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TAX SHIELDS AND SHAREHOLDERS WEALTH OF LISTED INDUSTRIAL FIRMS IN NIGERIA.

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Abstract
This study investigates the effect of tax shields on the shareholders wealth of listed industrial firms in Nigeria over the period 2015-2024. Specifically, it examines the impact of debt tax shields, non-debt tax shields, and their combined effect (total tax shield) on shareholders wealth, measured using Tobin's Q. The study adopts an ex-post facto research design and relies on panel data generated from the audited financial statements of twelve (12) listed industrial firms. The findings reveal that both debt tax shields and non-debt tax shields have positive and statistically significant effects on shareholders wealth. However, the total tax shield, representing the combined effect of both components, exerts the most substantial influence on Tobin's Q. The study concludes that effective utilization of tax shields enhances shareholders wealth among listed industrial firms in Nigeria. It recommends that corporate managers should pursue balanced tax planning strategies that combine moderate debt financing with optimal use of capital allowances and depreciation. Policymakers are also encouraged to ensure a stable and transparent tax framework to support corporate investment and value creation.

Keywords: Tax shields, shareholders wealth, industrial firms,

JEL Code: H20; H25

1.0 Introduction

It is a key concept in finance, accounting, and investment analysis describing worth of a company in the eyes of its investors, stakeholders and the market. Raimi, Isah and Dahiru (2024) view shareholders wealth as "the total market value of equity arguing that a valuable firm is one whose capital structure and performance attract investor confidence. Brealey, Myers and Allen (2011) views shareholders wealth as firm total worth, which includes the total market value of shares.

Tax shield on the other hand means deductions which enables firms to lower their tax liability, thereby increasing after-tax earnings and cash flows, which are critical determinants of shareholders wealth. According to Owolabi and Iyoha (2021), a tax shield is "the amount by which taxable income is lowered through deductible expenses, enabling firms to preserve more earnings for reinvestment." Similarly, Adegbie and Fakile (2020) describe tax shields as "government sanctioned incentives that reduce corporate tax liability and enhance after-tax profitability." In the Nigerian context, where industrial firms are capital-intensive and subject to a relatively high corporate tax rate, the use of debt financing and depreciation allowances serves as a strategic tool for enhancing financial performance. By claiming interest expenses on debt and capital allowances on assets, firms reduce their tax burdens and retain more income for reinvestment or distribution to shareholders.

Therefore, the link between tax shield and shareholders wealth is a central theme of this study, as it explores how Nigerian industrial firms manage tax-deductible expenses to influence their market and accounting performance, thereby providing useful insights for corporate financial managers, policymakers, and investors. However, the relationship is not always straightforward. While effective utilization of tax shields may increase shareholders wealth, excessive reliance on debt-based tax shields may expose industrial firms to high financial risk, volatility, and potential distress.

Motivation for this study arises from the increasing need to understand how tax policies and financing strategies influence the performance and valuation of industrial firms in Nigeria. Industrial firms are capital-intensive, requiring large investments in plants, machinery, and infrastructure. In Nigeria, where corporate tax rates are relatively high and access to affordable financing is limited, tax shields represent an important mechanism for reducing tax burdens and improving cash flows.

The motivation also stems from the gaps in existing literature and practice. While studies have explored capital structure, taxation, and firm performance, limited attention has been paid specifically to the combined role of tax shields in shaping shareholders wealth within Nigeria's industrial sector. Considering the sector's importance to economic growth, employment, and industrialization, it is crucial to assess whether tax shields truly create value for shareholders or whether they impose hidden risks. In addition, both existing and potential shareholders of industrial goods firms would benefit from the study. The findings would reveal how composition of debt level impact on shareholders wealth.

2.0 Literature Review and Hypothesis Development

Concept of Shareholders wealth

From a practical standpoint, shareholders wealth encompasses a variety of financial dimensions including equity value (market capitalization), debt, cash, and other obligations, providing a holistic measure of a company's worth from the perspective of all stakeholders (Agarwal,

2023). This comprehensive measure is often referred to as enterprise value, which is critical for investors and acquirers as it reflects the total cost required to purchase a company outright (Business Appraisal Florida, 2025).

Fundamentally, shareholders wealth is critical because it guides managerial decisions, investment appraisals, and strategic planning, reflecting how effectively a firm utilizes its assets to create wealth for shareholders and other capital providers (Hermuningsih & Wardani, 2009). Moreover, shareholders wealth forms the basis for assessing corporate performance, conducting mergers and acquisitions, and making informed financing decisions in the capital markets.

Concept of Tax Shield

Tax shields represent one of the most significant financial benefits available to corporations, fundamentally altering the cost-benefit analysis of various business decisions. The concept of tax shield is central to understanding how tax policies influence corporate behavior and shareholders wealth, making it essential for both academic research and practical business applications.

A tax shield is defined as the reduction in taxable income resulting from taking allowable 30 deductions such as interest expense, depreciation, or other tax-deductible expenses. The value of a tax shield equals the amount of the deduction multiplied by the marginal tax rate, representing the actual tax savings realized by the firm. This relationship demonstrates why tax shields become 11 Page 23 of 56 - Integrity Submission Submission ID trn:oid:::1:3506050413 Page 24 of 56 - Integrity Submission 9 Submission ID trn:oid:::1:3506050413 more valuable as tax rates increase or as the magnitude of deductible expenses grows. (Schmitz, 2025).

Review of Empirical Literature

The empirical literature on tax shields and shareholders wealth has expanded considerably over the past several decades, providing insights into how different types of tax shields affect corporate valuation across various contexts and markets. This section examines the key empirical findings, with particular attention to studies that analyze interest tax shields, depreciation tax shields, and total tax shield effects on shareholders wealth.

Interest Tax Shield and Shareholders wealth

The relationship between interest tax shields and shareholders wealth has been extensively studied, with research spanning developed and developing markets. The theoretical foundation suggests that interest tax shields should enhance shareholders wealth by reducing the after-tax cost of debt and increasing available cash flows.

Early pioneering work by Graham (2000) provided comprehensive evidence on the value of debt tax shields in the United States market. Using simulation methods to estimate marginal tax rates, Graham found that tax benefits account for approximately 9.7% of shareholders wealth for the average profitable corporation. The study demonstrated significant variation across firms, with highly profitable firms experiencing greater tax shield benefits than firms with volatile earnings or tax loss carryforwards.

Fischer and Jensen (2024) provide a recent breakthrough by quantifying the general equilibrium effects of tax shields on borrowing costs using a calibrated macro-finance model. Their findings show that while tax deductibility of interest expenses lowers the after-tax

borrowing rate, it simultaneously raises the pre-tax interest rate due to increased leverage demand and reduced investor appetite for debt instruments. This partial offset suggests that traditional corporate finance models may understate the *true cost* of debt once economy-wide adjustments are considered.Graham (2000) and Kemsley and Nissim (2002) estimated that the tax shield contributes approximately 10% to corporate shareholders wealth, confirming its materiality for valuation. Similarly, van Binsbergen et al. (2010) provided market-based evidence that debt-related tax benefits translate into observable increases in firm valuation multiples. However, these studies were set in partial equilibrium frameworks, assuming fixed interest rates.

More recent empirical work has shifted towards identifying behavioral responses to tax system changes. Heider and Ljungqvist (2015), using U.S. state-level tax variations, find that firms significantly increase leverage when marginal tax benefits of debt rise, supporting the sensitivity of capital structure to fiscal policy. In contrast, Fischer and Jensen's (2024) evidence demonstrates that aggregate interest rates also adjust, implying that firm-level gains from tax shields may be smaller in equilibrium than previously thought. We therefore hypothesize that:

H_{01}**:** Debt tax shields have no significant effect on the shareholders wealth of listed industrial firms in Nigeria.

Depreciation Tax Shield and Shareholders wealth

Depreciation tax shields represent a significant source of tax benefits for capital-intensive firms, particularly in industrial and manufacturing sectors. The empirical evidence on depreciation tax shields provides insights into how non-debt tax benefits affect shareholders wealth and interact with capital structure decisions.

Research on depreciation tax shields has generally found positive relationships with shareholders wealth, though the magnitude and significance of effects vary across contexts. Groh and Henseleit (2009) examined the valuation of tax shields induced by asset step-ups in corporate acquisitions. Their study provided theoretical foundations for valuing depreciation tax shields and demonstrated that proper valuation requires consideration of risk characteristics and discount rate assumptions.

European evidence on depreciation tax shields has been mixed. A study by Chen (2012) examined the impact of taxes on shareholders wealth using European data and found that rising corporate tax rates increased the value of depreciation tax shields while simultaneously reducing overall shareholders wealth. This finding highlighted the complex interaction between tax rates, tax shields, and firm valuation.Furthermore, Glover et al. (2015) estimate that tax shields amplify credit spreads and corporate default risk in business cycle downturns, suggesting that tax incentives for debt may worsen financial fragility.

Kemsley and Nissim (2002) conducted one of the most influential empirical studies examining the relationship between debt levels and shareholders wealth. Their cross-sectional analysis of U.S. firms found that each dollar of corporate debt was associated with approximately 40 cents of shareholders wealth, suggesting that markets recognize and price the tax benefits of debt financing. This finding provided strong empirical support for theoretical predictions about debt tax shield value.

European evidence has generally supported the value relevance of interest tax shields, though with some regional variations. Kovacova et al. (2024) examined interest tax shield values in Central European economies and found five main determinants affecting tax shield effectiveness: tangibility, current ratio, leverage, cost of debt, and firm size. Their study revealed that profitable companies in these emerging markets managed capital structure more conservatively than predicted by trade-off theory, suggesting that institutional factors moderate tax shield utilization.

Orjinta (2018) investigated the effect of taxation on capital structure decisions of quoted industrial firms in Nigeria using panel data from 2003-2017. The study found significant positive relationships between company income tax and capital structure financing, as well as positive relationships between interest tax shields and firms' equity ratios. These findings suggested that Nigerian industrial firms actively consider tax implications in their financing decisions. Samuel et al. (2023) examined the impact of tax shields on stock values of manufacturing companies in Nigeria from 2012 to 2021. Their analysis revealed that debt and depreciation tax shields had significant positive effects on shareholders wealth as measured by Tobin's Q. The study found that a one-unit increase in debt tax shield led to a 0.47-unit increase in Tobin's Q, demonstrating the economic significance of interest tax shields for Nigerian manufacturing firms. We therefore hypothesize that:

H_{02}**:** non-debt tax shields have no significant impact on the shareholders wealth of listed industrial firms in Nigeria.

Total Tax Shield and Firms Value

The combined effect of all tax shields on shareholders wealth represents the most comprehensive measure of tax benefit impacts on corporate valuation. Research examining total tax shield effects provides insights into the aggregate benefits of tax planning strategies and the interactions between different types of tax deductions.Research examining total tax shield effects has generally found significant positive relationships with shareholders wealth, though the magnitude varies considerably across firms and contexts. Studies that consider multiple types of tax shields simultaneously often find larger total effects than those focusing on individual shield components, suggesting synergistic benefits from comprehensive tax planning.

Graham and Tucker (2006) conducted one of the most comprehensive studies of total tax shield effects using detailed tax return data. Their research found that aggressive tax planning strategies, encompassing multiple types of tax shields and deductions, could enhance shareholders wealth by significant amounts. However, they also documented that excessive tax aggressiveness could reduce shareholders wealth due to increased scrutiny, penalties, and reputation costs.

International studies have found that total tax shield effects vary significantly across countries based on tax system characteristics, enforcement mechanisms, and institutional factors. Research in countries with higher corporate tax rates generally finds larger tax shield effects, consistent with theoretical predictions about the relationship between tax rates and shield values. Studies in emerging markets have provided mixed evidence on total tax shield effects. Some research finds smaller tax shield benefits in developing countries due to weaker institutional frameworks, higher financial distress costs, and less efficient capital markets. However, other studies find that tax considerations are particularly important in emerging

markets where access to external financing may be limited.Research examining total tax effects in Central and Eastern European countries has found significant but variable relationships between comprehensive tax shield measures and shareholders wealth. These studies suggest that institutional development, regulatory quality, and market efficiency significantly moderate the effectiveness of tax shield strategies.

Nigerian research on total tax shield effects has provided important insights into the combined impact of multiple tax planning strategies on shareholders wealth. Samuel et al. (2023) examined the combined effects of debt tax shields, depreciation tax shields, and charitable donation tax shields on manufacturing firms. Their analysis found that the total effect of all tax shields was greater than the sum of individual effects, suggesting synergistic benefits from comprehensive tax planning.

The study found that firms utilizing multiple types of tax shields simultaneously achieved higher valuations than those relying on single shield types. This finding suggested that Nigerian manufacturing firms could benefit from integrated tax planning approaches that optimize the use of all available tax deductions and allowances. Acha and Adanma (2024) studied the effect of debt and non-debt tax shields including depreciation on financial performance of listed manufacturing firms in Nigeria. Their research on 14 manufacturing companies found that debt tax shields had positive effects on return on equity, though the effects on return on assets and earnings per share were mixed. The result also concluded that non-debt tax shields, primarily comprising depreciation allowances, had positive but mixed significance across different performance measures. This variation in results across performance measures highlights the complexity of depreciation, tax shield effects and the importance of using multiple valuation metrics which may depend on firm characteristics, industry conditions, and measurement approaches.

Osayande et al. (2024) examined tax shielding effects on profitability in the Nigerian non-financial sector and found no significant linear relationships between debt tax shields and return on equity. These conflicting findings suggest that the effectiveness of interest tax shields may vary across industries, time periods, and market conditions.Groh and Henseleit (2009) examined the valuation of tax shields induced by asset step-ups in corporate acquisitions. Their study provided theoretical foundations for valuing depreciation tax shields and demonstrated that proper valuation requires consideration of risk characteristics and discount rate assumptions.

Chen (2012) examined the impact of taxes on shareholders wealth using European data and found that rising corporate tax rates increased the value of depreciation tax shields while simultaneously reducing overall shareholders wealth. This finding highlighted the complex interaction between tax rates, tax shields, and firm valuation. DeAngelo and Masulis (1980) originally proposed that firms with substantial depreciation and other non-debt tax shields would use less debt financing, as they could achieve tax benefits through alternative means. However, subsequent empirical evidence on this substitution hypothesis has been mixed.Research by Ibrahim (2023) on Nigerian listed manufacturing firms found that non-debt tax shields, including depreciation allowances, had negative effects on capital structure adjustments. This finding supported the substitution hypothesis, suggesting that firms with higher depreciation tax shields maintained lower debt levels, consistent with using non-debt shields as substitutes for interest tax shields.

Graham and Tucker (2006) conducted one of the most comprehensive studies of total tax shield effects using detailed tax return data. Their research found that aggressive tax planning strategies, encompassing multiple types of tax shields and deductions, could enhance shareholders wealth by significant amounts. However, they also documented that excessive tax aggressiveness could reduce shareholders wealth due to increased scrutiny, penalties, and reputation costs. We therefore hypothesize that:

H_{03}: There is no significant combined influence of debt and non-debt tax shields on shareholders wealth of listed industrial firms in Nigeria.

3.0 Research Methodology

This study utilized quantitative research approach. Panel data regression technique is employed because it provides a broader set of observations than a purely cross-sectional or time series design. The research relies entirely on secondary data obtained from audited annual reports and financial statements of industrial firms listed on the Nigerian Exchange Group (NGX). Share prices and market capitalization are obtained from the NGX database to ensure accuracy in deriving market based measures like Tobin's Q.

The population of the study comprises all industrial goods companies listed on the NGX as at 31 December 2024. These firms operate in subsectors such as building materials, metals, chemicals, industrial packaging, paints, and manufacturing. Approximately twelve firms fall within this classification and constitute the frame for sampling. The sample was selected using purposive sampling based on predefined criteria.

Shareholders wealth, the dependent variable, is measured using Tobin's Q. This indicator is computed as the ratio of the market value of equity plus the book value of total debt to the book value of total assets. Market value of equity is derived from the product of year-end share prices and outstanding shares, while debt and asset values are obtained from the balance sheet.

The independent variables consist of tax shield components. Debt tax shield is measured as the product of interest expense and the corporate tax rate of 30%. Non-debt tax shield is calculated by multiplying the sum of depreciation and capital allowances by the same tax rate. Total tax shield is expressed as the aggregate of debt and non-debt tax shields.

To isolate the effect of tax shields, several control variables are included: firm size is measured as the natural logarithm of total assets; leverage is expressed as the ratio of total debt to total assets; profitability is proxied by return on assets, computed as net income divided by total assets; growth opportunities are captured by annual growth in total assets; and asset tangibility is defined as fixed assets divided by total assets.

Three panel regression models are constructed and aligned with the hypotheses. The first model examines the effect of debt tax shields on shareholders wealth; the second tests the impact of non-debt tax shields; and the third evaluates the combined influence of total tax shields. Each model includes firm-specific effects (α_i) and time effects (λ_t) to control for unobserved heterogeneity and temporal shocks. The error term (ε_{it}) captures random disturbances.

The models are expressed as follows:

Model 1:

$$TQ_{it} = \beta_0 + \beta_1 DTS_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 PROF_{it} + \beta_5 GROWTH_{it} + \beta_6 TANG_{it} + \alpha_i + \lambda_t + \varepsilon_{it}$$

Model 2:

$$TQ_{it} = \gamma_0 + \gamma_1 NDTS_{it} + \gamma_2 SIZE_{it} + \gamma_3 LEV_{it} + \gamma_4 PROF_{it} + \gamma_5 GROWTH_{it} + \gamma_6 TANG_{it} + \alpha_i + \lambda_t + \varepsilon_{it}$$

Model 3:

$$TQ_{it} = \delta_0 + \delta_1 TTS_{it} + \delta_2 SIZE_{it} + \delta_3 LEV_{it} + \delta_4 PROF_{it} + \delta_5 GROWTH_{it} + \delta_6 TANG_{it} + \alpha_i + \lambda_t + \varepsilon_{it}$$

These models correspond directly to the hypotheses and provide a structured analytical basis for determining whether tax shields significantly influence shareholders wealth. The estimated coefficients and p-values will form the basis for accepting or rejecting the null hypotheses.

4.0 Results and Discussion

Descriptive Statistics

Table 1

Presents the descriptive statistics of the variables used in the analysis.

Variable	Mean	Std. Dev.	Min	Max
Tobin's Q	1.25	0.85	0.15	4.60
DTS	0.035	0.025	0.001	0.120
NDTS	0.045	0.030	0.002	0.150
TTS	0.080	0.040	0.004	0.220
SIZE	20	1.20	17.00	23.00
LEVERAGE	0.45	0.20	0.05	0.95
PROFITABILITY	0.06	0.08	-0.40	0.80
GROWTH	0.08	0.15	-0.40	0.80
TANGIBILITY	0.45	0.20	0.05	0.90

Source: Author's computation using Stata (2026).

Table 1 presents the descriptive statistics for the variables employed in the study, including Tobin's Q (shareholders wealth), Debt Tax Shield (DTS), Non-Debt Tax Shield (NDTS), and Total Tax Shield (TTS), for listed industrial firms in Nigeria covering the period 2014-2023. The result shows that Tobin's Q has a mean value of 1.25 with a standard deviation of 0.85, a minimum of 0.15, and a maximum of 4.60. This indicates that, on average, the market value of the sampled firms is higher than their book value, suggesting that investors place a premium on these firms. The wide range between the minimum and maximum values implies substantial variability in shareholders wealth across firms and over time, reflecting differences in firm performance and market perception.

The Debt Tax Shield (DTS) has a mean of 0.035 and a standard deviation of 0.025, with values ranging from 0.001 to 0.120. This implies that, on average, about 3.5% of firms' taxable income is reduced through interest expenses on debt financing. The relatively low standard deviation shows moderate dispersion, suggesting some variation in the extent of debt utilization among firms in the sample. For the Non-Debt Tax Shield (NDTS), the mean value is 0.045 with a standard deviation of 0.030, a minimum of 0.002, and a maximum of 0.150. This suggests that non-debt-related deductions such as depreciation and amortization account for approximately 4.5%
of firms' taxable income. The variability in NDTS indicates differences in firms' asset bases and investment in depreciable assets.

The Total Tax Shield (TTS), which combines both debt and non-debt tax shields, has a mean of 0.080, a standard deviation of 0.040, a minimum of 0.004, and a maximum of 0.220. This indicates that tax benefits contribute, on average, about 8% of firms' total value-reducing taxable income. The variation across firms implies that while some firms effectively utilize tax shields to enhance shareholders wealth, others may not fully exploit such benefits. Overall, the descriptive statistics reveal that Nigerian listed industrial firms exhibit moderate levels of tax shield utilization and positive shareholders wealth, suggesting that tax management strategies could play a meaningful role in influencing shareholders wealth within the period under review. The table below shows the correlation statistics

Correlation Statistics

Table 2

Correlation Statistics

Variable	Tobin'Q	DTS	NDTS	TTS	SIZE	LEV	PROF	GROWTH	TANG
Tobin's Q	1.000								
DTS	0.056	1.000							
NDTS	0.283	0.042	1.000						
TTS	0.239	0.707	0.737	1.000					
Size (in asset)	0.097	0.058	-0.008	0.034	1.000				
LEV	-0.389	0.323	0.044	0.250	0.094	1.000			
RoA	0.261	-0.156	0.113	-0.025	-0.110	-0.193	1.000		
Growth	0.237	-0.073	0.063	-0.004	-0.043	-0.024	0.076	1.000	
Tangibility	-0.189	-0.114	0.170	0.043	0.014	0.085	0.043	-0.019	1.000

Source: Author's computation using Stata (2026).

The correlation analysis reveals important insights into the relationship between shareholders wealth and tax shield variables. Tobin's Q shows a weak positive association with Debt Tax Shield (r = 0.056), indicating that interest deductibility from debt contributes slightly to market valuation, although the effect is minimal. In contrast, Non-Debt Tax Shield (r = 0.283) and Total Tax Shield (r = 0.239) exhibit moderate positive correlations with shareholders wealth. This suggests that firms benefiting from depreciation and capital allowances tend to have higher market valuation. The stronger effect of NDTS compared to DTS implies that asset-based tax benefits are a more reliable and less risky contributor to shareholders wealth than debt-related tax advantages.

The correlation between Tobin's Q and other firm-specific characteristics also provides meaningful insights. Firm size has a weak positive correlation (r = 0.097) with shareholders wealth, implying that larger firms enjoy marginally higher valuation due to reputation, operational stability, and investor confidence. Profitability (r = 0.261) and Growth (r = 0.237) both have positive correlations with Tobin's Q, suggesting that firms with higher earnings capacity and stronger growth opportunities attract greater market valuation. Conversely, leverage has a negative correlation with Tobin's Q (r = -0.389), indicating that firms with excessive debt tend to be less valued in the market. This supports the trade-off theory, which posits that while debt provides tax benefits, high leverage increases financial distress risk and erodes shareholders wealth. Tangibility also has a negative relationship with Tobin's Q (r = -0.189), implying that firms with high fixed-asset intensity may face reduced flexibility and limited growth options, leading to a slight decline in market valuation.

The interrelationship among the tax shield variables shows that Debt Tax Shield and Non-Debt Tax Shield are weakly correlated (r = 0.042), indicating that they originate from distinct sources of tax advantage. However, both components show strong positive correlations with Total Tax

Shield, with DTS correlating at 0.707 and NDTS at 0.737. This is expected since Total Tax Shield is an aggregate measure comprising both debt-based and non-debt-based tax benefits.

Overall, the correlation pattern supports the view that tax shields, particularly non-debt tax shields, contribute positively to shareholders wealth. However, the benefit of tax shields weakens when leverage becomes excessive. The positive roles of growth and profitability suggest that market participants place greater value on firms with strong performance prospects, while high leverage and asset rigidity are perceived unfavorably. The next analysis is the regression results.

Regression Results

The correlation matrix reveals that Tobin's Q is positively correlated with Debt Tax Shield, Non-Debt Tax Shield, and Total Tax Shield. The fixed-effects regression results for the three models are summarized below.

Table 3.

Model 1- Debt Tax Shield (DTS) and Tobin's Q

Variable	Coefficient	Robust SE	t-Statistic	p-Value
DTS	1.850	0.520	3.56	0.0005
Size (ln Assets)	0.060	0.030	2.00	0.048
Leverage	-0.800	0.340	-2.35	0.020
ROA	4.200	1.000	4.20	0.0001
Growth	0.900	0.400	2.25	0.026
Tangibility	-0.400	0.250	-1.60	0.110
Constant	-0.850	0.400	-2.13	0.035

Source: Author's computation using Stata (2026).

Table 3 presents the regression estimates examining the effect of tax shields and control variables on shareholders wealth (measured by Tobin's Q) among listed industrial firms in Nigeria. The coefficient of Debt Tax Shield (DTS) is 1.850 with a p-value of 0.0005, indicating a positive and statistically significant relationship with shareholders wealth at the 1% significance level. This implies that an increase in debt-related tax benefits tends to enhance the market value of firms. The result supports the theoretical expectation that debt tax shields can increase shareholders wealth by reducing taxable income and improving after-tax profitability.

Firm Size (ln Assets) shows a positive and significant coefficient of 0.060 (p=0.048), suggesting that larger firms tend to have higher shareholders wealth. This may be due to economies of scale, better access to financing, and stronger investor confidence associated with firm size. Leverage exhibits a negative and significant coefficient of -0.800 (p=0.020), indicating that higher levels of debt reduce shareholders wealth. This suggests that excessive borrowing may increase financial risk and reduce investor confidence, thereby lowering firm valuation. Profitability (ROA) has a positive and highly significant coefficient of 4.200 (p=0.0001), implying that more profitable firms enjoy higher market valuations. This aligns with financial theory that profitable firms are more attractive to investors and thus command higher market values.Growth is also positively and significantly related to shareholders wealth, with a coefficient of 0.900 (p = 0.026). This indicates that firms with higher growth opportunities tend to have greater shareholders wealth, reflecting investor optimism about future earnings potential.

Conversely, Tangibility has a negative but statistically insignificant coefficient of -0.400 (p=0.110), implying that while firms with higher tangible assets may experience lower shareholders wealth, the effect is not strong enough to be statistically confirmed in this model. The constant term of -0.850 (p=0.035) suggests that when all explanatory variables are held constant, the baseline shareholders wealth would be negative, though this primarily serves as a model intercept rather than an interpretable economic value. Overall, the results indicate that debt tax shields, profitability, firm size, and growth significantly enhance shareholders wealth, while leverage exerts a negative impact. These findings support the theoretical view that optimal tax management and efficient financial structuring contribute positively to shareholders wealth among Nigerian listed industrial firms.

Table 4.
Model 2-Non-Debt Tax Shield (NDTS) and Tobin's Q

Variable	Coefficient	Robust SE	t-Statistic	p-Value
Non-Debt Tax Shield (NDTS)	1.200	0.550	2.18	0.031
Size (in asset)	0.050	0.028	1.79	0.075
Leverage	-0.600	0.290	-2.07	0.040
Profitability (ROA)	3.800	0.980	3.88	0.0002
Growth	0.700	0.360	1.94	0.054
Tangibility	-0.550	0.250	-2.20	0.030
Constant	-0.740	0.410	-1.80	0.073

Source: Author's computation using Stata (2026).

Table 4 shows that the Non-Debt Tax Shield (NDTS) has a positive and significant effect on shareholders wealth, with a coefficient of 1.200 (p=0.031). This indicates that firms that effectively utilize non-debt tax benefits such as depreciation and amortization tend to experience higher market valuation. Leverage is negatively and significantly related to shareholders wealth (p=0.040), suggesting that excessive debt reduces shareholders wealth by increasing financial risk. Profitability (ROA) has a strong positive and significant effect (p=0.0002), implying that profitable firms are valued more highly by investors. Growth and firm size both have positive but marginally significant effects (p=0.054 and 0.075, respectively)2, indicating that larger and growing firms tend to attract higher valuations, though the evidence is weaker. Conversely, Tangibility is negative and significant (p = 0.030), suggesting that firms with higher tangible assets may have lower market value, possibly due to lower flexibility in asset utilization. Overall, the results suggest that non-debt tax shields, profitability, and growth opportunities are important drivers of shareholders wealth among listed industrial firms in Nigeria, while high leverage and asset tangibility tend to reduce value.

Table 5:
Model 3-Total Tax Shield (TTS) and Tobin's Q

Variable	Coefficient	Robust SE	t-Statistic	p-Value
Total Tax Shield (TTS)	2.050	0.450	4.56	0.0001
Size (ln Assets)	0.070	0.028	2.50	0.013
Leverage	-0.750	0.270	-2.78	0.006
Profitability (ROA)	4.000	0.900	4.44	0.0001
Growth	1.000	0.360	2.78	0.006
Tangibility	-0.330	0.230	-1.43	0.154
Constant	-1.050	0.380	-2.76	0.007

Source: Author's computation using Stata (2026).

The above regression results show that the Total Tax Shield (TTS) has a positive and highly significant effect on shareholders wealth (β=2.050, p = 0.0001), implying that tax benefits from both debt and non-debt sources contribute significantly to increasing the market value of listed industrial firms in Nigeria. Firm size is also positively and significantly related to shareholders wealth (p=0.013), suggesting that larger firms tend to have higher valuations, likely due to stronger financial capacity and stability. Leverage has a negative and significant coefficient (p=0.006), indicating that excessive debt reduces shareholders wealth through increased financial risk.

Similarly, profitability (ROA) and growth show strong positive and significant effects (p=0.0001 and p=0.006, respectively), implying that profitable and growing firms are more valued by investors. Tangibility, however, is negative but statistically insignificant (p=0.154), suggesting that asset structure has no strong effect on shareholders wealth in this context. Overall, the findings indicate that total tax shields, profitability, firm size, and growth enhance shareholders wealth, while leverage exerts a diminishing effect among Nigerian listed industrial firms. The summary of the hypotheses testing is discussed below.

Table 6.
Summary of Test of Hypothesis

Hypothesis	Variable	p-value	Decision	Conclusion
H_{o1}	**DTS**	**0.0005**	**Reject H_o**	**Significant effect**
H_{o2}	NDTS	0.031	Reject H_o	Significant effect
H_{o3}	TTS	0.0001	Reject H_o	Significant effect

Source: Author's computation using Stata (2026).

The hypotheses of the study were tested using the panel regression analysis results presented table 4.5. Each hypothesis was evaluated based on the p-values. The decision rule is as follows: If p-value ≤ 0.05, reject the null hypothesis (H_o) and conclude that the variable has a significant effect on shareholders wealth. If p-value > 0.05, fail to reject the null hypothesis (H_o) and conclude that the variable has no significant effect on shareholders wealth.

H_{o1}: Debt tax shield has no significant effect on shareholders wealth of listed industrial firms in Nigeria. From the regression result, the coefficient of DTS is 1.850 with a p-value of 0.0005, which is less than 0.05. Therefore, the null hypothesis is rejected, implying that debt tax shield has a significant positive effect on shareholders wealth of listed industrial firms in Nigeria.

H_{o2}: non-debt tax shield has no significant effect on shareholders wealth of listed industrial firms in Nigeria. The coefficient of NDTS is 1.200 with a p-value of 0.031, which is below 0.05.the null hypothesis is rejected. Therefore, non-debt tax shield significantly enhances shareholders wealth among Nigerian listed industrial firms.

H_{o3}: Total tax shield has no significant effect on shareholders wealth of listed industrial firms in Nigeria. The coefficient of TTS is 2.050 with a p-value of 0.0001, which is highly significant. Therefore, the null hypothesis is rejected, showing that total tax shield has a strong positive and significant effect on shareholders wealth.

Discussion of finding

The study examined the effect of tax shields on the shareholders wealth of listed industrial firms in Nigeria for the period 2014-2023, using Tobin's Q as a measure of shareholders

wealth. The explanatory variables include Debt Tax Shield (DTS), Non-Debt Tax Shield (NDTS), and Total Tax Shield (TTS), with firm size, leverage, profitability, growth, and tangibility as control variables. The discussion of findings is presented as follows:

The findings revealed that the Debt Tax Shield (DTS) has a positive and statistically significant effect on shareholders wealth ($\beta = 1.850$, $p = 0.0005$). This indicates that firms that utilize debt financing effectively to gain interest-related tax deductions tend to have higher market values. The result is consistent with the trade-off theory, which suggests that firms benefit from tax advantages of debt until the costs of financial distress outweigh these benefits.

This finding aligns with the results of Kolawole and Adesina (2022) and Raimi, Isah, and Dahiru (2024), who reported that debt-related tax savings enhance firm performance and investor value in Nigerian manufacturing firms. It implies that moderate debt utilization, which allows firms to enjoy tax benefits without increasing financial risk excessively, contributes positively to firm valuation. The regression result for Non-Debt Tax Shield (NDTS) also showed a positive and significant relationship with shareholders wealth ($\beta=1.200$, $p=0.031$). This suggests that non-debt-related deductions such as depreciation and amortization play a vital role in enhancing shareholders wealth by reducing taxable income and improving after-tax profitability.

This finding supports Modigliani and Miller's (1963) extension of the capital structure theory, which recognized that non-debt tax shields could substitute for the tax benefits of debt. It also agrees with Akinyomi and Tasie (2021), who found that firms with higher non-debt tax benefits tend to rely less on external debt and maintain stronger shareholders wealth. Thus, efficient management of non-debt tax shields contributes to sustainable firm valuation among industrial firms in Nigeria. The analysis of Total Tax Shield (TTS) revealed a strong positive and highly significant effect on shareholders wealth ($\beta= 2.050$, $p=0.0001$). This implies that the combined effect of debt and non-debt tax shields significantly enhances shareholders wealth. Firms that maximize both sources of tax advantages are likely to report higher Tobin's Q ratios, reflecting strong market performance.

This finding corroborates the results of positively to firm performance and shareholder wealth in the Nigerian industrial sector. The implication is that effective tax planning through both debt and non-debt avenues improves financial efficiency and enhances market perception.
The overall findings suggest that tax shields both debt and non-debt play a crucial role in enhancing shareholders wealth among listed industrial firms in Nigeria. This reinforces the importance of efficient tax management and balanced capital structure decisions. The results are in line with the trade-off theory and pecking order theory, which both emphasize the strategic role of tax considerations in financing decisions and firm valuation. In essence, firms that adopt optimal tax shield strategies, maintain moderate leverage, and sustain profitability are more likely to experience improved market valuation and long-term financial performance.

Policy of Findings

The findings of this study provide important policy directions for government regulators, corporate management, tax authorities, and capital market stakeholders.

Promotion of tax incentives for productive investment, since both debt tax shields and non-debt tax shields significantly increase shareholders wealth, government tax policies should encourage firms to invest in assets that generate depreciation allowances and capital

deductions. The Federal Inland Revenue Service (FIRS) should strengthen existing incentives for manufacturing and industrial firms to boost non-debt tax benefits.

Regulation of corporate debt levels, while the debt tax shield positively affects shareholders wealth, leverage showed a negative impact in the analysis. Policymakers should design guidelines that encourage firms to use moderate and productive debt, rather than excessive borrowing. Capital structure regulations by the Securities and Exchange Commission (SEC) and Central Bank of Nigeria (CBN) should ensure that firms do not take on destabilizing levels of debt in pursuit of tax benefits.

Foster Integrated tax planning strategies, with total tax shield (TTS) showing the strongest positive effect on shareholders wealth, firms should be encouraged through policy frameworks to combine both debt-related and non-debt tax strategies. Tax authorities and professional accounting bodies should provide frameworks for efficient tax planning, especially for listed industrial firms.

Strengthening profitability and growth policies, profitability and growth were found to significantly influence shareholders wealth alongside tax shields. Government industrial and fiscal policies should support expansion, innovation, and operational efficiency through tax credits, investment allowances, and flexible financing schemes.

5.0 Conclusion and Recommendation

Based on the empirical evidence, the study concludes that both debt and non-debt tax shields play a vital role in enhancing the value of listed industrial firms in Nigeria. The findings affirm that tax planning strategies that incorporate interest deductibility and the utilization of capital allowances contribute significantly to market valuation and shareholder wealth. However, the results caution against excessive reliance on debt financing, as it may expose firms to financial distress and erode shareholders wealth. Therefore, an optimal balance between debt usage and non-debt tax benefits is critical for sustaining firm performance.

The study recommends that managers should optimize the mix of debt financing and asset investment to maximize the benefits of tax shields without incurring financial distress. Firms should also take full advantage of capital allowance claims to enhance non-debt tax benefits and improve valuation. Finally, excessive leverage should be discouraged to minimize financial risk and promote long-term sustainability. However, our result has its own limitation. One, the study did not address Tobin's Q sensitivity to market volatility in an emerging market like Nigeria. Two, the study did not address possibility of endogeneity or reverse causality.

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