International Journal of Accounting and Economics Studies, 12 (2) (2025) 35-42

International Journal of Accounting and Economics Studies

Website: www.sciencepubco.com/index.php/IJAES
https://doi.org/10.14419/2eq43940
Research paper

Tax aggressiveness in the energy industry: insights of emerging countries

Enggar Diah Puspa Arum *, Rico Wijaya, Ilham Wahyudi

Universitas Jambi, Jambi, Indonesia
**Corresponding author E-mail: enggar_diah@unja.ac.id*

Received: May 10, 2025, Accepted: May 29, 2025, Published: June 1, 2025

Abstract

Effective tax policy is crucial to achieving the Sustainable Development Goals (SDGs) globally. Various strategies are used to manage and control aggressive acts in tax planning as part of policies pertaining to tax aggressiveness. This study aims to examine the moderating effect of profitability on the relationship between financial ratios and monitoring on tax aggressiveness in the energy industries of Indonesia and Malaysia. Profitability is measured by return on assets (ROA), financial ratios used are inventory intensity, capital intensity, and sales growth, while monitoring is measured by the number of audit committees. Quantitative research is developed to investigate an associative relationship between variables. A total of 214 data from energy companies listed on Indonesia Stock Exchange (IDX) and 78 data from energy companies on Bursa Malaysia in 2020-2022, examined by regression to analyze the moderation of return on asset (ROA) on tax aggressiveness. The findings demonstrated that tax aggressiveness has not been impacted by inventory intensity, capital intensity, sales growth, and audit committee both of energy industries in Indonesia and Malaysia. Nonetheless, the study demonstrates that ROA may moderate the association between inventory intensity, capital intensity, sales growth, and audit committee on tax aggressiveness in energy industries in Indonesia and Malaysia. ROA, a measure of a company's financial performance, has a significant impact on how financial ratios, monitoring and tax aggressiveness interactions interact. A company can use ROA as a metric to evaluate its ability to adopt aggressive tax strategies in emerging countries, such as Indonesia and Malaysia.

Keywords: *Corporate Governance; Moderation; Operational Efficiency; Profitability; Tax Avoidance.*

1. Introduction

Taxes are closely related to the Sustainable Development Goals (SDGs) as they are the main source of funding for sustainable development programs. In addition, taxes also play a role in reducing inequality, protecting the environment, strengthening governance, and supporting global partnerships. Therefore, fair, transparent, and inclusive tax policy reforms are essential to support the achievement of the SDGs (Bird & Zolt, 2019; Halim & Rahman, 2022; OECD, 2019, 2020; United Nations, 2015).

Tax has a very important role in supporting the achievement of the Sustainable Development Goals (SDGs), which is a global agenda for sustainable development. Tax revenue is the most sustainable source of funding for governments. By increasing tax revenue, countries can reduce dependence on international aid and strengthen their capacity to deal with external shocks. The Tax for SDGs initiative launched by the United Nations Development Program (UNDP) aims to improve domestic resource collection and align tax policies with the SDGs, assisting countries in addressing the challenges of tax evasion and illicit financial flows (Handayani, 2024).

Taxation is a type of state revenue that the government uses to fund national development for the benefit of all citizens. As a result, the community's and firms' or agencies' roles in development implementation must be enhanced in order to raise taxpayer knowledge of the duty to pay taxes, both public and private. This demonstrates the relevance of taxes as a source of government revenue that benefits the government's requirements. Tax plays an important role in national development (Bird & Zolt, 2019; James, 2018; Mardiasmo, 2017; Siti Resmi, 2016).

The Central Statistics Agency (BPS) of Indonesia reported that in 2023, the state realized IDR 2,637 trillion in total revenue, with tax revenue contributing to the majority of this amount. More specifically, taxes account for 80.32% of state revenue, making them the primary source of funding for the state (BPS, 2024). This demonstrates the value of taxes as a source of government revenue that meets both the needs of the government and the interests of society.

In Malaysia, similar to Indonesia, taxes are also the largest source of state revenue. According to a report from the Malaysian Ministry of Finance, tax revenue contributed 72.8% of the country's total revenue in 2023. Meanwhile, non-tax revenue only accounts for 27.2% (Kementerian Kewangan Malaysia, 2023). This highlights that resilient economic performance is demonstrated by a notable growth in tax revenue.

As a result, tax collection is an important source of state revenue in both Indonesia and Malaysia. In a period of rapid global economic development, managing tax income is critical to overcoming fierce competition and supporting national development.

Businesses will do whatever to stay ahead of their competitors. Companies, being profit-seeking enterprises, are naturally driven to increase income in a variety of ways. Companies are taxpayers who must pay taxes to the government. For businesses, taxation is a burden that can lower net profit. As a result, tax aggressiveness is one of the company's techniques for increasing profits while lowering taxes (Ernst & Young (EY), 2020).

Tax aggressiveness strategies are defined by the OECD as tax planning that takes advantage of gaps and violations in tax regulation to manipulate business transactions or hide profits to pay barely any tax (Nuryanah et al., 2023). Tax aggressiveness may be performed by minimizing taxable profits through systematic tax planning actions, which can be done legally or illegally. Not every instance of tax aggressiveness may be classified as a violation because businesses may engage in tax planning that complies with tax laws but simply exploits legal gaps or unregulated activities (Hajawiyah et al., 2022). Tax aggressiveness is a high-risk conduct because it can result in fines and harm to the company's reputation in the public eye. Taxpayers are more inclined to violate tax rules if minimal punishments are imposed (Khan & Nuryanah, 2023). Tax aggressiveness is a company's deliberate effort to decrease its tax burden, either legally (tax avoidance) or illegally (tax evasion). A business is termed tax aggressive if it aggressively minimizes its tax burden both legally and illegally; the more loopholes used, the more aggressive the company is (Armstrong et al., 2015). Tax aggressiveness can be committed by minimizing taxable profits through systematic tax planning actions, whether legally or illegally. Tax aggressiveness is a high-risk conduct because it can result in fines and harm to the company's reputation in the public spotlight. Taxpayers are more inclined to violate tax rules if minimal punishments are imposed (Khan & Nuryanah, 2023). The more aggressive the company is in conducting tax avoidance, the more aggressive the company will be in manipulating financial reporting (Jananto & Firmansyah, 2019). This means that tax aggressiveness will result in a decrease in the quality of financial statements (Nguyen, 2021).

Agency theory can explain the opportunistic actions of taxpayers to lower their tax burden. According to agency theory, the interests of the principal and the agent are contradictory. Different interests between the agent and the principal make the principal's goal unattainable, even though the principal has given a mandate to the agent to achieve its goal (Jensen & Meckling, 1976). The government (principal) has the legal authority to collect taxes from the income of taxpayers (agents), but taxpayers have personal incentives to maximize their income. Due to the opportunistic behavior of taxpayers (tax aggressiveness), this difference in interests means that state revenue from taxes cannot be maximized. Through a variety of earnings management techniques, financial statement manipulation, and transfer pricing, taxpayers engage in tax aggression. Because the company's financial statements do not accurately reflect the actual state of its finances (information asymmetry), the taxpayer's opportunistic behavior (tax aggressiveness) leads to the low quality of the financial statements. Due to information disparities between taxpayers and tax authorities, the tax authorities (the government's representatives) are unable to gather enough information to identify corporate tax aggression (Alkausar et al., 2020).

Companies in the Philippines and Malaysia have the highest levels of tax avoidance among ASEAN countries, whereas Thailand and Indonesia have lower rates (Septriani et al., 2025). Although Indonesia might have a lower rate of tax avoidance, the Adaro case proves that the loss caused to the state is enormous. The case of PT Adaro Energy Tbk demonstrates the tax aggressiveness of discrepancies in the presentation of financial statements that differ from the actual financial condition. In order to avoid taxes, the company engaged in Transfer Pricing, which involved transferring several profits from coal mined in Indonesia to a network of foreign companies. Using Transfer Pricing, PT Adaro Energy Tbk was able to lower its yearly tax liability in Indonesia by around US$14 million (Asmara, 2019).

The Effective Tax Rate (ETR) is frequently used to quantify tax aggressiveness for a variety of reasons, the first being: ETR is a simple ratio that may be calculated by dividing the total tax paid by the profit before tax. This makes it a straightforward and easy-to-understand indicator. The second reason is that a low ETR could imply that the corporation employs tax avoidance tactics to decrease its tax liability. This could be a sign of aggressive taxation. The third reason is that ETR has been widely employed in earlier research as a surrogate for tax aggression. This lends authenticity and credibility to its application. The fourth reason is that ETR can assist policymakers and regulators in identifying corporations that may use legal loopholes to decrease their tax bills.

Inventory intensity is a component of assets that is calculated by comparing the total inventory to the company's total assets. (Setiawati & Lucia Tanggreini, 2025) Companies that invest in goods in warehouses incur maintenance and storage costs, increasing the company's burden and perhaps reducing profits. Companies with a high inventory intensity are more aggressive about the tax burden they face. Companies like this can also achieve cost efficiency, allowing the company's profits to improve. Some studies that examine the effect of inventory intensity on tax aggressiveness showed a positive effect (Sartika & Prastyatini, 2023; Suhendar et al., 2022), but several other studies showed a negative effect (Christina & Wahyudi, 2022; Saepudin & Isroah, 2024)Some studies even found no effect of inventory intensity on tax aggressiveness. Based on the research gap in previous studies, the first hypothesis statement of this study is:

H_1: Inventory intensity affects tax aggressiveness.

Capital intensity refers to the proportion of a company's assets invested in fixed assets such as property, plant, and equipment (PP&E) compared to total assets. It essentially represents how much of a company's resources are invested in tangible assets utilized to produce revenues. A higher capital intensity ratio suggests a greater investment in fixed assets relative to the company's total assets. Depreciation of fixed assets may result in tax deductions. A business that has a higher capital intensity ratio may benefit more from depreciation in terms of taxes (Marsahala et al., 2020; Solihin et al., 2020). Several studies that examined the relationship between capital intensity and tax aggressiveness found that it had a positive effect (Mas'adah et al., 2024; Safitri et al., 2024), while others found that it had a negative effect (Mariana et al., 2021; Oktavia et al., 2023). Some studies even discovered that there was no relationship between capital intensity and tax aggressiveness (Setiawati & Lucia Tanggreini, 2025). Referring to the research gap in previous studies, the second hypothesis statement of this study is:

H_2: Capital intensity affects tax aggressiveness.

A high sales growth often reflects a sound performance of the company. However, companies with significant sales growth may be more likely to engage in tax aggressiveness to reduce their tax burden and maintain high net income. Companies with rapid sales growth may have more resources to develop aggressive tax planning strategies. This may include the use of legal loopholes or complex financial structures to reduce tax liabilities (Riswandari & Bagaskara, 2020). Several studies that observed the relationship between sales growth and tax aggressiveness concluded that it had a positive effect (Khamisan & Astuti, 2023; Suaidah & Rahayu, 2023), while others found that it had a negative effect (Aisyah et al., 2024; Mulyaningsih et al., 2023). Some studies even found no relationship at all (Syahrani & Fathoni, 2025; Widiana & Jusuf, 2024). Considering the findings of previous research, the third hypothesis in this study is:

H_3: Sales growth affects tax aggressiveness.

The audit committee is an important element of corporate governance that is responsible for ensuring the integrity of financial statements, regulatory compliance, and risk management. One of the areas that the audit committee highlights is tax aggressiveness, which is the company's attempt to minimize its tax burden in legal ways or close to the limits of legality. Effective oversight from the audit committee can affect the level of corporate tax aggressiveness (Alqatan et al., 2024). Some studies revealed that tax aggressiveness was influenced by

the audit committee (Alqatan et al., 2024; Zheng et al., 2019), whereas other studies found no influence at all (Gunawan et al., 2021; Sri Utaminingsih et al., 2022). Based on the gap in prior research, the fourth hypothesis in this study is:

H_4: Audit committee affects tax aggressiveness.

Return on Assets (ROA) is a financial performance indicator that illustrates the company's efficiency in managing assets to generate profits. The higher the return of a company, the more motivated the company is to conduct tax planning activities, because of increased profitability, the corporate tax burden becomes more aggressive (Chen et al., 2010). In the context of tax aggressiveness, ROA functions as a moderating variable that affects the strength or direction of the relationship between several factors. Related to inventory intensity, if ROA is low, the pressure to increase profits might encourage the use of aggressive tax strategies despite having high inventories. A capital-intensive company (high capital intensity) obtains a natural tax deduction through depreciation of fixed assets. However, although depreciation provides tax savings, the pressure to increase profitability (ROA) may encourage tax aggressiveness. A rapidly growing sales often increases taxable profits, thus creating an incentive for tax avoidance. If ROA is relatively low, sales growth that is not proportional to profits may encourage companies to take tax risks to appear profitable. An effective audit committee (strong in independence and oversight) tends to reduce tax aggressiveness as it increases transparency and regulatory compliance. If ROA is relatively low, performance pressure may cause audit committees to be more tolerant of aggressive tax strategies to improve earnings. The interaction between ROA and each independent variable needs to be examined to determine the significance of moderation. The findings are relevant for management, auditors, and regulators to understand the dynamics of tax avoidance and to design effective governance policies. Therefore, the fifth hypothesis in this study is:

H_5: ROA can moderate the effect of inventory intensity, capital intensity, sales growth, and the audit committee on tax aggressiveness.

The framework of this study is described in Figure 1. The straight line shows the effect of the independent variables (inventory intensity, capital intensity, sales growth, and audit committee) on the dependent variable (tax aggressiveness). The dashed line shows the moderating effect of ROA on the relationship between the independent variables and the dependent variable.

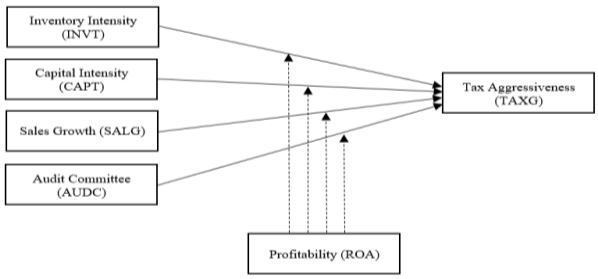

Fig. 1: Research Framework.

2. Methods

This research is quantitative using secondary data. Data is obtained from the annual reports of energy companies in Indonesia and Malaysia. The data from 214 energy companies listed on the Indonesia Stock Exchange (IDX) and 78 data points from energy companies on the Malaysian Exchange in 2020-2022 were tested using multiple linear regression analysis and moderated regression analysis (MRA) using SPSS 25. This moderating effect is tested in multiple linear regression using a technique called Moderated Regression Analysis (MRA). MRA can be used to determine whether the addition of a third variable changes the relationship between two variables. Hypothesis testing was conducted separately for energy companies in Indonesia and Malaysia.

The research model equation is as follows:

$$\mathrm{TAXG}_{i,t} = \propto + \beta_1 \mathrm{INVT}_{i.t} + \beta_2 \mathrm{CAPT}_{i,t} + \beta_3 \mathrm{SALG}_{i,t} + \beta_4 \mathrm{AUDC}_{i,t} + \varepsilon \quad (1)$$

$$\mathrm{TAXG}_{i,t} + \alpha + \beta_1 \mathrm{INVT}_{i,t} + \beta_2 \mathrm{CAPT}_{i,t} + \beta_3 \mathrm{SALG}_{i,t} + \beta_4 \mathrm{AUDC}_{i,t} + \beta_5 \mathrm{ROA}_{i,t} * \mathrm{INVT}_{i,t} + \beta_6 \mathrm{ROA}_{i,t} * \mathrm{CAPT}_{i,t} + \beta_7 \mathrm{ROA}_{i,t} * \mathrm{SALG}_{i,t} + \beta_8 \mathrm{ROA}_{i,t} * \mathrm{AUDC}_{i,t} + \varepsilon \quad (2)$$

Definition:

TAXG: Tax aggressiveness;
INVT: Inventory intensity;
CAPT: Capital inventory;
SALG: Sales growth;
AUDC: Audit committee;
ROA: Return on assets;
α: Constant;
β: Regression coefficient;
ε: Error.

Table 1 shows the indicators for measuring the variables in this study, which may be used to generate a suitable description of the research.

Table 1: Indicators of Variables

Variables	Indicators
Tax Aggressiveness (TAXG)	$\text{Effective Tax Rate} = \frac{\text{Tax Expenses}}{\text{Earning Before Taxes}}$
Inventory Intensity (INVT)	$\text{Inventory Intensity} = \frac{\text{Total Inventories}}{\text{Total Assets}}$
Capital Intensity (CAPT)	$\text{Capital Intensity} = \frac{\text{Total Fixed Assets}}{\text{Total Assets}}$
Sales Growth (SALG)	$\text{Sales Growth} = \frac{\text{Net Sales}_1 - \text{Net Sales}_{t-1}}{\text{Net Sales}_{t-1}}$
Audit Committee (AUDC)	$\text{Audit Committee} = \text{Number of Audit Committee Members}$
Return on Asset (ROA)	$\text{Return on Asset} = \frac{\text{Net Profit} + \text{Interest}}{\text{Average Total Assets}}$

3. Results and discussion

3.1. Descriptive statistics

The purpose of a descriptive statistical test is to give a summary or description of the research variables' basic characteristics by determining their average (mean), maximum, minimum, standard deviation, and variance (Ghozali, 2018). The following findings from the descriptive analysis conducted for the Indonesian study are presented in Table 2.

Table 2: Descriptive Statistics of Energy Industries in Indonesia

	N	Minimum	Maximum	Mean	Std. Deviation
TAXG	214	-6,79	,43	-,08	,63
INVT	214	-1,14	14,32	,62	1,49
CAPT	214	,00	16,13	,77	1,54
SALG	214	-4,87	8,37	,24	1,36
AUDC	214	2,00	6,00	3,09	,56

Table 2 shows that for energy companies in Indonesia, the average value of TAXG is -0.08, with a minimum value of -6.79 and a maximum value of 0.43. The range of values for INVT is -1.14 to 14.32, with an average of 0.62. CAPT has a minimum value of 0 and a maximum value of 16.13, with an average of 0.77. The range of SALG is as follows: minimum -4.87, maximum 8.37, and average 0.24. With a minimum value of 2 and a maximum value of 6, AUDC has an average of 3.09.
Furthermore, the descriptive statistics for energy companies in Malaysia are presented in Table 3.

Table 3: Descriptive Statistics of Energy Industries in Malaysia

.	N	Minimum	Maximum	Mean	Std. Deviation
TAXG	78	-4,05	2,95	,09	,63
INVT	78	,00	,29	,05	,06
CAPT	78	,05	,98	,59	,21
SALG	78	-4,51	28,07	,18	3,46
AUDC	78	1,10	1,95	1,28	,22

Table 3 shows that for energy companies in Malaysia, the average value of TAXG is 0.09, with a minimum value of -4.05 and a maximum value of 2.95. With a minimum value of 0 and a maximum value of 0.29, INVT has an average of 0.05. With a minimum value of 0.05 and a maximum value of 0.98, CAPT has an average of 0.59. With a minimum value of -4.51 and a maximum value of 28.07, SALG has an average of 0.18. The range of values for AUDC is 1.28 on average, 1.10 on minimum, and 1.95 on maximum.

3.2. Hypothesis testing

3.2.1. Study of Indonesia and Malaysia energy industries

Table 4 displays the findings of the research hypothesis test to determine the effect of inventory intensity, capital intensity, sales growth, and audit committee on tax aggressiveness of Indonesia and Malaysia energy industries.

Table 4: Regression Results without Moderation in the Energy Industry in Indonesia and Malaysia

Indonesia			Malaysia		
Variables	Coefficient (B)	Sig.	Variables	Coefficient (B)	Sig.
INVT	-0.189	0.918	INV	0.347	0.790
CAPT	-0.009	0.783	CAP	0.153	0.708
SALG	8.696E-6	0.822	SGR	0.012	0.577
AUDC	0.207	0.900	AC	-0.268	0.445
ROA	-6.546	0.000	ROA	0.532	0.304

The results of hypothesis testing for the energy industries in Indonesia, shown in Table 4 indicate that ROA has a significant effect on TAXG, while other variables do not affect TAXG, leading to the rejection of H_1, H_2, H_3, and H_4. The hypothesis test results in Table 4 reveal that operational factors such as inventory and capital intensity, sales growth, and governance structure through the audit committee have not been associated with tax aggressiveness practices in this study. However, corporate profitability (ROA) is a significant consideration in corporate tax plans.
In contrast, in Malaysia's energy industries, although some variables such as inventory intensity and capital intensity have positive coefficients-which in theory indicate a relationship with tax aggressiveness, are not statistically significant. This suggests that in the context of the energy industries in Malaysia, operational factors and internal governance have not been the main determinants of tax planning practices. Therefore, hypotheses H_1 to H_4 are rejected, as there is no empirical evidence to support the influence of the independent variables on tax aggressiveness in the energy industries in Malaysia.
Companies with higher levels of profitability tend to be more compliant with tax obligations and avoid overly aggressive tax planning practices. This may occur because companies that generate high profits may want to maintain their reputation in the eyes of the public, investors, and regulators, as well as reduce the risk of tax litigation or sanctions from tax authorities.
In contrast, other variables such as inventory intensity, capital intensity, sales growth, and audit committee do not show a significant relationship with tax aggressiveness. Although some variables have the direction of influence per the theory (for example, the better the audit committee, the lower the tax aggressiveness), the empirical results of this study are not strong enough to support such claims.
The insignificance of inventory intensity and capital intensity variables on tax aggressiveness indicates that the company's asset structure and operations are not the main factors that influence the company's tax strategy in this research sample. Meanwhile, the insignificant sales growth may reflect that business growth has not been an incentive for companies to make aggressive tax savings.
The audit committee variable, despite having a positive coefficient of 0.207, does not provide evidence that the presence of a strong audit committee correlates with tax aggressiveness practices. This result contradicts several studies that state that good corporate governance

will reduce tax avoidance practices. However, this may be influenced by variations in the quality of the audit committee in the research sample or the committee's lack of effectiveness in overseeing the company's tax activities.
This finding contributes to the understanding of the factors that influence corporate tax behaviour, especially in Indonesia. Corporate profitability proves to be an important indicator in determining whether a company is aggressive or not in managing its tax burden. Meanwhile, other factors such as asset structure, business growth, and governance mechanisms still require further research with broader samples and analysis methods to confirm their relationship with tax aggressiveness.
The findings of the hypothesis testing for ROA moderation on the interactions among inventory intensity, capital intensity, sales growth, audit committee, and tax aggressiveness are shown in Table 5.

Table 5: Regression Results with ROA Interaction on Energy Industry in Indonesia and Malaysia

Indonesia			Malaysia		
Variables	Coefficient (B)	Sig.	Variables	Coefficient (B)	Sig.
INVT	-1.231	0.585	INV	4.727	0.675
CAPT	-0.222	0.022	CAP	1.297	0.555
SALG	1.230E	0.817	SLG	0.276	0.136
AUDC	-0.971	0.592	AC	-1.819	0.529
ROA	-26.325	0.063	ROA	4.727	0.675
INVT_ROA	79.690	0.001	INVROA	1.297	0.555
CAPT_ROA	-3.254	0.006	CAPROA	0.276	0.136
SALG_ROA	0.000	0.757	SLGROA	-1.819	0.529
AUDC_ROA	16.506	0.182	ACROA	4.727	0.675

Based on Table 5, for energy industries in Indonesia, the variables CAPT, INVT_ROA, and CAPT_ROA have a significant effect on TAXG, as evidenced by a significance value smaller than 0.05. Other factors do not affect TAXG because the significance value exceeds 0.05. This suggests that ROA may influence the relationship between inventory intensity on tax aggressiveness and capital intensity on tax aggressiveness. On the other hand, for energy industries in Malaysia, since the significance value is higher than 0.05, Table 5 shows that none of the variables affect tax aggressiveness. This indicates that ROA has no moderating effect on the correlation between the variables under investigation.
Nonetheless, the coefficient of determination shows the overall moderating influence. The ability of the moderating variable to regulate the relationship between the independent and dependent variables can be inferred if the coefficient value rises following the moderating variable's interaction. If the coefficient value increases because of the moderating variable's interaction, it can be argued that the variable can moderate the interaction between the independent and dependent variables. Table 6 displays the coefficients of determination before and after moderation for energy industries in Indonesia and Malaysia.

Table 6: Overall Model Evaluation: R^2 Before and After Moderation

Model	R^2 Before Moderation	R^2 After Moderation	ΔR^2
Indonesia	0.283	0.807	+0.524
Malaysia	0.028	0.071	+0.043

As seen in Table 6, for energy industries in Indonesia, after including the moderating variable ROA, the ability of the model to explain the variation of TAXG increases very significantly from 28.3% to 80.7%. This proves that ROA strengthens the prediction model of the relationship between operational factors and tax aggressiveness. The regression model is much better after including the interaction with ROA. Meanwhile, for energy industries in Malaysia, even though R^2 has somewhat increased, Table 6 shows that this development is insufficient to suggest a significant moderating influence. The model's ability to explain fluctuations in tax aggressiveness is still comparatively weak. Thus, there is no direct or moderating effect of ROA on the relationship between operational factors and tax aggressiveness of energy industries in Malaysia. Figure 2 shows the change in R^2 before and after ROA moderation for the energy industry in Indonesia and Malaysia.

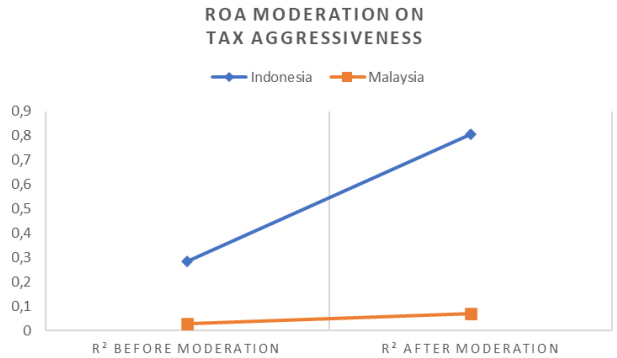

Fig. 2: ROA Moderation on Tax Aggressiveness in Energy Industries of Indonesia and Malaysia.

Research results for the Energy Industries in Indonesia show that ROA has a significant negative effect on tax aggressiveness. The higher the company's profitability (ROA), the lower the level of tax aggressiveness. More profitable companies probably want to preserve their reputation with investors and regulators. They tend to be more compliant with tax regulations to avoid the risk of litigation or sanctions.
After including the interaction between ROA and independent variables, it is found that ROA moderates the relationship between several variables with tax aggressiveness. Moderation of ROA on the interaction of inventory intensity with tax aggressiveness has a positive and significant effect, which means that in companies with high profitability, inventory intensity increases tax aggressiveness. While the moderation of ROA on the interaction of Capital Intensity with tax aggressiveness has a negative and significant effect, which means that the higher the capital and profitability, the lower the tax aggressiveness.
The coefficient of determination (R^2) increases after including the moderating variables, indicating that the model becomes much better at explaining variations in tax aggressiveness. The model shows that ROA serves as a strong moderator in the relationship between inventory

intensity and capital intensity with corporate tax strategy. This research supports agency theory, where companies with high profits (high ROA) are more vulnerable to external pressures, so management tends to be more compliant with taxes.

In contrast, ROA serves as an ineffective moderator in the Malaysian context. Despite the improvement in the predictive ability of the model, the individual relationships between the variables remain insignificant. This suggests that the factors that influence tax aggressiveness may be different in Malaysia than in Indonesia.

The differences could be due to several factors, first, the different tax regulatory contexts. In Indonesia, tax regulations are known to be stricter, one of which is the implementation of the Controlled Foreign Corporation (CFC) Rules since 2018, which aims to prevent tax avoidance through offshore entities. This condition makes companies have to be more selective and careful in designing tax avoidance strategies, so profitability becomes an important consideration. In contrast, in Malaysia, the tax system is more flexible with extensive tax incentives such as Pioneer Status and Investment Tax Allowance that can be enjoyed for up to 10 years. With these structural reliefs, companies are less dependent on profitability when choosing a tax strategy, so ROA fails to be a significant moderating variable. Therefore, stricter tax regulations in Indonesia encourage companies to use ROA as a reference for tax avoidance strategies, whereas in Malaysia, tax incentives reduce the sensitivity of companies to operating profit.

The second factor is the dominance of State-Owned Enterprises (SOEs). The second factor is the dominance of state-owned enterprises (SOEs). In the energy sector, Indonesia has several large SOEs such as Pertamina, PLN, and Bukit Asam, but they do not completely dominate the entire industry, as there is also still space for national and foreign private companies. Meanwhile, in Malaysia, the entire oil and gas sector is controlled by PETRONAS, a state-owned entity that also acts as a regulator. This leads to tax strategies being determined more by central policy rather than local management of companies. Therefore, the dominance of PETRONAS in Malaysia makes the tax strategy more homogeneous and unresponsive to individual firm profit fluctuations, so ROA does not have a significant moderating effect.

The third factor is the influence of corporate culture. Corporate culture in Indonesia tends to be more competitive and innovative, especially in the private sector. Many companies try to adjust their business and tax strategies to increase net profit after tax. This makes managers more sensitive to profitability, and they tend to adjust their tax practices accordingly. In contrast, the corporate culture in Malaysia is more conservative and rule-abiding, including in terms of financial reporting and taxation. This leads to less aggressive tax avoidance practices, even when profits increase. Therefore, the difference in corporate culture explains why in Indonesia, profitability (ROA) is more relevant in predicting tax aggressiveness, while in Malaysia, tax practices are more stable and do not change much despite profit ups and downs.

The fourth factor is reporting transparency. Financial reporting transparency in Indonesia has improved considerably post-reform and the implementation of international accounting standards. However, the level of transparency is still not as strong as in Malaysia, especially in non-public companies. In contrast, in Malaysia, reporting transparency is very high, especially for public companies and subsidiaries of PETRONAS. A good level of disclosure leads to limited room for companies to engage in aggressive tax practices, regardless of their level of profitability. Therefore, the higher level of transparency in Malaysia causes tax aggressiveness to be less common, so ROA does not have a strong moderating relationship as in Indonesia.

The fifth factor is the dominant energy type. The structure of the main energy types in Indonesia is more varied, with significant contributions from oil & gas, electricity, and coal. This variation in business type brings variation in tax avoidance strategies, making operating profit (ROA) an important indicator in predicting tax aggressiveness. In Malaysia, about 70% of the energy sector is dominated by oil and gas, which is usually governed through long-term fiscal contracts between PETRONAS and foreign partners. Such contracts often include an allocation of tax revenues and expenses, giving management less flexibility to modify tax strategies based on annual profits. Therefore, the dominance of oil and gas and complex fiscal contracts in Malaysia leads to a lack of variation in tax strategies, resulting in insignificant ROA moderation.

The sixth factor is the influence of data and the research sample. The statistical analysis shows that the addition of ROA as a moderating variable increases the model's ability to explain variations in tax aggressiveness in Indonesia by 52.4% (from $R^2 = 0.283$ to 0.807). However, in Malaysia, the increase in R^2 is only 4.3% (from 0.028 to 0.071) - a figure too small to imply a real moderating effect. Therefore, differences in sample composition, data variation, and industry structure cause the moderating effect of ROA to be stronger in Indonesia than in Malaysia.

A summary of the causes analysis of the difference in ROA moderation results on tax aggressiveness in Indonesia and Malaysia can be seen in Table 7.

Table 7: Analysis of the Causes of Differences in ROA Moderation Results on Tax Aggressiveness in Indonesia and Malaysia

Factors	Indonesia	Malaysia	Impact of ROA Moderation
Tax Regulations	Strict CFC Rules since 2018	More flexible, broader tax incentives	In Indonesia, profitability is the focus of tax strategies due to strict regulations
State-owned Enterprises Domination	Exists, but does not dominate the entire energy sector	Very high (PETRONAS as ultimate parent)	Tax strategy in Malaysia is determined by the government, not local management
Corporate Culture	Competitive, many private companies	Conservative, more rule-abiding	Companies in Indonesia are more likely to adjust tax strategies based on profit
Reporting Transparency	Moderate, increasing post-reform	High, particularly for public companies	In Malaysia, aggressive tax practices are less common due to transparency
Dominant Energy Type	Oil & Gas, Electricity, Coal	Oil & Gas dominant (>70%)	Oil & gas fiscal contracts in Malaysia lead to a lack of variety in tax strategies
Data and Sampel	R^2 increases dramatically after moderation (+52.4%)	Small R^2 increase (+4.3%)	ROA has failed to explain the variation in tax aggressiveness in Malaysia

4. Conclusion

The implications of the research findings indicate the necessity of selective tax supervision and audits carried out on companies with low profitability that have the potential to commit tax avoidance. The research findings show that the existence of an audit committee cannot be effective in reducing the practice of tax aggressiveness, therefore, it is necessary to increase the capacity and independence of the audit committee in order to be more effective in monitoring the company's tax activities. Related to the operations of energy companies, the government needs to increase supervision of the accounting methods that are used in asset depreciation and inventory valuation, and although business growth is not the main reason for companies to carry out aggressive tax planning, an easy-to-use electronic tax reporting system must still be developed to support the transparency and efficiency of tax administration.

This study only examines data on energy industry companies in Indonesia and Malaysia. Thus, it has limitations in the amount of data processed for analysis. This limitation may affect the generalization of the research results. Therefore, next researchers can analyse more

companies from various industries and over a more extensive period. Qualitative studies can also be conducted to understand the motivation of companies in conducting tax planning through interviews or case studies. Researchers can also examine whether corporate governance index, leverage, or foreign ownership also serve as moderators and conduct research across ASEAN countries to compare similar patterns in countries with different tax systems.

Acknowledgement

Authors would like to thank Universitas Jambi for funding support of research schemes with Rector Decree of Universitas Jambi Number 2523/UN21/PT/2023 dated June 23, 2023, and Agreement/Contract Letter Number 2206/UN21.11/PT.01.05/SPK/2023 dated July 12, 2023.

References

[1] Aisyah, P., Adib, N., & Rahmanti, V. N. (2024). Does Transfer Pricing, Sales Growth and Capital Intensity Affect Tax Aggressiveness? Jurnal Reviu Akuntansi Dan Keuangan, 14(2), 459–476. https://doi.org/10.22219/jrak.v14i2.34230.
[2] Alkausar, B., Lasmana, M. S., & Soemarsono, P. N. (2020). Tax Aggressiveness: A Meta Analysis in Agency Theory Perspective. TIJAB (The International Journal of Applied Business), 4(1), 52. https://doi.org/10.20473/tijab.V4.I1.2020.52-62.
[3] Alqatan, A., Chemingui, S., & Arslan, M. (2024). Effect of Audit Committee on Tax Aggressiveness: French Evidence. Journal of Risk and Financial Management, 18(1), 5. https://doi.org/10.3390/jrfm18010005.
[4] Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. Journal of Accounting and Economics, 60(1), 1–17. https://doi.org/10.1016/j.jacceco.2015.02.003.
[5] Asmara, C. G. (2019, July 8). Soal Pajak Adaro, Sri Mulyani: Selama Ini Sudah Transparan. CNBC Indonesia.
[6] Bird, R. M., & Zolt, E. M. (2019). Taxation and the Sustainable Development Goals. International Tax and Public Finance, 26(3), 537–566.
[7] BPS. (2024). Laporan Perekonomian Indonesia 2024.
[8] Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more tax aggressive than non-family firms? Journal of Financial Economics, 95(1), 41–61. https://doi.org/10.1016/j.jfineco.2009.02.003.
[9] Christina, M. W., & Wahyudi, I. (2022). Pengaruh intensitas modal, intensitas persediaan, pertumbuhan penjualan dan profitabilitas terhadap agresivitas pajak. Fair Value: Jurnal Ilmiah Akuntansi Dan Keuangan, 4(11), 5076–5083. https://doi.org/10.32670/fairvalue.v4i11.1858.
[10] Ernst & Young (EY). (2020). Global Tax Risk and Controversy Report.
[11] Ghozali, I. (2018). Aplikasi Analisis Multivariat dengan program IBM SPSS 25. Badan Penerbit Universitas Diponegoro.
[12] Gunawan, Y., Christy, Y., Se Tin, S. T., & Jonathan, L.-. (2021). The Influence of Independent Board of Commissioners, Audit Committee, and Audit Quality on Tax Avoidance. BALANCE: Economic, Business, Management and Accounting Journal, 18(1), 42. https://doi.org/10.30651/blc.v18i1.6495.
[13] Hajawiyah, A., Kiswanto, K., Suryarini, T., Yanto, H., & Harjanto, A. P. (2022). The bidirectional relationship of tax aggressiveness and CSR: Evidence from Indonesia. Cogent Business & Management, 9(1). https://doi.org/10.1080/23311975.2022.2090207.
[14] Halim, Md. A., & Rahman, Md. M. (2022). The effect of taxation on sustainable development goals: evidence from emerging countries. Heliyon, 8(9), e10512. https://doi.org/10.1016/j.heliyon.2022.e10512.
[15] Handayani, R. (2024, May 11). Bagaimana Pajak Dapat Mendukung Pembiayaan SDGs? Pajak.Com.
[16] James, S. (2018). Taxation and Development: A Review of the Literature. Journal of Economic Surveys, 32(4), 1025–1054.
[17] Jananto, A. E., & Firmansyah, A. (2019). The Effect of Bonuses, Cost of Debt, Tax Avoidance, and Corporate Governance on Financial Reporting Aggressiveness: Evidence from Indonesia. International Journal of Innovation, Creativity and Change, 7(5), 280–302. www.ijicc.net.
[18] Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X.
[19] Kementerian Kewangan Malaysia. (2023). FISCAL UPDATES 2023 Highlights.
[20] Khamisan, M. S. P., & Astuti, C. D. (2023). The effect of capital intensity, transfer pricing, and sales growth on tax avoidance with company size as a moderation variable. Devotion: Journal of Research and Community Service, 4(3), 709–720. http://devotion.green-.https://doi.org/10.36418/devotion.v4i3.419.
[21] Khan, M. A., & Nuryanah, S. (2023). Combating tax aggressiveness: Evidence from Indonesia's tax amnesty program. Cogent Economics & Finance, 11(2). https://doi.org/10.1080/23322039.2023.2229177.
[22] Mardiasmo. (2017). Perpajakan: Teori dan Kasus. Andi Publisher.
[23] Mariana, C., Juni, H., Subing, T., & Mulyati, Y. (2021). Does Capital Intensity and Profitability Affect Tax Aggressiveness? In Turkish Journal of Computer and Mathematics Education (Vol. 12, Issue 8). https://tirto.id/.
[24] Marsahala, Y. T., Arieftiara, D., & Lastiningsih, N. (2020). Commissioner's competency effect of profitability, capital intensity, and tax avoidance. Journal of Contemporary Accounting, 2(3), 129–140. https://doi.org/10.20885/jca.vol2.iss3.art2 .
[25] Mas'adah, M., Sulistiowati, R., Nataliawati, R., Hakim, M. B., & Qosim, Q. (2024). A Liquidity, Capital Intensity and Tax Aggressiveness: Profitability as a Mediating Role. Jesya, 7(1), 135–145. https://doi.org/10.36778/jesya.v7i1.1360.
[26] Mulyaningsih, N., Soerono, A. N., & Mukhtar, M. (2023). Effect of Hedging, Financial Lease, Sales Growth, and Earning Management on Tax Aggressiveness. Journal of Applied Business, Taxation and Economics Research, 2(4), 434–450. https://doi.org/10.54408/jabter.v2i4.192.
[27] Nguyen, J. H. (2021). Tax Avoidance and Financial Statement Readability. European Accounting Review, 30(5), 1043–1066. https://doi.org/10.1080/09638180.2020.1811745.
[28] Nuryanah, S., Mahabbatussalma, F., & Satrio, A. A. (2023). Evaluation of Government Reform in Tax Administration: Evidence from Micro, Small and Medium Enterprises (MSMEs) in Indonesia. International Journal of Public Administration, 46(5), 313–325. https://doi.org/10.1080/01900692.2021.1995746.
[29] OECD. (2019). Tax and the Sustainable Development Goals: Bridging the Gap Between Commitment and Action. https://www.oecd.org/.
[30] OECD. (2020). Taxation and the SDGs: Challenges and Opportunities.
[31] Oktavia, Kalangi, L., & Lambey, R. (2023). Pengaruh capital intensity, profitabilitas dan ukuran perusahaan terhadap agresivitas pajak pada perusahaan sektor energi yang terdaftar di Bursa Efek Indonesia. Going Concern: Jurnal Riset Akuntansi, 18(2), 140–150.
[32] Riswandari, E., & Bagaskara, K. (2020). Agresivitas Pajak yang Dipengaruhi oleh Kompensasi Eksekutif, Koneksi Politik, Pertumbuhan Penjualan, Leverage dan Profitabilitas. Jurnal Akuntansi, 10(3), 261–274. https://doi.org/10.33369/j.akuntansi.10.3.261-274.
[33] Saepudin, B. I., & Isroah. (2024). The influence of liquidity, leverage, capital intensity, and inventory intensity on tax aggressiveness in energy sector companies listed on the Indonesian Stock Exchange 2018-2022. ICEBESS FEB UNY.
[34] Safitri, C. E., Oktaviany, F. S., Samosir, R. T., Nurjaman, U., & Suripto. (2024). Independent Commissioners, Inventory Intensity, Capital Intensity and Aggressiveness Tax. EAJ (Economic and Accounting Journal, 7(1). http://openjournal.unpam.ac.id/index.php/EAJ. https://doi.org/10.32493/eaj.v7i1.y2024.p44-54.
[35] Sartika, I. D., & Prastyatini, S. L. Y. (2023). Effect of leverage, inventory intensity, fixed asset intensity, and political connections on tax aggressiveness (empirical study of multinational companies listing on the Indonesia Stock Exchange 2017-2021). Sinergi : Jurnal Ilmiah Ilmu Manajemen, 13(1), 49–57. https://doi.org/10.25139/sng.v13i1.5926.

[36] Septriani, Y., Wardhani, R., Adhariani, D., & Samingun. (2025). Tax avoidance in Southeast Asia: unraveling the effects of environmental uncertainty and governance. Cogent Business & Management, 12(1). https://doi.org/10.1080/23311975.2025.2473031.
[37] Setiawati, L., & Lucia Tanggreini, F. (2025). The influence of capital intensity, inventory intensity, and sales growth on tax aggressiveness in manufacturing companies. International Conference of Accounting and Finance, 3, 158–167.
[38] Siti Resmi. (2016). Perpajakan: Konsep, Teori, dan Isu. Salemba Empat.
[39] Solihin, S., Saptono, S., Yohana, Y., Yanti, D. R., & Kalbuana, N. (2020). The Influence of Capital Intensity, Firm Size, And Leverage on Tax Avoidance on Companies Registered in Jakarta Islamic Index. International Journal of Economics, Business and Accounting Research (IJEBAR), 4(03). https://doi.org/10.29040/ijebar.v4i03.1330.
[40] Sri Utaminingsih, N., Kurniasih, D., Pramono Sari, M., & Rahardian Ary Helmina, M. (2022). The role of internal control in the relationship of board gender diversity, audit committee, and independent commissioner on tax aggressiveness. Cogent Business & Management, 9(1). https://doi.org/10.1080/23311975.2022.2122333.
[41] Suaidah, I., & Rahayu, P. (2023). Impact of Tax Rates and Sales Growth on Tax Avoidance. Innovation Business Management and Accounting Journal, 2(4), 233–238. https://doi.org/10.56070/ibmaj.v2i4.65.
[42] Suhendar, D., Nurfatimah, S., Rahmawati, T., Syarifudin, S., & Rully, R. (2022). The Effect of Profitability, Leverage, and Inventory Intensity on Tax Aggressiveness with Majority Ownership as Moderating Variables. Proceedings of the 2nd Universitas Kuningan In-ternational Conference on System, Engineering, and Technology, UNISET 2021, 2 December 2021, Kuningan, West Java, Indonesia. https://doi.org/10.4108/eai.2-12-2021.2320326.
[43] Syahrani, A. P. A., & Fathoni, M. I. (2025). The Influence of Sales Growth and Capital Intensity on Tax Aggressiveness. International Journal of Science and Society, 7(1), 42–59. http://ijsoc.goacademica.com.
[44] United Nations. (2015). Transforming our world: the 2030 Agenda for Sustainable Development. https://sdgs.un.org/.
[45] Widiana, D., & Jusuf, A. A. A. (2024). The Effect of Company Size, Profitability, Liquidity, Inventory Intensity, and Sales Growth on Tax Aggressiveness of Non-Cyclical Consumer Companies. Formosa Journal of Applied Sciences, 3(8), 3391–3400. https://doi.org/10.55927/fjas.v3i8.10478.
[46] Zheng, T., Jiang, W., Zhao, P., Jiang, J., & Wang, N. (2019). Will the Audit Committee Affects Tax Aggressiveness? Proceedings of the Twelfth International Conference on Management Science and Engineering Management. ICMSEM 2018, 1313–1326. https://doi.org/10.1007/978-3-319-93351-1_102.