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How Sales Growth Shapes Tax Behavior in Indonesia's Sharia Firms

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ABSTRACT: This study is motivated by the inconsistency of prior empirical findings regarding the relationship between earnings management, foreign ownership, and tax aggressiveness among publicly listed firms in Indonesia, particularly within the context of the Islamic capital market. The study aims to examine the effect of earnings management and foreign ownership on corporate tax aggressiveness and to investigate the moderating role of sales growth in these relationships. This research employs a quantitative approach using panel data derived from the financial statements of firms included in the Jakarta Islamic Index 70 (JII70) over the period 2020–2024. Hypotheses are tested using Moderated Regression Analysis (MRA). The results indicate that earnings management and foreign ownership significantly influence tax aggressiveness, while sales growth significantly strengthens the effects of both earnings management and foreign ownership on tax aggressiveness. These findings suggest that sales growth serves as an important contingency factor that amplifies the intensity of corporate tax planning behavior. The study contributes to the literature by highlighting how growth dynamics interact with governance mechanisms in shaping tax behavior within a Sharia-compliant capital market.

KEYWORDS: Earnings management; foreign ownership; tax aggressiveness; sales growth; sharia stocks

INTRODUCTION

Tax aggressiveness has consistently attracted scholarly and regulatory attention in Indonesia's capital market, as it is directly associated with fiscal compliance, corporate governance quality, and managerial opportunistic behavior. In practice, tax aggressiveness is carried out through aggressive tax planning strategies that remain within legal boundaries, aiming to minimize tax liabilities without reducing reported accounting income. Accounting and taxation literature emphasizes that corporate tax decisions are not neutral but are shaped by managerial incentives and corporate control structures, as conceptualized within agency theory (Alkausar et al., 2020; Dewi, 2019; Koay et al., 2024).

In line with this perspective, prior studies have widely positioned earnings management as a primary internal determinant of tax aggressiveness. Earnings management enables managers to exercise accounting discretion to adjust reported accounting income in a manner that aligns with tax efficiency objectives. Al Hashfi and Martani (2023) provide empirical evidence that earnings management practices are positively associated with tax minimization among publicly listed firms in Indonesia. This finding is consistent with the results of Ayem and Ongirwalu (2020) and Dewi (2024), which indicate that discretionary accruals are frequently employed as instruments to align financial reporting objectives with corporate tax strategies.

Nevertheless, empirical evidence regarding the relationship between earnings management and tax aggressiveness remains inconclusive. Several studies report weakened or insignificant effects once firm-specific characteristics and monitoring mechanisms are taken into account (Feryansyah et al., 2020; Pipatnarapong et al., 2020). International evidence further emphasizes that the linkage between earnings reporting and tax policy is highly contextual, shaped by the degree of book–tax conformity and the regulatory environment prevailing in each country (Floropoulos et al., 2024). These inconsistencies suggest that the influence of earnings management on tax aggressiveness is likely conditional rather than universal.

Beyond internal firm factors, ownership structure particularly foreign ownership has also been identified as an important determinant of tax aggressiveness. Foreign ownership is generally associated with superior resource capabilities, including access to multinational networks, cross-jurisdictional tax expertise, and more sophisticated tax planning schemes. Empirical evidence from Indonesia shows that foreign institutional ownership significantly influences corporate policies, including tax-related decisions (Ambarwati, 2021; Pujiningsih & Salsabyla, 2022). These findings are consistent with international literature suggesting that firms with foreign ownership have greater opportunities to engage in profit shifting through transfer pricing mechanisms (Hasan et al., 2022).

However, similar to earnings management, the effect of foreign ownership on tax aggressiveness has not yielded consistent empirical results. Some studies in Indonesia document a significant positive effect, while others report weak or insignificant relationships after controlling

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for firm characteristics and governance structures (Dewi, 2019; Muji, 2024). This inconsistency reinforces the argument that foreign ownership does not automatically increase tax aggressiveness, but instead requires specific conditions under which such capabilities can be optimally utilized.

Contemporary literature increasingly emphasizes the importance of contingency variables in explaining these mixed empirical findings. One variable receiving growing attention is sales growth. Sales growth reflects the expansion of operational activities and increasing transaction complexity. Under high-growth conditions, transaction volume and velocity intensify, creating greater information asymmetry and reducing the effectiveness of external monitoring. This environment provides managers with broader discretion to engage in earnings management and to obscure aggressive tax practices (Mulyaningsih, 2024).

Sales growth also carries strategic implications for firms with foreign ownership. Increases in sales are typically accompanied by intensified cross-border transactions with affiliated entities, including sales, purchases, and payments for services and royalties. Hastianingsih (2024) and Rodhiyan et al. (2022) demonstrate that heightened operational activity expands opportunities for tax optimization through internal transaction structuring. Accordingly, sales growth functions as a catalyst that strengthens the capacity of foreign ownership to influence corporate tax aggressiveness.

The research gap becomes particularly salient when examined within the context of firms listed in the Jakarta Islamic Index 70 (JII70). JII70 constituents are normatively expected to operate under sharia principles that emphasize ethics, transparency, and compliance. However, as large-capitalization and highly liquid stocks, JII70 firms are also subject to substantial performance pressures and strong growth expectations. Research on sharia-based firms indicates that sharia governance mechanisms do not always fully constrain opportunistic behavior, particularly when firms enter phases of aggressive expansion (Muhammad et al., 2021; Naufal et al., 2024).

Based on this state of the art, this study offers two main contributions. First, from an empirical perspective, it seeks to explain inconsistencies in prior findings regarding the effects of earnings management and foreign ownership on tax aggressiveness by incorporating sales growth as a moderating variable. Second, in terms of novelty, this study tests a dual moderation model within the Islamic capital market context by positioning sales growth as a moderator of both the earnings management–tax aggressiveness relationship and the foreign ownership–tax aggressiveness relationship. Focusing on firms included in the Jakarta Islamic Index 70 (JII70) allows this study to empirically examine the boundaries of sharia ethical compliance when firms face strong growth pressures and high operational complexity, thereby contributing new insights to the literature on Islamic capital markets and corporate tax behavior.

Tax aggressiveness behavior can be explained through Agency Theory, which emphasizes conflicts of interest between shareholders and managers arising from divergent objectives and information asymmetry. In this context, managers possess discretion to exploit accounting policies and tax strategies to maintain reported earnings performance while simultaneously minimizing tax burdens. Consequently, earnings management and tax aggressiveness are viewed as manifestations of agency costs stemming from managerial opportunism (Alkausar et al., 2020; Dewi, 2019).

In addition, Resource Dependence Theory posits that firms with greater access to resources and more complex operational structures possess enhanced capabilities to design sophisticated tax planning strategies. Foreign ownership often brings specialized expertise, multinational networks, and cross-jurisdictional knowledge that enable firms to engage more effectively in tax aggressiveness, particularly through transfer pricing mechanisms (Pujiningsih & Salsabyla, 2022; Rodhiyan et al., 2022).

Earnings management provides managers with discretion to adjust accounting income in accordance with specific objectives, including tax minimization. A substantial body of empirical evidence indicates that earnings management is positively associated with tax aggressiveness, as it enables managers to reduce taxable income or widen the gap between book income and taxable income (Al Hashfi & Martani, 2023; Ayem & Ongirwalu, 2020). Accordingly, earnings management is expected to increase tax aggressiveness. Based on this argument, the following hypothesis is proposed:

H1: Earnings management has a positive effect on tax aggressiveness.

Foreign ownership is perceived to enhance tax aggressiveness by bringing structural capabilities and multinational networks that allow firms to exploit differences in tax regimes across countries. In large-capitalization firms, such as those included in the Jakarta Islamic Index 70 (JII70), these capability effects tend to outweigh monitoring functions, leading to the expectation that foreign ownership positively influences tax aggressiveness (Ambarwati, 2021; Rodhiyan et al., 2022). Based on this reasoning, the following hypothesis is proposed:

H2: Foreign ownership has a positive effect on tax aggressiveness.

Sales growth reflects the expansion of operational activities and increasing transaction complexity. Such conditions create operational opacity that increases managers' opportunities to obscure earnings management and aggressive tax practices. Therefore, sales growth is expected to strengthen the relationship between earnings management and tax aggressiveness (Hastianingsih, 2024). Based on this argument, the following hypothesis is proposed:

H3: Sales growth strengthens the positive relationship between earnings management and tax aggressiveness.

Furthermore, high sales growth in firms with foreign ownership increases the volume of cross-border transactions, thereby expanding opportunities for tax optimization through transfer pricing. Consequently, sales growth is also expected to strengthen the effect of foreign ownership on tax aggressiveness (Rodhiyan et al., 2022; Muji, 2024). Based on this reasoning, the following hypothesis is proposed:

H4: Sales growth strengthens the positive relationship between foreign ownership and tax aggressiveness.

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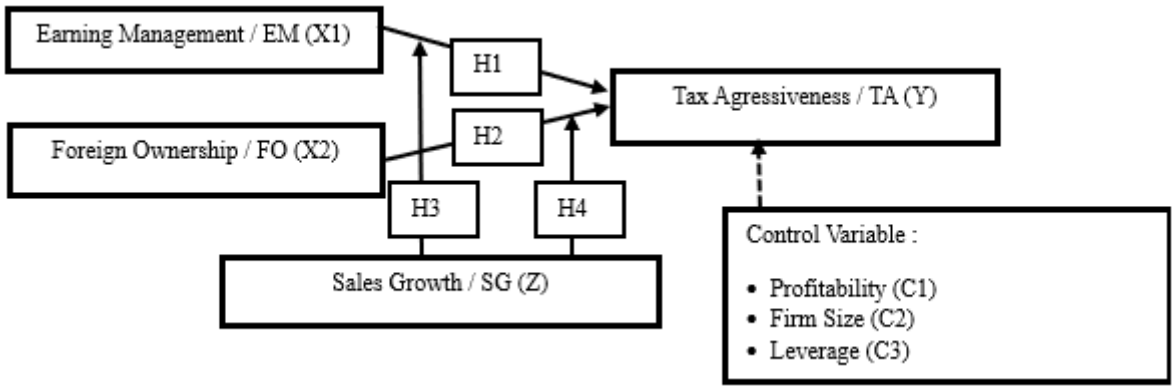


Figure 1. Conceptual Model

RESEARCH METHODOLOGY

This study employs a causal associative quantitative approach, which aims to analyze and test causal relationships as well as interaction effects among variables specifically earnings management and foreign ownership on the dependent variable, tax aggressiveness, with sales growth serving as a moderating variable. The data used in this study consist of panel data, combining cross-sectional data from firms listed in the Jakarta Islamic Index 70 (JII70) and time-series data covering the period from 2020 to 2024.

The use of panel data is justified by several methodological advantages. Panel data provide a larger number of observations and richer information, thereby increasing degrees of freedom and reducing potential multicollinearity issues. In addition, panel data allow for the control of unobserved heterogeneity across firms that may otherwise bias estimation results. This approach also enables the analysis of dynamic changes in variables over time. The primary statistical technique employed in this study is panel data regression using the Moderated Regression Analysis (MRA) approach.

Prior to estimating the MRA model, a series of diagnostic tests were conducted to determine the most appropriate and efficient panel data regression model. First, the Chow test was applied to select between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). Second, the Hausman test was employed to determine the preferred model between the Fixed Effect Model (FEM) and the Random Effect Model (REM). Third, the Lagrange Multiplier test was conducted as an additional confirmation to assess the presence of random effects in the model. The moderated regression model is specified as follows :

$$TA_{it} = \beta_0 + \beta_1 EM_{it} + \beta_2 FO_{it} + \beta_3 SG_{it} + \beta_4 (EM_{it} \times SG_{it}) + \beta_5 (FO_{it} \times SG_{it}) + \sum_{k=6}^{8} \beta_k C_{k,it} + \epsilon_{it}$$

Where :

Coefficient	Variable	Description	Expected Direction (β)
β_0	Constant	Intercept	–
β_1	EM_{it} (Earnings Management)	Direct effect of earnings management on tax aggressiveness (H1)	Positive
β_2	FO_{it} (Foreign Ownership)	Direct effect of foreign ownership on tax aggressiveness (H2)	Positive
β_3	SG_{it} (Sales Growth)	Direct effect of sales growth on tax aggressiveness	–
β_4	($EM_{it} \times SG_{it}$)	Moderating effect of sales growth on the relationship between earnings management and tax aggressiveness (H3)	Positive
β_5	($FO_{it} \times SG_{it}$)	Moderating effect of sales growth on the relationship between foreign ownership and tax aggressiveness (H4)	Positive
βk (k = 6–8)	$C_{k,it}$	Control variables	–
εit	Error term	Residual	–

The moderating hypotheses are considered supported if the coefficients of the interaction terms (β_4 and β_5) are statistically significant and exhibit the hypothesized direction (i.e., positive), indicating that sales growth strengthens the existing positive relationships.

Table 1. Operational Definitions and Measurement of Variables

Variable	Type	Conceptual Definition	Measurement Proxy
Tax Aggressiveness (TA)	Dependent (Y)	Aggressive tax planning strategies aimed primarily at reducing corporate tax liabilities through the exploitation of legal loopholes	Cash Effective Tax Rate (CETR), where tax aggressiveness is proxied by lower CETR values. CETR measures the proportion of cash taxes paid relative to pre-tax income. $CETR_{it}$ = Cash Income Tax Expenseit / Pre-Tax Incomeit

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Earnings Management (EM)	Independent (X1)	Deliberate managerial intervention in the financial reporting process to alter reported earnings, viewed as opportunistic behavior under agency theory	Discretionary Accruals (DA), representing the accrual component not explained by normal economic performance, estimated using the Modified Jones Model (Jones, 1991; modified by Dechow et al., 1995). Higher absolute DA values indicate higher levels of earnings management
Foreign Ownership (FO)	Independent (X2)	The extent of corporate share ownership held by foreign investors or entities, reflecting multinational governance structures and resource capabilities	Percentage of shares owned by foreign investors, measured as the total proportion of shares held by non-domestic entities or individuals at fiscal year-end
Sales Growth (SG)	Moderating (Z)	The percentage increase in a firm's sales volume from one period to the next, reflecting investment opportunities and market dynamics	Sales Growth: SG_{it} = (Net Sales$_t$ − Net Sales$_{t-1}$) / Net Sales$_{t-1}$
Profitability	Control (C1)	The firm's ability to generate profits from its assets	Return on Assets (ROA): ROA $_{it}$ = Net Income $_{it}$ / Total Assets $_{it}$
Firm Size	Control (C2)	The economic scale and operational complexity of the firm	Ln(Total Assets): Natural logarithm of total assets at year-end
Leverage	Control (C3)	Financial risk reflected by the proportion of debt relative to equity	Debt to Equity Ratio (DER): DER $_{it}$ = Total Debt $_{it}$ / Total Equity $_{it}$

The unit of analysis in this study consists of publicly listed firms that are periodically included as constituents of the most liquid and large-capitalization Islamic stock index in Indonesia, namely the Jakarta Islamic Index 70 (JII70), on the Indonesia Stock Exchange (IDX) during the observation period from 2020 to 2024. Consistent with agency theory, JII70 firms provide a suitable setting to examine tax-related managerial behavior. Firms with high liquidity and large market capitalization face greater agency problems due to increased organizational complexity and managerial discretion, which heighten incentives for tax-related decision-making. Simultaneously, the sharia-based institutional framework imposes ethical and compliance constraints that curb opportunistic behavior. Within this context, sales growth functions as a key contingency factor, as rapid growth amplifies operational complexity and information asymmetry, potentially weakening governance constraints and moderating the relationships between earnings management, foreign ownership, and corporate tax behavior.

RESULTS AND DISCUSSION

Descriptive statistics for all research variables are presented based on 205 firm-year observations from companies included in the Jakarta Islamic Index 70 (JII70) over the 2020–2024 period. The descriptive statistics show that tax aggressiveness (TA), proxied by CETR, has an average value of 0.2938, indicating that firms pay approximately 29 percent of pre-tax income as cash taxes. The median being lower than the mean suggests a positively skewed distribution, reflecting heterogeneity in corporate tax outcomes. Earnings management (EM) exhibits a relatively low mean with a median close to the mean, indicating a fairly symmetric distribution and moderate variation across firms. Foreign ownership (FO) averages 32 percent, with a right-skewed distribution, implying that while many firms are domestically dominated, some exhibit high levels of foreign ownership. Sales growth (SG) shows substantial dispersion, with moderate average growth but high volatility, supporting its relevance as a moderating variable. Among control variables, profitability (ROA) appears relatively stable, firm size (FS) reflects medium-to-large firms, and leverage (DER) indicates heterogeneous financing structures across the sample. Overall, the statistics reveal meaningful variation across firms, justifying the use of panel data analysis.

Table 2. Descriptive Statistics of Research Variables

Variable	Mean	Median	Max	Min	Std. Dev.
TA (Y)	0.2938	0.2471	2.5780	−4.6625	0.6053
EM (X1)	0.0435	0.0486	0.9178	−0.6033	0.1095
FO (X2)	0.3227	0.2525	0.9309	0.0002	0.2584
SG (Z)	0.1325	0.0640	5.5296	−0.9029	0.5179
ROA (C1)	0.0834	0.0658	0.4543	−0.0434	0.0768
FS (C2)	29.3013	30.7884	33.6438	20.0275	3.7168
DER (C3)	0.9687	0.7533	6.4659	0.0165	0.9231

Source: Processed Data, 2025

The tax aggressiveness variable (TAY), proxied by the Cash Effective Tax Rate (CETR), exhibits a mean value of 0.2938 (29.38%) with a standard deviation of 0.6053. The median CETR is 0.2471 (24.71%), which is lower than the mean, indicating a positively skewed distribution. The extremely low minimum value of −4.6625 reflects the presence of firms engaging in highly aggressive tax avoidance practices or cases in which firms received substantial tax refunds relative to pre-tax income in a given year. Conversely, the maximum CETR value of 2.5780 indicates

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firms whose cash tax payments substantially exceeded their pre-tax income, potentially due to accelerated tax payments or significant positive tax adjustments. The considerable variability in CETR highlights the heterogeneity of tax practices among JII70 firms, suggesting that despite operating within a sharia-based framework that emphasizes compliance, substantial variation in corporate tax management strategies persists.

The earnings management variable (EMX1) measured using Discretionary Accruals (DA), has a mean value of 0.0435 and a standard deviation of 0.1095. The median value of 0.0486 is slightly higher than the mean, indicating a relatively symmetric distribution with a slight negative tendency. The wide range of DA values, from −0.6033 to 0.9178, reflects diverse earnings management practices among sample firms. Negative values indicate income-decreasing earnings management, whereby managers reduce reported earnings, whereas positive values indicate income-increasing earnings management. The relatively large standard deviation compared to the mean suggests substantial variability in earnings management practices across firms and over time. This finding is consistent with Agency Theory, which posits that managerial incentives to manipulate earnings vary depending on firm-specific contexts, performance targets, and selected tax strategies.

The foreign ownership variable (FOX2) shows a mean value of 0.3227 (32.27%) with a standard deviation of 0.2584. The median value of 0.2525 (25.25%), which is lower than the mean, indicates a right-skewed distribution, where most firms exhibit moderate levels of foreign ownership, while a smaller number of firms have very high foreign ownership concentrations. The wide ownership range from a minimum of 0.0002% to a maximum of 93.09% reflects substantial diversity in ownership structures among JII70 firms. While some firms remain predominantly domestically owned, others are strongly integrated into multinational networks through majority foreign ownership. The substantial presence of foreign ownership in certain firms supports the Resource Dependence Theory argument that foreign investors provide access to global capabilities, including more sophisticated international tax planning expertise.

The sales growth variable (SGZ) has a mean value of 0.1325 (13.25%) with a standard deviation of 0.5179. The median value of 0.0640 (6.40%), which is considerably lower than the mean, indicates a highly positively skewed distribution, where most firms experience moderate sales growth, while a limited number of firms record exceptionally high growth rates. The maximum value of 5.5296 (552.96%) reflects firms undergoing extraordinary business expansion, which may create stronger incentives and opportunities for earnings management and tax aggressiveness. In contrast, the minimum value of −0.9029 (−90.29%) indicates firms experiencing severe sales contraction, potentially due to business model changes, segment divestitures, or adverse macroeconomic conditions. The high variability in sales growth provides strong justification for its inclusion as a moderating variable, as differing growth conditions may create distinct contexts in which earnings management and foreign ownership influence tax aggressiveness.

The Chow test was conducted to determine the most appropriate model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). Table 3 presents the results of the Redundant Fixed Effects Tests.

Table 3. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.117796	(40, 156)	0.0000
Cross-section Chi-square	120.431898	40	0.0000

Source: Processed Data, 2025

The Chow test results indicate an F-statistic of 3.1178 with a probability value of 0.0000, which is statistically significant at the 99 percent confidence level. Similarly, the Chi-square statistic of 120.4319 with a probability of 0.0000 also demonstrates strong statistical significance. Both test statistics consistently reject the null hypothesis, which states that the Common Effect Model is more appropriate than the Fixed Effect Model. The rejection of the null hypothesis indicates the presence of significant cross-sectional heterogeneity across firms that cannot be ignored and therefore must be modeled through individual intercepts for each firm, as provided by the Fixed Effect Model. This heterogeneity may arise from firm-specific characteristics such as corporate culture, managerial quality, operational complexity, or other unobserved factors that influence corporate tax aggressiveness. Accordingly, based on the Chow test results, the Fixed Effect Model is deemed more appropriate than the Common Effect Model. However, to determine the final estimation model to be used in the analysis, further testing is required. Specifically, the Hausman test is subsequently conducted to select between the Fixed Effect Model and the Random Effect Model.

The Hausman test was conducted to select the appropriate model between the Fixed Effect Model (FEM) and the Random Effect Model (REM). Table 4 reports the results of the Correlated Random Effects test.

Table 4. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.125312	8	0.3318

Source: Processed Data, 2025

The Hausman test results show a Chi-square statistic of 9.1253 with a probability value of 0.3318, which is not statistically significant at conventional confidence levels ($\alpha = 0.05$ or $\alpha = 0.10$). This probability value exceeding 0.05 indicates that the null hypothesis cannot be rejected, implying that there is no statistically significant systematic difference between the coefficients estimated by the Fixed Effect Model and those estimated by the Random Effect Model. In other words, the fundamental assumption of the Random Effect Model that individual effects are uncorrelated with the explanatory variables is satisfied in this dataset. The practical implication of the Hausman test result is that the Random

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Effect Model is statistically more efficient, as it produces consistent estimates with smaller standard errors compared to the Fixed Effect Model. Additionally, the Random Effect Model is more parsimonious in terms of degrees of freedom because it does not require the explicit estimation of firm-specific intercepts. Based on considerations of statistical efficiency and the formal test results, this study adopts the Random Effect Model as the final estimation method for the Moderated Regression Analysis.

As an additional confirmation, the Lagrange Multiplier (LM) test was conducted to verify the presence of random effects in the model. Table 5 presents the results of the LM test.

Table 5. Lagrange Multiplier Test Results

Test	Cross-section	Time	Both
Breusch–Pagan	28.17583 (0.0000)	1.562833 (0.2113)	29.73866 (0.0000)
Honda	5.308091 (0.0000)	−1.250133 (0.8944)	2.869410 (0.0021)

Source: Processed Data, 2025

The Lagrange Multiplier test results indicate that the Breusch–Pagan statistic for cross-sectional effects is 28.1758 with a probability value of 0.0000, which is highly significant. Similarly, the Honda test for cross-sectional effects yields a statistic of 5.3081 with a probability of 0.0000. Both test statistics consistently reject the null hypothesis that the variance of the cross-sectional random effects is equal to zero, thereby confirming the presence of significant cross-sectional heterogeneity that must be modeled as random effects. In contrast, the test results for time effects are not statistically significant, as indicated by the Breusch–Pagan statistic of 1.5628 ($p = 0.2113$) and the Honda statistic of −1.2501 ($p = 0.8944$). These findings suggest that time effects do not exhibit significant variation in the model. This result may be attributed to the relatively short observation period (2020–2024) and the relative stability of Indonesia's tax policy environment during the study period. The joint test results (Both) show strong statistical significance, further confirming that the use of the Random Effect Model, particularly one that captures cross-sectional random effects, is appropriate. Overall, the Lagrange Multiplier test results reinforce the model selection decision indicated by the Hausman test, supporting the adoption of the Random Effect Model as the final estimation approach.

The normality test was conducted to examine whether the residuals of the regression model are normally distributed. The results of the normality test are presented in the form of a histogram and the Jarque–Bera statistic.

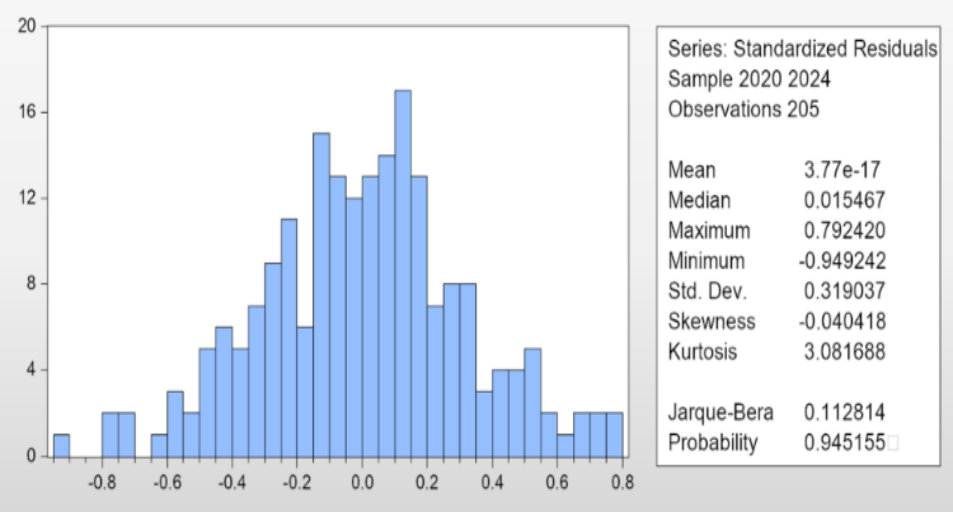


Figure 2. Results of the Residual Normality Test

Based on the histogram of the residual distribution presented in Figure 2, the standardized residuals appear to approximate a normal distribution with a symmetric, bell-shaped pattern. Descriptive statistics indicate that the mean of the residuals is extremely close to zero (3.77×10^{-17}), suggesting the absence of systematic bias in the residuals. The median value of 0.0155 is also very close to zero, further reinforcing the symmetry of the distribution. The skewness value of −0.0404, which is close to zero, indicates that the residual distribution exhibits minimal asymmetry, while the kurtosis value of 3.0817, which is close to the benchmark value of three, suggests tail thickness comparable to that of a normal distribution. The Jarque–Bera statistic, used to formally test normality, yields a value of 0.1128 with a probability of 0.9452, which is substantially greater than the conventional significance level of 0.05. These results indicate that the null hypothesis of normally distributed residuals cannot be rejected at the 95 percent confidence level. Accordingly, the assumption of residual normality is satisfied in this model, implying that statistical inference based on t-tests and F-tests can be conducted in a valid manner.

The fulfillment of the normality assumption is important for the validity of parametric hypothesis testing in regression analysis. Although, in large samples ($n > 30$), the Central Limit Theorem suggests that the sampling distribution tends to approximate normality even when the underlying population distribution is non-normal, the satisfaction of the normality test provides additional confidence that parameter estimates and hypothesis testing in this study are reliable. Moreover, residual normality indicates that the regression model is appropriately specified, that no extreme outliers distort the estimation results, and that the linear relationships between the independent and dependent variables have been

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adequately modeled. In the context of this study, the fulfillment of the normality assumption provides a robust basis for interpreting the regression coefficients and for testing the research hypotheses concerning the moderating role of sales growth in the relationships between earnings management, foreign ownership, and tax aggressiveness.

The heteroskedasticity test was conducted to detect whether there is inequality in the variance of residuals across observations in the regression model. Table 6 presents the results of the test using the Breusch–Pagan–Godfrey method.

Table 6. Heteroskedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.079241	0.005216	15.19146	0.0000
X1	−0.037373	0.036865	−1.013789	0.3119
X2	−0.001131	0.022019	−0.051373	0.9591
Z	−0.006198	0.016261	−0.381196	0.7035
X1Z	0.016608	0.042215	0.393418	0.6944
X2Z	0.006396	0.038118	0.167793	0.8669
ROA	−0.169502	0.068941	−2.458646	0.0148
FS	−0.002694	0.001473	−1.828986	0.0689
DER	0.007556	0.006273	1.204541	0.2298

Source: Processed Data, 2025

The heteroskedasticity test was performed using an auxiliary regression, in which the absolute values of the residuals were regressed on all independent variables. The results indicate that most independent variables do not have a statistically significant effect on the absolute residual values. Specifically, earnings management (X1) shows a probability value of 0.3119, foreign ownership (X2) of 0.9591, sales growth (Z) of 0.7035, and the interaction terms X1Z and X2Z of 0.6944 and 0.8669, respectively. All of these values are not statistically significant at the 95 percent confidence level, indicating that the residual variance does not systematically depend on the main independent variables or the moderating variables. Although the control variable ROA is statistically significant at the 5 percent level ($p = 0.0148$), this result does not indicate a serious heteroskedasticity problem, as ROA is not the primary variable of interest and its influence on residual variance is relatively limited. Overall, the test results provide evidence that the homoskedasticity assumption in the Random Effect Model is reasonably well satisfied.

The fulfillment of the homoskedasticity assumption is crucial for the validity of standard error estimation in regression models. Severe heteroskedasticity would lead to biased standard errors, which in turn would distort t-statistics and significance levels, rendering hypothesis testing unreliable. In the context of this study, which employs a Random Effect Model estimated using Generalized Least Squares (GLS), the estimation procedure inherently accommodates a more flexible variance–covariance structure than Ordinary Least Squares (OLS), making it more robust to mild heteroskedasticity. Nevertheless, the formal test results indicating no significant heteroskedasticity provide additional assurance that the statistical inferences drawn in this study are valid and reliable for assessing the effects of the research variables on tax aggressiveness.

The multicollinearity test was conducted to examine whether there is a high degree of correlation among the independent variables in the regression model. Table 7 reports the results of the test using the Variance Inflation Factor (VIF).

Table 7. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.001178	1.011627	NA
X1	0.018158	1.772556	1.772556
X2	0.015858	1.334823	1.334823
Z	0.002647	3.244139	3.244139
X1Z	0.017365	4.517694	4.504859
X2Z	0.012833	2.586390	2.586321
ROA	0.096464	1.176305	1.176305
FS	8.85E−05	1.061432	1.061432
DER	0.001018	1.158694	1.158694

Source: Processed Data, 2025

The multicollinearity test results indicate that all independent variables exhibit Centered VIF values below the critical threshold of 10, which is commonly used to identify serious multicollinearity problems. Specifically, earnings management (X1) has a VIF of 1.7726, foreign ownership (X2) has a VIF of 1.3348, sales growth (Z) has a VIF of 3.2441, and the interaction terms X1Z and X2Z have VIF values of 4.5049 and 2.5863, respectively. These values suggest that the degree of collinearity among the independent variables remains within an acceptable range and does not pose serious estimation issues. The highest VIF value is observed for the interaction term between earnings management and sales growth

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(X1Z) at 4.5049. However, this value is still well below the critical threshold and can be naturally explained by the fact that interaction terms are mathematically correlated with their constituent main effects. The control variables, ROA, firm size (FS), and leverage (DER) all exhibit very low VIF values, ranging from 1.0614 to 1.1767, indicating the absence of multicollinearity concerns among the control variables.

The fulfillment of the non-multicollinearity assumption is essential for the validity of regression coefficient estimation and hypothesis testing in this study. Severe multicollinearity inflates the standard errors of regression coefficients, thereby reducing statistical power and making it difficult to detect significant effects even when they truly exist. In the context of Moderated Regression Analysis, the presence of interaction terms naturally induces some degree of correlation with the main effects, thus moderately higher VIF values for interaction terms so long as they remain below conventional thresholds are expected and acceptable. Overall, these results provide strong assurance that the regression model employed in this study is free from serious multicollinearity issues, allowing the estimated coefficients to be interpreted reliably and hypothesis testing to be conducted in a valid manner.

The autocorrelation test was conducted to examine whether there is correlation between the residuals of a given time period and those of preceding periods in the panel data regression model. Table 8 presents the Durbin–Watson statistic obtained from the model estimation.

Table 8. Autocorrelation Test Results

Statistic	Value
Root MSE	0.219959
Mean dependent var	4.04E−17
S.D. dependent var	0.486910
Sum squared resid	9.918266
Durbin–Watson stat	1.906367

Source: Processed Data, 2025

The Durbin–Watson statistic obtained from the model estimation is 1.9064. In econometric theory, a Durbin–Watson value close to 2 indicates the absence of autocorrelation in the regression residuals. More specifically, when the Durbin–Watson statistic lies within the range of 1.5 to 2.5, the model is generally considered free from serious autocorrelation problems. The value of 1.9064 found in this study lies squarely within this range and is very close to the ideal value of 2, indicating that residuals from one time period are not systematically correlated with residuals from previous periods. This finding is particularly important in panel data analysis with a time dimension (2020–2024), where shocks or disturbances in one period may potentially carry over to subsequent periods, leading to biased standard errors and invalid hypothesis testing. The absence of autocorrelation confirmed by this test indicates that each observation in the panel dataset has an independent error term, thereby satisfying one of the key assumptions of regression analysis.

The fulfillment of the non-autocorrelation assumption has important implications for the validity of statistical inference in this study. Positive autocorrelation would cause standard errors estimated by Ordinary Least Squares (OLS) to be understated, leading to an increased likelihood of incorrectly rejecting the null hypothesis (Type I error). Conversely, negative autocorrelation would result in overstated standard errors, reducing statistical power and increasing the likelihood of failing to detect true effects (Type II error). In the context of this study, which employs a Random Effect Model estimated using Generalized Least Squares (GLS), the estimation procedure already accounts for a more complex error structure than OLS. Nevertheless, the formal test results confirming the absence of autocorrelation provide additional assurance that the model is properly specified. With all classical assumptions, normality, homoskedasticity, non-multicollinearity, and non-autocorrelation satisfied, the Random Effect Model estimation in this study meets the criteria of the Best Linear Unbiased Estimator (BLUE). Accordingly, the hypothesis testing results can be considered reliable for drawing valid research conclusions.

Based on the results of the Chow test, Hausman test, and Lagrange Multiplier test, the Random Effect Model (REM) is selected as the most appropriate estimation method for analyzing the panel data in this study. Table 9 presents the complete estimation results of the Moderated Regression Analysis (MRA) using the Random Effect Model.

Table 9. Random Effect Model Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.034574	0.034325	1.007261	0.3151
X1 (EM)	3.611216	0.134751	26.79912	0.0000
X2 (FO)	0.371054	0.125930	2.946518	0.0036
Z (SG)	0.655897	0.051446	12.74930	0.0000
X1Z (EM × SG)	1.263783	0.131776	9.590403	0.0000
X2Z (FO × SG)	1.004313	0.113284	8.865411	0.0000
ROA	−0.081996	0.310587	−0.264002	0.7921
FS	0.021625	0.009405	2.299210	0.0225
DER	−0.064925	0.031904	−2.034979	0.0432

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Effects Specification

- Cross-section random: S.D. = 0.200449, Rho = 0.5149
- Idiosyncratic random: S.D. = 0.194560, Rho = 0.4851

Weighted Statistics

- R-squared: 0.794927
- Adjusted R-squared: 0.786556
- F-statistic: 94.96950
- Prob(F-statistic): 0.000000
- Durbin-Watson stat: 1.906367

Source: Processed Data, 2025

The Random Effect Model estimation results indicate that the research model demonstrates strong statistical performance. The F-statistic of 94.9695 ($p < 0.01$) indicates that the model is jointly significant. Meanwhile, the R-squared value of 0.7949 and Adjusted R-squared of 0.7866 suggest that approximately 79 percent of the variation in tax aggressiveness (CETR) is explained by the variables included in the model. This high explanatory power confirms that the model specification effectively captures the structural relationships among earnings management, foreign ownership, sales growth, and tax aggressiveness for firms listed in the JII70. Furthermore, the relatively balanced variance components between cross-sectional random effects and idiosyncratic random effects (Rho approximately 51 percent and 49 percent, respectively) indicate that variations in tax aggressiveness are influenced almost equally by firm-specific characteristics and temporal dynamics. This finding is consistent with the panel data approach employed in this study and supports the appropriateness of the Random Effect Model for the analysis.

The earnings management variable (X1) exhibits a coefficient of 3.6112 with a t-statistic of 26.7991 ($p < 0.01$), indicating a positive and highly significant effect on the Cash Effective Tax Rate (CETR). Quantitatively, a one-unit increase in discretionary accruals is associated with an increase of 3.6112 in CETR. Given that a higher CETR reflects lower tax aggressiveness, this finding suggests that earnings management practices among JII70 firms are instead associated with an increase in effective tax burdens. This result is consistent with the book–tax trade-off literature (Floropoulos et al., 2024), which argues that income-increasing earnings management undertaken to meet capital market reporting objectives often leads to higher taxable income when the scope for creating aggressive book–tax differences is limited. In the context of the Islamic capital market, where transparency and compliance requirements are relatively stringent, this trade-off appears to be even more pronounced.

The foreign ownership variable (X2) exhibits a coefficient of 0.3711 with a t-statistic of 2.9465 ($p < 0.01$). Economically, a one-percentage-point increase in foreign ownership is associated with a 0.3711 percentage-point increase in CETR. This finding indicates that foreign ownership is associated with more conservative tax practices. Although this result does not fully align with the expectations of Resource Dependence Theory, which emphasizes the capability of foreign investors to engage in sophisticated international tax planning, it is consistent with literature highlighting the roles of enhanced monitoring, reputational sensitivity, and compliance culture brought by foreign institutional investors (Hasan et al., 2022; Koay et al., 2024). In the context of JII70 firms, the monitoring effect and ESG-related pressures appear to outweigh incentives for aggressive tax behavior.

The interaction between earnings management and sales growth (X1Z) yields a coefficient of 1.2638 with a t-statistic of 9.5904 ($p < 0.01$). This coefficient indicates that the effect of earnings management on CETR becomes stronger for firms with higher levels of sales growth. Mathematically, the marginal effect of earnings management on CETR can be expressed as $3.6112 + 1.2638 \times SG$, implying that increases in sales growth amplify the fiscal consequences of earnings management practices. This finding supports the contingency-based argument that sales growth increases operational complexity and opacity, thereby intensifying the impact of earnings management on a firm's tax structure (Mulyaningsih, 2024).

The interaction between foreign ownership and sales growth (X2Z) is also statistically significant, with a coefficient of 1.0043 and a t-statistic of 8.8654 ($p < 0.01$). The marginal effect of foreign ownership on CETR thus becomes $0.3711 + 1.0043 \times SG$, indicating that for firms experiencing high sales growth, the positive effect of foreign ownership on CETR is further amplified. Although sales growth increases opportunities for cross-border transactions, the positive sign of the coefficient suggests that heightened tax scrutiny and reputational risk faced by rapidly growing foreign-owned firms encourage the adoption of more conservative tax strategies. This finding underscores that resource capabilities do not necessarily translate into aggressive behavior, but rather depend critically on the institutional context and the strength of regulatory enforcement.

Regarding the control variables, firm size exhibits a positive coefficient of 0.0216 ($p < 0.05$), supporting the political cost hypothesis, which posits that larger firms tend to pay higher taxes in order to maintain legitimacy and mitigate regulatory risk. Leverage shows a significant negative effect, with a coefficient of −0.0649 ($p < 0.05$), consistent with trade-off theory, which emphasizes the tax benefits associated with interest expenses. Meanwhile, profitability (ROA) is not statistically significant, indicating that variations in CETR are more strongly explained by earnings discretion and operational growth dynamics rather than by the level of profitability itself.

Overall, the results indicate that sales growth functions as a key moderating variable that strengthens the effects of both earnings management and foreign ownership on tax aggressiveness. In the context of a large-cap Islamic capital market such as the JII70, the combination of ethical requirements, transparency, and stringent oversight leads firms to adopt more conservative tax strategies, even though incentives and capabilities for tax aggressiveness remain present. These findings enrich the literature by demonstrating that the institutional context of sharia-based capital markets can alter both the direction and the strength of the relationship between corporate governance mechanisms and corporate tax behavior.

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CONCLUSION

This study aims to examine the role of sales growth as a moderating variable that explains the complex relationships between earnings management and foreign ownership and tax aggressiveness among firms listed in the Jakarta Islamic Index 70 (JII70) during the 2020–2024 period. Based on panel data analysis using a Random Effect Model with Moderated Regression Analysis on 205 firm-year observations, several key conclusions can be drawn.

First, earnings management, proxied by discretionary accruals, is found to have a positive and highly significant effect on the Cash Effective Tax Rate (CETR). This finding indicates that earnings management practices among JII70 firms actually increase firms' effective tax burdens. This result can be explained by the trade-off between book income objectives, aimed at meeting capital market expectations, and taxable income objectives related to tax minimization. In a sharia-based market characterized by high transparency and stringent oversight, managers' ability to generate extreme book–tax differences is constrained. As a result, income-increasing earnings management leads to higher taxable income and consequently higher CETR.

Second, foreign ownership is shown to have a positive and significant effect on CETR. Contrary to the initial expectation that foreign investors bring capabilities for aggressive international tax planning, the empirical evidence suggests that foreign ownership is instead associated with higher tax compliance. This phenomenon can be explained by the monitoring mechanisms and transparency standards introduced by sophisticated foreign institutional investors, as well as the tax compliance culture originating from jurisdictions with strong tax enforcement. Within the context of JII70 firms operating under a sharia framework, foreign investors appear to place greater emphasis on ESG considerations, including tax compliance as an integral component of corporate social responsibility.

Third, sales growth is found to significantly moderate (strengthen) the positive relationship between earnings management and CETR. This moderating effect confirms that sales growth serves as a crucial contingency variable, creating conditions under which earnings management exerts a stronger impact on firms' tax structures. High growth increases operational opacity, enabling managers to obscure discretionary accruals, while simultaneously amplifying the absolute magnitude of tax consequences. As a result, the fiscal implications of earnings management become more pronounced in high-growth firms.

Fourth, sales growth also significantly moderates (strengthens) the positive relationship between foreign ownership and CETR. This finding indicates that in firms with high foreign ownership experiencing rapid growth, the combination of increased cross-border transaction volumes and intensified scrutiny from tax authorities encourages the adoption of more conservative tax strategies. Rather than translating resource capabilities into aggressive tax behavior, foreign ownership appears to leverage its expertise to design sophisticated compliance-oriented tax strategies that ensure regulatory adherence while maintaining efficiency.

Overall, this study successfully confirms the crucial role of sales growth as a dual moderator, strengthening the effects of both internal determinants (earnings management) and external determinants (foreign ownership) on corporate tax behavior. The dual moderation model tested in this study explains 79.49 percent of the variation in tax aggressiveness, indicating that the model specification is appropriate and that the selected variables are highly relevant. In the context of JII70 firms operating within a sharia framework, ethical compliance requirements appear to interact with growth incentives and multinational capabilities to shape predominantly conservative tax decisions. These findings provide empirical evidence that institutional market characteristics—namely, sharia-based markets with high ethical and transparency standards combined with strengthening regulatory enforcement in Indonesia, can alter the dynamics between corporate governance structures and corporate tax behavior.

Future research is encouraged to enrich the analysis by employing alternative proxies for tax aggressiveness to obtain a more comprehensive understanding of corporate tax behavior and by expanding the sample through comparative analyses between sharia and non-sharia firms. Subsequent studies may also incorporate additional governance and monitoring mechanisms such as audit quality and the effectiveness of sharia supervisory boards as moderating or mediating variables to deepen insights into the interaction between managerial incentives and ownership structures. Moreover, the adoption of more dynamic methodological approaches should be considered to mitigate potential endogeneity issues and strengthen causal inference. By accounting for evolving policy environments and macroeconomic conditions, future research can enhance both academic contributions and practical relevance. The findings of this study are expected to be valuable for corporations in designing reporting and tax compliance strategies, for investors in assessing governance and tax risk, and for policymakers in developing more effective and risk-based tax regulation and supervision.

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