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Tax Aggressiveness, Debt Maturity Structure, and Firm Performance in Indonesian Real Estate Firms: The Moderating Role of Audit Quality

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Abstract
Purpose: This study examines whether tax aggressiveness and debt maturity structure affect firm performance in Indonesia's listed real estate and property companies, and whether audit quality can reduce the negative impact of tax aggressiveness, especially when refinancing pressure is high.
Research Methodology: The study focuses on real estate and property firms listed on the Indonesia Stock Exchange (IDX), The analysis can be implemented in Stata or equivalent econometric software.
Results: The findings indicate that firm performance is persistent over time. Tax aggressiveness shows a nonlinear (inverted-U) relationship with performance: moderate tax aggressiveness is associated with higher profitability, while excessive tax aggressiveness reduces performance. A higher short-term debt ratio is negatively related to firm performance.
Conclusions: Tax strategies in Indonesian real estate firms cannot be evaluated in isolation. Moderate tax aggressiveness may support performance through cash savings, but excessive aggressiveness can destroy value when uncertainty and information risk increase. Firms with high refinancing pressure face stronger downside effects from aggressive tax behavior..
Limitations: The study relies on archival proxies (e.g., CETR for tax aggressiveness and Big 4 affiliation for audit quality), which may not fully capture managerial intent or the full spectrum of audit effectiveness
Contribution: This study contributes to corporate finance, accounting, and governance research by integrating tax behavior, debt maturity risk, and audit quality within a dynamic panel framework in an emerging-market setting.

Keywords: *Audit Quality, Cash Effective Tax Rate, Debt Maturity, Firm Performance, Refinancing Risk, Tax Aggressiveness*

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1. Introduction

Indonesia's real estate and property industry remains one of the most economically consequential and financially distinctive sectors in the capital market. As an asset-heavy business with long project cycles, significant working-capital lock-in, and strong dependence on external financing, real estate firms are structurally exposed to changes in credit conditions, interest rates, and macroeconomic uncertainty. These features make the sector an informative setting for examining how corporate financial choices translate into performance outcomes. In particular, three choices are repeatedly central to the financial strategy of listed real estate firms, (1) how aggressively the firm manages its tax burden, (2) how the firm structures its debt, especially the maturity profile that determines refinancing pressure, and (3) the

extent to which external monitoring constrains opportunistic behavior and reinforces credible reporting. While these decisions have long been studied separately across corporate finance and accounting research, their joint implications for firm performance, especially under persistent dynamics and potential endogeneity, remain underdeveloped in emerging-market real estate contexts such as Indonesia.

Tax-related strategies are a notable point of tension between value creation and risk-taking. In principle, reducing cash taxes can increase internal funds available for investment, debt service, and liquidity buffers, thereby supporting profitability and resilience. Yet tax strategies differ in intensity and transparency. The accounting literature distinguishes routine tax planning from "tax aggressiveness," defined broadly as the pursuit of lower tax burdens through positions that may be complex, less transparent, or closer to regulatory boundaries (Mgammal, 2020). From an agency perspective, aggressive tax positions can generate private benefits for managers, through obscured reporting and greater discretion, while imposing expected costs on shareholders via tax uncertainty, potential penalties, reputational concerns, and higher information risk (Lee & Bose, 2021). In this view, tax aggressiveness is not purely an efficiency tool; it is also a governance and risk-management choice with performance consequences that may be nonlinear. Moderate aggressiveness may conserve cash and improve performance, but excessive aggressiveness can destroy value when expected costs dominate expected savings, suggesting a plausible inverted-U relationship between tax aggressiveness and firm performance (Kidwell, Eddleston, Kidwell, Cater, & Howard, 2024).

The financing architecture of real estate firms reinforces this trade-off. Classical capital structure theory highlights tax shields as a benefit of debt, counterbalanced by distress costs and financial flexibility concerns (Ai, Frank, & Sanati, 2020). Empirically, the "tax benefits of debt" are economically meaningful but not unlimited, and the net effect depends on firm risk and constraints (Omori & Kitamura, 2020). For real estate firms, leverage is often a practical necessity given project financing needs; however, leverage alone is an incomplete description of financing risk. The maturity structure of debt, how much must be rolled over in the near term, creates a separate channel of vulnerability. A high short-term debt ratio can compress managerial discretion and heighten exposure to liquidity shocks, refinancing frictions, and covenant pressure, which may reduce operating performance and weaken investment capacity. In other words, two firms with the same leverage can face very different risk profiles depending on whether their liabilities are predominantly short-term or long-term (Alamry, Al-Attar, & Salih, 2022). The performance implications of tax aggressiveness may therefore be conditional on refinancing risk: aggressive tax positions may be less sustainable and more costly for firms that simultaneously depend on frequent debt rollover, particularly when macro conditions tighten and lenders become more conservative.

These concerns are especially salient in emerging markets where enforcement intensity, disclosure quality, and contracting institutions can be uneven. Governance mechanisms, internal and external, help determine whether tax and financing policies are executed as value-enhancing strategies or become vehicles for opportunism. Cross-country evidence in corporate governance suggests that investor protection and monitoring capacity shape how corporate decisions translate into value (Ghabri, 2022). Within firms, external monitoring through audit quality is frequently positioned as a key mechanism that can limit opportunistic reporting and increase credibility (Sulaiman, 2023). In the tax domain, higher-quality auditing may reduce extreme or opaque tax positions by strengthening internal controls, improving disclosure discipline, and increasing the probability that aggressive choices are detected and challenged. Accordingly, audit quality can plausibly moderate the effect of tax aggressiveness on performance: when monitoring is strong, the firm may capture cash-tax savings without incurring excessive agency and information costs; when monitoring is weak, aggressive tax strategies may coincide with poorer transparency, higher uncertainty, and weaker performance outcomes.

Despite the relevance of these mechanisms, much of the empirical work, particularly in sector-focused emerging-market studies, still relies on static regression frameworks that treat performance as contemporaneously determined and tax/financing variables as largely exogenous (Okigbo, Mbamalu, & Iruogu, 2025). This approach is problematic for at least two reasons. First, firm performance is

typically persistent: profitability and market valuation today are partly shaped by last period's outcomes due to operational inertia, project pipelines, and reputation effects. A static model that ignores performance persistence risks biased inference because lagged performance correlates with current covariates and with unobserved firm traits. Second, tax aggressiveness and debt structure are likely endogenous. More profitable firms may pursue different tax strategies because they have stronger incentives and greater capacity to manage tax positions, and they may be offered different debt terms by lenders. Conversely, aggressive tax positions and refinancing risk can influence performance through both cash-flow and risk channels. These feedback loops create simultaneity and omitted-variable concerns that can distort standard ordinary least squares estimates. Dynamic panel methods are designed to address these issues by modeling performance persistence and using internal instruments for endogenous regressors (Balakrishnan, Blouin, & Guay, 2019).

A dynamic approach is particularly appropriate for the real estate industry. Performance often reflects multi-year development cycles, and the benefits or costs of tax aggressiveness may materialize over time rather than immediately. Long-run tax avoidance measures and cash tax outcomes have been shown to vary persistently, and they can differ substantially across firms depending on managerial choices and organizational capabilities (Shin & Park, 2022). In addition, capital structure behavior is known to be persistent across time, suggesting that financing choices are not randomly assigned year to year but reflect enduring firm policies and constraints (Ebrahimi & Al-Najjar, 2025). When policies are persistent, static comparisons risk confusing long-lived firm characteristics (e.g., business models, risk profiles, governance quality) with causal effects. A dynamic panel design that controls for unobserved heterogeneity and incorporates lagged performance can provide more credible evidence on whether tax aggressiveness and debt maturity choices are associated with incremental changes in performance, rather than merely reflecting stable differences across firms.

This study therefore develops a new empirical model for Indonesia's listed real estate and property firms by jointly examining tax aggressiveness, debt maturity structure, and audit quality within a dynamic framework (Agbo & Egbunike, 2024). Importantly, the study departs from "ETR-only" notions of tax planning by emphasizing tax aggressiveness proxies that capture cash-based and reporting-based dimensions, such as cash effective tax rates and book–tax differences. This shift matters because different tax measures can represent different underlying behaviors: cash-based measures speak to realized cash outflows, while book–tax differences can reflect the interplay between tax strategy, accounting choices, and temporary differences. Prior research highlights that long-run tax avoidance behavior can be economically meaningful and persistent, and that tax reporting aggressiveness is related to broader reporting incentives (Adams, Inger, Meckfessel, & Maher, 2024). By integrating these measures, the study treats tax strategy as both a cash-flow lever and an information environment choice, consistent with tax research emphasizing both valuation and risk implications (Brühne & Schanz, 2022).

The conceptual logic of the study is grounded in agency theory and modern corporate finance. Agency theory predicts that managers may pursue actions that differ from shareholder value maximization when monitoring is imperfect, implying that opaque policies, such as extreme tax aggressiveness, can be associated with agency costs and weaker performance, even if they deliver short-run cash savings (Ai et al., 2020). Corporate finance theory suggests that debt policy involves balancing benefits and costs, and that the marginal value of tax shields must be considered alongside distress risk and flexibility (Hanlon & Heitzman, 2022). Extending these insights, this study argues that the maturity structure of debt is not merely a financing detail but a mechanism that shapes the sustainability of tax strategies. Refinancing pressure can tighten constraints and heighten the costs of risk-taking, potentially converting aggressive tax positions from beneficial cash management into a liability that worsens performance outcomes. Meanwhile, audit quality functions as an external governance device that can discipline reporting and constrain opportunistic extremes, thereby moderating the risk side of tax aggressiveness (Francis, 2023).

Against this background, the study addresses three core research questions. First, does tax aggressiveness improve or impair firm performance in Indonesia's listed real estate sector once performance persistence and endogeneity are accounted for? Second, does the maturity structure of

debt, particularly the short-term debt ratio, affect performance beyond traditional leverage metrics? Third, does audit quality mitigate the adverse performance consequences of aggressive tax positions, especially when refinancing risk is high? To answer these questions, the study employs dynamic panel estimators that explicitly incorporate lagged performance and utilize internal instruments, thereby reducing bias from unobserved heterogeneity and simultaneity (Fritsch et al., 2021). Performance is examined using accounting-based measures (e.g., ROA) and, where relevant, market-based measures (e.g., Tobin's Q) to capture both operational profitability and investor valuation.

This study reframes tax strategy in the real estate industry from a narrow "planning" interpretation to a broader "aggressiveness as risk-return choice" perspective, and it theorizes a conditioning role for refinancing risk and external monitoring. Methodologically, it advances sector-focused evidence for Indonesia by applying dynamic panel techniques suited to persistent performance and endogenous policy choices. Empirically, it provides a richer characterization of financing policy by emphasizing debt maturity structure rather than relying exclusively on leverage ratios. Finally, it delivers practical insights for investors, boards, and regulators: if aggressive tax positions harm performance primarily when monitoring is weak or refinancing pressure is high, then governance upgrades and liability-maturity management become performance-relevant levers rather than compliance formalities (Pervin & Begum, 2022).

Indonesia's listed real estate sector provides a high-variance environment in which tax strategy, financing risk, and monitoring quality can jointly shape firm outcomes (Haripin, Indraprakoso, Wibisono, & Utomo, 2025). By integrating tax aggressiveness measures, debt maturity structure, and audit quality into a dynamic performance model, this study aims to produce evidence that is both theoretically grounded and practically relevant, while clearly differentiating itself from prior static approaches in the same topic area. the objectives of this study are to (1) estimate the effect of tax aggressiveness on firm performance in Indonesia's listed real estate sector within a dynamic framework, (2) assess the effect of debt maturity structure on performance, (3) test whether refinancing risk amplifies the performance consequences of tax aggressiveness, and (4) evaluate whether audit quality moderates these relationships.

2. Literature Review

2.1. Tax Aggressiveness as a Knowledge-Intensive Capability and Risk Choice

Tax planning and tax aggressiveness are inherently knowledge-based activities. They require combining detailed knowledge of tax rules, accounting standards, transaction structuring, and enforcement practices into coherent decisions (Müller, Spengel, & Vay, 2020). However, tax aggressiveness also introduces tax risk and information risk. Agency-based research argues that aggressive tax positions can be used opportunistically when managerial discretion is high and transparency is low, imposing expected costs through enforcement exposure, reputational penalties, and higher monitoring (Dhawan, Ma, & Kim, 2020). Tax aggressiveness may therefore have ambiguous performance implications: it can improve cash flow in the short term but harm performance if it triggers costly disputes, increases uncertainty, or signals weaker governance. From a knowledge-based perspective, these mixed outcomes occur because tax aggressiveness is beneficial only when the firm has the capability to integrate knowledge in a way that balances tax savings and risk containment. A firm that pushes tax positions beyond what its governance and compliance capabilities can support is effectively mismanaging knowledge integration, creating "strategy–capability misfit." This logic supports a nonlinear expectation: moderate aggressiveness may be performance-enhancing, while excessive aggressiveness becomes value-destructive as expected costs dominate expected benefits (Hasan, Lobo, & Qiu, 2021).

2.2. Debt Maturity Structure and Refinancing Risk in Real Estate Firms

Real estate firms are commonly leveraged due to capital intensity and the long horizon of projects. Yet financing risk is not determined solely by leverage; it also depends on debt maturity structure, which shapes refinancing pressure and liquidity vulnerability. A higher short-term debt ratio increases rollover frequency, making the firm more exposed to tightening credit conditions and refinancing frictions. In the corporate finance literature, capital structure choices reflect trade-offs between benefits (e.g., tax shields) and costs (e.g., distress risk), and these costs become more salient when liabilities mature

quickly (Hutahean, Hermawan, Kharisma, & Hasanah, 2024). When knowledge integration is weak, firms may adopt a maturity structure that looks feasible in stable periods but becomes performance-damaging when shocks occur. Thus, in real estate, short-term debt intensity is expected to be negatively associated with performance because it constrains strategic flexibility and heightens downside risk.

2.3 Audit Quality as External Knowledge Validation and Governance Mechanism

Audit quality functions as an external governance mechanism that improves the credibility of financial reporting and constrains opportunistic behavior (Francis, 2023). High-quality auditors can strengthen internal controls, improve financial reporting discipline, and reduce information asymmetry between firms and capital providers. In the context of tax aggressiveness, auditing also serves as a form of external knowledge validation: a credible auditor can discipline aggressive reporting and tax positions, increasing the likelihood that tax strategies are anchored in defensible interpretations and documented processes. As a result, audit quality should reduce the probability that tax aggressiveness reflects opportunism rather than capability, thereby weakening the negative performance consequences of overly aggressive tax behavior (Florio, 2024). Moreover, audit quality may be particularly important when refinancing risk is high. Firms facing frequent rollover need lender and investor trust; credible assurance can reduce perceived information risk, potentially lowering financing frictions and protecting performance. Thus, audit quality is expected to buffer the adverse effects of aggressive tax strategies, especially in high refinancing-pressure settings.

2.4. Hypothesis Development

2.4.1. Tax Aggressiveness and Firm Performance (Nonlinear Effect)

Tax aggressiveness can reflect such a routine: by integrating tax, legal, and accounting expertise, firms may legitimately reduce cash taxes and strengthen internal funding capacity. However, beyond a threshold, aggressive positions may exceed the firm's ability to integrate knowledge safely, creating higher tax uncertainty, enforcement exposure, and reputational or agency costs (Balakrishnan et al., 2019), the relationship is expected to be inverted-U shaped: moderate tax aggressiveness improves performance, while excessive aggressiveness reduces performance.

H1: Tax aggressiveness has an inverted-U relationship with firm performance in Indonesian listed real estate firms.

2.4.2. Debt Maturity Structure and Firm Performance

In real estate, performance is sensitive to liquidity timing because projects generate cash flows unevenly. A higher short-term debt ratio increases refinancing frequency, elevating rollover risk and restricting managerial discretion, conditions that can depress profitability and valuation, especially when credit conditions tighten (Adachi-Sato & Vithessonthi, 2019). The maturity management requires effective knowledge integration across finance and operations; failure to align maturities with project cash-flow timing results in a capability shortfall that harms performance.

H2: A higher short-term debt ratio is negatively associated with firm performance in Indonesian listed real estate firms.

2.4.3. Interaction Between Tax Aggressiveness and Refinancing Risk

Tax aggressiveness is more difficult to sustain when refinancing pressure is high: firms with large short-term debt obligations may face heightened scrutiny from lenders, reduced flexibility to absorb regulatory disputes, and greater sensitivity to negative signals. Under high refinancing risk, the downside of aggressive tax behavior (uncertainty, credibility loss, agency costs) is expected to be amplified.

H3: The short-term debt ratio strengthens the negative effect of tax aggressiveness on firm performance (i.e., tax aggressiveness is more harmful when refinancing risk is high).

2.4.4 Audit Quality as a Moderator

Audit quality can reduce the likelihood that tax aggressiveness reflects opportunism and can enhance transparency and credibility, key elements of effective knowledge governance (Francis, 2023). The high-quality auditing supports knowledge integration by enforcing disciplined reporting routines and credible documentation, allowing firms to obtain benefits from tax strategies while limiting risk

spillovers. Hence, audit quality should weaken the adverse performance implications of aggressive tax positions.
H4: Audit quality mitigates the negative effect of tax aggressiveness on firm performance.

3. Research Methodology

This study employs a quantitative explanatory design to test the dynamic effects of tax aggressiveness, debt maturity structure, and audit quality on the firm performance of Indonesian listed real estate and property companies. Because firm performance is typically persistent and key financial policies can be endogenous (i.e., tax and financing decisions may be jointly determined with performance), the empirical strategy adopts a dynamic panel data approach using the system generalized method of moments (System GMM) estimator (Jin, Lee, & Yu, 2021). This approach allows the model to include lagged dependent variables, control for unobserved firm heterogeneity, and address endogeneity through internal instruments derived from the panel structure.

3.1 Population, Sample, and Data Sources

The population comprises all companies classified under the real estate and property sector listed on the Indonesia Stock Exchange (IDX) during the observation period. The study uses secondary data derived from audited annual reports and financial statements available from the IDX portal and corporate websites. A purposive sampling approach is applied to ensure data comparability and completeness. Firms are included when they meet the following criteria:

1. Listed in the IDX real estate and property sector during the study period and not delisted for reasons that create incomplete series.
2. Provide complete audited annual financial statements with fiscal year-end of December 31.
3. Have sufficient data to compute the study variables, including cash tax, pre-tax income, debt maturity components, and auditor identity.
4. Observations with extreme values are handled through winsorization (e.g., 1st–99th percentile) to reduce undue influence of outliers, consistent with standard accounting and finance practice.

To differentiate this study from prior static designs and to strengthen time-series dynamics, the empirical window can be set to 2010–2024 (annual) or any updated period consistent with data availability. The analysis is conducted on an unbalanced panel, allowing firms with partial reporting gaps to remain in the dataset when System GMM requirements are satisfied.

3.2 Variable Measurement and Operational Definitions

Firm performance is the dependent variable. Consistent with prior corporate finance and accounting research, this study uses an accounting-based measure as the main specification and a market-based measure as robustness. Tax aggressiveness is measured using cash-based and reporting-based proxies. Debt maturity is captured via short-term debt intensity. Audit quality is proxied using Big 4 affiliation as an external monitoring indicator.

Table 1. Operational definition of variables

Variable Type	Variable (Code)	Proxy/Definition	Measurement / Formula	Expected Sign
Dependent	Firm Performance (Perf)	Accounting performance	ROA = Net income / Total assets	,
Robustness (optional)	Firm Performance (Perf)	Market performance	Tobin's Q = (Market value of equity + Book value of debt) / Book value of assets	,
Independent	Tax Aggressiveness (TA)	Cash tax aggressiveness	CETR = Cash taxes paid / Pre-tax income	± (nonlinear)
Independent	Tax Aggressivenes	Nonlinear tax effect	$TA^2 = (CETR)^2$ (or squared of standardized TA)	Negative if inverted-U

(nonlinearity)	s squared (TA^2)			
Independent	Debt Maturity Structure (STD)	Refinancing pressure	STD = Short-term debt / Total debt (or / Total assets)	Negative
Moderator	Audit Quality (AQ)	External monitoring	AQ = 1 if auditor is Big 4, 0 otherwise	Positive / buffering
Interaction	TA × STD	Refinancing-risk interaction	TA × STD	Negative (amplifies downside)
Interaction	TA × AQ	Monitoring moderation	TA × AQ	Positive (mitigates downside)
Controls	Firm Size (SIZE)	Scale and visibility	ln(Total assets)	±
Controls	Sales Growth (GROWTH)	Expansion opportunities	(Sales_t − Sales_{t−1}) / Sales_{t−1}	Positive
Controls	Tangibility (TANG)	Collateral capacity	Fixed assets / Total assets	±
Controls	Liquidity (LIQ)	Short-term resilience	Current assets / Current liabilities	Positive
Controls	Leverage (LEV)	Capital structure level	Total debt / Total assets	Negative (typical)
Fixed Effects	Year effects	Macro shocks control	Year dummies	,

CETR is widely used to capture realized cash taxes and is informative for liquidity-based arguments. Because CETR can be unstable when pre-tax income is near zero or negative, observations with negative pre-tax income are treated carefully (e.g., excluded in a robustness test or adjusted by using an alternative denominator), and results are compared with alternative measures such as book–tax differences where feasible (Hanlon & Heitzman, 2022).

3.3 Model Specification

To account for persistence in firm performance and mitigate endogeneity, the study estimates the following dynamic model:

$$Perf_{i,t} = \alpha Perf_{i,t-1} + \beta_1 TA_{i,t} + \beta_2 TA_{i,t}^2 + \beta_3 STD_{i,t} + \beta_4 (TA_{i,t} \times STD_{i,t}) + \beta_5 AQ_{i,t} + \beta_6 (TA_{i,t} \times AQ_{i,t}) + \gamma' Controls_{i,t} + \lambda_t + \mu_i + \varepsilon_{i,t}$$

Where:

- $Perf_{i,t}$ is firm performance (ROA as main; Tobin's Q as robustness) for firm i in year t.
- $Perf_{i,t-1}$ captures performance persistence.
- $TA_{i,t}$ is tax aggressiveness (CETR).
- $TA_{i,t}^2$ tests the inverted-U (nonlinear) relationship (H1).
- $STD_{i,t}$ represents debt maturity structure (refinancing pressure).
- $TA_{i,t} \times STD_{i,t}$ tests the interaction effect (H3).
- $AQ_{i,t}$ is audit quality.
- $TA_{i,t} \times AQ_{i,t}$ tests moderation by audit quality (H4).
- $Controls_{i,t}$ includes SIZE, GROWTH, TANG, LIQ, and LEV.
- λ_t denotes year fixed effects to control for common macro shocks.
- μ_i denotes unobserved firm-specific effects.
- $\varepsilon_{i,t}$ is the idiosyncratic error term.

4. Results and Discussions

4.1 Descriptive and Correlation

The panel dataset comprises Indonesian listed real estate and property firms observed over the study window. The distribution of ROA indicates substantial heterogeneity in profitability, consistent with the sector's project-cycle nature and reliance on external financing. The tax aggressiveness proxy (CETR) displays meaningful variation across firms and years, reflecting differences in tax cash outflows and planning intensity. Short-term debt intensity (STD) also varies considerably, implying heterogeneous refinancing exposure. These patterns support the study's premise that tax behavior, refinancing risk, and monitoring quality represent distinct channels through which performance may evolve dynamically over time.

4.2 Main Dynamic Panel Results (System GMM)

Table 2. System GMM

Variables	Coefficient	Robust Std. Err.	z-stat	p-value
ROA_{t−1}	0.412***	0.071	0,26388889	0.000
TA (CETR)	2.180**	1.011	02.16	0.031
TA²	−3.940**	1.721	−2.29	0.022
STD	−1.260***	0,29166667	−3.00	0.003
TA × STD	−2.110**	0,68680556	−2.13	0.033
AQ (Big4)	0.840**	0,24722222	02.36	0.018
TA × AQ	1.560**	0,51388889	02.11	0.035
SIZE	0.120*	0.068	0,09444444	0.079
GROWTH	0.034**	0.015	02.27	0.023
TANG	−0.610*	0,24305556	−1.74	0.082
LIQ	0.090**	0.041	02.20	0.028
LEV	−0.970***	0,20833333	−3.23	0.001
Constant	−0.780	1.920	−0.41	0,47430556

Table 2 reports the two-step System GMM estimates for the dynamic performance model. The lagged dependent variable (ROA_{t−1}) is positive and significant, indicating strong performance persistence in the real estate sector. This finding is consistent with the argument that profitability is path-dependent due to multi-year project pipelines and operational inertia (Balakrishnan et al., 2019)Regarding H1, the coefficient on TA is positive while TA² is negative and statistically significant, supporting an inverted-U relationship between tax aggressiveness and performance. This pattern suggests that moderate levels of tax aggressiveness can be associated with improved ROA, likely through cash-flow preservation, yet aggressive escalation beyond a threshold becomes performance-damaging as uncertainty and agency-related costs dominate. This aligns with the risk–return framing of tax aggressiveness emphasized in tax research (Neuman, Omer, & Schmidt, 2020) For H2, STD (short-term debt intensity) shows a negative and significant coefficient, confirming that higher refinancing exposure is associated with lower performance. This result is consistent with real estate firms' liquidity-timing sensitivity; rollover pressure can raise financing frictions and constrain investment capacity, reducing profitability (Adachi-Sato & Vithessonthi, 2019).

For H3, the interaction TA × STD is negative and significant, indicating that refinancing risk amplifies the adverse side of tax aggressiveness. Substantively, when firms face high short-term debt pressure, aggressive tax positions appear more costly, consistent with the idea that financing constraints make firms less able to absorb tax disputes, negative signals, or information risk. For H4, audit quality (AQ) is positively associated with ROA and the interaction TA × AQ is also positive and significant. This implies that higher audit quality mitigates the negative performance consequences of tax aggressiveness by improving reporting credibility and disciplining opportunistic extremes. This is consistent with the

audit literature emphasizing monitoring and credibility roles (Francis, 2023), and with the argument that external monitoring helps prevent tax aggressiveness from turning into value-destroying opacity (Florio, 2024)

4.3 Dynamic Panel Diagnostics and Validity Checks

Table 3. System GMM Diagnostic Tests

Diagnostic	Statistic	Interpretation
AR(1) test (p-value)	0.000	Expected in first differences
AR(2) test (p-value)	0,19722222	No second-order autocorrelation (valid)
Hansen J test (p-value)	0,21666667	Instruments valid (not overfitting)
Number of instruments	48	Restricted to avoid proliferation

The diagnostic results support model validity. The AR(1) test is significant, which is expected in differenced residuals, while the AR(2) test is not significant, indicating no second-order serial correlation and supporting the moment conditions (Jin et al., 2021) The Hansen test p-value suggests that the instrument set is valid and not excessively overfitting the endogenous structure, consistent with best practice in System GMM implementation (Syofya, 2022)

4.4 Discussion

4.4.1 Tax Aggressiveness and Performance: Evidence of a Nonlinear Trade-off

The inverted-U result provides empirical support for the study's central premise that tax aggressiveness is not uniformly beneficial or harmful. At moderate levels, tax aggressiveness can improve performance via cash retention and internal financing capacity, which is critical in asset-heavy, capital-intensive industries such as real estate. However, the negative TA^2 coefficient indicates that beyond a threshold, performance deteriorates. This finding is consistent with the notion that aggressive tax strategies increase tax risk, enforcement exposure, reputational costs, and information risk, which can dominate initial cash benefits (Sánchez-Ballesta & Yagüe, 2023). It also aligns with agency-based arguments that opaque tax behavior can facilitate opportunism and reduce shareholder value when monitoring is imperfect (Lee & Bose, 2021)The result implies that real estate firms in Indonesia may benefit from structured, defensible tax planning, but should avoid escalations that exceed their compliance and governance capacity. In a sector where performance is persistent, the costs of extreme tax aggressiveness may accumulate over time through disputes, credibility loss, and constrained financing access, consistent with the study's dynamic framing.

4.4.2 Refinancing Pressure as a Performance Drag

The negative effect of STD indicates that debt maturity structure is a key determinant of performance beyond leverage alone. This finding reinforces corporate finance theory: although debt can create value through tax shields, the net benefit depends on distress risk and financial flexibility (Ai et al., 2021b; Omori & Kitamura, 2020). In real estate, a high share of short-term debt increases rollover frequency and vulnerability to tightening credit conditions, which can weaken profitability and disrupt investment plans. This is consistent with the argument in the introduction that leverage is not a sufficient risk descriptor; maturity composition captures refinancing fragility and liquidity timing mismatch.

4.4.3 Refinancing Risk Amplifies the Downside of Tax Aggressiveness

The negative interaction between TA and STD provides evidence that tax aggressiveness becomes particularly harmful when refinancing risk is high. This interaction supports a "constraint-amplification" mechanism: when firms must roll over large portions of debt frequently, lenders and investors may react more negatively to signals of opacity or risk-taking, raising financing costs or restricting credit. Tax aggressiveness can then translate into weaker performance not only through regulatory risk but also through higher external funding frictions, consistent with the introduction's emphasis on the joint role of financing constraints and information risk. This result also helps reconcile mixed findings in prior tax-performance research: the same tax aggressiveness level can have different outcomes depending on the firm's financing vulnerability and credibility context (Wang, Wang, & Xu,

2023). For Indonesian real estate firms, the performance impact of tax aggressiveness is therefore conditional, not uniform.

4.4.4 Audit Quality as a Governance Buffer

The positive AQ coefficient and the positive TA × AQ interaction indicate that audit quality contributes directly to performance and reduces the adverse effects of tax aggressiveness. This is consistent with audit research describing high-quality auditors as mechanisms that strengthen reporting discipline, enhance credibility, and reduce information asymmetry (Francis, 2023)In the context of tax aggressiveness, audit quality likely increases the probability that tax-related financial reporting is defensible and well-documented, discouraging opportunistic tax positions and lowering perceived information risk. This finding also echoes corporate governance arguments that monitoring capacity shapes the value consequences of corporate decisions(Ai et al., 2020). In practical terms, firms in the real estate sector may use high audit quality as a credibility signal to investors and creditors, which is particularly important in a setting characterized by refinancing exposure and cyclical macro conditions.

5. Conclusions

The study provides practical implications. Managers should treat tax aggressiveness as a bounded strategy that must be aligned with liquidity and refinancing conditions; the same tax posture can be sustainable or harmful depending on debt maturity risk. Boards and investors should evaluate tax outcomes jointly with debt maturity structure and audit quality when assessing firm resilience. For regulators, strengthening disclosure and audit ecosystem quality can improve market discipline and reduce the systemic risks associated with opaque tax behavior in leveraged, cyclical industries. Several limitations offer opportunities for future research. First, alternative tax aggressiveness measures (e.g., book–tax differences) and audit proxies (e.g., auditor industry specialization or audit fees) may provide further granularity. Second, extending performance proxies to include market-based measures and downside-risk outcomes (e.g., default risk, cost of debt) can deepen inference on risk channels. Finally, comparative analysis across sectors could clarify whether the conditional effects observed here are unique to capital-intensive industries or reflect broader emerging-market governance dynamics.

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