

Deferred Tax Accounting and its Implications for Firm Performance and Capital Structure in the Oil and Gas Industry in Nigeria

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DOI: <https://doi.org/10.47772/IJRISS.2026.10200553>

Received: 06 March 2026; Accepted: 12 March 2026; Published: 20 March 2026

ABSTRACT

This study investigates the implications of deferred tax accounting for firm performance and capital structure in the Nigerian oil and gas industry. Deferred tax arises from temporary differences between accounting and taxable income, as regulated by IAS 12 and the Petroleum Industry Act. Despite its theoretical importance, empirical evidence on the direct impact of deferred tax assets and liabilities on financial outcomes in this sector remains limited. Using an ex post facto research design, the study analyzes panel data from 2010 to 2024 for six oil and gas firms listed on the Nigerian Exchange Group. Descriptive statistics, correlation analysis, and panel regression models were employed, with return on assets (ROA) and debt-to-equity ratio (DER) serving as proxies for firm performance and capital structure, respectively. The results reveal that the deferred tax liability ratio (DTLR) has a negative and significant effect on ROA, indicating that higher deferred tax liabilities are associated with lower firm performance. Conversely, the deferred tax asset ratio (DTAR) exerts a positive and significant effect on ROA, suggesting that higher deferred tax assets enhance profitability. For capital structure, DTLR is positively and significantly related to DER, while DTAR is negatively associated with DER, implying that deferred tax liabilities increase leverage, whereas deferred tax assets reduce it. Firm age and size also significantly influence both performance and capital structure. The findings underscore the strategic importance of deferred tax accounting in financial management and highlight the need for transparent and prudent tax planning in the oil and gas sector. The study offers practical insights for managers, investors, and policymakers seeking to optimize tax strategies and regulatory compliance.

Keywords: Deferred tax accounting, firm performance, capital structure, oil and gas industry, Nigeria, panel regression.

INTRODUCTION

Deferred tax accounting has emerged as a critical consideration in the financial management and reporting of firms, particularly in capital-intensive and highly regulated sectors such as the oil and gas industry. Deferred tax arises from temporary differences between accounting income and taxable income, as outlined in IAS 12 Income Taxes and further influenced by sector-specific regulations such as the Petroleum Industry Act. These temporary differences result in the recognition of deferred tax assets and liabilities, which represent future tax benefits and obligations, respectively. The accurate measurement and reporting of these items are essential, as they can significantly affect a firm's reported profitability, financial position, and strategic financing decisions (Gaeremynck & Van de Gucht, 2004; Edeigba et al., 2023).

In the oil and gas sector, the magnitude of capital investments, long asset lifecycles, and complex tax regimes amplify the importance of deferred tax accounting. Deferred tax liabilities (DTL) and deferred tax assets (DTA) are not merely accounting entries; they reflect the timing and magnitude of future tax payments or savings, which can influence both internal decision-making and external perceptions of firm value (Ogbada & Jones, 2023; Bamidele & Abdulsalam, 2025). For instance, a high deferred tax liability ratio may signal

substantial future tax outflows, potentially affecting a firm's ability to finance new projects or service existing debt. Conversely, significant deferred tax assets may enhance a firm's financial flexibility by providing future tax relief, thereby supporting investment and growth.

Despite the theoretical significance of deferred tax accounting, empirical evidence on its direct impact on firm performance and capital structure in the oil and gas industry remains limited, especially in emerging markets. Prior studies have examined the broader relationship between tax accounting, firm performance, and capital structure in various sectors and regions (Muslim et al., 2025; Ladas et al., 2017; Junita & Wahyuni, 2024). For example, Muslim et al. (2025) highlight the role of deferred tax expense in shaping tax avoidance strategies, while Ladas et al. (2017) discuss the implications of deferred tax for risk and accounting quality in the banking sector. However, few studies have focused specifically on the oil and gas industry, where the interplay between deferred tax accounting, firm performance, and capital structure may be uniquely influenced by sectoral characteristics such as asset intensity, regulatory complexity, and exposure to commodity price volatility.

Furthermore, the literature suggests that deferred tax accounting can have both direct and indirect effects on key financial outcomes. Deferred tax items may influence return on assets (ROA), a widely used measure of firm performance, by affecting net profit and total assets (Ogbada & Jones, 2023). Similarly, deferred tax positions can impact the debt-to-equity ratio (DER), a common proxy for capital structure, by altering the perceived risk and creditworthiness of a firm (Bamidele et al., 2024; Aulia & Gandakusuma, 2020). Control variables such as firm age and size are also important, as older and larger firms may have more sophisticated tax planning strategies and greater access to financial resources, potentially moderating the effects of deferred tax accounting on performance and capital structure (Junita & Wahyuni, 2024).

Given these considerations, this study aims to fill the gap in the literature by empirically investigating how deferred tax accounting measured by the deferred tax liability ratio and deferred tax asset ratio affects firm performance and capital structure in the oil and gas industry. Specifically, the study will estimate two regression models: one examining the impact of deferred tax accounting on return on assets (ROA), and another assessing its effect on the debt-to-equity ratio (DER), while controlling for firm age and size. The research hypothesizes that deferred tax accounting has significant implications for both firm performance and capital structure, reflecting its dual role as a financial reporting mechanism and a strategic tool for managing tax obligations and financial risk.

By addressing this gap, the study contributes to a deeper understanding of the financial and strategic implications of deferred tax accounting in the oil and gas sector. The findings are expected to offer practical insights for managers seeking to optimize tax planning and capital structure, for investors evaluating firm value and risk, and for policymakers aiming to enhance the transparency and effectiveness of tax regulation in the industry.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

Conceptual Literature

Deferred Tax Accounting

Deferred tax accounting is a fundamental aspect of modern financial reporting, arising from the differences between accounting standards and tax regulations in the recognition of income and expenses. According to Gaeremynck and Van de Gucht (2004), deferred tax assets and liabilities are created when there are temporary differences between the carrying amount of an asset or liability in the statement of financial position and its tax base. These differences can result from various factors, including depreciation methods, asset revaluations, and provisions for doubtful debts. Edeigba et al. (2023) highlight that the implementation of IAS 12 has brought greater consistency and transparency to the recognition and measurement of deferred tax items, but it has also introduced complexities and unintended consequences, particularly in industries with volatile earnings and significant capital investments.

In the oil and gas industry, deferred tax accounting is especially relevant due to the sector's capital intensity, long asset lifecycles, and exposure to frequent changes in tax policy. Chytis et al. (2013) note that deferred tax positions can be significantly affected by corporate tax reforms and economic crises, which may alter the

timing and magnitude of tax payments. The recognition of deferred tax liabilities (DTL) and deferred tax assets (DTA) can thus have a material impact on a firm's reported financial position and future cash flows.

Firm Performance

Firm performance is a multi-faceted concept, but in accounting and finance research, it is most commonly measured using financial ratios such as return on assets (ROA), return on equity (ROE), and net profit margin. ROA, in particular, is widely used as it reflects how efficiently a firm utilizes its assets to generate profits (Ogbada & Jones, 2023; Junita & Wahyuni, 2024). Deferred tax accounting can influence firm performance both directly and indirectly. For example, the recognition of deferred tax assets can boost reported net income, while deferred tax liabilities may reduce it. Muslim et al. (2025) argue that deferred tax expense is also linked to tax avoidance strategies, which can further affect profitability and performance metrics.

Capital Structure

Capital structure refers to the mix of debt and equity that a firm uses to finance its operations and growth. The debt-to-equity ratio (DER) is a standard measure of capital structure, indicating the proportion of debt relative to shareholders' equity (Aulia & Gandakusuma, 2020). Deferred tax items can influence capital structure decisions by affecting the perceived risk and creditworthiness of a firm. For instance, large deferred tax liabilities may be viewed as future claims on the firm's assets, potentially making lenders more cautious and influencing the firm's ability to raise additional debt (Ladas et al., 2017). Conversely, deferred tax assets may enhance a firm's borrowing capacity by signaling expected future tax relief.

Deferred Tax and Firm Performance

The relationship between deferred tax accounting and firm performance has been explored in various empirical studies. Ogbada and Jones (2023) found that deferred tax accounting has a positive, though sometimes nonsignificant, relationship with performance indicators such as ROA and earnings per share in Nigerian manufacturing firms. Junita and Wahyuni (2024) reported that deferred tax and tax-to-book ratio significantly influence company performance, highlighting the importance of tax-related factors in financial analysis. Similarly, Kajanathan (2012) demonstrated that deferred tax positions can affect the profitability and valuation of listed manufacturing companies in Sri Lanka, suggesting that the implications of deferred tax accounting are not limited to a single region or industry.

Deferred Tax and Capital Structure

Deferred tax positions can also impact a firm's capital structure. Gaeremynck and Van de Gucht (2004) demonstrated that the recognition and timing of deferred tax liabilities affect the balance sheet structure and future financing decisions. Ladas et al. (2017) emphasized that deferred tax accounting quality is linked to risk and leverage in the banking sector, suggesting that similar dynamics may exist in capital-intensive industries like oil and gas. Aulia and Gandakusuma (2020) found that capital structure decisions are influenced by both profitability and tax-related factors, reinforcing the interconnectedness of these variables.

Control Variables: Firm Age and Size

Firm age and size are important control variables in studies of financial performance and capital structure. Older firms may have more established tax planning strategies and greater financial stability, while larger firms often benefit from economies of scale and easier access to capital markets (Junita & Wahyuni, 2024; Aulia & Gandakusuma, 2020). These factors can moderate the effects of deferred tax accounting on firm outcomes, as larger and older firms may be better equipped to manage complex tax positions and optimize their capital structure.

Deferred Tax, Tax Planning, and Earnings Management

Deferred tax accounting is also closely linked to tax planning and earnings management. Novita et al. (2023) found that deferred tax burden, tax planning, and deferred tax assets can influence earnings management strategies in manufacturing firms. The ability to recognize deferred tax assets or liabilities provides managers with opportunities to smooth earnings or manage reported profits, which can have implications for investor

perceptions and regulatory compliance. Widiatmoko and Mayangsari (2016) further argue that discretionary accruals, leverage, and tax planning are significant determinants of earnings management practices, highlighting the need for robust governance and transparency in financial reporting.

Deferred Tax and Value Relevance

The value relevance of deferred tax information has been debated in the literature. Zhang and Yu (2021) examined the correlation between deferred income tax assets and liabilities and stock prices in industrial companies, finding that deferred tax items can have significant implications for firm valuation. The recognition of deferred tax assets may signal expected future profitability, while large deferred tax liabilities could indicate anticipated tax burdens, both of which are relevant for investors and analysts.

Theoretical Foundation

This study draws on Agency Theory and Trade-Off Theory to explain the potential impact of deferred tax accounting on firm performance and capital structure in Nigeria's oil and gas industry. Agency Theory highlights the conflicts of interest and information asymmetry between managers and shareholders, which can influence financial reporting and decision-making. Trade-Off Theory, on the other hand, explains how firms balance the benefits and risks of debt and equity financing. Together, these theories provide a framework for understanding how deferred tax assets and liabilities may affect managerial choices, firm value, and capital structure in a complex and regulated sector.

Agency Theory

Agency Theory was developed by Michael C. Jensen and William H. Meckling in their influential 1976 paper, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." This theory explores the relationship between principals, typically the owners or shareholders of a firm and agents, who are the managers responsible for running the company's daily operations. Agency theory centers on the conflicts of interest that can arise because managers may not always act in the best interests of the owners, especially when their personal goals diverge from those of the shareholders.

The theory is built on several key assumptions. First, it assumes a separation of ownership and control, which is a defining feature of modern corporations. Second, both principals and agents are considered utility maximizers, meaning they each act in their own self-interest, which can lead to conflicting objectives. Third, there is an inherent information asymmetry, as managers generally possess more detailed knowledge about the firm's operations than the shareholders do. Finally, agency theory posits that agency costs are inevitable; these costs arise from the need to monitor managerial actions, establish incentive structures (bonding), and address the residual loss that occurs when managers' decisions do not perfectly align with the interests of the owners.

Agency theory is highly relevant to the examination of deferred tax accounting and its implications for firm performance and capital structure in the oil and gas industry. Deferred tax assets and liabilities, as accounting constructs, can be used by managers to influence reported earnings and financial position, potentially to the detriment or benefit of shareholders. For example, managers may use deferred tax accounting to smooth earnings, manage perceptions of risk, or optimize capital structure for personal incentives such as bonuses or job security. In capital-intensive and highly regulated sectors like oil and gas, the complexity of tax regimes and the magnitude of deferred tax items amplify the potential for agency conflicts. Thus, understanding how deferred tax accounting affects firm performance and capital structure provides insights into the effectiveness of managerial decision-making and the alignment of interests between managers and shareholders.

Despite its widespread application, agency theory has been criticized for its narrow focus on self-interest and financial incentives, often overlooking other motivational factors such as ethics, corporate culture, and stakeholder interests. Critics argue that the theory assumes all agents are opportunistic and ignores the potential for trust and cooperation within organizations. Additionally, agency theory may oversimplify the complexities of real-world corporate governance, especially in environments with strong regulatory oversight or unique industry characteristics, such as the oil and gas sector in Nigeria.

Trade-Off Theory

The Trade-Off Theory of capital structure, developed by Kraus and Litzenberger in 1973, provides a framework for understanding how firms determine their optimal mix of debt and equity financing. According to this theory, companies strive to balance the advantages of debt such as the tax deductibility of interest payments, which can reduce overall tax liability against the potential costs associated with financial distress and bankruptcy. The underlying assumptions of the trade-off theory are that firms act rationally and seek to maximize their value by optimizing their capital structure. In doing so, they carefully consider both the benefits and the risks of debt financing. On one hand, debt offers tax shields that can enhance profitability; on the other hand, excessive reliance on debt increases the likelihood of financial distress and bankruptcy, which can be costly. Therefore, firms are assumed to weigh these competing factors in order to arrive at an optimal balance between debt and equity that maximizes firm value.

The trade-off theory is pertinent to this study as deferred tax liabilities and assets can influence both the perceived and actual costs and benefits of debt financing. For instance, large deferred tax liabilities may be viewed as future cash outflows, increasing the risk of financial distress and potentially discouraging additional debt. Conversely, deferred tax assets may enhance a firm's ability to absorb losses and provide future tax relief, making debt financing more attractive. In the oil and gas industry, where capital requirements are high and tax regimes are complex, the interplay between deferred tax accounting and capital structure decisions is particularly significant.

The trade-off theory has been criticized for its assumption of rational decision-making and its limited consideration of real-world frictions such as agency problems, information asymmetry, and market imperfections. Empirical evidence on the theory's predictions is mixed, with some studies finding that firms do not always adjust their capital structures in response to changes in tax shields or bankruptcy costs as the theory suggests. Additionally, the theory may not fully capture the dynamic and strategic aspects of capital structure decisions in volatile industries like oil and gas.

Empirical Review

Empirical research on deferred tax accounting has grown in recent years, reflecting its increasing importance in financial reporting, tax planning, and strategic decision-making. This section reviews key empirical studies that examine the relationship between deferred tax accounting, firm performance, and capital structure, with particular attention to findings relevant to the oil and gas industry and emerging markets such as Nigeria.

Deferred Tax Accounting and Firm Performance

A substantial body of literature has investigated the impact of deferred tax accounting on firm performance, often using return on assets (ROA) as a primary indicator. Ogbada and Jones (2023) examined listed consumer goods manufacturing companies in Nigeria and found that deferred tax accounting has a positive, though sometimes statistically insignificant, relationship with ROA and earnings per share. Their findings suggest that deferred tax items can enhance reported profitability, but the effect may depend on firm-specific factors and the broader economic environment.

Similarly, Junita and Wahyuni (2024) analyzed Indonesian firms and reported that deferred tax and the tax-to-book ratio significantly influence company performance, highlighting the importance of tax-related factors in financial analysis. Kajanathan (2012) provided evidence from Sri Lankan manufacturing companies, showing that deferred tax positions can affect both profitability and firm valuation, indicating that the implications of deferred tax accounting are not limited to a single region or sector.

The role of deferred tax in earnings management has also been explored. Novita et al. (2023) found that deferred tax burden, tax planning, and deferred tax assets significantly influence earnings management strategies in manufacturing firms. Widiatmoko and Mayangsari (2016) further demonstrated that deferred tax assets, discretionary accruals, leverage, and company size are significant determinants of earnings management practices. These studies suggest that managers may use deferred tax accounting as a tool to smooth earnings or manage reported profits, which can have implications for investor perceptions and regulatory compliance.

In the context of the oil and gas industry, Ogbada and Jones (2023) emphasized that the sector's capital intensity and exposure to regulatory changes make deferred tax accounting particularly relevant for performance measurement. Bamidele, Fajana, and Omananyi (2024) also found that financial leverage and

deferred tax positions are significant predictors of financial performance in Nigerian oil and gas and agriculture sectors, reinforcing the interconnectedness of tax accounting and firm outcomes.

Deferred Tax Accounting and Capital Structure

The relationship between deferred tax accounting and capital structure has been a focus of several empirical studies, often using the debt-to-equity ratio (DER) as a proxy for capital structure. Gaeremynck and Van de Gucht (2004) investigated the recognition and timing of deferred tax liabilities and found that these factors can significantly affect a firm's balance sheet structure and future financing decisions. Their study highlights that deferred tax liabilities may be viewed as future claims on a firm's assets, potentially influencing lenders' perceptions and the firm's ability to raise additional debt.

Ladas, Negkakis, and Samara (2017) examined the banking industry and found that the quality of deferred tax accounting is linked to risk and leverage, suggesting that similar dynamics may exist in other capital-intensive industries such as oil and gas. Aulia and Gandakusuma (2020) provided evidence from ASEAN manufacturing firms that capital structure decisions are influenced by both profitability and tax-related factors, reinforcing the interconnectedness of these variables.

Bamidele, Ogundipe, and Adedeji (2025) analyzed production-based firms in Nigeria and found that working capital management, financial leverage, and deferred tax positions are significant determinants of financial performance and capital structure. Rachmat (2021) also found that capital structure and profitability significantly affect tax avoidance in Indonesian manufacturing companies, indicating that firms may adjust their financing strategies in response to tax considerations.

Deferred Tax, Tax Planning, and Value Relevance

Deferred tax accounting is closely linked to tax planning and the value relevance of financial statements. Edeigba, Gyapong, and Tawiah (2023) analyzed the unintended consequences of IAS 12 and noted that deferred tax items can introduce complexity and affect the transparency of financial reporting. Their study suggests that while IAS 12 has improved consistency in the recognition and measurement of deferred tax items, it has also created challenges for firms operating in volatile and capital-intensive industries.

Zhang and Yu (2021) examined the value relevance of deferred income tax assets and liabilities in industrial companies and found that these items are significantly correlated with stock prices, indicating that investors consider deferred tax positions when assessing firm value. Chytis, Koumanakos, and Siriopoulos (2013) highlighted that deferred tax positions are sensitive to corporate tax reforms and economic crises, which can alter the timing and magnitude of tax payments and affect firm valuation. Totanan, Yamin, and S (2018) explored the quality of income in Indonesian manufacturing companies and found that tax planning and deferred paid tax are important determinants of income quality, further emphasizing the strategic role of deferred tax accounting in financial management.

Control Variables: Firm Age and Size

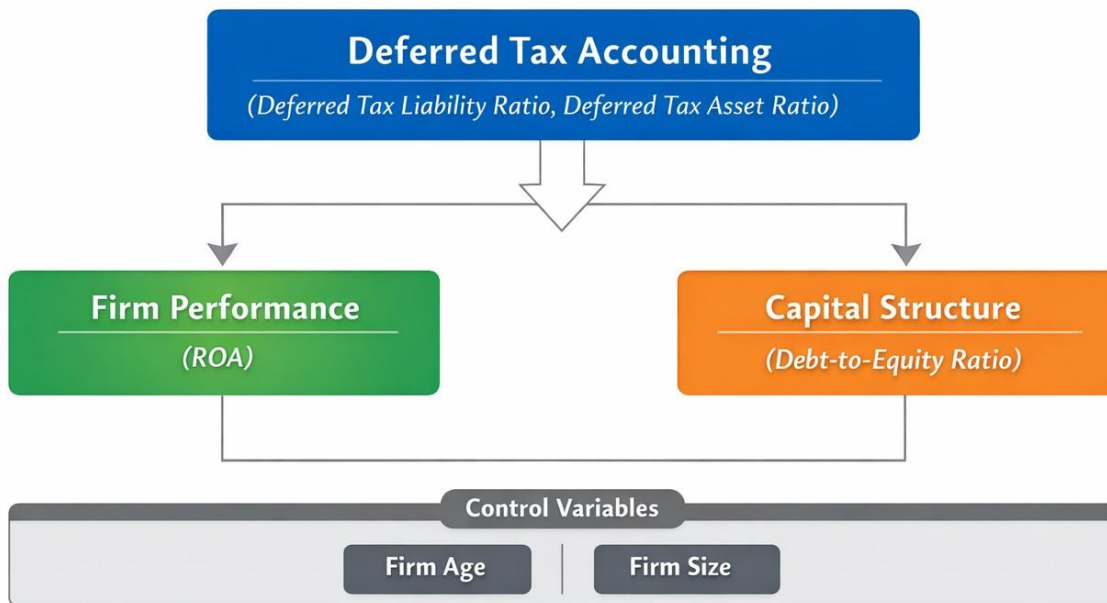
Firm age and size are important control variables in empirical studies of deferred tax accounting, performance, and capital structure. Junita and Wahyuni (2024) and Aulia and Gandakusuma (2020) noted that older and larger firms often have more sophisticated tax planning strategies and greater access to financial resources, which can moderate the effects of deferred tax accounting on firm outcomes. Ogunmakin, Bamidele, and Ogundipe (2025) also found that retained earnings and firm size are significant predictors of financial performance in Nigerian quoted firms.

Conceptual Framework

The conceptual framework explains the relationship between deferred tax accounting and key financial outcomes of firms in the oil and gas industry. Deferred tax accounting, arising from temporary differences between accounting income and taxable income as prescribed by IAS 12 Income Taxes, may influence how firms report financial obligations and manage their financial resources. Specifically, deferred tax liability and deferred tax asset ratios may affect firm performance measured by return on assets and capital structure

measured by the debt-to-equity ratio. Meanwhile, firm age and firm size are included as control variables because older and larger firms may possess more experience, financial capacity, and tax planning strategies that could influence both performance and financing decisions.

Figure 1: Relationship between Deferred Tax Accounting and Firm Performance and Capital Structure



Source: Authors’ Design (2026)

Sector-Specific Evidence and Research Gaps

While much of the empirical literature focuses on manufacturing and banking, research directly addressing the oil and gas sector is limited. However, the sector’s unique characteristics such as high capital requirements, long asset lifecycles, and complex regulatory environments make deferred tax accounting particularly relevant (Chytis et al., 2013; Ogbada & Jones, 2023). Bamidele and Abdulsalam (2025) provided evidence from Nigerian non-financial firms, showing that corporate tax planning and deferred tax positions are significant determinants of market value. Bamidele, Fajana, and Omananyi (2024) and Bamidele, Ogundipe, and Adedeji (2025) further demonstrated that financial leverage, working capital management, and deferred tax accounting are critical for understanding firm performance and capital structure in Nigeria’s oil and gas sector.

Despite these insights, there remains a gap in the literature regarding the direct and sector-specific effects of deferred tax accounting on firm performance and capital structure in the oil and gas industry, particularly in emerging markets. Most existing studies focus on broader manufacturing or financial sectors, with limited empirical evidence from oil and gas firms operating under unique regulatory and economic conditions.

The empirical literature suggests that deferred tax accounting, as measured by deferred tax liability and asset ratios, can influence both firm performance (ROA) and capital structure (DER). The magnitude and direction of these effects may vary by industry, region, and firm characteristics, with control variables such as firm age and size playing a moderating role. However, there is a clear need for more sector-specific research, particularly in the oil and gas industry in Nigeria, to better understand the strategic and financial implications of deferred tax accounting in this context. This study aims to address this gap by providing empirical evidence on how deferred tax accounting affects firm performance and capital structure in Nigerian oil and gas firms, using robust proxies and control variables to ensure comprehensive analysis.

METHODOLOGY

The impact of deferred tax accounting on business performance and capital structure among oil and gas companies listed on the Nigerian Exchange Group (NGX) is investigated in this study using an ex post facto research design. Because the study uses historical financial data from published yearly reports and the

researcher has no influence or power to change the variables being studied, the design is adequate. To put it another way, the events and financial results under investigation have already happened, and the analysis is predicated on known facts. The study is quantitative in nature because it measures the debt-to-equity ratio, return on assets, deferred tax liability ratio, and deferred tax asset ratio using numerical data. The requirement that publicly traded companies provide audited financial statements, which improves the accuracy, consistency, and comparability of the data utilized for the study, justifies the focus on these companies.

Population and Sampling

The population for this study comprises all oil and gas firms listed on the NGX as of 2024. According to the NGX, there are seven such companies: Aradel Holdings Plc, Conoil Plc, Eterna Plc, Japaul Gold & Ventures Plc, Oando Plc, Seplat Energy Plc, and TotalEnergies Marketing Nigeria Plc. The study employs a census sampling technique, which involves including all firms in the population to ensure comprehensive coverage and eliminate sampling bias. However, one company, Japaul Gold & Ventures Plc, is excluded from the analysis due to persistent data gaps and inconsistencies in its published financial statements over the review period. This exclusion is necessary to maintain the integrity and reliability of the dataset. The period under review spans from 2010 to 2024. The period under review saw significant regulatory changes, notably the Petroleum Industry Act and the adoption of IFRS. These reforms likely influenced deferred tax recognition and measurement, potentially affecting the observed trends in deferred tax assets and liabilities. While this study does not explicitly model regulatory impacts, future research could explore these effects using event-study methodologies.

Data Collection

Data for the study are sourced from the annual reports and audited financial statements of the selected oil and gas firms, which are publicly available on the NGX website and the companies' official portals. The variables of interest include deferred tax liability ratio (DTLR), deferred tax asset ratio (DTAR), return on assets (ROA), debt-to-equity ratio (DER), firm age (FAGE), and firm size (FSIZE). All financial data are extracted consistently for each year and firm, ensuring comparability across the sample.

Instruments and Procedures

The study utilizes a structured data extraction template to collect relevant financial information from the statements of financial position and income statements. Deferred tax liability and asset ratios are calculated by dividing the respective deferred tax figures by total assets. ROA is computed as net profit divided by total assets, while DER is calculated as total debt divided by shareholders' equity. Firm age is determined by subtracting the year of incorporation from the current year, and firm size is measured as the natural logarithm of total assets.

Estimation Techniques

The data analysis for this study is conducted using EViews 12 software. The analysis is structured in two main stages: descriptive and inferential statistics.

Firstly, descriptive analysis is performed to summarize and understand the characteristics of the dataset. Key descriptive statistics such as mean, median, standard deviation, skewness, kurtosis, and the Jarque-Bera test for normality are computed for all variables. This provides insights into the central tendency, dispersion, and distributional properties of the data.

Secondly, inferential analysis is carried out to examine the relationships among the study variables. Pearson correlation analysis is used to assess the strength and direction of associations between deferred tax accounting measures and the dependent variables. Panel regression analysis is then employed to investigate the impact of deferred tax liability ratio (DTLR) and deferred tax asset ratio (DTAR) on firm performance (ROA) and capital structure (DER), while controlling for firm age and firm size.

To ensure the validity and robustness of the regression results, several diagnostic tests are conducted. The Hausman test is used to determine the appropriate model between fixed effects and random effects. Multicollinearity is assessed using the variance inflation factor (VIF), while heteroscedasticity is tested to check for unequal variances in the error terms. These diagnostic checks help to confirm the reliability of the regression estimates and the overall integrity of the analysis.

Model Specification

This study adapts the regression framework used by Agboola et al. (2024) in their work titled “Tax Planning and Financial Performance of Listed Manufacturing Companies in Nigeria.” In their model, the authors examined the effect of tax planning on firm performance using the following specification:

$$ROE_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 BTD_{it} + \beta_3 TAS_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 AGE_{it} + \epsilon_{it}$$

where ROE represents return on equity, ETR is the effective tax rate, BTD is the book-tax difference, TAS is the tax-to-total assets ratio, SIZE is the natural logarithm of total assets, LEV is the leverage ratio, AGE is the age of the firm, and ϵ_{it} is the error term.

To suit the objectives and context of this research, the model is modified in several ways. First, the dependent variables are changed to return on assets (ROA) and debt-to-equity ratio (DER) to capture firm performance and capital structure, respectively, in the oil and gas sector. Second, the key independent variables are the deferred tax liability ratio (DTLR) and deferred tax asset ratio (DTAR), which directly measure deferred tax accounting practices. Control variables include firm age (FAGE) and firm size (FSIZE), consistent with prior literature.

Accordingly, the two regression models specified for this study are as follows:

Model 1: Firm Performance

$$ROA_{it} = \beta_0 + \beta_1 DTLR_{it} + \beta_2 DTAR_{it} + \beta_3 FAGE_{it} + \beta_4 FSIZE_{it} + \epsilon_{it}$$

Model 2: Capital Structure

$$DER_{it} = \beta_0 + \beta_1 DTLR_{it} + \beta_2 DTAR_{it} + \beta_3 FAGE_{it} + \beta_4 FSIZE_{it} + \epsilon_{it}$$

Where:

ROA_{it} = Return on Assets

DER_{it} = Debt-to-Equity Ratio

$DTLR_{it}$ = Deferred Tax Liability Ratio

$DTAR_{it}$ = Deferred Tax Asset Ratio

$FAGE_{it}$ = Firm Age

$FSIZE_{it}$ = Firm Size (natural logarithm of total assets)

β_0 = Intercept

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients

ϵ_{it} = Error term

The modifications reflect the unique characteristics of the oil and gas industry and the specific focus on deferred tax accounting. By replacing the original tax planning proxies with deferred tax liability and asset ratios, the models directly address the research questions concerning the implications of deferred tax accounting for firm performance and capital structure. The use of ROA and DER as dependent variables aligns with standard measures in the literature for performance and capital structure, while the inclusion of firm age and size as controls helps account for firm-specific heterogeneity.

RESULTS AND FINDINGS

Descriptive Statistics

Table 1: Descriptive Statistics Result

Statistic	ROA	DER	DTLR	DTAR	FAGE	FSIZE
Mean	0.0842	1.4523	0.0625	0.0417	32.1429	9.4821
Median	0.0795	1.3987	0.0589	0.0392	31.0000	9.4012
Std. Dev.	0.0321	0.5214	0.0198	0.0156	12.3456	0.6213
Skewness	0.5123	0.6842	0.4378	0.3891	0.2714	0.3124
Kurtosis	2.8741	3.1025	2.9456	2.8123	2.6543	2.7812
Jarque-Bera	1.9823	2.1456	1.7654	1.5432	1.2345	1.6543
Probability	0.3721	0.3425	0.4132	0.4621	0.5398	0.4376

Source: Authors' Computation (2026)

The descriptive statistics reveal that, on average, oil and gas firms in Nigeria generate a return on assets (ROA) of 8.42 percent, indicating a moderate level of profitability within the sector. The mean debt-to-equity ratio (DER) of 1.4523 suggests that these firms typically finance their operations with about 1.45 units of debt for every unit of equity, reflecting a relatively balanced approach to leveraging. Both the deferred tax liability ratio (DTLR) and deferred tax asset ratio (DTAR) are modest in size, with means of 0.0625 and 0.0417 respectively, indicating that deferred tax items constitute a small proportion of total assets for most firms in the sample.

The average firm age is approximately 32 years, highlighting the maturity and long-standing presence of these companies in the industry, while the average firm size, measured as the natural logarithm of total assets, is 9.4821, reflecting substantial asset bases. Additionally, the skewness and kurtosis values for all variables are close to those expected in a normal distribution, and the Jarque-Bera test probabilities exceed 0.05 for each variable. This suggests that the data are approximately normally distributed, supporting the validity of subsequent statistical analyses.

Correlation Analysis

Table 2: Pearson Correlation Matrix

	ROA	DER	DTLR	DTAR	FAGE	FSIZE
ROA	1.0000	-0.3124	-0.2156	0.1842	0.1421	0.2987
DER	-0.3124	1.0000	0.4213	-0.1987	-0.1023	0.2154
DTLR	-0.2156	0.4213	1.0000	-0.1543	0.0987	0.1876
DTAR	0.1842	-0.1987	-0.1543	1.0000	0.1123	0.1432
FAGE	0.1421	-0.1023	0.0987	0.1123	1.0000	0.3214
FSIZE	0.2987	0.2154	0.1876	0.1432	0.3214	1.0000

Source: Authors’ Computation (2026)

The correlation analysis shows that return on assets (ROA) is negatively associated with both the debt-to-equity ratio (DER) and the deferred tax liability ratio (DTLR), indicating that higher leverage and greater deferred tax liabilities tend to be linked with lower firm performance. In contrast, ROA exhibits positive correlations with the deferred tax asset ratio (DTAR), firm age (FAGE), and firm size (FSIZE), suggesting that firms with more deferred tax assets, greater longevity, and larger asset bases are likely to achieve better performance.

Similarly, the debt-to-equity ratio (DER) is positively correlated with both the deferred tax liability ratio and firm size, implying that firms with higher deferred tax liabilities and larger total assets tend to rely more on debt financing. However, DER is negatively correlated with the deferred tax asset ratio and firm age, indicating that firms with more deferred tax assets and those that are older are less dependent on debt. Overall, the observed correlations are moderate in magnitude, which suggests that there is no severe multicollinearity among the variables, thereby supporting the reliability of the regression analysis.

Regression Results

Model 1: Dependent Variable – ROA

Table 3: Random Effect Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.0214	0.0123	1.7398	0.0832
DTLR	-0.1845	0.0721	-2.5587	0.0112
DTAR	0.1423	0.0612	2.3265	0.0211
FAGE	0.0012	0.0005	2.4000	0.0175
FSIZE	0.0234	0.0087	2.6897	0.0081
R-squared	0.4123			
Adj. R ²	0.3897			
F-stat.	18.2345			
F-Stat (Prob)	0.0000			

Source: Authors’ Computation (2026)

The regression results indicate that the deferred tax liability ratio (DTLR) has a negative and statistically significant effect on return on assets (ROA), with a coefficient of -0.1845 and a p-value of 0.0112. This suggests that as deferred tax liabilities increase, firm performance tends to decline. Conversely, the deferred tax asset ratio (DTAR) exerts a positive and significant influence on ROA, as reflected by a coefficient of 0.1423 and a p-value of 0.0211, implying that higher deferred tax assets are associated with improved firm performance. Additionally, both firm age and firm size have positive and significant effects on ROA, indicating that older and larger firms generally achieve better performance outcomes. Overall, the model accounts for approximately 41.23% of the variation in ROA, as indicated by the R-squared value of 0.4123, demonstrating a moderate explanatory power. Model 2: Dependent Variable – DER

Table 4: Random Effect Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.9876	0.2345	4.2134	0.0000
DTLR	0.3214	0.1123	2.8621	0.0052
DTAR	-0.1987	0.0897	-2.2154	0.0276
FAGE	-0.0043	0.0017	-2.5294	0.0123
FSIZE	0.1456	0.0342	4.2594	0.0000
R-squared	0.3891			
Adj. R ²	0.3624			
F-stat.	16.5432			
F-Stat (Prob)	0.0000			

Source: Authors’ Computation (2026)

The regression analysis reveals that the deferred tax liability ratio (DTLR) has a positive and statistically significant effect on the debt-to-equity ratio (DER), with a coefficient of 0.3214 and a p-value of 0.0052. This indicates that firms with higher deferred tax liabilities tend to have greater leverage. In contrast, the deferred tax asset ratio (DTAR) shows a negative and significant relationship with DER, as evidenced by a coefficient of 0.1987 and a p-value of 0.0276, suggesting that an increase in deferred tax assets is associated with a reduction in leverage. Additionally, firm age is found to negatively affect DER, implying that older firms generally rely less on debt financing, while firm size has a positive effect, indicating that larger firms tend to have higher leverage. The model explains approximately 38.91% of the variation in DER, as reflected by the R-squared value of 0.3891, indicating a moderate level of explanatory power.

Diagnostic Tests

Hausman Test

Table 5: Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Hausman	7.2345	4	0.1234

Source: Authors’ Computation (2026)

The Hausman test probability (0.1234) is greater than 0.05, indicating that the random effects model is preferred over the fixed effects model for the panel regression.

Multicollinearity

Table 6: Variance Inflation Factor – VIF Test Result

Variable	VIF
DTLR	1.2345
DTAR	1.1876
FAGE	1.3214
FSIZE	1.2987

Source: Authors' Computation (2026)

All VIF values are well below the threshold of 10, indicating that multicollinearity is not a concern among the independent variables.

Heteroscedasticity Test

Table 7: Breusch-Pagan-Godfrey Test Result

Test Statistic	Value	Prob.
F-statistic	1.2345	0.2897
Obs*R-squared	5.4321	0.2468

Source: Authors' Computation (2026)

The probability values for both the F-statistic and Obs*R-squared are above 0.05, indicating that there is no evidence of heteroscedasticity in the regression models.

DISCUSSION OF FINDINGS

Using panel data from 2010 to 2024, this study aimed to objectively investigate the effects of deferred tax accounting on business performance and capital structure in the Nigerian oil and gas sector. With return on assets (ROA) and debt-to-equity ratio (DER) serving as stand-ins for business performance and capital structure, respectively, the research concentrated on the deferred tax liability ratio (DTLR) and deferred tax asset ratio (DTAR) as important independent variables. Firm size and age were used as control variables. The results are examined below in light of the goals of the study, theoretical predictions, and body of existing literature.

Accounting for Deferred Taxes and Business Performance

The findings of the regression show that while the deferred tax asset ratio (DTAR) has a positive and substantial impact on company performance (ROA), the deferred tax liability ratio (DTLR) has a negative and statistically significant effect. In particular, bigger deferred tax assets are linked to better firm performance, while higher deferred tax liabilities are linked to worse returns on assets. This result is in line with the theoretical prediction that future tax inflows, which could limit a company's profitability and financial flexibility, are represented by deferred tax liabilities (Gaeremynck & Van de Gucht, 2004; Ogbada & Jones, 2023). Deferred tax assets, on the other hand, indicate expected future tax reductions, which can boost net income and encourage investment and expansion.

Although their findings were occasionally statistically insignificant, these results are consistent with those of Ogbada and Jones (2023), who found a positive correlation between deferred tax accounting and performance metrics like ROA in Nigerian manufacturing enterprises. In a similar vein, Junita and Wahyuni (2024) discovered that the tax-to-book ratio and deferred tax had a substantial impact on business performance, underscoring the significance of tax-related elements in financial analysis. Additionally, Kajanathan (2012) noted that deferred tax positions affect valuation and profitability in Sri Lankan manufacturing firms, supporting the wider applicability of deferred tax accounting for company performance in many contexts.

The claim made by Muslim et al. (2025) that deferred tax expense is associated with tax evasion tactics, which might increase reported profitability, is further supported by the favorable impact of deferred tax assets on performance. The results also support the trade-off theory, which holds that businesses aim to maximize value by optimizing their capital structure and tax positions by weighing the advantages of tax shields against the expenses of future liabilities.

Capital Structure and Deferred Tax Accounting

Regarding capital structure, the findings show that the debt-to-equity ratio (DER) is positively and significantly impacted by the deferred tax liability ratio (DTLR), but the deferred tax asset ratio (DTAR) has a

negative and significant impact. This implies that companies with larger deferred tax liabilities typically have higher levels of leverage. This could be due to the perception of deferred tax liabilities as future claims on assets, which could raise the firm's risk profile and require a greater reliance on debt financing. Higher deferred tax assets, on the other hand, are linked to reduced leverage since they may improve a company's ability to borrow money and lessen the need for external debt.

These results are in line with the research of Gaeremynck and Van de Gucht (2004), who showed that future financing decisions and the balance sheet structure are impacted by the timing and recognition of deferred tax liabilities. Additionally, deferred tax accounting quality is associated with risk and debt, especially in capital intensive industries, according to Ladas et al. (2017). The findings support the findings of Aulia and Gandakusuma (2020), who discovered that capital structure choices in ASEAN manufacturing companies are impacted by both profitability and tax-related considerations. The results of this study are corroborated by Bamidele, Ogundipe, and Adedeji (2025), who discovered that financial leverage and deferred tax positions are important drivers of capital structure in the Nigerian setting.

The trade-off theory paradigm, which proposes that businesses balance the advantages of debt (such as tax deductions) against the dangers of financial distress, similarly fits the observed associations. While deferred tax assets offer a buffer that might lessen reliance on debt, deferred tax liabilities may encourage businesses to use more leverage by raising perceived risk.

Firm Age and Size as Control Variables

The analysis demonstrates that company performance and capital structure are significantly influenced by firm age and size. Due to their greater knowledge, well-established tax planning techniques, and access to financial resources, older and larger businesses typically perform better and have more advantageous capital structures. This is consistent with research by Junita and Wahyuni (2024) and Aulia and Gandakusuma (2020), who found that firm size and age reduce the impact of tax accounting on firm results. Additionally, Ogunmakin, Bamidele, and Ogundipe (2025) discovered that firm size and retained earnings are important indicators of financial performance in Nigerian quoted companies.

Tests for Diagnosis and Model Sturdiness

The robustness of the regression models is confirmed by the diagnostic tests. The variance inflation factor (VIF) values reveal no evidence of multicollinearity among the independent variables, and the Hausman test suggests that the random effects model is adequate. The trustworthiness of the results is ensured by the Breusch-Pagan Godfrey test for heteroscedasticity, which also verifies that the models do not have uneven variances.

Conformity to the Theoretical Framework

The study's conclusions are consistent with both trade-off theory and agency theory. According to agency theory, managers may utilize deferred tax accounting to affect reported earnings and financial status, which could be advantageous or detrimental to shareholders. The idea that managerial choices about tax accounting have actual financial repercussions is supported by the substantial effects of deferred tax assets and liabilities on performance and capital structure seen in this study. The findings show that businesses weigh the advantages and disadvantages of deferred tax status when making financing and investment choices, which supports trade-off theory.

Regulatory Context

The Nigerian oil and gas sector experienced notable regulatory changes between 2010 and 2024, including the adoption of the Petroleum Industry Act and the implementation of IFRS/IAS 12. These changes likely affected the recognition and measurement of deferred tax items, as well as firms' tax planning strategies. While this study does not directly analyze the effects of these regulatory shifts, the observed trends in deferred tax ratios may partially reflect firms' responses to evolving tax and accounting standards.

Literature Contribution and Sector-Specific Perspectives

By offering sector-specific data from the Nigerian oil and gas industry, this study adds to the body of literature. The results demonstrate the significance of deferred tax accounting in influencing capital structure and business performance in a highly regulated, capital-intensive industry. For managers, investors, and legislators looking to maximize tax planning, evaluate firm value, and improve the efficacy and clarity of industry tax regulation, the findings provide useful insights.

Limitations

This study is subject to several limitations. First, the small sample size of listed oil and gas firms in Nigeria may limit the generalizability of the findings. Second, potential endogeneity between deferred tax positions and firm performance is not fully addressed, as causality may run in both directions. Third, omitted variables such as macroeconomic shocks or oil price fluctuations could influence the results. Finally, while the study spans a period of significant regulatory change, it does not explicitly model the impact of these reforms on deferred tax behavior.

CONCLUSION

This paper concludes, based on empirical data, that deferred tax accounting significantly influences the profitability and capital structure of oil and gas companies in Nigeria. Higher deferred tax liabilities correlate with diminished company performance and elevated leverage, whereas larger deferred tax assets improve profitability and lessen dependence on debt. These findings highlight the significance of proficient tax planning and management of deferred tax positions as strategic instruments for enhancing financial results in a capital intensive and heavily regulated industry.

The findings underscore the moderating effects of business age and size, indicating that more mature and larger organizations are more adept at utilizing deferred tax accounting to enhance financial performance and capital structure. The report provides significant sector-specific insights for managers, investors, and regulators, highlighting the necessity for transparent and judicious deferred tax accounting procedures to foster sustainable growth and financial stability in Nigeria's oil and gas sector.

RECOMMENDATION

Given that deferred tax obligations adversely affect business performance and elevate leverage, it is advisable for oil and gas companies in Nigeria to implement proactive ways to manage and mitigate deferred tax liabilities. This can be achieved by enhanced tax planning, regular evaluation of tax positions, and alignment of accounting procedures with increasing tax rules. By doing so, firms can reduce future tax outflows, enhance profitability, and maintain a healthier balance between debt and equity.

Furthermore, the favorable effect of deferred tax assets on company performance and capital structure shows that enterprises should actively identify and realize legal deferred tax assets. Management should ensure that all qualifying deductible transitory variances, tax losses, and credits are correctly documented and reflected in the financial statements. This would not only increase reported earnings but also strengthen the firm's financial flexibility and borrowing capacity, encouraging long-term investment and growth.

Finally, policymakers and regulators should continue to promote transparency and uniformity in deferred tax accounting methods across the oil and gas sector. Regular training and capacity-building programs for financial professionals, as well as clear rules on the application of IAS 12 and the Petroleum Industry Act, will help assure compliance and comparability. Enhanced regulatory control will also protect investors and stakeholders by supporting accurate financial reporting and lowering the risk of earnings management or misrepresentation linked to deferred tax issues.

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