DETERMINANTS OF FINANCIAL PERFORMANCE OF LISTED MANUFACTURING FIRMS IN NIGERIA

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Keywords

Taxation, Intellectual capital, Human capital, Return on assets, Thin capitalization.

Abstract

Research Problem: *The determinants of financial performance among Nigerian manufacturing firms remain a subject of debate, particularly regarding the relative influence of tax-related factors and firm-specific efficiency variables. Despite various tax incentives and financing options available to firms, evidence on how effective tax rate, thin capitalization, capital allowance intensity, and human capital efficiency affect profitability remains inconclusive.*

Methods/Theory: *This study examines the determinants of financial performance among publicly listed manufacturing firms in Nigeria for the period 2015–2024. The study is grounded on Tax Planning Theory and the Resource-Based View (RBV). The study employed a correlational research design and secondary data from the audited annual reports of 60 firms listed on the Nigerian Exchange, resulting in 600 firm-year observations. The Panel-Corrected Standard Errors (PCSE) estimation technique was used to handle econometric concerns like heteroskedasticity and cross-sectional dependence.*

Results: *The results show that effective tax rate has a negative but insignificant effect on return on assets (ROA) implying that tax obligations do not significantly constrain profitability. The results show that thin capitalization has a significant negative effect on ROA, implying that the excessive reliance on debt financing has a negative impact on financial performance. The capital allowance intensity has a positive but insignificant relationship with profitability, implying that the investment related tax incentives are not effectively translated into improved*

performance. On the other hand, human capital efficiency has a positive and statistically significant effect on ROA suggesting the importance of employee productivity and knowledge utilization in enhancing firm performance.

Conclusion: *The study concludes that firm specific efficiency factors, particularly human capital efficiency, are more important than tax related variables in determining financial performance among Nigerian manufacturing firms. Although debt financing has a negative impact on profitability, investments in human capital add significantly to improved organizational performance.*

Key Contribution to Knowledge*: This study adds to the literature by offering current empirical evidence on the combined effects of effective tax rate, thin capitalization, capital allowance intensity and human capital efficiency on the financial performance of manufacturing firms in Nigeria. It broadens the application of the Resource-Based View by incorporating human, physical and financial resource variables in a unified framework and reveals that human capital efficiency remains the most potent determinant of firm profitability in the sector.*

Recommendation*: The study recommends that manufacturing firms should be cautious in the use of debt financing to avoid the adverse effects of over-leverage on profitability. Furthermore, firms should emphasize the need for continuous investment in employee development, skills upgrading, and knowledge management practices to improve human capital efficiency and achieve sustainable financial performance.*

Introduction

Financial performance is an important measure of a firm's profit earning capacity, efficient use of resources and long-term value creation ability. It is also commonly used by investors, regulators, creditors and other stakeholders to assess the efficiency, competitiveness and growth prospects of organizations (Otachi&Kwasira, 2022; Adeleke et al., 2023). In accounting and finance literature, financial performance is often measured using measures of profitability such as Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS) and Net Profit Margin (Iqbal & Usman, 2021). Of these measures, ROA is of particular importance as it measures the management's ability to utilize corporate assets in generating earnings (Yusuf & Adeleke, 2023). The measure is of particular importance to manufacturing firms whose operations are highly dependent on the efficient deployment of physical and financial resources.

The manufacturing sector is strategically important to Nigeria's economic growth, job creation and industrial development, but many listed manufacturing companies still face profitability and financial instability. The challenges include declining profits, poor investment returns, difficulty in accessing funds and regulatory requirements challenges. In dire circumstances, some firms have been delisted from the Nigerian Exchange (NGX) due to prolonged financial and governance issues. For example, Evans Medical Plc was delisted in 2017, DN Meyer Plc in 2022 and Union Dicon Salt Plc in 2023 after prolonged operational and financial challenges and failure to comply with the listing rules. These events highlight the ongoing concerns about the financial performance and sustainability of manufacturing

firms in Nigeria and the need to identify the key firm-specific factors that drive profitability in the sector.

There are several determinants of financial performance studied in the existing literature, however, empirical evidence on the impact of effective tax rate, thin capitalization, capital allowance intensity and human capital efficiency remains inconclusive. Also, most of the existing studies have focused on individual determinants in isolation, different sectors or foreign economies, thus providing limited evidence on their combined effect within the Nigerian manufacturing sector. This study therefore examines the joint effect of tax-related factors and resource-efficiency variables on the financial performance of listed manufacturing firms in Nigeria during the period 2015–2024.

The delistings collectively signal a wider structural problem in Nigeria's manufacturing sector, where high production costs, foreign exchange volatility and infrastructural shortcomings are undermining competitiveness and financial sustainability (Okoye & Eze, 2023). The exit of these companies from the capital market highlights the importance of financial stability and prudent managerial decisions to maintain the listing status in an uncertain macroeconomic environment. Corporate tax is a significant determinant of a company's financial performance as it affects the distributable earnings and after-tax profitability of firms (Ejoh&Oluyemi, 2022). In the Nigerian manufacturing sector, the tax burden constitutes a significant portion of operating costs, influencing net income and return on assets (Arowolo&Uadiene, 2024). Therefore, firms adopt various tax planning strategies to minimize their tax liabilities within the legal framework by leveraging incentives, allowances, and exemptions embedded in the tax regulations (Oladele & Bello, 2023).

However, previous studies have mostly considered taxation, capital structure and resource efficiency in isolation or in different sectoral and institutional settings, leading to fragmented and sometimes contradictory evidence. More importantly, most of the previous studies have considered either tax related variables or efficiency related variables, without proper integration of both dimensions in a single analytical framework. This study departs from this fragmented approach by examining tax efficiency variables (effective tax rate, thin capitalization and capital allowance intensity) and resource efficiency variables (human capital efficiency) simultaneously to provide a more holistic explanation of financial performance.

Furthermore, in contrast to the prior research on developed economies or generic cross-country samples, this study is situated within the Nigerian manufacturing sector, where structural inefficiencies, financing constraints and tax administration challenges may influence the tax planning-firm performance relationship. By taking this context-specific and integrative approach, the study makes a contribution to the literature by showing that financial performance is not determined solely by tax strategies or capital structure decisions separately but by the combined interaction between the fiscal behavior and internal resource efficiency. This offers a more holistic understanding of the performance drivers in emerging-market manufacturing firms, especially under economic instability and institutional constraints.In view of the foregoing, current study formulate its hypotheses in null form as:

H_{01}: Effective Tax Rate has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

H_{02}: Thin Capitalization has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

H_{03}: Capital Intensity has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

H_{04}: Human Capital Efficiency has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

Conceptual Review

Financial performance is the firm's ability to utilize resources efficiently to generate profits and create value for its shareholders. Return on Assets (ROA), Return on Equity (ROE) and profit margin are commonly used to gauge financial performance. However, there are several firm-specific factors that have been identified to affect the financial performance of firms including tax strategy, capital structure, asset utilization and resource efficiency (Abiodun&Ezeani, 2025; Muomaife et al., 2026). Effective tax rate (ETR) which is the ratio of accounting profit paid as tax is a proxy for tax management efficiency with lower tax burden generally associated with better profitability (Olowofela et al., 2024). Thin capitalization is the excessive reliance by firms on debt finance over equity and while it can provide tax benefits, it can also increase financial risk and negatively impact performance (Oyerogba et al., 2024). Capital intensity measures the extent of fixed assets employed by firms in revenue generation while human capital efficiency is related to the ability of employees' knowledge and skills to create value. Studies have shown that the efficient utilization of both physical and human resources have a positive impact on firm performance through enhanced productivity and operational efficiency (Abiad et al., 2025; Oyerogba et al., 2024).

Empirical Review

Widati et al. (2024) examined the impact of effective tax rate on profitability of food and beverage companies in Indonesia. The findings showed that effective tax rate has a positive impact on return on assets but the effect differs among companies. Nevertheless, the study was confined to a particular sub-sector and a limited period (2018-2022), which restricts the generalizability of the findings. Also, the institutional environment in Indonesia is quite different from Nigeria's manufacturing sector. This study aims to overcome these limitations by focusing on listed Nigerian manufacturing companies over a longer period (2015–2024) and including other firm-specific determinants of performance.

Onwughai et al (2025) studied the influence of corporate income tax on the financial performance of Nigerian deposit money banks and found that ETR has an insignificant influence on ROA and the size of the firm significantly moderates the relationship. However, the study was limited to the banking sector which has different operational and regulatory features from manufacturing firms. Therefore, its findings might not be directly relevant to the manufacturing industry. This study extends the literature by examining the tax–performance relationship within Nigerian manufacturing firms.Garcia et al. (2022) examined the effect of thin capitalization on the performance of non-financial firms in Kenya, and the study found that there is a significant negative relationship between leverage and profitability. However, the generalization of non-financial samples may obscure the dynamics of different sectors. Moreover, the economic and regulatory differences between Kenya and Nigeria may limit the generalizability of findings. This paper addresses this gap by providing evidence from the Nigerian

manufacturing industry, which is facing unique financing and operational challenges.Lamine and Abate (2024) examined the impact of thin capitalization on the financial performance of South African manufacturing firms and found that thin capitalization has a significant negative effect on ROA. Although the study adds to capital structure literature, the findings were obtained from a more developed financial market with deeper capital market and more access to long-term financing. The Nigerian manufacturing sector functions under different financial and institutional conditions. Therefore, this study offers country-specific evidence from Nigeria towards enriching the existing literature.

Fazil et al. (2024) examined the effect of capital employed efficiency on the performance of firms in Pakistan and Turkey and concluded that the relationship between capital efficiency and profitability is significant. But the study was based on economies with institutional and industrial structures that are different from Nigeria. Also, it failed to consider the infrastructural and operational challenges faced by Nigerian manufactures. This study adds to the existing evidence by looking at the capital efficiency in the Nigerian manufacturing context, over a more recent period.Habib and Dalwai (2023) discovered that human capital efficiency was positively and statistically significantly associated with firm performance in industrial firms in the GCC. However, the GCC economies have better technological infrastructure, higher human capital development and more advanced industrial systems than Nigeria. These differences may affect the relevance of the findings to Nigerian firms. Thus, this study revisits the relationship using evidence from Nigerian listed manufacturing companies where human capital deployment is under different institutional and economic settings.

Theoretical Framework

Barney (1991) provided the Resource-Based View (RBV), which offers a strong theoretical basis for understanding differences in firm performance in terms of the resources and capabilities that an organization can control. The theory postulates that firms can achieve sustainable competitive advantage when they possess resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In contrast to theories that emphasize industry structure and external market conditions, RBV argues that superior organizational performance is primarily a function of the effective acquisition, deployment and management of internal resources (Barney, 1991; Peteraf, 1993). Thus firm-specific attributes such as human capital, organizational capabilities, financial resources, technological competence and operational efficiency are considered fundamental determinants of firm performance.

The RBV is very relevant to this study because it provides an insight into how internal organizational resources influence the financial performance of listed industrial goods firms in Nigeria. Human capital efficiency is a strategic intangible resource that is embedded in employees' knowledge, skills, experience and innovative capabilities. In line with RBV, firms with better human capital are expected to create more value and have better financial outcomes because such capabilities are not easily imitable by competitors (Barney, 1991; Wright et al., 2001). Similarly, capital intensity reflects the firm's ability to deploy and utilize tangible assets in the production process. According to RBV, firms that are able to maximize returns from their asset base are more likely to achieve sustained profitability and competitive advantage (Peteraf, 1993).

The theory also addresses decisions on the management of financial resources such as thin capitalization and tax planning. The RBV approach considers financial resources as strategic assets that need to be efficiently allocated to achieve organizational goals and create value. Firms that are successful in managing their financing structure and tax obligations are better positioned to preserve internal funds, reduce financing costs, facilitate investment activities and improve long-term performance (Penrose, 1959; Barney, 1991). Accordingly, thin capitalization and effective tax rate may be viewed as indicators of managerial capability in optimizing internal financial resources to improve firm performance.

Although RBV has been widely employed in prior studies examining the relationship between human capital, resource utilization, and firm performance, most existing studies have focused predominantly on intangible resources such as knowledge, innovation capability, and organizational learning while paying relatively limited attention to the combined role of human resources, physical asset deployment, capital structure decisions, and tax management practices as complementary strategic resources. Furthermore, prior applications of RBV in accounting and finance research have often examined these factors independently, thereby overlooking the possibility that firms derive performance advantages from the simultaneous interaction of human, physical, and financial resources. This study extends the application of RBV by integrating human capital efficiency, capital intensity, thin capitalization, and effective tax rate within a unified framework to explain financial performance. Thus, the study perceives financial policy decisions as not only financing or tax variables, but more importantly, as strategic resource management mechanisms whereby firms create, retain and deploy value-generating resources. The holistic application of RBV gives a wider explanation of financial performance in the context of Nigerian industrial goods firms where resource constraints, financing challenges and tax-related pressures are significant in influencing organizational outcomes.

However, the Resource-Based View is not without its limitations. The theory has been criticized for providing little guidance on how valuable and rare resources are identified, developed and sustained over time, making empirical measurement difficult (Priem & Butler, 2001). The theory is also criticized for its static nature, as it does not pay enough attention to dynamic environmental changes, regulatory pressures and competitive market forces that may affect firm performance regardless of internal resource endowments (Eisenhardt & Martin, 2000). In addition, RBV assumes that firms have considerable discretion over their resources, an assumption that may not hold in emerging economies such as Nigeria where institutional constraints, economic volatility, regulatory uncertainty and infrastructural deficiencies may constrain effective resource deployment. Thus, while RBV provides a useful framework for understanding how internal resources affect financial performance, its explanatory power is enhanced when viewed in the context of the broader institutional and economic realities within which firms operate. The study contributes to the RBV literature by extending the theory beyond its traditional focus on human and organizational resources to include financial policy variables such as thin capitalization and effective tax rate as strategic resource allocation mechanisms. This perspective allows a more comprehensive understanding of how Nigerian industrial goods firms employ human, physical and financial resources in a collective manner to improve

financial performance, thus providing an application of RBV that is different from much of the earlier literature.

Research Methodology

This study adopts a correlational research design within the framework of the positivist paradigm. This design is selected in such a way that it will be easy to investigate the relationships between the variables under study. The study uses secondary data obtained from the audited financial statements of the listed manufacturing firms in Nigeria for the period 2015 to 2024. The population of the study consists of all the 60 manufacturing firms listed on the Nigerian Exchange as at 31st December, 2024, and the entire population is used as the sample based on census. The study adopts a census approach in order to enhance the generalizability of the findings to the larger population of the manufacturing sector and minimize the possibility of sampling bias.

Table 1 *Variables Measurement and Source*

S/N	Variables	Definitions	Measurements	Source
1	Return on Assets (ROA)	Measures the efficiency of a firm in generating operating profit from its total asset base	Profit Before Interest and Tax ÷ Total Assets	Ogundajo and Onakoya (2016)
2	Effective Tax Rate (ETR)	Captures the actual tax burden borne by a firm relative to its pre-tax earnings	Total Tax Expense ÷ Pre-tax Income	Yousaf (2021)
3	Thin Capitalization (TIC)	Indicates the degree of financial leverage and reliance on debt financing in a firm's capital structure	Total Debt ÷ Total Equity	Modigliani and Miller(1958)
4	Capital Intensity (CAI)	Measures the proportion of firm resources invested in long-term, non-current productive assets	Capital Allowance ÷ Total Assets	Yousaf (2021)
5	Human Capital Efficiency (HCE)	Assesses the efficiency of employee-related investment in generating firm revenue	(Revenue − Cost of Revenue) ÷ Staff Cost	Abdelmohsen and Gehan (2020)

Source: The Researchers, 2026.

The subsequent model is formulated and used to empirically test the developed hypotheses. $ROA_{it}=\beta_0+\beta_1 ETR_{it}+\beta_2 TIC_{it}+\beta_3 CAI_{it}+\beta_4 HCE_{it}+\varepsilon_{it}$

Where: Effective Tax Rate = ETR, Return on Assets = ROA, TIC = Thin Capitalization, CAI = Capital Intensity, HCE = Human Capital Efficiency, β_0 = Constant, $\beta_1 – \beta_4$ = Co-efficient of ETR, TIC, CAI and HCE respectively, i = firms involved, t = Time Variable, ε = Error term.

Result and Discussion

Table 2 *Descriptive Statistics*

Variable	Mean	Std. Dev.	Min	Max
ROA	0.763	0.115	0.180	0.858
ETR	0.587	0.031	0.020	0.589
TIC	0.286	0.095	0.251	0.654
CAI	7.281	0.964	0.895	7.473
HCE	25.374	0.663	13.442	25.412

Source: Extracted from STATA 13 Output, 2026.

Descriptive statistics are used as first step to understand the distributional characteristics of the variables under study and to provide a basis for further inferential analysis. The mean value of Return on Asset (ROA) is 0.763 which implies that, on the average, listed manufacturing firms in Nigeria earn moderate returns on their asset base. However, the narrow dispersion relative to the mean suggests limited variability in profitability among firms which could be suggestive of structural similarities in terms of operating conditions in the sector. This homogeneity may also imply that sector-wide constraints (high cost of production and macroeconomic instability) exert uniform influence on firm performance.

The standard deviation of the effective tax rate (ETR) across firms is low, implying that the tax exposure varies little across firms and that the level of tax exposure in the sector is similar. This may be attributed to the common tax rules and the similar compliance behavior among the listed firms. This stability can also be a reason for the low explanatory power of ETR in the regression analysis, because the lower variation in ETR limits its ability to differentiate between firm performance.

A moderate variation is shown by the thin capitalization (TIC) which may be an indication of variability in the financing strategies of the firms. The range represents variability in capital structure choices with fewer firms using debt financing than their counterparts. The capital allowance intensity (CAI) exhibits a marginally broader spread, indicating differences in investment patterns and in the extent of utilization of tax incentives associated with capital expenditure. The human capital efficiency (HCE) appears relatively stable and high, indicating that the productivity of the workforce can be considered a relatively homogenous feature across the sector albeit with some slight differences that could still affect performance results.

Table 3 *Correlation Matrix*

Variable	ROA	ETR	TIC	CAI	HCE
ROA	1.000				
ETR	.157	1.000			
TIC	-.184	-.091	1.000		
CAI	.140	.197	.074	1.000	
HCE	.294	.549	-.077	.194	1.000

Source: Derived from STATA 13 Output, 2026.

The results of the correlation show that RO is positively correlated with Effective Tax Rate (ETR) (r = .157), Capital Allowance Intensity (CAI) (r = .140) and Human Capital Efficiency (HCE) (r = .294) while negatively correlated with Thin Capitalization (TIC) (r = -.184). Using Cohen's (1988) benchmarks, where coefficients of .10, .30, and .50 denote small, medium, and large effect sizes respectively, the relationships between ROA and ETR and CAI are small, the association with HCE approaches a small-to-moderate effect size, while the relationship between ROA and TIC is small and negative, implying that higher leverage is weakly associated with lower profitability of Nigerian manufacturing firms.

Furthermore, ETR shows a There is moderate positive correlation between HCE and HCE (r = .549) indicating that firms with high effective tax rate are likely to have high human capital efficiency while its correlation with CAI (r = .197) and TIC (r = -.091) is small indicating weak linear association with capital allowance intensity and thin capitalization respectively. TIC is weakly negatively correlated with HCE (r = -.077) and weakly positively correlated with CAI (r = .074) indicating minimal interaction between leverage structure and other firm characteristics. CAI also shows small positive correlations with both ETR (r = .197) and HCE (r = .194) indicating a low level of interdependence of these variables.

All the correlation coefficients were below the generally accepted critical value for multicollinearity ($r \geq 0.80$) (Gujarati & Porter, 2009; Hair et al., 2019) therefore no serious problems of multicollinearity were found and the variables were considered appropriate to be included in the regression model.

Post Estimation Tests

Multicollinearity Test

Table 4 *Diagnostic Test*

Variable	VIF	1/VIF
ETR	1.46	0.686
HCE	1.45	0.689
CAI	1.06	0.941
TIC	1.02	0.981
Mean VIF	1.25	

Source: Extracted from STATA 13 Output, 2026.

The results of the diagnostic analyses confirm the reliability of the econometric model. The results of the Variance Inflation Factor (VIF) range from 1.02 to 1.46 with an average of 1.25. These results are well below the widely accepted threshold of 5 or 10 confirming the absence of multicollinearity among the explanatory variables.

Model Specification Test

Table 5 *Link Test*

Variable	B	T	p-value
_hat	1.062	2.12	.034**
_hatsq	-0.056	-0.13	.899
Constant	-0.015	-0.10	.918

Source: Extracted from STATA 13 Output, 2026.

The link test further supports the correct model specification. The predicted value (_hat) is statistically significant (β = 1.062, p = 0.034), while the squared term (_hatsq) is insignificant (β = -0.056, p = 0.899), indicating that the model is properly specified and there are no major functional form errors.

Modified Wald Test for Groupwise Heteroskedasticity

Table 6 *Groupwise Heteroskedasticity*

Test	χ^2	df	p
Groupwise Heteroskedasticity	1.5e+29	60	0.0000

Source: Extracted from STATA 13 Output, 2026.

The Modified Wald test indicates the heteroskedasticity ($\chi 2$ (60) = 1.5e+29, p < 0.001) suggesting that the variance of the error terms is different across firms. This results in the use of the Panel-Corrected Standard Errors (PCSE) estimation method, an efficient method to deal

with heteroskedasticity and cross-sectional dependence ensuring the accuracy of statistical inference (Greene, 2018; Wooldridge, 2013). Heteroskedasticity therefore encourages the use of the PCSE regression approach.

Table 7 *Summary of Regression Results (PCSEs)*

Variable	B	z	p-value
Effective Tax Rate (ETR)	-0.121	-0.24	.814
Thin Capitalization (TIC)	-0.208	-3.93	.000
Capital Allowance Intensity (CAI)	0.013	1.57	.116
Human Capital Efficiency (HCE)	0.048	2.01	.045
Constant	-0.418	-0.82	.415
Statistic	Value		
Number of observations	600		
Number of groups	60		
R^2	0.123		
Wald $\chi^2(4)$	31.63		
Prob > χ^2	.000		

Source: Extracted from STATA 13 Output, 2026.

The estimation results of Panel-Corrected Standard Errors (PCSE) show that the model is statistically significant in total (Wald $\chi2 = 31.63$, $p < 0.001$) indicating that the independent variables together have a significant influence on financial performance. However, the coefficient of determination ($R2 = 0.123$) shows that the model can only explain 12.3% of the variation of return on assets (ROA) which means that there is still a large portion of the change in performance caused by other factors not included in the model.

Discussion on Findings

Effective Tax Rate and Financial Performance

The coefficient of ETR, when considered in isolation, is negative and statistically insignificant ($\beta = -0.1205$, $z = -0.24$, $p = .814$) on ROA, suggesting that shifts in tax burden do not significantly impact the profitability of Nigerian manufacturing firms over the period of study. This implies that firms can absorb or offset tax liabilities through internal efficiencies, cost adjustments, and strategic management decisions, thereby minimizing the direct effect of taxation on profitability. This finding is inconsistent with the a priori expectation that higher effective tax rates will have negative impact on profitability as predicted by the traditional taxperformance literature. From the theoretical perspective, the finding is consistent with the Resource Based View (RBV) which argues that firms with superior internal capabilities, efficient use of resources and good managerial skills can overcome external constraints such as taxation and retain performance advantages. Empirically, the finding is consistent with earlier studies that have reported non-significant tax-performance relationships, but inconsistent with those that

have found taxation to have significant negative effects on firm performance in developing markets. In terms of hypotheses, the null hypothesis (H0: ETR has no significant effect on ROA) is not rejected while the alternative hypothesis is rejected indicating that effective tax rate does not have significant influence on financial performance among Nigerian manufacturing firms during the study period.

Thin Capitalization and Financial Performance

In contrast, thin capitalization (TIC) was found to significantly and negatively influence the Return on Assets (ROA) ($\beta = -0.2081$, $z = -3.93$, $p < .001$), which implies that a higher debt-to-equity ratio significantly decreases the profitability of manufacturing firms in Nigeria. In practice, this means that firms that depend heavily on debt financing carry the burden of high interest expenses, high financial distress, and restricted operational adaptability, all of which negatively impact performance. This result is consistent with the a priori expectation that thin capitalization is detrimental for firm performance, because of the financial risk and agency-related costs of high leverage. The result is also consistent with the Resource-Based View (RBV) and Agency Theory, as heavy reliance on debt could constrain managerial choices preventing the effective allocation of resources. Empirically, the finding corroborates studies that document a negative relationship between leverage and firm performance, but contradicts the arguments that debt can enhance performance through tax benefits and improved monitoring mechanisms. In terms of hypothesis testing, the null hypothesis (H_0: TIC has no significant effect on ROA) is rejected in favour of the alternative hypothesis, thereby confirming that thin capitalization has a significant negative effect on financial performance among manufacturing firms in Nigeria during the review period.

Capital Allowance Intensity and Financial Performance

Capital Allowance Intensity (CAI) is positively, but not significantly, related to Return on Assets (ROA) ($\beta = 0.0125$, $z = 1.57$, $p = .116$). This implies that the use of capital allowances does not significantly improve profitability of Nigerian manufacturing firms. Practically, it means that the tax relief given to firms through capital allowances is either not enough or not well utilized to make a significant impact on the returns on assets. This might be as a result of sub-optimal investment decisions, poor exploitation of available tax incentives or delays in capital recovery. This finding is inconsistent with the a priori expectation that capital allowance incentives should enhance profitability by reducing the taxable income and increasing the funds available for reinvestment. However, theoretically, the result is consistent with the Resource-Based View (RBV), which argues that financial incentives only contribute to performance when firms possess the necessary managerial capabilities to use them efficiently. Empirically, the result is consistent with studies reporting insignificant impact of some tax policy measures on firm performance but differs from those that documented significant positive impact of capital-related incentives in more efficient institutional environments. In terms of hypothesis testing, the null hypothesis (H_0: CAI has no significant effect on ROA) is not rejected and the alternative hypothesis is rejected, meaning that capital allowance intensity does not have a significant effect on the financial performance of Nigerian manufacturing firms within the period studied.

Human Capital Efficiency and Financial Performance

Consistent with this, Human Capital Efficiency (HCE) is positively and statistically significantly associated with Return on Assets (ROA) ($\beta = 0.0481$, $z = 2.01$, $p = .045$), which suggests that firms with higher employee productivity and better utilization of their skills and knowledge are expected to achieve better financial performance. Empirically, this means that improving the efficiency of the workforce leads to improved operational efficiency, greater innovation capabilities and increased profitability in Nigerian manufacturing firms. This result is consistent with the a priori expectation that better human capital leads to better firm performance through productivity improvements and reductions in inefficiencies in operations. Theoretically, the result is consistent with the Resource-Based View (RBV) perspective that considers human capital as a critical strategic asset capable of generating sustainable competitive advantage when it is appropriately developed and exploited. Empirically, the finding is in consonance with studies that find a positive relationship between human capital efficiency and firm performance although the literature also contains mixed evidence depending on contextual and firm-specific conditions. With respect to hypothesis testing, the null hypothesis (H_0: HCE has no significant effect on ROA) is rejected in favor of the alternative hypothesis thereby confirming that human capital efficiency has a significant positive effect on financial performance among Nigerian manufacturing firms during the study period.

Conclusions and Recommendations

The objective of this study was to examine the determinants of financial performance of listed manufacturing firms in Nigeria for the period 2015–2024, with particular emphasis on effective tax rate, thin capitalization, capital allowance intensity and human capital efficiency. The study employed the Panel-Corrected Standard Errors (PCSE) estimation technique and concludes that the firm-specific strategic and efficiency factors have more potency on profitability than tax-related variables. The result indicates that effective tax rate has no significant effect on return on assets, meaning that taxation does not have any significant effect on profitability in the manufacturing industry. The result indicates that thin capitalization has significant negative effect on return on assets, signifying that high reliance on debt financing increases financial risk and cost burden which ultimately reduces profitability. Capital allowance intensity has positive effect on firm's performance but it is not statistically significant, implying that capital-related tax incentives do not translate into improved financial performance. On the other hand, human capital efficiency is an important positive predictor of performance showing the role of employee productivity, skills development and effective knowledge utilization in firm profitability.

The study therefore recommends that manufacturing firms should take a more cautious approach to their capital structure decision making avoiding over-reliance on debt financing. It is important to maintain an optimal debt-equity mix in order to minimise financial vulnerability and improve profitability. The study implies that firms should give more emphasis to improving their human capital through continuous education, upskilling and effective performance management systems given its proven impact on financial performance. Although tax related variables did not show statistical significance, it is recommended that firms should continue with

tax planning practices and improve their ability to effectively utilise available tax incentives without compromising on operational efficiency.

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