

Firm-Level Financial Characteristics, Industry Structure, and Aggressive Tax Planning of Listed Multinational Firms in Nigeria

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Abstract

This study examines how firm-level financial characteristics and industry structure shape aggressive tax planning (ATP) among listed multinational firms in Nigeria. Motivated by mounting fiscal pressure and the disproportionate role of multinational enterprises in Nigeria's corporate tax base, the paper isolates four economic and structural determinants such as firm size, profitability, financial leverage, and industry type, and estimates their effect on tax aggressiveness. Using a balanced panel of 21 listed multinational firms over the 2015–2024 period (210 firm-year observations), aggressive tax planning is proxied by the book–tax difference (BTD) and modelled through a Random Effects panel regression selected via the Hausman specification test. Diagnostic tests confirm the absence of heteroskedasticity and multicollinearity. The results show that firm size ($\beta = 0.011$, $p = .003$) and profitability ($\beta = 1.308$, $p = .004$) exert positive and significant effects on ATP, indicating that larger and more profitable multinationals possess both the capacity and the incentive to widen the gap between accounting and taxable income. Industry type is also positive and significant ($\beta = 0.007$, $p = .005$), confirming that capital-intensive sectors present greater structural opportunities for tax minimisation. In contrast, financial leverage carries a significant negative coefficient ($\beta = -0.795$, $p < .001$), consistent with a substitution-and-monitoring interpretation in which debt tax shields and creditor oversight jointly restrain aggressive positioning. The findings support resource-based, incentive, opportunity, and trade-off theories over the competing political-cost perspective, and they carry direct implications for risk-based tax enforcement in Nigeria. The paper recommends that the Federal Inland Revenue Service prioritise large, profitable, capital-intensive multinationals in transfer-pricing and profit-shifting audits.

Keywords: Aggressive tax planning; Firm size; Profitability; Financial leverage; Industry structure; Multinational firms; Nigeria

1. Introduction

Tax reform and corporate accountability have come to the forefront of economic-policy discussion, mostly due to the continuing issue of how multinationals (MNCs) manage their tax exposure across jurisdictions. The simultaneous operations in several countries provide MNCs with flexibility to take advantage of the differences in statutory rates and shift reported profits to countries with more favorable statutory rates. This behaviour, often referred to as aggressive tax planning (ATP), is now acknowledged as a significant factor in the erosion of national tax bases, at the cost of governments around the world. The amounts involved are staggering: In one year alone, multinationals transferred almost a trillion dollars in profits to low-tax jurisdictions, resulting in an annual loss of revenue for the world on the order of US\$200–300 billion (Tørsløv et al., 2023).

Low and middle-income economies are more likely to have higher rates of corporate income tax, which are used to fund public spending, and thus are more affected by this practice (Clausing, 2016; Cobham & Janský, 2022). Nigeria is a typical situation. It is the biggest economy in Africa, has the highest density of multinationals in oil and gas, consumer goods, telecommunications, financial services and industrials, but has one of the lowest non-oil tax-to-GDP ratios among its peers. In this context, the fiscal capacity of a country is first order driven by the tax behaviour of large multinationals and the empirical identification of the firm-level determinants of ATP becomes an urgent issue.

The corporate-governance aspects of tax avoidance have received increasing attention from researchers, but the more basic issue of how the financial and structural attributes of a firm influence its tax aggressiveness is less well understood, especially in Africa. The most primitive economic characteristics of any firm are size, profitability, leverage and industry membership, and there are well established but contentious theoretical predictions for tax behaviour for each of these characteristics. Larger companies could either draw more political attention that deters avoidance (political-cost logic) or have the resources and complexity of cross-border operations to allow for it (resource-based logic). The biggest beneficiaries of every dollar of taxes they avoid are profitable companies, but reputationally vulnerable companies might not be so aggressive in tax avoidance. Highly leveraged firms may already have interest tax shields that can replace other, riskier strategies, and debt may be subject to more creditor monitoring. And

capital-intensive industries have structural opportunities, depreciation allowances, investment incentives, which are not available in the low-asset sectors.

These are competing predictions, and cannot be settled a priori, but require context specific evidence. But most of the research comes from developed nations with robust enforcement systems, and its findings are not easily extrapolated to a place like Nigeria, where administrative capabilities are limited and cross-border arrangements are opaque. The present study fills this void by identifying four firm-level economic and structural factors of aggressive tax planning and estimating their impact in a single, consistent panel of Nigerian multinationals.

Based on this, the objectives of this study are: (i) to examine the effect of firm size on aggressive tax planning; (ii) to assess the effect of firm profitability on aggressive tax planning; (iii) to determine the effect of financial leverage on aggressive tax planning; and (iv) to evaluate the effect of industry type on aggressive tax planning among listed multinational firms in Nigeria.

The study makes three contributions. Empirically, it provides fresh panel evidence from a large, economically significant emerging market that is under-represented in the international tax literature. Theoretically, it adjudicates between competing schools of thought such as political cost versus resource-based, incentive versus reputation, substitution versus risk-appetite, by testing their predictions on the same data. Practically, it offers actionable guidance for the Federal Inland Revenue Service (FIRS) and other regulators seeking to target enforcement where the propensity for aggressive tax planning is greatest. The remainder of the paper is organised as follows. Section 2 develops the conceptual and theoretical framework and derives the hypotheses. Section 3 describes the data and method. Section 4 presents the results, and Section 5 discusses them. Section 6 concludes with implications, limitations, and directions for future research.

2. Literature Review and Hypotheses Development

2.1 Aggressive Tax Planning as a Construct

Aggressive tax planning is the active structuring of a company's affairs to minimize its tax liability in a way that is not necessarily illegal but rather is at the edge of the law. It falls into the grey area between what is clearly legitimate tax planning (taking advantage of the tax reliefs

available) and what is clearly illegal tax evasion. In a multinational context, ATP is usually in the form of profit shifting, which involves shifting taxable income from high tax to low tax countries, through transfer pricing, intra-group debt, royalty and management-fee arrangements and strategic placement of intangible assets (Desai & Dharmapala, 2006; Dharmapala, 2019).

ATP is by its nature a difficult measure to obtain, being hidden within legitimate reporting. The empirical literature has come to a consensus on a limited number of proxies, one of which is the book–tax difference (BTD). BTD is the difference between the accounting profit reported to shareholders and taxable income reported to the tax authorities; a positive and growing BTD is an indicator of the firm's taxable income being depressed relative to its economic performance (Desai & Dharmapala, 2006; Hanlon & Heitzman, 2010). BTD is observable from published financial statements and is comparable between firms and years, thus making it an appropriate choice for panel research of the type conducted in this study. This study therefore uses BTD (scaled by total assets) as an indicator of aggressive tax planning.

2.2 Firm Size and Aggressive Tax Planning

There are two conflicting views on the link between firm size and tax behaviour. According to the theory of political cost, the bigger and more salient a firm is, the more it is subject to regulatory, media and civil society scrutiny and the more it has an incentive to look tax compliant to avoid reputational and political sanction. According to this perspective, there should be a negative correlation between size and ATP. The other argument, based on the Resource-Based and Agency perspectives, is that large firms have the resources to undertake avoidance in a sophisticated manner, which are not available to smaller firms, such as specialised in-house tax departments, networks of top-tier tax advisers, and complex cross-border structures.

Empirical evidence from emerging markets has been more in favour of the resource-based prediction. Studies in Nigeria (Donwa & Odia, 2021), Vietnam (Anh & Linh, 2022) and Indonesia (Prabowo, 2021) suggest that large firms are more – not less – tax aggressive because they have the means to take advantage of the complexity of the rules. However, contrary evidence is found in highly regulated advanced markets, where high public pressure seems to restrain the biggest firms, which is in line with political-cost reasoning (Kowalski & Schmidt, 2023). However, with Nigeria's relatively weak enforcement capabilities, the deterrent effect of

scrutiny will likely be outweighed by the opportunities presented by scale. This yields the first hypothesis:

H₁: Firm size has a significant positive effect on aggressive tax planning among listed multinational firms in Nigeria.

2.3 Firm Profitability and Aggressive Tax Planning

There are two arguments that are prominent in the literature on profitability. An extension of Agency Theory, the incentive-based view suggests that the more profitable a company is, the greater the benefit it will derive from each dollar of taxes saved and the stronger the incentive to invest in tax avoidance; the larger the tax base to which a tax avoidance strategy applies, the greater the incentive to invest in a successful tax avoidance strategy. The alternative, reputation-based view is that persistently profitable companies, in particular those with powerful brands, might choose to act conservatively when it comes to taxes so as to maintain their reputation with governments and consumers, and this argument is strongest in emerging markets where corporate taxes are politically salient and a major source of state revenue.

There is a lot of evidence that backs up the incentive interpretation. Profitability is known to be a factor that influences tax avoidance of listed companies in Sub-Saharan Africa (Abubakar, 2021); Southeast Asia (Lantip & Prabowo, 2022); and Nigeria in particular (Adebayo, 2022; Ezenwaka & Nweze, 2021). A few studies find less or non-linear relationships, where the institutional pressure acts as a moderator to the profit seeking motive (Malik & Sharma, 2023) but these are the exceptions. Overall, the incentive mechanism is likely to win out among Nigerian multinationals:

H₂: Firm profitability has a significant positive effect on aggressive tax planning among listed multinational firms in Nigeria.

2.4 Financial Leverage and Aggressive Tax Planning

The theoretical predictions about leverage can be split in a substitution effect and a risk-appetite effect. According to the Trade-Off Theory, firms with high leverage are already enjoying a good amount of interest tax shield and this could be a substitute for other riskier tax avoidance mechanisms, leading to a negative relationship with ATP. A competing agency view suggests

that high leverage may be related to a higher risk tolerance which can be transferred to more aggressive tax stances, suggesting a positive relationship. A third strand, also agency-theoretic, focuses on the fact that leverage increases the monitoring by lenders and credit-rating agencies, which reduces the managerial discretion and curbs aggressive strategies.

Recent international evidence has been moving toward the substitution-and-monitoring interpretation, which suggests that debt covenants and lender monitoring curtail tax risk-taking (Chen & Wang, 2022; Dyreng et al., 2019). However, some studies in the emerging markets report the contrary and state that debt can be a part of a more advanced and comprehensive financial planning which includes aggressive planning (Hassan & Al-Dhamari, 2021). Since Nigerian multinationals are subject to tight creditor and regulatory monitoring, and interest deductibility already offers a legal protection, the substitution-and-monitoring argument is likely to prevail:

H₃: Financial leverage has a significant negative effect on aggressive tax planning among listed multinational firms in Nigeria.

2.5 Industry Type and Aggressive Tax Planning

Industry attributes are well known to be structural factors of tax strategy. Opportunity Theory suggests that companies in capital-intensive industries such as oil and gas, manufacturing, telecommunications have more room to engage in tax planning, including the use of depreciation allowances, investment tax credits and other tax incentives for investments, as well as more operational complexity that allows for profit shifting. Companies in these industries thus have a structurally larger set of avoidance tools than do those in labour- or service-intensive industries.

This impression is confirmed by the empirical record. Capital intensity has been found to be a significant predictor of effective tax rates and tax aggressiveness in single country and multi country samples (Davis, 2022; Richardson et al., 2021; Ahmed, 2020). The prevailing trend is to associate the capital intensity with increased aggressiveness, though there are studies that show that in heavily regulated service sectors like banking, the opportunities are neutralised by the stringent regulation (Hope & Ma, 2022). In Nigeria, where extractive and infrastructure companies dominate, the opportunity logic is expected to be in force:

H₄: Industry type (capital intensity) has a significant positive effect on aggressive tax planning among listed multinational firms in Nigeria.

2.6 Theoretical Synthesis

The four hypotheses are rooted in an integrated theoretical framework, which is mostly based on the Resource-Based View and Agency Theory and their derivatives. The Resource Based View provides a rationale for the increase of the feasible set of avoidance strategies as scale and capital intensity increases: tax planning is a capability, not equally distributed, and firms with lots of tangible assets and advisory resources can use it more effectively. Profits increase the motivation to avoid (Incentive Theory, an agency derivative) and leverage decreases the motivation to avoid (Trade-Off Theory, monitoring strand of Agency Theory). The empirical rejection of Political Cost Theory in this context is also a telling result, as that is the key competing hypothesis to size and profitability. These theories, considered as a whole, suggest a situation in which economic potential and structural opportunity can both drive toward aggressiveness, but the "disciplining" force of debt can make it act in the opposite way, a situation which the empirical analysis will test.

3. Methodology

3.1 Research Design

The study adopts an ex post facto research design, appropriate where the researcher cannot manipulate the independent variables because the events under study have already occurred and are recorded in publicly available financial statements. This design is well suited to secondary-data research on corporate behaviour, supports the identification of cause-and-effect relationships among variables, and reduces the risk of researcher-induced bias because the data reflect real corporate action rather than a controlled setting. Given the relative shortage of rigorous firm-level evidence on tax aggressiveness in Nigeria, the design also draws on established econometric techniques from the social sciences to generate inferences capable of informing tax policy.

3.2 Population, Sample, and Sampling Technique

The population comprises the 21 multinational companies operating in Nigeria across the oil and gas, consumer goods, telecommunications, financial services, and industrial sectors, selected on the basis of foreign ownership, cross-border operations, and material influence on Nigeria's corporate landscape. Most are listed on the Nigerian Exchange Group or operate as significant foreign subsidiaries. Given the modest and clearly bounded size of this population, the study employs a census (complete enumeration) rather than a probability sample: data are collected from every member of the population. This approach eliminates sampling error, ensures full coverage, and strengthens the generalisability of the findings to Nigerian multinationals. Across the ten-year window (2015–2024), the census yields a balanced panel of 210 firm-year observations.

3.3 Data and Measurement of Variables

This study is purely secondary, which means that data from the audited annual reports and financial statements of the sampled firms for the period 2015 to 2024 were used and verified with the official listing of the Nigerian Exchange Group. These data are publicly reported and easily verifiable and suitable for longitudinal research on companies. The book–tax difference scaled by total assets is used as the dependent variable, aggressive tax planning. The four focal independent variables are firm size (natural logarithm of total assets), firm profitability (return on assets, defined as net income/total assets), financial leverage (total debt/total assets) and industry type (a dummy coded 1 for capital-intensive firms and 0 otherwise). The model estimated is also augmented by governance and ownership characteristics of the firms to protect from omitted-variable bias. The measurement of the focal variables and supporting literature are summarised in Table 1.

Table 1

Measurement of Focal Variables

Variable	Symbol	Measurement	Supporting literature
Aggressive tax planning	ATP	Book–tax difference scaled by total assets	Desai & Dharmapala (2006); Hanlon & Heitzman (2010)

Firm size	FS	Natural logarithm of total assets	Rego (2003); Al-Dhamari (2022)
Firm profitability	FP	Return on assets = net income / total assets	Chen et al. (2010); Adebayo (2022)
Financial leverage	FL	Total debt / total assets	Taylor & Richardson (2014); Dyreng et al. (2019)
Industry type	IT	Dummy: 1 = capital-intensive, 0 = otherwise	Lanis & Richardson (2012); Davis (2022)

Note. Governance and ownership attributes are included in the estimated model as control variables.

3.4 Model Specification and Estimation

The study employs static panel-data regression, which controls for unobserved firm-specific heterogeneity while tracking within-firm variation over time. The choice between the Fixed Effects and Random Effects estimators is determined empirically by the Hausman specification test. The baseline model, expressed with the four focal predictors and a vector of governance-and-ownership controls, is:

$$ATP_{it} = \alpha + \beta_1 FS_{it} + \beta_2 FP_{it} + \beta_3 FL_{it} + \beta_4 IT_{it} + \sum \gamma_k \text{CONTROLS}_{it} + \mu_i + \varepsilon_{it}$$

where μ_i captures firm-specific unobserved effects and ε_{it} is the idiosyncratic error term. Prior to interpretation, a battery of diagnostic tests is conducted: the Breusch–Pagan/Cook–Weisberg test for heteroskedasticity, the Variance Inflation Factor (VIF) test for multicollinearity, and the Hausman test for estimator selection. All estimation is performed in STATA.

4. Results

4.1 Descriptive Statistics

Table 2 reports the descriptive statistics for the variables of interest across the 210 firm-year observations. Aggressive tax planning has a mean of 0.034, indicating that, on average, sampled firms report accounting profit modestly in excess of their estimated taxable income—an aggregate signal of tax-reducing behaviour. Although numerically small, this value is economically meaningful because BTD is scaled by total assets. The minimum of –0.039 shows that some firms report lower accounting than taxable profit, while the maximum of 0.098 reflects pronounced book–tax divergence among firms with complex cross-border operations.

Firm size averages 29.228 in log terms, confirming that the sample comprises large, mature entities, with a range (27.126 to 31.290) that nonetheless preserves meaningful variation in scale. Profitability averages 9.5 percent, spanning losses of –5 percent to returns of 25 percent, consistent with the performance dispersion expected across the represented sectors. Financial leverage averages 0.62, indicating that liabilities finance roughly 62 percent of assets on average, in line with the capital-intensive character of many of the firms; the spread from 0.235 to 0.90 distinguishes conservatively from aggressively financed firms. Industry type has a mean of 0.429, showing that about 43 percent of observations fall in capital-intensive sectors—a near-balanced composition that supports stable estimation.

Table 2

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ATP	210	0.034	0.021	–0.039	0.098
Firm size (FS)	210	29.228	1.099	27.126	31.290
Profitability (FP)	210	0.095	0.051	–0.050	0.250
Financial leverage (FL)	210	0.620	0.140	0.235	0.900
Industry type (IT)	210	0.429	0.496	0.000	1.000

Note. ATP = aggressive tax planning (book–tax difference / total assets). Source: authors' computation from STATA output.

4.2 Correlation Analysis

Table 3 presents the pairwise correlations among the focal variables. Aggressive tax planning correlates positively with firm size (0.422), financial leverage (0.404), and industry type (0.358), providing preliminary support for three of the four hypothesised relationships; its correlation with profitability is weak (0.026), a pattern the multivariate analysis clarifies. Among the predictors, the strongest association is between firm size and financial leverage (0.571), followed by firm size and industry type (0.552), reflecting the tendency of large firms to operate in capital-intensive sectors and carry higher debt. Critically, no coefficient approaches the conventional

multicollinearity thresholds of 0.80 or 0.90, indicating that the predictors are sufficiently distinct to enter the regression jointly.

Table 3

Correlation Matrix (Focal Variables)

Variable	ATP	FS	FP	FL	IT
ATP	1.000				
FS	0.422	1.000			
FP	0.026	−0.093	1.000		
FL	0.404	0.571	−0.017	1.000	
IT	0.358	0.552	−0.040	0.431	1.000

Note. Source: authors' computation from STATA output.

4.3 Diagnostic Tests

Three diagnostic tests validate the estimation. The Breusch–Pagan/Cook–Weisberg test returns a chi-square of 0.08 ($p = .774$), so the null of constant error variance cannot be rejected: the residuals are homoskedastic. The Variance Inflation Factor test yields a mean VIF of 1.25, with individual values ranging from 1.02 to 1.85, well below the threshold of 10, confirming the absence of multicollinearity. Finally, the Hausman specification test returns a chi-square of 15.199 ($p = .055$). At the conventional 5 percent level the null cannot be rejected, so the Random Effects estimator is selected as the consistent and efficient specification. The borderline p-value indicates only mild correlation between the regressors and unobserved firm effects, insufficient to warrant the Fixed Effects estimator at the adopted significance level.

4.4 Regression Results and Hypothesis Tests

Table 4 reports the Random Effects estimates. The model is statistically robust, with a Wald chi-square of 307.789 ($p < .001$) and an overall R-squared of 0.625, indicating that the specified attributes jointly explain roughly 63 percent of the variation in aggressive tax planning. Each of the four focal coefficients is discussed in turn against its hypothesis.

Table 4*Random Effects Regression Results (Dependent Variable: ATP)*

Variable	Coefficient	Std. error	z-value	p-value
Firm size (FS)	0.011***	0.004	2.94	.003
Profitability (FP)	1.308***	0.458	2.86	.004
Financial leverage (FL)	-0.795***	0.193	-4.12	<.001
Industry type (IT)	0.007***	0.002	2.83	.005
Governance & ownership controls	Included			
Constant	0.017***	0.004	4.18	<.001
Observations	210			
Overall R ²	0.625			
Wald χ^2	307.789			<.001

Note. *** $p < .01$. Governance and ownership attributes are included as controls. Source: authors' computation from STATA output.

Firm size (H1). The coefficient on firm size is positive and significant ($\beta = 0.011$, $p = .003$), leading to rejection of the null. As multinational firms grow, their propensity to engage in aggressive tax planning rises. This is consistent with the resource-based prediction that larger firms possess the operational complexity, bargaining power, and specialised expertise required to exploit cross-jurisdictional planning opportunities, and it decisively favours that logic over the political-cost alternative. H1 is supported.

Firm profitability (H2). Profitability carries a large positive and significant coefficient ($\beta = 1.308$, $p = .004$), and the null is rejected. Highly profitable multinationals have strong incentives to protect after-tax earnings, and this motive translates into strategies that widen the book-tax gap. The result affirms the incentive-based interpretation over the reputation-based one. H2 is supported.

Financial leverage (H3). Leverage is negative and significant ($\beta = -0.795$, $p < .001$), rejecting the null. More highly leveraged firms are less tax aggressive, evidence that interest tax shields substitute for other avoidance strategies and that creditor and rating-agency monitoring

constrains managerial discretion. Firms with lower leverage appear to rely more heavily on planning as an alternative route to managing their tax burden. H3 is supported.

Industry type (H4). Industry type is positive and significant ($\beta = 0.007$, $p = .005$), rejecting the null. Capital-intensive firms, concentrated in oil and gas, industrials, and telecommunications, display greater tax aggressiveness, consistent with the structural opportunities embedded in their asset bases and the sector-specific incentives they enjoy. H4 is supported.

In sum, all four focal hypotheses are supported. Economic capacity (size, profitability) and structural opportunity (capital intensity) push firms toward aggressiveness, while the discipline associated with debt pulls against it.

5. Discussion of Findings

Nigeria is definitely in the resource-based side of the international debate thanks to the positive size effect. While strong regulatory and public pressure seem to be a disincentive for the largest firms in advanced markets (Kowalski & Schmidt, 2023), the current evidence shows that in Nigeria, the benefits of size seem to outweigh the deterrent effect of scrutiny. This is similar to the results of other emerging markets such as Vietnam (Anh & Linh, 2022), Indonesia (Prabowo, 2021) and previous studies in Nigeria (Donwa& Odia, 2021; Salihu et al., 2022). The agency perspective is that large firm managers use their information and expertise in tax minimisation, which is in the interest of shareholders, but not necessarily in the interest of the tax system.

Profitability provides clear evidence in favour of the incentive argument: profitable multinationals are the ones with the most to gain from avoidance, and, on this evidence, the ones most likely to go for it. The finding is consistent with a considerable amount of literature from African and Asian markets (Abubakar, 2021; Lantip& Prabowo, 2022; Adebayo, 2022) and contradicts the minority view which argues that institutional pressure reduces the profit motive (Malik & Sharma, 2023). In the world of Nigerian multinationals, profit and zealous tax planning go hand in hand.

The most instructive result is the negative leverage coefficient, in theory. It challenges the simple tax-shield intuition that debt and avoidance complement and instead lends support to the substitution-and-monitoring view: leveraged firms already enjoy the benefits of lawful interest

deductions while also being subject to a more stringent creditor discipline, which deters risky positioning (Chen & Wang, 2022; Dyreng et al., 2019). The finding is opposite the findings of a number of studies conducted in the emerging markets which regard debt as a part of an integrated aggressive tax management strategy (Hassan & Al-Dhamari, 2021) as debt appears to be a conservative tax management tool in the Nigerian context.

The industry effect says that the opportunity thesis is right. Following Davis (2022) and Richardson et al. (2021), capital-intensive multinationals generate larger book–tax differences as a result of their high levels of depreciable capital and sector-specific allowances. The fact that the sectoral structure, rather than only the firm-level choice, affects tax outcomes has direct implications for enforcement: the likelihood of being aggressive is in part a characteristic of the sector that a firm enters, and enforcement that is "industry-blind" will systematically overlook the sectors where the structural opportunity is greatest.

The four results are read together and form a unified behavioural logic. The aggressive tax planning in Nigeria is not a random noise, but the predictable result of economic capacity, financial incentive, and structural opportunity, and a monitoring discipline that accompanies debt. This configuration will generate an evidence base to inform prioritization of enforcement efforts.

6. Conclusion and Implications

This study investigated the effect of four financial and structural firm attributes on aggressive tax planning of listed multinationals in Nigeria for the period 2015–2024. It identified, using a census-based balanced panel and a Random Effects specification that pass standard diagnostics, that firm size, profitability, and capital-intensive industry membership all increase tax aggressiveness while financial leverage decreases tax aggressiveness. The pattern is consistent with resource-based, incentive and opportunity theories, and the substitution-and-monitoring explanation of leverage, rather than the political-cost explanation.

The results have important policy implications. First, the Federal Inland Revenue Service should have a risk-based approach to audits, with the bigger, more profitable and capital-intensive multinationals being the first to be audited due to their high likelihood of engaging in aggressive planning. Improving the transfer pricing audit function, digital monitoring and cooperation with

foreign tax authorities would help Nigeria combat profit shifting and base erosion. Second, government should aim for sector-specific reform: the sectors highlighted here as being high-risk (oil and gas, industrials and telecommunications) should be subjected to greater disclosure requirements and tougher enforcement of anti-avoidance provisions. Third, the leverage result suggests that high debt does not necessarily signal the need for caution in terms of tax avoidance; in this context, high debt is linked to less aggressive tax behaviour, and enforcement heuristics should be adjusted.

These conclusions are subject to a number of limitations. The analysis is based on the availability and consistency of secondary data which may impact on the accuracy of measurement. Sample is restricted to listed multinationals and therefore the generalisability is restricted to unlisted and domestic firms. The book-tax difference, although commonly used, will not reflect all the more complex strategies, including hybrid-mismatch arrangements or complex transfer-pricing strategies. Lastly, although the Hausman test provides support for the Random Effects model, it does not completely address the potential endogeneity. Future research may include additional measures of avoidance based on transfer-pricing and tax-haven disclosures, as well as unlisted and domestic companies, and may directly address endogeneity by using dynamic estimators like System GMM. The results of comparative studies across African economies would also help to shed more light on the effect of firm level factors on the level of tax aggressiveness across different institutional settings.

References

- Abubakar, A. (2021). The impact of firm characteristics on tax avoidance: Evidence from Sub-Saharan Africa. *Journal of African Business*, 22(4), 512–530. <https://doi.org/10.1080/15228916.2020.1785412>
- Adebayo, O. (2022). Profitability and tax avoidance: Evidence from the Nigerian banking sector. *African Journal of Finance and Management*, 31(2), 112–128.
- Ahmed, R. (2020). Industry characteristics and corporate tax aggressiveness in emerging markets. *Journal of International Accounting, Auditing and Taxation*, 58, 100315. <https://doi.org/10.1016/j.intaccaudtax.2020.100315>
- Al-Dhamari, R. (2022). The effect of firm size and political connections on corporate tax avoidance. *Accounting Research Journal*, 35(4), 543–561. <https://doi.org/10.1108/ARJ-05-2021-0143>
- Anh, P. T., & Linh, N. T. (2022). Firm size, ownership structure, and tax avoidance in Vietnam. *Asian Journal of Accounting Research*, 7(2), 145–162.

- Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more tax aggressive than non-family firms? *Journal of Financial Economics*, 95(1), 41–61.
<https://doi.org/10.1016/j.jfineco.2009.02.003>
- Chen, L., & Wang, X. (2022). Debt covenants and corporate tax avoidance: Evidence from lender monitoring. *Journal of Corporate Finance*, 74, 102210.
- Clausing, K. A. (2016). The effect of profit shifting on the corporate tax base in the United States and beyond. *National Tax Journal*, 69(4), 905–934.
<https://doi.org/10.17310/ntj.2016.4.09>
- Cobham, A., & Janský, P. (2022). Global distribution of revenue loss from corporate tax avoidance. WIDER Working Paper Series. United Nations University.
- Davis, R. (2022). Capital intensity and effective tax rates: A multi-country analysis. *Journal of International Accounting, Auditing and Taxation*, 49, 100490.
- Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics*, 79(1), 145–179.
<https://doi.org/10.1016/j.jfineco.2005.02.002>
- Dharmapala, D. (2019). The economics of corporate tax avoidance: A review. *National Tax Journal*, 72(2), 379–414.
- Donwa, P., & Odia, J. O. (2021). Corporate governance and tax avoidance: Evidence from Nigeria. *International Journal of Accounting and Finance*, 11(2), 98–117.
- Dyreng, S., Hanlon, M., Maydew, E. L., & Thornock, J. R. (2019). Leverage and long-term corporate tax avoidance. *Contemporary Accounting Research*, 36(2), 1088–1119.
- Ezenwaka, P., & Nweze, A. U. (2021). Firm profitability and aggressive tax planning of listed firms in Nigeria. *Journal of Accounting and Taxation*, 13(3), 55–71.
- Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2–3), 127–178. <https://doi.org/10.1016/j.jacceco.2010.09.002>
- Hassan, M., & Al-Dhamari, R. (2021). Financial leverage and tax aggressiveness in emerging markets. *Accounting Research Journal*, 34(6), 615–634.
- Hope, O.-K., & Ma, M. (2022). Regulatory oversight and tax avoidance in the banking sector. *Review of Accounting Studies*, 27(3), 921–958.
- Kowalski, T., & Schmidt, J. (2023). Political costs and corporate tax strategy in regulated markets. *European Accounting Review*, 32(4), 701–729.
- Lanis, R., & Richardson, G. (2012). Corporate social responsibility and tax aggressiveness: An empirical analysis. *Journal of Accounting and Public Policy*, 31(1), 86–108.
- Lantip, D., & Prabowo, R. (2022). Determinants of tax avoidance among listed firms in Southeast Asia. *Asian Review of Accounting*, 30(2), 210–231.
- Malik, A., & Sharma, R. (2023). Profitability and tax avoidance: A non-linear perspective from South Asia. *International Journal of Emerging Markets*, 18(9), 2455–2476.
- Prabowo, R. (2021). Firm size and tax avoidance: Evidence from Indonesia. *Journal of Indonesian Economy and Business*, 36(1), 25–41.

- Rego, S. O. (2003). Tax-avoidance activities of U.S. multinational corporations. *Contemporary Accounting Research*, 20(4), 805–833. <https://doi.org/10.1506/VANN-B7UB-GMFA-9E6W>
- Richardson, G., Taylor, G., & Lanis, R. (2021). Determinants of tax aggressiveness: The role of capital intensity. *Journal of Contemporary Accounting & Economics*, 17(1), 100241.
- Salihu, I. A., Annuar, H. A., & Obid, S. N. S. (2022). Foreign investors' interests and corporate tax avoidance: Evidence from an emerging economy. *Journal of Contemporary Accounting & Economics*, 18(1), 100294.
- Taylor, G., & Richardson, G. (2014). Incentives for corporate tax planning and reporting: Empirical evidence from Australia. *Journal of Contemporary Accounting & Economics*, 10(1), 1–15.
- Tørsløv, T., Wier, L., & Zucman, G. (2023). The missing profits of nations. *The Review of Economic Studies*, 90(3), 1499–1534. <https://doi.org/10.1093/restud/rdac049>