.00

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2018	.28	.66	.00	.00	.10	.00
2019	.26	.71	.00	.00	.16	.00
2020	.23	.64	.00	.00	.21	.00
2021	.15	.69	.00	.01	.51	.00

Source: Financial Reports of the Sampled Firms, 2012 to 2021

The maximum NDAR of Arbico was .66 in 2013 while its minimum NDAR was .15 in 2021. Julius Berger's maximum NDAR was .71 in 2019 while its minimum NDAR was .45 in 2014. SFS Real Estate Investment Trust and Union Homes Real Estate Investment Trust had .00 NDAR from 2012 to 2021. Smart Products Nigeria Plc. had its highest NDAR of .21 in 2012 while it had its lowest NDAR of .00 in 2017, 2018, 2019 and 2020. The highest NDAR of UACN Property Development Company Plc. was .51 in 2021 while it had its lowest NDAR of .01 in 2017. A cross-firm examination showed that Julius Berger with an NDAR of .71 in 2019 had the highest NDAR among all the firms while Smart Products Nigeria Plc., SFS Real Estate Investment Trust and Union Homes Real Estate Investment Trust with NDAR of .00 in some of the years had the least NDAR among all the firms for the period under study.

4.2 Descriptive Statistical Analysis of the Data

Table 4.5 provides a summary of the descriptive statistics of the sampled companies between 2012 -2021. The descriptive analysis was aimed at summarizing the data collected from the sampled firms to show their central tendencies and dispersion.

Table 4.5 Descriptive Statistical Analysis

	ROA	**TDAR**	**TDER**	**NDAR**
Mean	0.002360	0.533266	7.924204	0.198982
Median	0.034650	0.474776	0.864515	0.114132
Maximum	0.131842	1.189828	105.6041	0.705148
Minimum	-0.782194	0.022437	-23.50693	0.000000
Std. Dev.	0.142481	0.378077	20.39186	0.233398
Skewness	-3.859189	0.068516	2.907719	0.846687
Kurtosis	19.22114	1.519198	12.41024	2.260339
Jarque-Bera	806.7467	5.528884	305.9299	8.536535
Probability	0.000000	0.063011	0.000000	0.014006
Sum	0.141586	31.99596	475.4522	11.93892
Sum Sq. Dev.	1.197742	8.433575	24533.86	3.214008
Observations	60	60	60	60

Source: Researchers' Computation (2022) using E-View 10 Output

The EViews version 10 software was used to run the descriptive analysis of the data with statistical tools such as mean, maximum value, minimum value, kurtosis, skewness, Jarque-Bera statistic, and standard deviation. Skewness measures the degree of asymmetry of the observations while Kurtosis is a measure of peakedness or flatness of the distribution of the series. The descriptive statistics result in Table 4.5 provides some insight into the nature of the selected listed construction firms that were used in the study. Firstly, it was observed that over

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the period under review, the sampled firms had an average positive ROA of 0.002360. Within the period under review, the firms have a maximum value of ROA of 0.131842 while the minimum value was -0.782194. The large difference between the maximum and minimum values of ROA indicates that the performance of the construction firms differs greatly among the selected firms from 2012 to 2021. In other words, the financial performance of the firms with respect to their ROA is not similar. This extremely large value of ROA implies that some firms in the sample performed poorly while some had added value. This, therefore, means that firms with a mean value higher than or equal to 0.002360 are highly profitable firms while firms with a value below the mean of 0.002360 are low profitable firms. Hence, it can be argued that the selected firms on average had been efficient enough to generate 0.002360 naira per 1 naira asset in use. The standard deviation for ROA was 0.142481 while the skewness for ROA was -3.859189 implying that data on ROA was skewed to the left hence most values were bunched to the right of the distribution. The kurtosis for ROA was 19.22114 which was greater than 3, hence the distribution is said to be leptokurtic. Jarque-Bera Probability for ROA indicated that the data on ROA did not significantly meet the characteristics of a normal distribution since the probability value of 0.000 is less than 0.05. The sampled firms equally had an average positive TDAR of 0.533266. Within the period under review, the firms had a maximum value of TDAR of 1.189828 while the minimum value was 0.022437. The large difference between the maximum and minimum values of TDAR indicates that the TDAR of the construction firms differed greatly among the selected firms from 2012 to 2021. In other words, the debt structure of the firms to their TDAR is not homogenous. The mean value of 0.533266 showed that the selected firms on average financed about 53.33% of their assets using debts. The standard deviation for TDAR was 0.378077 while the skewness for TDAR was 0.068516 implying that data on TDAR were skewed to the right hence most values were bunched to the left of the distribution. The kurtosis for TDAR was 1.519198 which was less than 3, hence the distribution is said to be platykurtic. Jarque-Bera Probability for TDAR indicated that the data on TDAR significantly met the characteristics of a normal distribution since the probability value of 0.063011 is greater than 0.05. The sampled firms equally had an average positive TDER of 7.924204. Within the period under review, the firms had a maximum value of TDER of 105.6041 while the minimum value was -23.50693. The standard deviation of 20.39186 and the large difference between the maximum and minimum values of TDER indicates that the TDER of the construction firms differed greatly among the selected firms from 2012 to 2021. In other words, the debt structure of the firms to their TDER is not homogenous. The mean value of 7.924204 indicated that the shareholders' fund in the selected firms, on average, is 7.92 times the debts owed by the selected firms. The skewness for TDER was 2.907719 implying that data on TDER were skewed to the right hence most values were bunched to the left of the distribution. The kurtosis for TDER was 12.41024 which was greater than 3, hence the distribution is said to be leptokurtic. Jarque-Bera Probability for TDER indicated that the data on TDER did not significantly meet the characteristics of a normal distribution since the probability value of 0.000000 is less than 0.05.

The sampled firms equally had an average positive NDAR of 0.198982. Within the period under review, the firms had a maximum value of NDAR of 0.705148 while the minimum value was .00000. The standard deviation of 0.233398 and the large difference between the maximum and minimum values of NDAR indicates that the NDAR of the construction firms differed greatly among the selected firms from 2012 to 2021. In other words, the debt structure of the firms to their NDAR is not homogenous. The mean value of 0.198982 implied that the selected

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firms, on average, financed about 19.9% of their total assets through noncurrent liabilities. The skewness for NDAR was 0.846687 implying that data on NDAR was skewed to the right hence most values were bunched to the left of the distribution. The kurtosis for NDAR was 2.260339 which was less than 3, hence the distribution is said to be platykurtic. Jarque-Bera Probability for NDAR indicated that the data on NDAR did not significantly meet the characteristics of a normal distribution since the probability value of 0.014006 is less than 0.05.

4.2.1 Hausman Test

A dataset with a cross-sectional dimension and time series such as the one used for the present study requires a panel regression approach, whereby either Fixed Effect or Random Effect Model will be applied. The Hausman Specification test was carried out to identify the most appropriate model for regression analysis.

Table 4.6 Correlated Random Effects - Hausman Test

Test Summary	Chi -Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	48.878345	3	0.0000

Source: Researchers' Computation (2022) using E -View 10 Output

The results revealed a considerable difference between the Fixed Effect Model and the Random Effect Model based on which the Hausman specification test was carried out to enable the selection of the most appropriate estimator between the two models. The result of the Hausman test revealed a X^2 value of 48.878345 with a p-value of 0.000, which is statistically significant at 5%. Based on the Hausman result, the Fixed Effect Model of Panel Least Square regression was considered the best-fitted model and therefore used for analysis.

4.3 Testing of Hypotheses

Fixed Effect Model of Panel Least Square regression was used to estimate the results necessary for hypotheses testing. The regression model examined was:

$ROA_{it} = \alpha_0 + \beta_1 TDAR_{it} + \beta_2 TDER_{it} + \beta_3 NDAR_{it} + \mu_{it}$

The output of the Panel Least Square regression analysis is presented in **Table 4.7** below.

Table 4.7 Regression Result for Hypotheses Testing

Dependent Variable: ROA Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TDAR	-1.205775	0.121607	-9.915348	0.0000
TDER	-0.001072	0.000544	-1.971071	0.0542
NDAR	-0.078793	0.102117	-0.771594	0.4439
C	0.669533	0.062616	10.69268	0.0000

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Effects Spe cification			
Cross-section fixed (dummy variabl es)			
R-squared	0.789355	Mean depen dent var	0.002360
Adjusted R-squared	0.756312	S.D. dependent var	0.142481
S.E. of regression	0.070335	Akaike info criterion	-2.333609
Sum squared resid	0.252299	Schwarz criterion	-2.019458
Log likelihood	79.00828	Hannan-Quinn criter.	-2.210727
F-statistic	23.88917	Durbin-Watson stat	1.570191
Prob(F-statistic)	0.000000		

Source: Researchers' Computation (2022) using E -View 10 Output

The result of the Fixed Effect Model above is an output of the regression analysis examining the effect of debt structure on the financial performance of listed construction firms in Nigeria. The model was evaluated using R^2, Adjusted R^2, F-statistic, Prob>F and Durbin-Watson Stat. Given the value of R^2 = 0.789355, the number of changes in Return on Assets that can be explained by changes in debt structure (proxies by TDAR, TDER and NDAR) was 78.94%. In a situation where irrelevant predictors were added to the model, Adjusted R^2 reduces the actual coefficient of determination. Thus, the actual amount of variation in ROA explained by relevant predictors in the model was 75.63%. The F-statistic = 23.88917 with its Prob>F = 0.000000 indicated that the model significantly predicts ROA using TDAR, TDER and NDAR. In other words, the model formulated is reliable and fit for use. Durbin-Watson's stat of 1.570191 signposted that the problem of autocorrelation did not affect the model.

4.3.1 Hypothesis One

H_{o1}: Total debt to asset ratio has no significant effect on the return on assets of quoted construction firms in Nigeria.

H_{a1}: Total debt to asset ratio has a significant effect on the return on assets of quoted construction firms in Nigeria. The regression analysis results in **Table 4.7** showed that TDAR had a coefficient value of -1.205775, a t-statistics value of -9.915348 and a probability value of 0.0000. Thus, these suggest that the Total Debt to Asset Ratio appears to have a negative influence on the ROA of listed construction firms in Nigeria. An increase in TDAR by a margin leads to a decrease in the ROA by 1.205775. The absolute t-statistics value (above 2) shows that TDAR has a strong effect on the ROA of the firms. The probability value reveals that the negative effect of the Total Debt to Asset Ratio on the Return on Assets of the firms under study is statistically significant at 5% level. This conclusion was because the Prob>t = 0.0000 is less than 0.05. Therefore, the null hypothesis was rejected while the alternate hypothesis was accepted. The total debtto-asset ratio has a significant negative effect on the return on assets of quoted construction firms in Nigeria (β_1 = -1.205775, Prob>t = 0.0000).

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4.3.2 Hypothesis Two

H_{o2}: Total debt to equity ratio has no significant effect on the return on assets of quoted construction firms in Nigeria.

H_{a2}: Total debt to equity ratio has a significant effect on the return on assets of quoted construction firms in Nigeria.

The regression analysis results in **Table 4.7** showed that TDER had a coefficient value of -0.001072, a t-statistics value of -1.971071 and a probability value of 0.0542. Thus, these suggest that the Total Debt to Equity Ratio appears to have a negative influence on the ROA of listed construction firms in Nigeria. An increase in TDER by a margin leads to a decrease in the ROA by 0.001072. The absolute t-statistics value (below 2) shows that TDER has a weak effect on the ROA of the firms. The probability value reveals that the negative effect of the Total Debt to Equity Ratio on the Return on Assets of the firms under study is not statistically significant at 5% level. This conclusion was because the Prob>t = 0.0542 is greater than 0.05. Therefore, the null hypothesis was accepted while the alternate hypothesis was rejected. The total Debt to Equity ratio does not have a significant negative effect on the return on assets of quoted construction firms in Nigeria (β_2 = 0.001072, Prob>t = 0.0542).

4.3.3 Hypothesis Three

H_{o3}: Noncurrent debt to asset ratio has no significant effect on the return on assets of quoted construction firms in Nigeria. **H_{a3}:** Noncurrent debt to asset ratio has a significant effect on the return on assets of quoted construction firms in Nigeria.

The regression analysis results in **Table 4.7** showed that NDAR had a coefficient value of -0.078793, a t-statistics value of -0.771594 and a probability value of 0.4439. Thus, these suggest that the Noncurrent Debt to Asset Ratio appears to have a negative influence on the ROA of listed construction firms in Nigeria. An increase in NDAR by a margin leads to a decrease in the ROA by 0.078793. The absolute tstatistics value (below 2) shows that NDAR has a weak effect on the ROA of the firms. The probability value reveals that the negative effect of the Noncurrent Debt to Asset Ratio on the Return on Assets of the firms under study is not statistically significant at 5% level. This conclusion was because the Prob>t = 0.4439 is greater than 0.05. Therefore, the null hypothesis was accepted while the alternate hypothesis was rejected. The noncurrent Debt to Asset ratio does not have a significant negative effect on the return on assets of quoted construction firms in Nigeria (β_3 = -0.078793, Prob>t = 0.4439).

4.4 Discussion of Findings

The output of the analysis revealed that corporate debt structure has a significant negative effect on the Return on assets of listed construction firms in Nigeria. The disaggregated results of the Fixed Effect Model of Panel Least Square regression showed that the coefficients of TDAR, TDER and NDAR are β_1 = -1.205775, β_2 = 0.001072 and β_3 = -0.078793, respectively. These coefficients of Debt Structure implied that a marginal increase in TDAR will result in a decrease in ROA by 1.205775; a unit increase in TDER will lead to a decrease in ROA by 0.001072 while increasing NDAR by 1 percentage point will lead to a decrease in ROA by 0.078793. That is to say, leveraging on debt financing contributes nothing positive to the financial success of listed construction firms in Nigeria. However, only the effect of Total Debt to Asset Ratio on ROA was shown to be significant at 5% level of significance.

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The findings of this study that debt structure negatively affects the financial performance of firms were also reported by Nazir, Azam and Khalid (2021); Hasan et al. (2021); Abosede (2020); Adegbola, Nwanji, Eluyela and Fagboro (2020) and Abbas and Aziz (2019). However, the results of the present study does not agree with those of Udisifan, Akeem, Bako and Olalere (2021); Akaji, Nwadialor and Agubata (2021); Udobi, Gbajumo, Umoru, Babatunde and Ilimezekhe (2020). The reason for the dissimilarity between the results may be because of the sample data used by the different studies.

5.0 Conclusion and Recommendations

5.1 Conclusion

The financial performance of firms is ideally meant to meet the interest of various stakeholders through effective and efficient operating activities such as increased turnover and efficient asset utilization. Debt structure becomes important when the firm wants to ascertain the point whereby the combination of both equity capital and debt capital will yield the highest profit at the barest cost of capital. Between the two extremes of whole equity financing and whole debt financing, a particular debt-equity mix is to be decided. Although firms design their debt-capital mix to yield optimal returns, poor debt structure decisions lead to a possible reduction in the value derived from strategic assets. When no or less effort is made to achieve the best approximation to the optimal debt structure, the long-term solvency and stability of the firm are threatened. In addition, the inefficient management of corporate debt structure in the face of economic and political crises in Nigerian businesses today can be considered one of the major causes of loss of profit, especially in the construction sector of the Nigerian Exchange Group. This conclusion is because the study found that:

1. Total debt-to-asset ratio has a significant negative effect on the return on assets of quoted construction firms in Nigeria (β_1 = -1.205775, p-value = 0.0000).
2. Total debt-to-equity ratio has no significant negative effect on the return on assets of quoted construction firms in Nigeria (β_2 = -0.001072, p-value = 0.0542).
3. Noncurrent debt-to-asset ratio has no significant negative effect on the return on assets of quoted construction firms in Nigeria (β_3 = -0.078793, p-value = 0.4439).

5.2 Recommendations

The recommendations of the study are:

1. There is a need for Nigerian construction firms to rely less on debts, which form a major part of their leverage and focus more on developing internal strategies that can help improve their profitability.
2. Managers of construction firms should continue to prioritize equity financing and also make use of the internally generated funds (retained earnings) first but only resort to the use of debt capital if these sources of finance are exhausted.
3. Management should ensure that proper debt level is maintained to improve profitability and to ensure there are sufficient funds for business expansion.

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