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Research Article

Thin Capitalization and Firm's Financial Performance: Are Older Firms at an Advantage?

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ABSTRACT

This study examined effect of thin capitalization on the financial performance of listed multinational firms in Nigeria for a period of 18 years (2006 to 2023). The Specific objectives were to: examine the effect of debt-to-equity ratio(DER) on return on capital employed(ROCE) of multinational corporations in Nigeria, ascertain the effect of Interest cover ratio (ICR) on return on capital employed of multinational corporations in Nigeria, evaluate the effect of Debt-to-asset ratio(DTA) on return on capital employed of multinational corporations in Nigeria, determine the moderating effect of firm age on the relationship between thin capitalization and financial performance of multinational corporations in Nigeria. Ex-post facto research design was adopted. The study used secondary sources of data from financial statements of the selected companies under study. The population of the study consisted of all 19 multinational firms listed on the Nigerian Exchange Group as at December 2023.The sampling technique used for this study was the purposive non probability sampling technique, 16 firms which represents approximately 85%of the entire population were used as the sample size, the other 3 firms were dropped based on data unavailability, while the analytical technique used for the study was panel least square regression model. Results of the study shows that the predictor variables examined (DAR, ICR) except (DER) have no significant effect on the financial performance of MNCs in Nigeria measured by (ROCE). Lastly, firm age moderates the relationship between DER and DAR as proxies of thin capitalization and ROCE as a measure of financial performance. The study concluded that thin capitalization has a negative significant effect on the performance of listed multinational firms in Nigeria and recommends amongst others that management of multinational companies in Nigeria should not contract excessive debt from affiliates as the interest payments may not significantly reduce their tax liabilities or positively enhance performance. Also, older firms are more at an advantage if they engage in thin capitalization practices as against younger firms.

Keywords: Thin Capitalization, Financial Performance

1. Introduction

One of the key determinants of business continuity is the availability of funds to execute projects. Every funding method has its consequences and overall effect on business performance. Thus, businesses structure their funding options such that maximum value is created. Businesses are either funded through debt or equity or both. The cost of each funding option determines usage. Typically, debt financing comes with a leverage of tax deductibility, unlike equity financing. Many organizations take advantage of tax deductibility to reduce tax liabilities thereby accessing more debt as against equity. Particularly, one of the major tax avoidance mechanisms taxpayers use is thin capitalization.

Ruud, and Li (2021) refers to thin capitalization as a debt shifting technique, employed by Multinational corporations to excessively borrow in high-tax countries where interest expenses are deductible, with loans extended from the MNCs parent or affiliates in low-tax countries where interest income is part of the corporate tax base. These firms plan their leverage in such a way to minimize their overall tax liability; thereby highlighting the risk of base erosion. This stems from the fact that interest paid on debt instrument is deductible whereas dividend paid to shareholders are not in calculating taxable income, unless the interest is caught by thin capitalization or anti abuse rules. Developed countries such as Canada, Germany, Italy, the US, Japan, Australia, France, and the UK have had existing enactments on thin capitalization as anti-tax-avoidance mechanisms thereby, averting tax avoidance by most companies. However, in Nigeria, before the promulgation of the Finance Act 2019, businesses exploited the absence of a thin capitalization rule by planning their activities around statutory acceptable tax practices to reduce tax obligations (Osamor et al., 2023). The regulatory framework on thin capitalization has evolved, particularly with the introduction of the Finance Act, 2019 aimed at curbing excess interest deductions, and ensure entities attain and sustain optimum capital structures. The Act introduced an interest deductibility rule that restricts the level of allowable interest which are tax deductible on related-party borrowing including foreign lenders.

Extent literatures have yielded mixed results regarding the impact of thin capitalization on financial performance. For instance, Olaniyi and Adebisi (2018) found that while thin capitalization can improve short-term profitability through tax savings, it may lead to long-term sustainability issues due to increased leverage. Conversely, Adediran and Alabi (2020) argued that firms with optimal capital structures, which balance debt and equity financing, tend to exhibit superior financial performance compared to those heavily reliant on debt. Akabom and Ejabu (2018) reported that interest paid on borrowed capital had a negative effect on the return on capital invested largely due to price changes and economic uncertainty in Nigeria. However, Otuya and Omoye (2021) who conducted a study on “thin capitalization, effective tax rate, and performance of multinational companies in Nigeria” post-adoption of the Finance Act, 2019 discovered that thin capitalization, interest expenses rate, effective tax rate, and capital intensity have a positive but non-significant correlation with MNC's financial performance. The unique challenges faced by MNCs in Nigeria, such as high inflationary rate, currency fluctuations, political instability, and infrastructural deficits, further complicate the relationship between thin capitalization and financial performance. As pointed out by Akinola (2023), the effectiveness of financing strategies, including thin capitalization, may vary significantly based on external economic factors and internal managerial decisions. These findings highlight the necessity of further research to explore the nuances of thin capitalization in Nigeria’s specific economic context.

In light of these considerations, it is obvious that the discourse needs further deliberation. Firstly, works by Melinda et al. (2024), Osamor et al. (2023), Alif and Yeney (2022), Eneisik and Moses (2021), and Otuya and Omoye (2021) have used various financial indicators such as debt-to-equity ratio, maximum allowable debt ratio, and interest coverage ratio. Others have examined moderating factors like corporate governance (Alif and Yeney, 2022) and firm size (Abraham, 2023), though they often overlooked other external factors that may influence performance of these firms. Secondly, a review of the literature highlights that many studies have focused on specific sectors, such as Wibowo and Sari's (2024) research on the energy sector and Abraham's (2023) focus on the pharmaceutical sector. This sector-specific approach may limit the generalizability of their findings across other industries.To address this gap, this study examined the relationship between thin capitalization and firms performance, using debt-to-equity ratio, debt to asset ratio and return on capital employed as proxies for the independent and dependent variables while also, incorporating firm age as a moderating variable. Encompassing multiple sectors, including conglomerates, construction/real estate, consumer goods, healthcare, ICT, industrial goods, oil and gas, and services. The remaining sections of the paper were structured as follows; section two discusses the literature review which encompasses theoretical, conceptual and empirical literature. Section three dealt with the methodology. Section four and five contains the empirical results and discussion of findings, while section six contains the conclusion and policy recommendations.

2. Review of Related Literature

2.1.1 Modigliani-Miller Theory with Taxes (1963)

The underpinning theory of this study is the M-M theory with taxes. M-M theories are one of the fundamental theories in capital structure. Propounded by Franco Modigliani and Merton Miller in 1953, the MM theory I asserts that in a perfect market where there is absence of taxes, bankruptcy costs, agency costs, asymmetric information and difference in interest rates between individuals and corporations, the value of a firm is unaffected by its capital structure, However, in reaction to series of criticisms M-M (1963) modified the above theory to include corporate taxes, since interest charges payable on debt are tax deductible. Hence, “this tax advantage will enable debt to have an impact on the value of the firm or weighted average cost of capital; and M-M further re-emphasis that with corporate taxes, the market value of a firm will increase or the average cost of capital will decrease as a result of tax deductibility of interest charges (Ajibola, et.al, 2018 as cited in Obayagbona & Omodamwen, 2022)”.

Obayagbona et.al, (2022) opined that the value of a leveraged firm (one with debt) is equal to the value of an unleveraged firm (one without debt) plus the present value of the tax shield on the debt. This modification implies that firms could increase their value by incorporating more debt, given that debt provides a tax advantage. Essentially, debt financing becomes advantageous because it lowers the firm's overall tax burden, thereby enhancing the firm's value. Modigliani, and Miller (1958) concluded that Firms could enhance their value by increasing their debt levels to take advantage of the tax-deductibility of interest expenses. This suggested that firms should aim for an optimal capital structure that maximizes the value created from the tax shield. Additionally, the greater the level of debt, the larger the tax shield. However, increased leverage also introduces higher financial risk, as the firm must meet its fixed interest obligations regardless of its performance. Lastly, the 1963 model highlighted the trade-off between the benefits of debt (tax shields) and the potential agency costs associated with higher leverage, such as the risk of financial distress and conflicts between equity holders and debt holders.

2.2.1 Thin Capitalization and Thin capitalization Rules

Blouin, Huizinga, Laeven and Nicodeme (2014) in their empirical review viewed thin capitalization as a tax planning strategy that is used by companies to structure their capital composition in such a way that will enhance the usage of more debt than equity through evaluation of country fiscal policy. Differences in tax rates globally often make it attractive to thinly capitalize foreign affiliates in high-tax countries and rely excessively on debt financing. To reduce the overall tax liability, MNCs may particularly use related-party debt as a medium for shifting profits by injecting equity financing into a foreign subsidiary facing a low tax rate. This party in turn provides loans to another related party within the group in high-tax countries. For the latter countries the implication is a reduction of the taxable income (and tax revenue) due to the deductibility of interest expenses. (Meloa &Wamser, 2014) Therefore, the concept Debt shifting reduces the total tax liabilities of the MNC group with little or no impact on its overall debt exposure or bankruptcy risk. Thin capitalization rules play an important role in ensuring that businesses operate within fair tax boundaries, reducing the risk of tax avoidance and promoting economic stability. These rules are established by governments and imposed on organizations in an attempt to restrict the interest deductibility of debt.TCRs is the government's way of limiting dept shifting by MNCs, these rules generally specify a threshold for the ratio of debt relative to equity; commonly referred as the "safe-haven ratio" beyond which interest expenses are no longer deductible from the corporate tax base (Ruud et al. (2021)).

While TCRs could serve as an anti-tax avoidance tool, there's a tendency that it can raise the cost of capital for investments in subsidiaries that are limited in their deductibility of interest. Also, MNCs may respond to TCRs by replacing debt with equity finance on the verge of avoiding double taxation. This is because the moment interest deductibility is restricted in the country of operation, it is subject to tax in both the country of operation and the country where the interest is received. The overall effect is that MNCs investment in subsidiaries could decline in response to the introduction of TCRs, thus mitigating its benefits, especially if these multinational investments yield positive productivity to local firms (Andrews, Criscuolo, & Gal, 2015). Countries all over the world have implemented TCRs, beginning from the OECD countries; Canada in 1971, followed by Australia (1987), the U.S. (1989), and many more countries over the nineties. (Buettner, Overesch, Schreiber, &Wamser, 2012) The US currently limits the deductibility of interest to 30% of adjusted taxable income, with certain exceptions for small businesses (U.S. Internal Revenue Service, 2023).

In the mid-nineties, less than a third of European countries and less than half of the OECD countries had thin-capitalization rules in place. By 2005, three fifths of European and two thirds of OECD countries had imposed such rules (Buettner et al. 2012).The OECD has also introduced rules to address this issue. For instance, the OECD's BEPS (Base Erosion and Profit Shifting) Action Plan specifically targets tax avoidance strategies like thin capitalization. Similarly, the European Union has implemented the Interest and Royalties Directive, which restricts the tax deductibility of interest payments in certain intra-group transactions to prevent aggressive tax planning (European Commission, 2020). These regulations aim to align corporate debt levels with economic substance and prevent companies from leveraging their capital structure for tax avoidance. The Nigerian 2019 finance act introduced an interest deductibility rule which limits interest deductibility to 30% of earnings before interest, taxes, depreciation, and amortization (FIRS, 2020). Prior to this time, Nigeria had no thin capitalization rules.

2.2.2 The Moderating Effect of Firm Age

Effective tax planning, of which thin capitalization is an integral tool, typically requires professionalism, as well as appropriate resources, expertise, and competence to be carried out effectively. Thus, the age of firms will go a long way in determining the effectiveness of tax planning. Oktari, Handajani, and Widiastuty (2016), opined that the age of the company provides an overview of a company's ability to compete with other companies and take advantage of existing business opportunities to be able to maintain their going concern. Firm age refers to how long a company has been operating since its establishment or incorporation. It serves as a key indicator of a firm's maturity and experience within its industry or market. It is typically measured as the number of years

that have passed since a company was incorporated or founded. This is done by calculating the difference between the current year and the year the company was legally established. According to Abraham, (2023) the age of a firm can impact various areas of its performance, including resource access, market stability, innovation potential, and willingness to take risks. Established firms often have stronger reputations, larger customer bases, and greater financial stability, while newer firms may display more flexibility, adaptability, and innovative capabilities.

Older firms often have more established financial practices, stable cash flows, and different risk profiles compared to newer firms. Firm age can influence how a company manages debt, equity, and overall capital structure, which may in turn affect its financial performance. Also, older firms may be less reliant on debt for financing and may have more conservative capital structures, which could affect their financial performance differently than younger, potentially more leveraged firms. This can be especially important in the context of thin capitalization, where firms with higher debt levels may experience different performance outcomes than firms with lower debt levels. By moderating firm age, the specific impact of thin capitalization on performance can be isolated, reducing the potential bias that firm age could introduce and any heterogeneity in the sample that might arise from differences in the lifecycle stages of firms.

2.2.3 Financial performance

Financial performance refers to the quantitative measurement of a company's financial results, typically focused on profitability, revenue generation, and cost management. It reflects how well a company is utilizing its financial resources to maximize shareholder value, ensure sustainability, and achieve its strategic goals (Bassey et al, 2023). Adejumo and Sanyaolu (2020), defines financial performance as the assessment of a company's outcomes based on its strategies, policies, and operations in financial terms. These outcomes are typically reflected in metrics such as return on assets or return on invested capital. Financial performance also highlights how effectively a company utilizes its assets from core business activities to generate revenue. Common measures of financial performance include revenue from operations, operating income, cash flow from operations, and total unit sales, return on capital employed, earnings per share etc. However, Kaplan and Norton (2015) as cited in Abraham, (2023) suggest that financial performance can also be evaluated using a balanced scorecard, which includes four key perspectives: financial, customer, internal business processes, and learning and growth, all of which are critical to a company's success.

According to Anshur et al. (2018) as cited in Abotsi,et al. (2023) financial performance is a subjective evaluation of how effectively a firm utilizes resources from its core business activities to generate sales. The term is also used as an overall indicator of a company's economic health over a specific period and can be employed to compare similar firms within the same industry or to assess business units or segments within a competitive context. The significance of financial performance is undeniable, as it serves as a crucial benchmark for businesses to gauge success and pinpoint areas for improvement. By evaluating financial performance, stakeholders including investors, creditors, and management can make well-informed decisions about investments, lending, and operational strategies (Adejumo & Sanyaolu, 2020). Companies with strong financial performance (e.g., high profitability, healthy cash flow, and efficient asset utilization) may have greater capacity to take on debt. Lenders are more likely to extend credit to firms that demonstrate stable earnings and good financial health because they are seen as less risky borrowers.

2.3 Empirical Review

Several authors have attempted to find out the relationship between thin capitalization and financial performance with conflicting results, Abraham (2023) investigated thin capitalization and financial performance of listed health companies in Nigeria from 2006-2020, proxied by debt-to-equity ratio, profit after tax, earnings per share for the independent and dependent variables respectively and firm size as the control variable. Ex-post-facto and correlational research design was employed for the study alongside hypotheses tested using the Ordinary Least Square (OLS) Model regression analysis. Findings of the study were that that there is no significant relationship between thin capitalization and both profit after tax and earnings per share of listed pharmaceutical companies in Nigeria. Also, firm size does not significantly influence the relationship between thin capitalization and the financial performance of listed pharmaceutical companies in Nigeria. While these findings align with previous research, limiting thin capitalization to only one sector; pharmaceutical may not have fully captured the relationship between the variables in different sectors.

The work of Ado et al. (2021), which aims to explore the effect of corporate tax planning on the financial performance of companies listed on the Nigerian Stock Exchange (NSE). It uses secondary data sourced from Thomson Reuters DataStream and annual reports of the listed companies. A multiple regression analysis was conducted on data from 84 NSE-listed companies, comprising 756 observations over a nine-year period (2010-2018). The results indicate that inventory intensity does not have a significant relationship with Return on Assets (ROA), suggesting that an increase in inventory intensity does not necessarily improve financial performance. In contrast, capital intensity shows a negative and significant relationship with ROA, meaning that higher capital intensity tends to reduce financial performance. However, debt to equity ratio is positively

and significantly associated with ROA, indicating that highly leveraged companies are more likely to achieve better financial performance. A key strength of the study is its empirical approach, using a substantial sample size (84 companies and 756 observations), which enhances the generalizability of the findings. However, the study does not consider the potential moderating effects of external macroeconomics or industry-specific factors, such as regulatory changes, economic cycles, or sectoral tax policies, inflation which may influence the relationship between variables.

Osamor (2022), Examine thin capitalization and firms' financial performance: Evidence from selected multinational and non-multinational firms in Nigeria. Secondary data was obtained from the annual reports of the firms from 2006 to 2020. Thin capitalization was measured using debt-to-equity ratio, firms' financial performance was measured by return on invested capital, while tax burden and firms' size were used as control variables. Data was analysed using descriptive statistics, unit root test, co integration and panel data regression. The findings of this study concluded that thin capitalization had effects on firms' financial performance in both multinational and non-multinational firm in Nigeria. Hence, it was recommended that Nigeria government should introduce thin capitalization rules and other forms of tax avoidance strategies need to be properly check from both multinational and non-multinational firms to ensure that effective tax rate is paid. This research is similar to Abraham's study in terms of the period covered, and variable for measuring thin capitalization although different in terms of sectors covered.

Erasmus and Uwikor (2020), studied the relationship between tax planning strategies and the financial performance of quoted banks in Nigeria. The study adopted the ex post facto research design. Utilizing effective tax rate, thin capitalization, and capital intensity as proxies for tax planning while financial performance was proxied by return on equity, earnings per share, and net interest margin. The population of this study consists of fourteen quoted banks in Nigeria from 2006 to 2019. The study adopts the use of descriptive statistics for univariate analysis while hypotheses were tested using an ordinary least square regression statistical tool. The findings show that thin capitalization have a negative and insignificant impact on earnings per share of quoted banks in Nigeria. Empirical evidence revealed that thin capitalization, have a positive and significant impact on the net interest margin of quoted banks in Nigeria. This result suggests that, despite the potential benefits of debt financing (such as tax shields), excessive reliance on debt (thin capitalization) does not directly translate into improved earnings per share in Nigerian banks. In contrast, the finding suggests that banks with higher levels of debt financing are able to reduce their tax liabilities, which in turn enhances their net interest margin. Thin capitalization was found to have a negative and significant effect on profitability, while capital intensity has a positive and significant effect Titus et al. (2023) The study examined the impact of corporate tax planning on the profitability of consumer goods companies in Nigeria. for the period 2007 to 2019. The variables considered were corporate tax planning (proxied by thin capitalization and capital intensity) and profitability (measured by return on capital employed). The findings indicated that thin capitalization has a negative and significant effect on profitability, while capital intensity has a positive and significant effect. Based on these findings, the study recommended maintaining a high level of capital intensity and minimizing thin capitalization to achieve a positive and significant return on capital employed (profitability) for consumer goods companies in Nigeria.

Mishra and Dasgupta (2019) examined the cross-impact of leverage on firm performance, focusing on developed versus frontier bank-based economies. The study aimed to assess the effect of financial leverage on the monetary performance of 400 financial service firms operating in emerging economies from 1990 to 2016. The researchers employed a multiple regression model with a two-stage least squares (2SLS) technique. Financial leverage ratios were represented by total debt to total asset ratio (TDTA) and total debt to common equity ratio (TDCE), while firm performance was measured using ROA and ROE. Control variables included size, liquidity, and growth. The analysis revealed a negative relationship between leverage and firm performance, indicating that TDTA and TDCE negatively affected both ROA and ROE. Additionally, size was found to have a negative influence on both ROA and ROE, and liquidity negatively impacted TDTA and TDCE. Ngo et al. (2020) conducted an empirical study to investigate the impact of thin capitalization regulations on the location decisions of multinational corporations. The study specifically focuses on non-financial firms listed on the Vietnam Stock Exchange (VSE), analyzing panel data from 118 companies over the period from 2009 to 2017. The authors aimed to understand how debt (specifically, the debt ratio) affects business profitability, particularly in the context of thin capitalization regulations. The study finds that debt has a statistically significant negative effect on profitability and that this relationship is more pronounced in a non-linear (concave) framework.

The study also applies the Generalized Method of Moments (GMM) to address econometric issues, thus improving the precision of the regression results. The study also highlights that the relationship between debt and profitability is stronger when considered in a non-linear (concave) framework. This non-linear relationship suggests that firms may experience diminishing returns to profitability as debt levels increase. Initially, debt might enhance profitability by reducing taxable income through interest deductions. However, as the debt ratio

increases, the negative impact of interest payments and potential financial distress outweighs the benefits, leading to a decline in profitability. This finding supports the Trade-Off Theory of capital structure, which posits that firms balance the benefits of debt (such as tax shields) against the costs of financial distress. Akintoye et al. (2020) found that thin capitalization has a minimal effect on the Return on Assets (ROA) of Tax Planning (TP) strategies. The study, which covered the period from 2008 to 2017, examined the impact of TP strategies on the profitability of manufacturing enterprises in Nigeria. The variables used in the study included thin capitalization, capital intensity, and R&D, with ROA as the independent variable. The research followed an ex-ante methodology, and ROA was the sole proxy for profitability. Future studies could consider using multiple profitability proxies to further explore this relationship.

In a separate study, Eneisik and Moses (2021) explore the impact of thin capitalization on the return on equity (ROE) of Nigerian listed banks, focusing on a sample of twelve banks over the period from 2006 to 2019. The study employs a judgmental sampling technique, which is based on the subjective selection of banks, and uses descriptive statistics for univariate analysis, alongside ordinary least squares (OLS) regression for hypothesis testing. The authors find that thin capitalization has a negative but insignificant impact on the ROE of the selected banks. While the time period selected (2006 to 2019) is reasonable for examining long-term trends, the choice of sampling technique(judgmental) may introduce selection bias because it depends on the researchers' subjective decisions about which banks to include in the sample. Andre et al (2022) aimed at examining thin capitalization as a strategy for tax avoidance. It considers independent variables such as multinational status, tax uncertainty, and foreign operations, while debt to equity ratio was employed to represent the dependent variable. Control variables were firm size and firm profit growth. The study focuses on non-financial companies listed on the Indonesia Stock Exchange from 2015 to 2019. The sample consists of multinational non-financial companies, defined as those with subsidiaries outside of Indonesia. Multiple linear regression analysis was employed as the statistical method. The findings reveal that multinational status, tax uncertainty, and foreign operations do not significantly affect thin capitalization. However, firm size and firm profit growth are found to have a significant impact on thin capitalization.

In his paper Thin Capitalization Rules and Entrepreneurial Capital Structure Decisions, Maßbaum (2009) examines whether thin capitalization rules influence dividend and financing decisions, and if they help explain why corporations use both debt and equity capital. The study models the rules of Belgium, Germany, and Italy, using Critical Income Tax Rate (CIR), Gross Profit, Dividend Payout, and Debt-to-Equity ratio as proxies. The analysis employs sensitivity analysis within a general capital structure model, utilizing data from secondary sources. The findings indicate that the Miller equilibrium and specific financing effects are significantly influenced by the underlying tax system. Additionally, the results provide valuable insights for treasury departments when deciding which type of thin capitalization rule to implement. Philip and Olanrewaju (2020) investigated the impact of debt financing on the financial performance of non-financial firms listed on the Nairobi Securities Exchange over the five-year period from 2013 to 2017. The study used data from 23 listed non-financial firms, which was collected from their published financial statements and analyzed using panel data regression. The independent variables included short-term, medium-term, and long-term debt, while the dependent variable was return on equity. The study also incorporated three control variables—firm size, sales growth, and growth opportunities—which were considered to influence the relationship between the independent and dependent variables. The results revealed that medium-term debt had a significant negative relationship with return on equity, long-term debt showed a positive but statistically insignificant relationship, and short-term debt had a negative relationship with return on equity.

Ezekiel et al. (2016) aimed to investigate how debt financing affects financial performance in both the short and long term. The study focused on 60 firms listed on the Nairobi Securities Exchange, all of which had debt in their capital structure. Three independent variables were examined—short-term debt ratio (STDR) and long-term debt ratio (LTDR)—with financial performance measured through return on assets (ROA), liquidity ratio, and profit margin ratio as dependent variables. The study used secondary data from the audited financial reports of these firms from 2009 to 2012.The results from regression analysis indicate that an increase in short-term debt leads to a decrease in return on assets. However, the findings related to the profit margin ratio show that a unit increase in short-term debt reduces the profit margin by 1.054. Similarly, an increase in short-term debt results in a decrease in the liquidity ratio by 0.838. The study concludes that the variables are statistically significant, indicating that the combined effect of these variables can reliably explain the impact of debt financing on firms listed on the Nairobi Securities Exchange. Fasasi et al. (2022) studied the effect of debt financing on the profitability of listed agricultural companies in Nigeria. The aim of the research was to examine how debt financing impacts the profitability of agricultural firms listed on the Nigerian Stock Exchange (NSE). The study focused on a sample of 5 listed agricultural companies. Secondary data were collected from the annual reports of these firms. The data were analyzed using multivariate regression analysis, and the results showed that long-term debt had a significant negative effect on the return on asset (ROA) of these companies. In contrast, short-term debt had a significant positive effect on ROA. The study concluded that while debt financing influences profitability, long-term debt should be kept at a moderate level to enhance profitability.

3. Methodology

3.1 Nature and sources of Data

This study adopts an ex-post facto research design to investigate the moderating effect of firm age on the relationship between thin capitalization and financial performance of listed multinational firms in Nigeria. Thin capitalization was proxied by debt-to-equity ratio, interest coverage ratio and debt to asset ratio, while return on capital employed served as a measure of the firm's financial performance. Data for this study was sourced from secondary sources, obtained from the firms' published annual financial reports covering the period from 2006 to 2023. The population of the study consisted of all listed multinational firms on the Nigerian Exchange Group (NGX). These firms were selected based on their multinational status, defined as having business operations in two or more countries, as well as their listing on the NGX. The finite population included 19 companies: John Holt Plc, Chapel Hill Denham Nig. Infras Debt Fund, Julius Berger Nig. Plc, Cadbury Nigeria Plc, Dangote Sugar Refinery Plc, Guinness Nig. Plc, International Breweries Plc, Nestlé Nigeria Plc, PZ Cussons Nigeria Plc, Unilever Nigeria Plc, Airtel Africa Plc, CWG Plc, MTN Nigeria Communications Plc, Beta Glass Plc, Dangote Cement Plc, Lafarge Africa Plc, TotalEnergies Marketing Nigeria Plc, and Caverton Offshore Support GRP Plc, GlaxoSmithKline (GSK). However, due to data unavailability from some firms (Airtel Africa Plc, MTN Nigeria Communications Plc) and Chapel Hill Denham Nig. Infras Debt Fund's listing in October 2023, the final sample was reduced to 16 firms. Hypothesis were tested at a 5% level of significance (Mbu-Ogar, et al, 2025)

Table 1. Measurement of variables

Variable	Abbreviation	Measurements	References
Thin Capitalization			
Debt to equity ratio	DER	The ratio of long-term debt against total of paid-up share capital. Total Liabilities / Shareholders Equity	Andre et al (2022), Anindita et al. (2022), Osamor, 2022, Ado et al. (2021), Wibowo and Sari (2024)
Interest coverage ratio	ICR	The number of times EBIT may cover interest payments. EBIT / Interest Expenses	Radhe and Nitesh (2016), Osamor et al. (2023), Radhe and Nitesh (2016), Asuquo and Ejagu (2018),
Debt to asset ratio	DAR	The ratio of debt to total assets. Total Debt / Total Assets	Boateng and Vitenu-Sackey (2019), Adegbite and Bojuwon (2020), Fasasi et al. (2022)
Financial Performance			
Variable	**Abbreviation**	**Measurements**	**References**
Return on capital employed	ROCE	The number of times a company generates profit from the capital it employs. Operating Profit / Capital Employed	Oyeshile and Adegbie (2020), Titus et al. (2023), Osamor (2022)
Moderating Variable			
Firm age	FAG	The number of years a firm has been in existence. Firm Age = Current Year - Year of Incorporation	Wada (2021), Boateng and Vitenu-Sackey (2019

Source: Author's Compilation (2024)

3.2 Model Specification

The panel least square model was employed for this study, the model uses panel data to analyze dynamic relationships between variables across both time (temporal) and cross-sectional (individual or group) units. Data was analyzed using descriptive statistics, fixed and random effect estimation models, hausman's test, endogenity test amongst others. Hence, in line with existing studies like Abraham, (2023), Otuya and Omoye (2021) the model is stated as follows:

$$ROCE_{it}=\alpha+\beta_1(DER_{it})+\beta_2(ICR_{it})+\beta_3(DAR_{it})+\beta_4(FAG_{it})+\mu_i+\epsilon_{it}$$

Where: $ROCE_{it}$ is the Return on Capital Employed for firm i at time t.
DER_{it} is the Debt-to-Equity Ratio for firm i at time t.
ICR_{it} is the Interest Coverage Ratio for firm i at time t.
DAR_{it} is the Debt to Asset Ratio for firm i at time t.
FAG_{it} is the firm age for firm i at time t, which could act as a moderator for the relationship between the variables. μ_i represents the individual-specific effects of the firm. ϵ_{it} is the error term.

For the effect of the moderator variable (Firm age) on the relationship, an interaction term model was created:

$$ROCE_{it}=\alpha+\beta_1(DER_{it})+\beta_2(ICR_{it})+\beta_3(DAR_{it})+\beta_4(FAG_{it})+\beta_5(DER_{it}\times FAG_{it})+\beta_6(ICR_{it}\times FAG_{it})+\beta_7(DAR_{it}\times FAG_{it})+\mu_i+\epsilon_{it}$$

Where: B_5, β_6, β_7 are the interaction terms between thin capitalization variables and firm age, which test how firm age moderates the relationship between the independent variables and the dependent variable (ROCE).

4. Data Analysis/Results

4.1 Descriptive Statistics

TABLE 2a Descriptive Statistics and Normality test

	ROCE	DER	ICR	DAR	FAG
Mean	10.56	2.72	275.62	64.26	30.77
Median	10.03	1.39	12.36	62.92	34.00
Maximum	42.19	17.77	32995.82	305.80	59.00
Minimum	-14.48	0.05	-40.10	28.14	1.00
Std. Dev.	8.68	3.25	2233.36	26.52	14.38
Skewness	0.36	1.99	12.56	3.72	-0.53
Kurtosis	3.55	6.72	176.76	32.12	2.30
Jarque-Bera	9.27	331.36	342909.7	10046.82	17.97
Probability	***0.0097***	***0.0000****	***0.0000****	***0.0000****	***0.0001****
Observations	267	267	267	267	267

Source: Researcher's Estimation, 2025 * denote significant at less than 1%

TABLE 2b Shapiro-Wilk Test of normality and Multicollinearity Test

		Shapiro-Wilk test of normality			
Variable	**VIF**	**W**	**V**	**Z**	**Prob ›z**
ROCE	**-**	**0.987**	**2.55**	**2.19**	**0.014**
DER	**1.55**	**0.720**	**53.77**	**9.30**	**0.000**
ICR	**1.54**	**0.097**	**173.59**	**12.04**	**0.000**
DAR	**1.06**	**0.753**	**47.51**	**9.01**	**0.000**
FAG	**1.01**	**0.942**	**11.12**	**5.62**	**0.000**

Source: Researcher's Estimation, 2025

The descriptive statistics of the study variables and normality test are shown in Tables 2a and 2b. The mean of the ROCE is far from both the maximum value and minimum values meaning that there is wide variation in the return on capital employed of the units of analysis in the study. The Jarque-Bera statistic and the skewness show that the data set is not normally distributed, indicating that the ordinary least square regression will not be appropriate for estimating the models. Consequently, unit roots test were conducted to determine the appropriate statistical technique to be adopted in estimating the specified model.

Cross-section Dependence (CD) Test

The firms used in the study may exhibit similarity in their thin capitalization practices since they operate in the same economic environment. This implies that there may be interdependencies which can result to spatial autoregressive processes. Moreover, the number of cross-sectional units exceed the time-period for each of the companies in the study, therefore, the CD test, a pairwise average of a sample correlation was used to check for the existence of cross-sectional dependence.

TABLE 3 Cross-section Dependence test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	236.77	105	0.000
Pesaran Scaled LM	9.09		0.000

Bias-corrected scaled LM	8.65	0.000
Pesaran CD	-2.86	0.004

Source: Researcher's estimation, 2025

The result of cross-section dependence test in Table 3 is significance at the 5 percent level, indicating the presence of cross-sectional dependence. This suggests that it is necessary to conduct unit roots test as there may be unit roots and cointegration issues in the data series.

TABLE 4 Individual unit roots test

	ADF-Fisher Chi-Square		
Variable	@ Level	@ 1st Difference	Level of Integration
ROCE	57.14*	171.86**	I (0)/I
DER	41.19	139.55**	I (I)
ICR	55.83*	172.28**	I (0)/I
DAR	30.97	142.55**	I (I)
FAG	17.15	115.34**	I (I)

Source: Researcher's estimation, 2025 *, **, denote significant at the 1%, 5%, level of significance respectively

TABLE 5 Kao Residual Co-integration Test Series: ROCE DER ICR DAR FAG

Method	Statistic	Prob.
ADF	-0.737	0.231

Source: Researcher's estimation, 2025

The Augmented Dickey-Fuller (ADF) for stationarity was chosen for interpretation as it presents more robust results than other stationarity techniques such as Levin, Lin & Chu t-test, Im, Pesaran and Shin w-stat and Philip-Perron Chi-Square test which have inherent individual weaknesses. The null hypothesis assumes that the variable of interest has a unit root and therefore non-stationary against the stationarity alternative. The result reported in Table 4 indicates that there are no unit roots at levels among the variables, and there are no unit roots at first difference among all the variables. Specifically, the ADF result of the panel unit root shows that the null hypothesis of unit roots should not be rejected for the series. These results imply that there is long-run relationship among the variables which are stationary at levels and first deference. The Kao residual test in Table 5 reveals that the variables are not cointegrated. This suggests that panel regression may be efficient for estimating the specified model stationary against the stationarity alternative.

4.2 Results and test of hypotheses

TABLE 6a Random effect models

Variable	Coeff.	t-value	Prob.
C	13.45	9.55	0.000
DER	-0.55	-2.86	0.005*
ICR	-0.00007	0.32	0.750
DAR	-0.022	-0.92	0.359
R^2	0.06		
Adj R^2	0.05		
F-stat	6.03		0.001*
D-W	0.416		

Source: Researcher's estimation, 2025. *, ** significant at 1%, 5% respectively.

TABLE 6b Panel OLS, Fixed and Random effect models

Variable	Panel OLS			Fixed effects			Random effects		
	Coeff.	t-value	Prob.	Coeff.	t-value	Prob.	Coeff.	t-value	Prob.
C	25.57	7.92	0.000	25.22	5.86	0.000	25.57	7.91	0.000
DER	-2.18	-4.75	0.000	-0.94	-2.12	0.036	-2.19	-4.74	0.000
ICR	0.006	1.24	0.215	0.007	1.76	0.079	0.006	1.24	0.216
DAR	-0.065	-1.34	0.182	-0.087	-1.99	0.048	-0.066	-1.34	0.183
Moderating variable									
FAG	-0.166	-2.92	0.004	-0.238	-2.65	0.009	-0.166	-2.91	0.003
Interaction terms									
FAGDER	0.154	2.51	0.013	0.072	1.25	0.211	0.154	2.51	0.013
FAGICR	-0.325	-0.82	0.412	-0.407	-1.27	0.204	-0.325	-0.821	0.413
FAGDAR	0.109	1.99	0.048	0.09	1.97	0.050	0.109	1.987	0.048
R^2	0.26			0.64			0.26		
Adj R^2	0.23			0.58			0.23		
F-stat	8.06		0.000*	9.80		0.000	8.06		0.000
D-W	0.53			0.91					
Redundant fixed effect:									
Cross-section F				15.56		0.000			
Cross-section χ^2				181.38		0.000			
Period F				1.69		0.047			
Period χ^2				32.14		0.014			
Cross-section/Period F				7.98		0.000			
Cross-section/Period χ^2				198.77		0.000			
Hausman Test (χ^2):									
Cross -section random							12.17		0.351†

Source: Researcher's estimation, 2025. *, ** significant at 1%, 5% respectively. †indicates that random effect is efficient and consistent under H_0.

The result for the panel least square estimation method is displayed in Table 6b. To ascertain the robustness of the result, the standard Hausman test for cross-section random effects test is used to identify the time-varying conditions of the study data to determine which to interpret between the fixed and random effect models. The result failed the significance test at the 5 percent level ($\chi^2 = 12.17$; $p = 0.351$), indicating that a random effect exists in the cross sections of the data. Therefore, the random effect results were used to test the hypothesis.

Hypothesis 1

Debt to equity ratio has no significant effect on return on capital employed of multinational corporations in Nigeria. In the result shown on Table 6a, the coefficient of DER is negative (-0.55) and significant at less than 1 percent (t = -2.86, p = 0.005). Consequently, the null hypothesis which states that debt-to-equity ratio has no significant relationship with financial performance as measured by return on capital employed (ROCE) is rejected. Therefore, DER brings about 0.55 unit change in ROCE.

Hypothesis 2

Interest cover ratio has no significant effect on return on capital employed of multinational corporations in Nigeria. This hypothesis concerns the effect of ICR as a proxy of thin capitalisation on the return on capital employed. The result on Table 5a shows that ICR has a negative non-significant (c= -0.00007; t = 0.32; p = -0.750) relationship with ROCE. This indicates that the null hypothesis should not be rejected, implying the ICR has no significant effect on ROCE. The result indicates that a unit change in ICR results in about 0.00007 unit change in ROCE

Hypothesis 3

Debt-to-asset ratio has no significant effect on return on capital employed of multinational corporations in Nigeria. This hypothesis tested the effect of Debt-to-asset ratio (DAR) on ROCE of the companies investigated. The regression result in Table 6a shows that the coefficient of the variable is negative (-0.022 with t = -0.92, p = 0.359. This result is not significant therefore the null hypothesis is not rejected. This implies that DAR has no significant effect on the ROCE of MNCs in Nigeria.

Hypothesis 4

Firm age does not moderate the relationship between thin capitalization and financial performance of multinational corporations in Nigeria. The result of the test of this hypothesis shows that FAG is a strong deciding factor in the association between thin capitalisation and financial performance of MNCs in Nigeria. The result of the interaction term depicted on Table 6b. indicates that FAG moderates the relaionship between DER, DAR and ROCE of MNCs in Nigeria [FAGDER {c = 0.154, t = 2.51, p = 0.013 and FAGDAR {c = 0.109, t = 1.987, p = 0.048}. The positive coefficient of FAG*DAR implies that FAG*DAR and ROCE moves in the same direction. However, FAG*ICR has a negative relationship with ROCE, and the result is not significant [FAG*ICR {c = -0.325, t = -0.821, p = 0.413}].

5. Discussion

5.1 Debt-to-equity ratio and ROCE of MNCs in Nigeria

The test of this hypothesis shows that DER has a negative coefficient which is significant at 5 per cent level. The result indicates that debt-to-equity ratio of the MNCs in Nigeria has negative effect on financial performance. Thus, thin capitalisation hurts firm performance of MNCs in Nigeria. This result is supported by the studies of Mishra and Dasgupta (2019), Glaze and Fatchen (2021), Osamor(2022) and Titus et al. (2023) who found that debt-to-equity ratio has a negative and significant association with return on capital employed. However, the result is not supported by the findings of Abrahan (2023) and Oyeshile and Adegbie (2020) which show that DER has no significant relationship with performance, and Erasmus and Uwikor (2020) and Eneisik and Moses (2021) whose studies revealed that DER is negatively associated with ROCE, but the relationship is not significant.

5.2 Interest coverage ratio and ROCE of MNCs in Nigeria

The test of the second hypothesis reveals that the coefficient of ICR is negative but not significant. Low interest coverage ratio can be an indication of a thinly capitalized firm, as high interest expenses, reduces interest coverage ratio. Tax authorities are usually wary of firms with low interest coverage (Noghondari et al., 2021). This study's result agrees with the findings of Osamor et al. (2023), who posited that thin capitalisation enhances the financial performance of firms but not in a significant way. However, the result is not supported by the findings of Otuya and Omoye (2021), who avers that thin capitalisation significantly affects financial performance and positively too.

5.3 Debt-to-assets ratio and ROCE of MNCs in Nigeria

The test of hypothesis 3 shows that the coefficient of DAR is negative, but not significant at the 5 per cent level. Impliedly, thin capitalisation proxied by DAR has no significant influence on ROCE of the MNCs in Nigeria. The result is supported by the findings of Zaina (2017) who found no statistically significant relationship between DAR and ROCE, but not supported by the conclusions of Fasasi et al.(2022), who posited that DAR as a proxy of thin capitalisation is a strong predictor of financial performance.

The moderating effect of firm age on the relationship between thin capitalization and financial performance of MNCs in Nigeria.

The result indicated that firm age moderates the association between DER and DAR as a proxy of thin capitalisation and ROCE, the association is positive. Thus, older firm's benefits more from thin capitalisation practice.

6. CONCLUSION

Entities use various tax planning strategies to reduce tax liabilities and thin capitalization is one of those strategies. Multinational corporations use thin capitalization as a debt shifting technique, by borrowing excessively in high-tax countries where interest expenses are allowable deductions. To benefit from the practice, subsidiaries of MNCs contract loans from their parents or affiliates in low-tax countries where interest income is not tax deductible. Nigeria promulgated the Finance Act 2019, to prevent MNCs from continued exploitation of the absence of a thin capitalization rule to avoid tax obligations. This action became necessary in the face of eroding oil receipts and dwindling government revenue. Multinational companies in Nigeria are advice not to engage in thin capitalisation practices as it will not benefit them. For instance, while DER can significantly predict financial performance, high DER will hurt performance. Also, MNCs should be aware that thin capitalisation may not be beneficial to all firms, as age predicts the influence of thin capitalization on profits. This is because, though the Finance Act has put a cap on whatever benefits was hitherto derived from thin capitalisation practices, older MNCs probably have developed resilience to counter the effect of the rule.

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