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DOES FIRM SIZE BUFFER INDIRECT TAX SHOCKS? MODERATING EFFECTS ON THE TAX–EARNINGS QUALITY RELATIONSHIP OF LISTED MANUFACTURING FIRMS IN NIGERIA

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ABSTRACT

This study investigates the moderating role of firm size in the relationship between corporate taxes, represented by Corporate Income Tax and Value Added Tax, and the earnings quality of listed manufacturing companies in Nigeria, with earnings persistence and accrual quality as outcome measures. Drawing on Agency Theory and the political cost hypothesis of Positive Accounting Theory, the study adopts an ex post facto design and a ten-year (2016–2025) dataset compiled from audited annual reports, Nigeria Revenue Service statistics and PwC Nigeria tax summaries. Random-effects regression with interaction terms was selected after diagnostic and Hausman tests. The VAT main effect remained negative and significant in the moderated models (EP: $\beta = -1.120$, $p = 0.014$; AQ: $\beta = -0.915$, $p = 0.018$), while the CIT main effect remained insignificant. The CIT × firm size interaction was insignificant for both EP ($\beta = 0.045$, $p = 0.612$) and AQ ($\beta = 0.061$, $p = 0.524$), whereas the VAT × firm size interaction was positive and significant for both EP ($\beta = 0.280$, $p = 0.033$) and AQ ($\beta = 0.210$, $p = 0.044$). Adding the interactions raised the overall R^2 from 0.384 to 0.421 for EP and from 0.452 to 0.488 for AQ. The results indicate that firm size buffers the adverse reporting consequences of an indirect tax increase but has no conditioning role for a stable direct tax. The study implies that tax reforms should recognise the heterogeneous capacity of firms, and that smaller manufacturers need targeted support. Limitations relating to the short series and to the scaling of the interaction terms are discussed.

***Keywords*:** Firm size; moderation; value added tax; corporate income tax; earnings persistence; accrual quality.

1. Introduction

A recurring finding in the accounting and tax literature is that the effect of taxation on corporate outcomes is conditional. Hanlon and Heitzman (2010) argue that the response of financial reporting to taxes depends on managerial incentives, monitoring and institutions, and the same tax change may therefore lead to different outcomes in different firms. Among the firm characteristics that could condition this response, organisational scale is the most intuitive. Large firms have stronger boards and audit committees, more developed internal control, in-house tax expertise, diversified product lines and greater bargaining power with customers and suppliers. Small firms have fewer buffers and tend to be more exposed to shocks to cost, demand and liquidity (Titman & Wessels, 1988; Frank & Goyal, 2009).

The question is particularly relevant for Nigerian manufacturing. Listed manufacturers range from large multinational subsidiaries with extensive asset bases to smaller industrial and agro-allied firms. They face the same fiscal rules but not the same capacity to absorb them. In 2019 the VAT rate was raised from 5% to 7.5%, whereas the statutory Corporate Income Tax rate remained at 30% over the whole 2016–2025 period. This asymmetry gives a clear setting in which to ask whether scale conditions the response to an indirect-tax shock and to a stable direct tax in different ways.

Earnings quality is the outcome of interest because it determines the usefulness of accounting information to investors, lenders and regulators (Schipper & Vincent, 2003; Dechow, Ge & Schrand, 2010). The study uses two attributes: earnings persistence, which captures the sustainability of earnings (Sloan, 1996; Richardson, Sloan, Soliman & Tuna, 2005), and accrual quality, which captures how well accruals map into cash flows (Dechow & Dichev, 2002; McNichols, 2002). If large firms can absorb tax shocks without compromising earnings quality, the reporting consequences of fiscal reforms will be unevenly distributed, with direct implications for tax design, regulation and investment analysis.

Despite the plausibility of this reasoning, most Nigerian studies treat firms as homogeneous. Research on taxation focuses on performance, financing and investment (Olaoye & Ekundayo, 2019; Akinyomi & Olagunju, 2020; Ogbaragu & Offor, 2024), and research on earnings quality examines governance, dividend policy, standards adoption and firm value (Atoyebi & Oladosu, 2021; Aduwo, Fajuyagbe & Aduwo, 2023; Uche, Iredele & Adeyemi, 2025). Where firm size is introduced, it is generally a control and not a moderator, and it is applied to profitability or financing and not to earnings quality. The present study therefore tests firm size explicitly as a moderator of the effects of CIT and VAT on earnings persistence and accrual quality.

The study makes three contributions. First, it provides evidence on moderation, as distinct from direct effects, in a setting in which one tax is stable and the other changed. Second, it examines two attributes of earnings quality in one framework, which shows whether the buffering role of size is uniform across attributes. Third, it integrates Agency Theory, which predicts that size improves monitoring, with the political cost hypothesis, which predicts that size increases visibility and may amplify tax pressure, and thereby shows which force dominates in this sector.

2. Literature Review

2.1 Corporate taxes and earnings quality

Corporate Income Tax is a direct levy on taxable profit, calculated after allowable deductions, whereas Value Added Tax is a multi-stage consumption tax whose burden is intended to fall on final consumers while firms collect and remit it (Musgrave & Musgrave, 1989; Bird & Gendron, 2007). CIT is linked to accounting profit and therefore to incentives for tax-motivated accrual choices (Frank, Lynch & Rego, 2009). VAT operates through

prices, demand, working capital and compliance cost, so a rate increase is an operating and liquidity shock rather than a direct charge on earnings. Because earnings persistence and accrual quality are sensitive to operating volatility and to estimation discretion respectively, the two taxes may have different consequences for reporting.

The companion analysis of the direct effects on the same data shows that CIT has no significant effect on either earnings persistence ($\beta = -0.115$, $p = 0.342$) or accrual quality ($\beta = -0.140$, $p = 0.285$), while VAT has significant negative effects on both ($\beta = -0.845$, $p = 0.021$; $\beta = -0.625$, $p = 0.041$). The present article builds on this baseline by asking whether those effects vary with firm size.

2.2 Theoretical framework

Agency Theory. Jensen and Meckling (1976) show that the separation of ownership and control creates agency costs, and that monitoring and bonding mechanisms are needed to align managers' interests with those of shareholders. Larger firms generally have more elaborate monitoring structures: more independent boards and audit committees, more intensive external audit, wider analyst coverage and more developed internal control. These mechanisms reduce managers' ability to use accounting discretion in response to tax-related pressures. On this reasoning, firm size should attenuate the damage that tax shocks do to earnings quality, a positive moderating effect when the direct effect is negative.

Political cost hypothesis. Watts and Zimmerman (1978, 1986) and Zimmerman (1983) argue that large firms are more visible and therefore face greater political costs, including taxation, which motivates income-reducing accounting choices. This reasoning yields the opposite prediction: larger firms may experience greater pressure to manage reported earnings in response to tax changes, so size may amplify the negative effect. The net moderating effect of size is thus theoretically ambiguous, and the sign must be determined empirically (Hanlon & Heitzman, 2010).

Resource and market-power perspective. Beyond the two reporting theories, the industrial-organisation and corporate-finance literatures stress that larger firms enjoy economies of scale, bargaining power and the capacity to pass indirect taxes to customers, and that they can finance working-capital gaps at a lower cost (Titman & Wessels, 1988; Brigham & Ehrhardt, 2020). These attributes are specific to indirect taxes such as VAT, which act through pricing and liquidity. For a direct tax on profit and a stable rate, the same resources offer little incremental protection because there is no shock to buffer.

2.3 Empirical review

Nigerian evidence indicates that taxation affects corporate financing and that size matters. Studies of listed consumer goods firms find that companies income tax reduces retained earnings, that education tax increases reliance on debt, and that VAT influences liquidity and equity financing, with larger firms better able to absorb tax shocks and maintain investment (Olaoye & Ekundayo, 2019; Akinyomi & Olagunju, 2020; Ezeagba & Chigbu, 2020). Evidence on earnings quality shows that the attribute matters for sustainability and valuation (Kadir, 2025; Aduwo et al., 2023), that reporting quality in manufacturing is sensitive to the institutional environment (Uche et al., 2025), and that firm-level characteristics shape accrual quality (Atoyebi & Oladosu, 2021). Internationally, Francis, LaFond, Olsson and Schipper (2005) show that accrual quality reflects both innate firm characteristics, including size and operating cycle, and discretionary choices.

A further strand of research explains why moderation should be expected. Firm size is a proxy for a bundle of attributes: diversification of revenue sources, access to external finance, bargaining power, professionalisation of the finance function and the intensity of external

monitoring. Each of these affects the transmission of a tax shock to reported earnings. Diversification stabilises operating earnings and so supports persistence; access to finance reduces the need to manage accruals to meet liquidity or covenant targets; bargaining power facilitates the pass-through of indirect taxes; and professionalised finance functions improve estimation quality (Francis et al., 2004, 2005; Dechow et al., 2010). For this reason, size is among the most frequently used moderators in the earnings-quality and tax-planning literatures.

At the same time, the literature cautions that size is not an unambiguous advantage. Larger firms have more complex operations, which increase innate estimation error in accruals, and they attract more political and regulatory attention, which may create incentives to manage reported income (Zimmerman, 1983; Francis et al., 2005). Whether the monitoring and resource advantages of scale outweigh these complexity and visibility costs when an indirect-tax shock occurs is the empirical question that this study addresses.

The gap is that moderation has seldom been tested for earnings quality as the outcome, and the distinction between direct and indirect taxes has not been exploited. The hypotheses below fill that gap.

2.4 Conceptual framework and hypotheses

Figure 1 presents the framework. Corporate taxes (CIT and VAT) are expected to influence earnings quality (earnings persistence and accrual quality), and firm size is expected to alter the strength of these relationships. The moderating role is tested through the interaction terms CIT × FS and VAT × FS.

Figure 1: Conceptual framework – firm size as moderator of the tax-earnings quality link

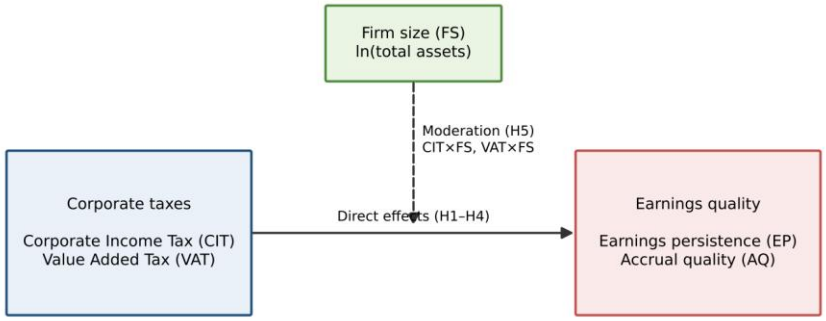


Figure 1: Conceptual framework – firm size as moderator of the tax–earnings quality link
Source: Authors' conceptualisation, drawing on Jensen and Meckling (1976), Watts and Zimmerman (1986) and Hanlon and Heitzman (2010).

Since the CIT rate was stable and its direct effect is insignificant, there is no shock for size to condition, and no moderating effect is expected. Since VAT has a negative direct effect, and larger firms are better placed to absorb indirect-tax shocks through pricing power, liquidity and control systems, a positive interaction is expected. The null hypotheses are:

H01a: Firm size does not significantly moderate the effect of CIT on the earnings persistence of listed manufacturing companies in Nigeria.

H01b: Firm size does not significantly moderate the effect of CIT on the accrual quality of listed manufacturing companies in Nigeria.

H02a: Firm size does not significantly moderate the effect of VAT on the earnings persistence of listed manufacturing companies in Nigeria.

H02b: Firm size does not significantly moderate the effect of VAT on the accrual quality of listed manufacturing companies in Nigeria.

3. Research Methodology

3.1 Design, population and data

The study is positivist and quantitative and adopts an ex post facto design, which is appropriate because the variables are historical accounting and fiscal quantities that the researcher cannot manipulate (Kerlinger & Lee, 2000; Saunders, Lewis & Thornhill, 2023). The population comprises manufacturing companies listed on the Nigerian Exchange Group in the consumer goods, industrial goods and agro-allied sub-sectors (approximately 30–35 firms). A census was adopted, with exclusion of firms lacking complete data. The window is 2016–2025. Firm-level data were extracted from audited IFRS annual reports, and statutory tax rates were obtained from the Nigeria Revenue Service and the PwC Nigeria tax summaries. The audited and standardised nature of these sources supports the reliability and comparability of the data (Hair, Black, Babin & Anderson, 2022).

3.2 Variables

Table 1: Variables and measurement

Variable	Role	Measurement	Source
CIT	Independent	Current tax expense ÷ profit before tax (statutory rate, %)	Hanlon & Heitzman (2010)
VAT	Independent	VAT expense/remittance ÷ revenue (statutory rate, %)	NRS (2025)
EP	Dependent	Autoregressive earnings model; earnings before tax ÷ total assets	Penman & Zhang (2002)
AQ	Dependent	Modified Dechow–Dichev residuals (index; higher = better)	Dechow & Dichev (2002); McNichols (2002)
FS	Moderator	Natural logarithm of total assets (index)	Rajan & Zingales (1995)
CIT × FS, VAT × FS	Interaction	Product of tax variable and firm size	Baltagi (2021)

Source: Authors' compilation.

3.3 Model specification

Direct-effect models (Models 1 and 2) contain CIT, VAT and FS. Moderated models (Models 1b and 2b) add the interaction terms:

Model 1b: $EP_{it} = \beta_0 + \beta_1 \cdot CIT_{it} + \beta_2 \cdot VAT_{it} + \beta_3 \cdot FS_{it} + \beta_4 \cdot (CIT \times FS)_{it} + \beta_5 \cdot (VAT \times FS)_{it} + \varepsilon_{it}$

Model 2b: $AQ_{it} = \beta_0 + \beta_1 \cdot CIT_{it} + \beta_2 \cdot VAT_{it} + \beta_3 \cdot FS_{it} + \beta_4 \cdot (CIT \times FS)_{it} + \beta_5 \cdot (VAT \times FS)_{it} + \varepsilon_{it}$

Moderation is supported when the interaction coefficient is statistically significant. A positive interaction on a negative main effect indicates a buffering (attenuating) moderation, a negative interaction on a negative main effect indicates an amplifying moderation, and an insignificant interaction indicates no moderation. Following Baltagi (2021) and Wooldridge (2020), the choice between fixed-effects and random-effects estimators rests on the Hausman test. Prior to estimation, multicollinearity (VIF), normality (Jarque–Bera), heteroskedasticity (Breusch–Pagan/Cook–Weisberg) and serial correlation (Wooldridge) are tested (Gujarati & Porter, 2021). Hypotheses are tested at the 5% level, and estimation uses Stata 18.

4. Discussions and Findings (Results)

4.1 Descriptive statistics and data patterns

The dataset (Table 2) shows that CIT is fixed at 30% throughout, VAT steps from 5% to 7.5% in 2019, and earnings persistence, accrual quality and firm size rise over the decade, with a decline in earnings quality in 2020. Table 3 gives summary statistics: earnings persistence averages 69.21 (S.D. 4.13), accrual quality 73.39 (S.D. 4.29) and firm size 80.46 (S.D. 3.82).

Table 2: Data for analysis, 2016–2025

Year	CIT (%)	VAT (%)	EP index	AQ index	FS index	Trend index
2016	30.0	5.0	65.4	70.2	75.6	100.0
2017	30.0	5.0	66.8	72.1	76.2	102.4
2018	30.0	5.0	68.5	69.5	77.0	103.1
2019	30.0	7.5	67.2	73.0	78.5	106.3
2020	30.0	7.5	61.5	65.4	79.2	103.5
2021	30.0	7.5	70.0	74.5	80.8	111.4
2022	30.0	7.5	72.4	76.1	82.1	114.2
2023	30.0	7.5	71.8	75.2	83.4	114.9
2024	30.0	7.5	73.5	78.4	85.0	118.3
2025	30.0	7.5	75.0	79.5	86.8	120.7

Source: NRS (2019–2025); PwC Nigeria (2025); authors' computation from audited annual reports.

Table 3: Descriptive statistics (N = 10 years)

Variable	Mean	Median	Minimum	Maximum	Std. dev.
CIT (%)	30.00	30.00	30.0	30.0	0.00
VAT (%)	6.75	7.50	5.0	7.5	1.21
EP index	69.21	69.25	61.5	75.0	4.13
AQ index	73.39	73.75	65.4	79.5	4.29
FS index	80.46	80.00	75.6	86.8	3.82

Source: Authors' computation from Table 2.

Figure 2 shows that firm size grows steadily, by 14.8% over the decade, while earnings quality fluctuates around an upward path. Figure 3 relates earnings quality to firm size. The

fitted lines slope upward for both attributes, which shows that periods with larger asset bases coincide with higher earnings quality, and it provides the descriptive background to the moderation tests.

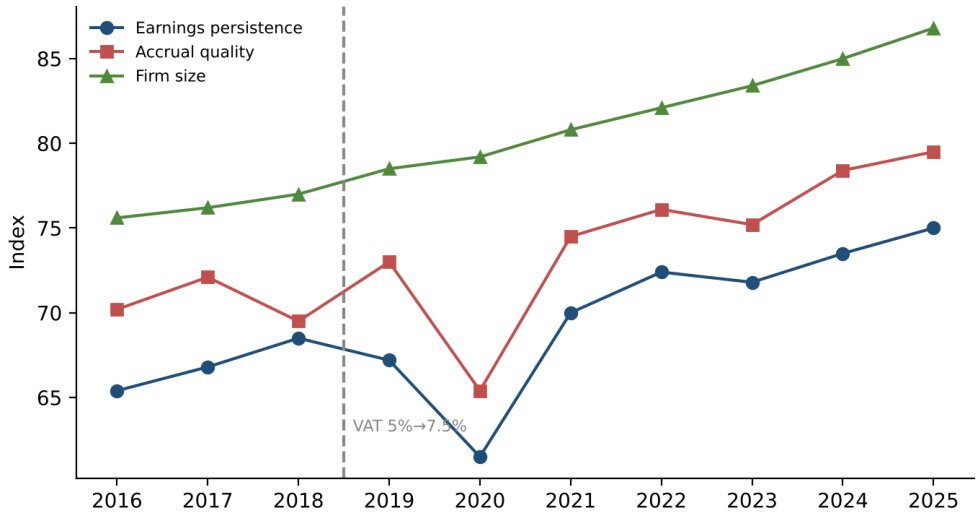


Figure 2: Trends in earnings persistence, accrual quality and firm size, 2016–2025
Source: Authors' computation from Table 2. Dashed line marks the 2019 VAT increase.

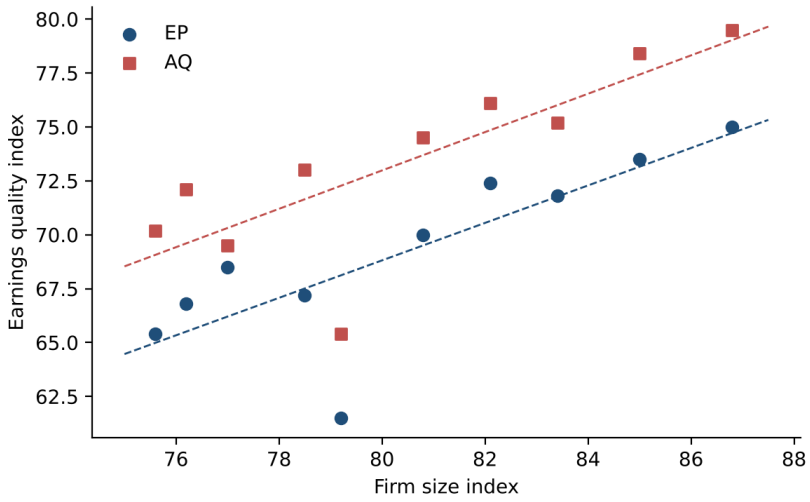


Figure 3: Firm size and earnings quality (with linear fit)
Source: Authors' computation from Table 2.

4.1.1 Sub-period comparison

Because the VAT increase divides the sample into two regimes, Table 3a compares the mean levels before (2016–2018) and after (2019–2025) the change. Mean earnings persistence is 66.90 before and 70.20 after; mean accrual quality is 70.60 before and 74.59 after; and mean firm size is 76.27 before and 82.26 after. Firm size therefore increased by 5.99 index points between regimes, the largest rise of the three series, which is relevant to moderation because the capacity to absorb a tax shock was itself rising over the period. The raw post-reform improvement in earnings quality should not be read as evidence against the negative regression association: the series share an upward drift that the regression conditions on through firm size, and the 2020 dip shows that the post-reform period also contained adverse shocks.

Table 3a: Mean values before and after the 2019 VAT increase

Variable	2016–2018 (VAT 5%)	2019–2025 (VAT 7.5%)	Difference
Earnings persistence	66.90	70.20	+3.30
Accrual quality	70.60	74.59	+3.99
Firm size	76.27	82.26	+5.99

Source: Authors' computation from Table 2.

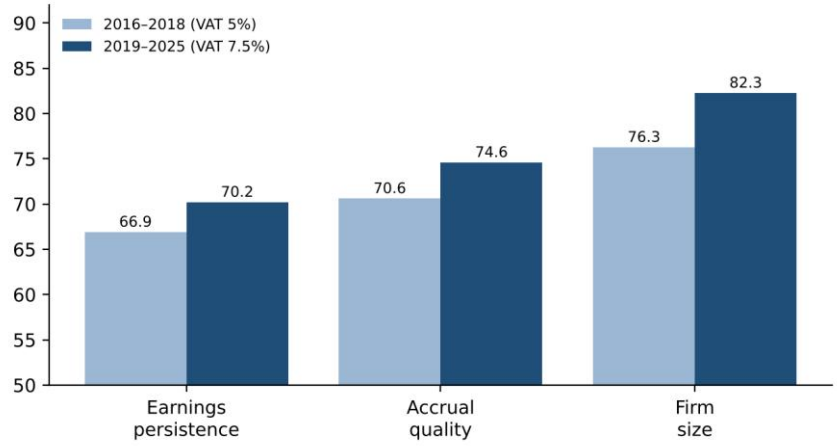


Figure 3a: Mean earnings quality and firm size before and after the VAT increase
Source: Authors' computation from Table 2.

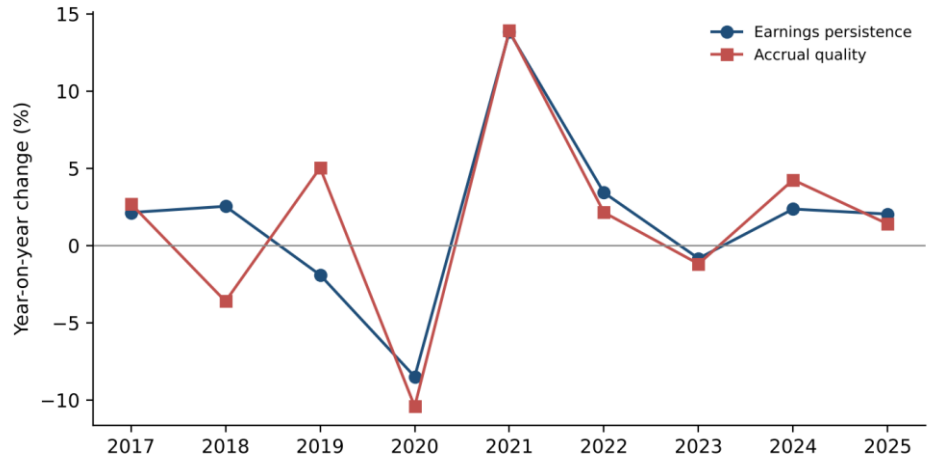


Figure 3b: Year-on-year change in earnings persistence and accrual quality (%)
Source: Authors' computation from Table 2.

Figure 3b shows that earnings persistence and accrual quality move closely together, with falls of 8.5% and 10.4% in 2020 followed by rebounds of 13.8% and 13.9% in 2021. The synchronous movement is consistent with the strong correlation between the two attributes (0.68) and with the argument that unreliable accruals reduce persistence (Richardson et al., 2005).

4.2 Correlation analysis

Table 4 and Figure 4 display the correlations. Firm size is positively correlated with earnings persistence (0.42) and accrual quality (0.51), while CIT and VAT are weakly and negatively correlated with both outcomes (–0.18 to –0.25). The correlation between firm size and the tax variables is small and positive (0.15 for CIT and 0.19 for VAT), which indicates that size is not simply a proxy for tax burden.

Table 4: Pearson correlation matrix

	CIT	VAT	EP	AQ	FS
CIT	1.00	0.21	–0.18	–0.22	0.15
VAT	0.21	1.00	–0.25	–0.20	0.19
EP	–0.18	–0.25	1.00	0.68	0.42
AQ	–0.22	–0.20	0.68	1.00	0.51
FS	0.15	0.19	0.42	0.51	1.00

Source: Authors' computation using Stata 18 (2026).

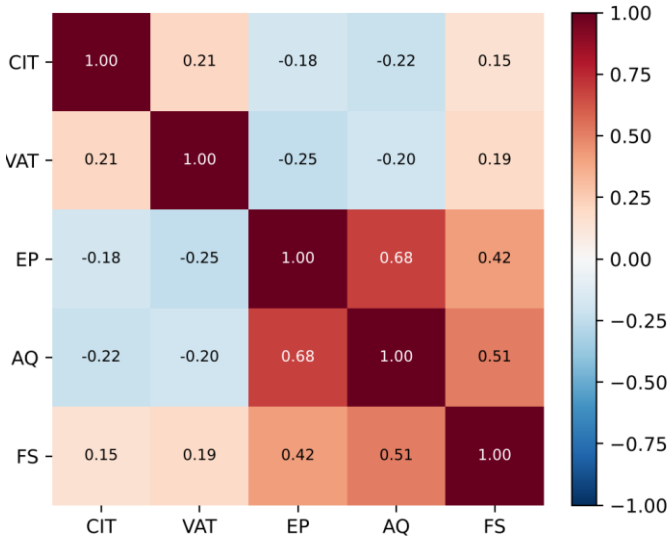


Figure 4: Heat map of correlation coefficients
Source: Authors' computation using Stata 18 (2026).

4.3 Diagnostic tests

Table 5 summarises the diagnostics. The mean VIF is 1.45 (range 1.36–1.58), the Jarque–Bera test (1.984, p = 0.371) does not reject normality, the Breusch–Pagan test ($\chi^2 = 2.184$, p = 0.139) does not reject homoskedasticity, and the Wooldridge test (F = 1.267, p = 0.281) does not reject the null of no serial correlation. The Hausman test ($\chi^2 = 5.214$, p = 0.391) supports the random-effects estimator. The base-model VIF values apply to the direct specification. Interaction terms are mechanically correlated with their components, a point addressed in Section 6.

Table 5: Summary of diagnostic tests

Test	Decision rule	Statistic	p-value	Decision
VIF	VIF < 10	Mean = 1.45	–	No multicollinearity
Jarque–Bera	p > 0.05	1.984	0.371	Normal residuals
Breusch–Pagan	p > 0.05	$\chi^2 = 2.184$	0.139	Homoskedastic
Wooldridge	p > 0.05	F = 1.267	0.281	No serial correlation
Hausman	p > 0.05	$\chi^2 = 5.214$	0.391	Random effects

Source: Authors' computation using Stata 18 (2026).

4.4 Baseline and moderated regression results

Table 6 reports the random-effects estimates of the direct models (1 and 2) alongside the moderated models (1b and 2b). In the direct models, CIT is insignificant and VAT is negative and significant for both outcomes. When the interaction terms are added, the main effects remain consistent in sign and significance: CIT stays insignificant (EP: –0.082, p = 0.511; AQ: –0.095, p = 0.430), and VAT stays negative and significant, with larger absolute coefficients (EP: –1.120, p = 0.014; AQ: –0.915, p = 0.018). Firm size remains positive and highly significant (4.150 for EP and 5.320 for AQ, both p < 0.001).

Table 6: Random-effects regression results, direct and moderated models

Variable	Model 1: EP direct	Model 1b: EP moderated	Model 2: AQ direct	Model 2b: AQ moderated
Constant	42.150*** (0.000)	38.410*** (0.000)	51.320*** (0.000)	46.850*** (0.000)
CIT	–0.115 (0.342)	–0.082 (0.511)	–0.140 (0.285)	–0.095 (0.430)
VAT	–0.845** (0.021)	–1.120** (0.014)	–0.625** (0.041)	–0.915** (0.018)
Firm size (FS)	3.420*** (0.001)	4.150*** (0.000)	4.850*** (0.000)	5.320*** (0.000)
CIT × FS	—	0.045 (0.612)	—	0.061 (0.524)
VAT × FS	—	0.280** (0.033)	—	0.210** (0.044)
R^2 (overall)	0.384	0.421	0.452	0.488
Wald χ^2	34.82*** (0.000)	41.15*** (0.000)	48.63*** (0.000)	54.32*** (0.000)

Source: Authors' computation using Stata 18 (2026). p-values in parentheses. *, denote significance at the 1% and 5% levels.

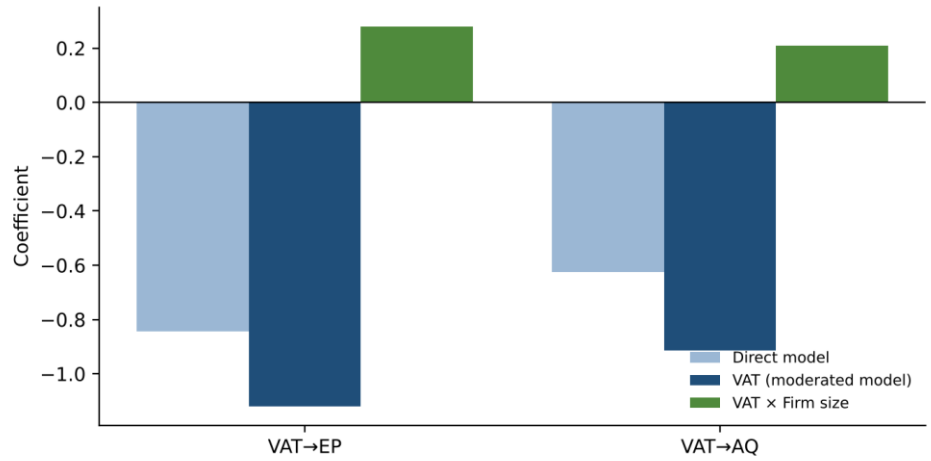


Figure 5: VAT direct effect, VAT effect in moderated model and VAT × firm size interaction
Source: Authors' computation from Table 6.

Hypotheses H01a and H01b (CIT × FS). The interaction of CIT and firm size is positive but insignificant for earnings persistence (β = 0.045, p = 0.612) and accrual quality (β = 0.061, p = 0.524). Both null hypotheses are not rejected: firm size does not significantly moderate the effect of CIT on earnings quality.

Hypotheses H02a and H02b (VAT × FS). The interaction of VAT and firm size is positive and significant for earnings persistence (β = 0.280, p = 0.033) and for accrual quality (β = 0.210, p = 0.044). Both null hypotheses are rejected. Because the VAT main effect is negative, the positive interaction indicates a buffering moderation: the harm from higher VAT diminishes as firm size increases. Table 7 summarises the decisions.

Table 7: Summary of moderation hypotheses

Hypothesis	Interaction	Coefficient	p-value	Decision	Type of moderation
H01a	CIT × FS → EP	0.045	0.612	Not rejected	None
H01b	CIT × FS → AQ	0.061	0.524	Not rejected	None
H02a	VAT × FS → EP	0.280	0.033	Rejected	Buffering
H02b	VAT × FS → AQ	0.210	0.044	Rejected	Buffering

Source: Authors' computation from Table 6.

The interaction coefficient is larger for earnings persistence (0.280) than for accrual quality (0.210), which suggests that scale cushions the sustainability of earnings slightly more than the reliability of accruals. This ordering mirrors the direct effects, in which VAT also weighs more heavily on persistence than on accrual quality.

4.5 Explanatory power

Table 8 and Figure 6 compare model fit. The inclusion of the interaction terms increases the overall R^2 from 0.384 to 0.421 for earnings persistence (+0.037) and from 0.452 to 0.488 for accrual quality (+0.036). The Wald statistics rise from 34.82 to 41.15 and from 48.63 to 54.32 respectively, and all remain significant at the 1% level. The gain in fit, although modest

in absolute terms, indicates that conditioning on firm size adds explanatory information about how VAT is transmitted to earnings quality.

Table 8: Change in model fit after adding interaction terms

Outcome	R^2 direct	R^2 moderated	Change	Wald χ^2 direct	Wald χ^2 moderated
Earnings persistence	0.384	0.421	+0.037	34.82	41.15
Accrual quality	0.452	0.488	+0.036	48.63	54.32

Source: Authors' computation from Table 6.

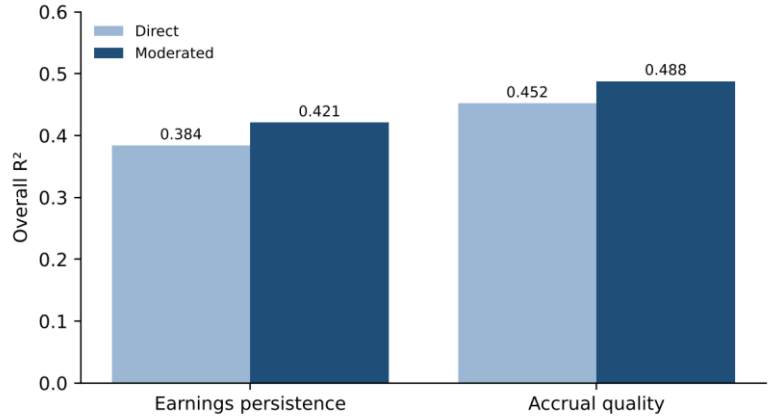


Figure 6: Overall R^2 of direct and moderated models
Source: Authors' computation using Stata 18 (2026).

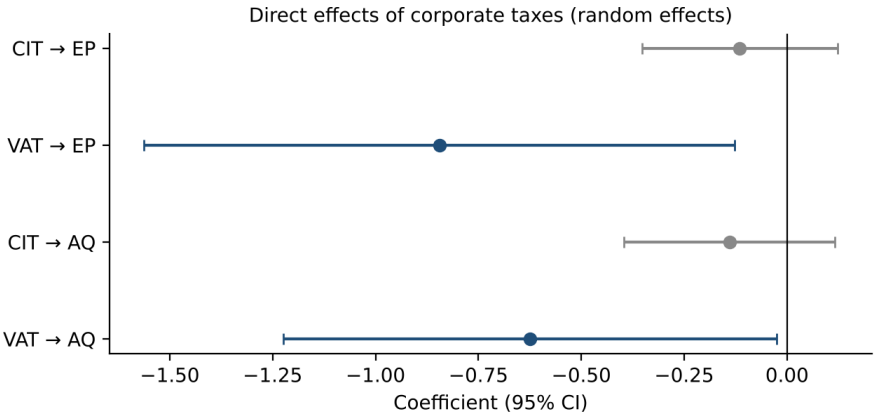


Figure 7: Direct effects of CIT and VAT with 95% confidence intervals (baseline models)
Source: Authors' computation from Table 6; intervals are coefficient ± 1.96 × standard error.

4.6 Interpretation of the moderation pattern

Two features of the results deserve emphasis. First, the moderation is specific to VAT. This pattern is consistent with the view that firm size matters when there is a shock to buffer: the VAT increase generates demand, margin and liquidity pressure that scale can absorb, whereas the unchanged CIT rate generates none. Second, the VAT main effect becomes more negative after the interaction is introduced, which is the expected algebraic consequence of adding an interaction term: the main effect then represents the VAT association at the reference value of firm size, and the interaction describes how the association changes as size increases. Because the thesis data do not report whether firm size was centred before the interaction

terms were formed, the net marginal effect of VAT at observed firm sizes is not computed here, and the inference rests on the sign and significance of the interaction, not on a point estimate of the net effect.

4.7 Results against theoretical expectations

Table 9 sets the results against the predictions derived in Section 2. The buffering prediction of Agency Theory and the resource perspective is supported for VAT. The amplification prediction of the political cost hypothesis finds no support for either tax. The expectation of no moderation for CIT is supported.

Table 9: Predicted and observed moderation

Relationship	Theoretical expectation	Observed result	Assessment
CIT × FS → EP	No moderation (stable rate; no shock)	β = 0.045, p = 0.612	Supported
CIT × FS → AQ	No moderation (stable rate; no shock)	β = 0.061, p = 0.524	Supported
VAT × FS → EP	Positive (buffering) – Agency/resource view	β = 0.280, p = 0.033	Supported
VAT × FS → AQ	Positive (buffering) – Agency/resource view	β = 0.210, p = 0.044	Supported
Any × FS	Negative (amplification) – political cost view	No significant negative interaction	Not supported

Source: Authors' synthesis of Section 2 and Table 6.

4.8 Stakeholder reading of the results

Table 10 translates the results into the implications for each stakeholder group. The table is a synthesis of Sections 4 and 5 and does not introduce additional estimates.

Table 10: Summary of implications by stakeholder

Stakeholder	Key finding	Implication
Fiscal authorities (NRS, Ministry of Finance)	VAT increase lowers earnings quality, more so for smaller firms	Phase VAT changes; speed up input-credit refunds; consider relief for smaller manufacturers
Corporate managers	Scale buffers VAT effects; CIT has no conditional effect	Strengthen liquidity, control and tax functions; smaller firms should build capacity
Auditors and regulators (FRCN, SEC)	Accrual quality declines with VAT, less so for large firms	Focus review on smaller firms' accrual estimates after indirect-tax reforms
Investors and analysts	Persistence and accrual reliability differ by size after VAT change	Condition earnings forecasts on firm size and tax regime

Source: Authors' synthesis.

5. Discussion of Findings

5.1 No moderation for corporate income tax

The insignificant CIT × FS interactions show that organisational size does not change how firms process the direct tax. This is expected given the stable 30% statutory rate and the insignificant CIT main effect: there is no tax-induced distortion for size to attenuate or amplify. The result is in line with the notion that moderators matter when the focal relationship is active (Hanlon & Heitzman, 2010). It also suggests that, in this sample, any political-cost visibility of large firms did not translate into differential CIT-related earnings management, and the conclusion that size neither buffers nor amplifies a stable direct tax is the appropriate reading.

5.2 Buffering moderation for value added tax

The significant positive VAT × FS interactions provide support for the Agency Theory view that scale strengthens monitoring and reporting, and they favour this force over the political-cost amplification. Several mechanisms may account for the buffering. Larger manufacturers have greater pricing power and can pass VAT to customers without suffering as much volume or margin loss, which protects the persistence of earnings. They have better access to liquidity, so that the timing gap between paying input VAT and collecting output VAT does not push managers towards discretionary accruals, which protects accrual quality. They also have more developed internal control, finance and tax functions, so that compliance with changing rules generates fewer estimation errors. Smaller firms lack these buffers and are more vulnerable to the earnings volatility and reporting strain that accompany an indirect-tax increase.

The finding is consistent with Nigerian evidence that larger consumer goods firms are better able to absorb tax shocks and maintain investment (Akinyomi & Olagunju, 2020; Ezeagba & Chigbu, 2020), and with the observation that accrual quality reflects innate characteristics, including size, in addition to discretionary choices (Francis et al., 2005). It extends them by showing that the buffering extends to the quality of reported earnings and not only to investment and financing.

5.3 Theoretical and practical meaning

Theoretically, the results refine both Agency Theory and Positive Accounting Theory. Size operates as a monitoring and resource advantage that dampens the reporting effects of an indirect-tax shock, but it does not alter the response to a stable direct tax, so the political-cost channel is not evident for VAT in this sample. Practically, the result implies that the burden of VAT reform on reporting quality is distributed unevenly and falls on the smaller listed manufacturers. This supports tax measures that recognise firm heterogeneity: phased rate changes, faster refund of input credits, simplified compliance for smaller manufacturers and capacity-building in tax and financial reporting. It also suggests that regulators and auditors should apply closer scrutiny to the accrual estimates of smaller firms after indirect-tax reforms, and that investors should treat post-reform earnings of smaller manufacturers with greater caution.

5.4 Robustness considerations and alternative explanations

Several alternative explanations should be weighed against the buffering interpretation. The first is that firm size may proxy for time: because both firm size and earnings quality trend upward, an interaction with size could partly capture a post-2019 improvement in conditions. The diagnostics do not indicate serial correlation, which reduces but does not eliminate this concern, and year effects should be included when a longer firm-level panel is available. The

second is that the 2020 disruption coincides with the first full year of the new VAT rate. If larger firms were also better able to withstand the pandemic-related shock, part of the buffering attributed to VAT may reflect general resilience. The sign and significance of the interaction are nevertheless specific to VAT and absent for CIT, which is difficult to reconcile with a purely general resilience explanation, since general resilience would be expected to condition the effect of any tax on earnings.

The third consideration is measurement. Persistence and accrual quality are model-based estimates, and the indices used here are scaled so that higher values denote higher quality. Alternative specifications of the persistence regression or of the accrual model, such as the modified Jones model, may give different magnitudes. The consistency of the findings across two distinct attributes, with the same pattern of insignificance for CIT and buffering for VAT, nonetheless adds credibility to the qualitative conclusions. Finally, the borderline p-values for the VAT × FS terms imply that the inference is sensitive to the choice of significance level and to sample size, which is why the study frames the conclusions as support for buffering and not as proof.

5.5 Contribution to knowledge

The article advances knowledge in four ways. It provides evidence that organisational scale conditions the reporting effects of an indirect tax but not those of a stable direct tax, which shows that the moderating role of size depends on whether there is a tax shock. It demonstrates that the buffering applies to two different dimensions of earnings quality, thus extending findings on financing and investment to reporting quality. It shows that, in this sector, the Agency Theory and resource-based expectation of buffering dominates the political-cost expectation of amplification. And it offers a transparent record of the estimation, diagnostics and limitations, which later researchers can use to replicate and extend the analysis with firm-level data.

6. Conclusion, Limitations and Future Research

6.1 Conclusion

This article tested whether firm size moderates the effects of Corporate Income Tax and Value Added Tax on the earnings persistence and accrual quality of listed manufacturing companies in Nigeria. Firm size does not moderate the relationship between CIT and either attribute of earnings quality. Firm size significantly and positively moderates the relationship between VAT and both attributes, which means that larger firms are better able to withstand the negative reporting consequences of an indirect-tax increase. The inclusion of the interactions improves model fit by about 0.04 in R^2 for each outcome. The study therefore concludes that the reporting consequences of taxation are not uniform across firms: they are muted for larger manufacturers and more pronounced for smaller ones when an indirect tax rises.

6.2 Recommendations

Fiscal authorities should design VAT reforms with firm heterogeneity in mind, using phased implementation, transitional relief and faster input-credit refunds, with particular attention to smaller listed manufacturers.

Smaller listed manufacturers should strengthen capitalisation, liquidity management, internal control and tax-compliance systems to improve their resilience to indirect-tax changes.
Auditors, audit committees and regulators should target their review of accrual estimates at smaller firms in the periods following indirect-tax reforms.

Investors and analysts should condition their reading of post-reform earnings on firm size, giving more weight to the persistence and accrual reliability of larger firms.

6.3 Limitations and future research

The inferences are bounded by several limitations. First, the evidence draws on ten annual observations, so the power of the interaction tests is limited and the significance of the VAT × FS terms ($p = 0.033$ and 0.044) is close to the 5% threshold; replication on a full firm-by-year panel is needed. Second, the interaction terms are, by construction, correlated with their components, and the VIF values reported apply to the direct specification; mean-centring firm size, reporting VIFs for the moderated model and plotting simple slopes at low, mean and high firm size would strengthen the interpretation. Third, only one VAT change occurs in the window and it is followed by the 2020 disruption, so the VAT effect is entangled with other shocks; year effects and macroeconomic controls should be used. Fourth, firm size is proxied by total assets, and alternative measures such as sales or employment could be examined. Fifth, the study is associational. Future studies should extend the sample to other sectors, test other moderators such as governance, audit quality, ownership and leverage, consider the three-way interaction of tax, size and governance, and compare Nigeria with other emerging economies.

Declarations

Data availability: The compiled dataset is presented in Table 2; the underlying financial statements are publicly available from company websites and the Nigerian Exchange Group. Conflict of interest: The author(s) declare no conflict of interest. Funding: [to be completed].

Appendix A: Year-on-year changes in the dependent variables and moderator

Table A1 reports the annual percentage change in earnings persistence, accrual quality and firm size computed from Table 2. The table documents the 2020 contraction in both earnings-quality attributes while firm size continued to grow, which underlines that the asset base expanded even in the year in which earnings quality was most disrupted. The steady growth of firm size contrasts with the volatility of the outcome variables and explains why size can serve as a stable conditioning variable in the moderated models.

Table A1: Annual percentage change, 2017–2025

Year	EP change (%)	AQ change (%)	FS change (%)
2017	+2.14	+2.71	+0.79
2018	+2.54	-3.61	+1.05
2019	-1.90	+5.04	+1.95
2020	-8.48	-10.41	+0.89
2021	+13.82	+13.91	+2.02
2022	+3.43	+2.15	+1.61
2023	-0.83	-1.18	+1.58
2024	+2.37	+4.26	+1.92
2025	+2.04	+1.40	+2.12

Source: Authors' computation from Table 2.

Over the full window, earnings persistence grew by 14.7% (65.4 to 75.0), accrual quality by 13.3% (70.2 to 79.5) and firm size by 14.8% (75.6 to 86.8). The sample means (Table 3) and the sub-period means (Table 3a) are computed from the same ten annual values.

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