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## INSTITUTIONAL OWNERSHIP, GENDER DIVERSITY, AND TAX AVOIDANCE

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### ABSTRACT

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This research investigates how institutional ownership influences tax avoidance among Indonesian mining firms and further evaluates the moderating role of board gender diversity in this relationship. Tax avoidance is proxied by the Effective Tax Rate (ETR). The sample consists of 125 firm-year observations of mining companies listed on the Indonesia Stock Exchange during the 2022-2024 period. The hypotheses are tested using panel regression techniques, where the Random Effects specification is selected following a series of model selection procedures. Firm size, leverage, and profitability are included as control variables to isolate the governance effect from firm-specific characteristics that may influence tax avoidance. The results indicate that institutional ownership has a significant positive effect on ETR, suggesting that higher institutional ownership is associated with lower tax avoidance and stronger tax compliance. However, board gender diversity, measured using the Blau Index, does not significantly moderate the relationship between institutional ownership and tax avoidance. These findings contribute to agency theory by reinforcing the monitoring role of institutional investors in constraining managerial opportunism in tax-related decisions. Practically, the results highlight the importance of strengthening institutional ownership structures and enhancing governance transparency to promote sustainable tax compliance in capital-intensive industries.

**Keywords:** Institutional Ownership, Gender Diversity on Boards, Tax Avoidance, Mining Sector, Blau Index.

### INTRODUCTION

Tax avoidance refers to corporate strategies that minimize tax obligations through legally acceptable tax planning arrangements. From a corporate governance perspective, tax avoidance has attracted substantial scholarly attention due to its implications for fiscal fairness, state revenue sustainability, and the integrity of the taxation system. Foundational work by Hanlon & Heitzman (2010) conceptualizes tax avoidance as legal tax planning that exploits regulatory gaps, a perspective that continues to inform contemporary empirical research (Dyrenge et al., 2017; Kerr et al., 2024). Although legally

defensible, tax avoidance may create agency conflicts between managers and stakeholders, particularly when aggressive tax strategies increase regulatory scrutiny and reputational risk.

In the Indonesian context, the statutory corporate income tax rate during the 2022-2024 period was 22.00%. Therefore, firms reporting an Effective Tax Rate (ETR) consistently below the statutory benchmark may indicate tax planning activities that reduce the effective tax burden relative to accounting income. The Effective Tax Rate (ETR), calculated as total tax expense divided by pre-tax income, is widely used in contemporary tax research as a proxy for corporate tax avoidance because it represents the share of accounting income remitted as tax relative to statutory obligations (Kerr et al., 2024). This measurement approach builds upon the foundational framework developed by Hanlon & Heitzman (2010) and subsequent empirical refinements (Dyreng et al., 2017). In this study, tax avoidance is measured using ETR as a proxy. Because ETR is inversely related to tax avoidance, a higher ETR indicates lower tax avoidance, whereas a lower ETR signals more aggressive tax avoidance practices. Prior evidence indicates that many Indonesian listed firms report effective tax rates below the statutory benchmark. Based on a 2024 cluster analysis of Indonesian public companies, approximately 78.70% fall into the low-ETR category, defined as firms with ETR below the statutory rate, which is associated with a higher tendency toward tax avoidance (Sitompul et al., 2024).

This issue is especially salient in the mining industry, where structural characteristics expose firms to greater tax avoidance opportunities, driven by high profitability, complex capital structures, and opportunities for cross-border transaction engineering (Sulistiyanti & Saputra, 2020). The capital-intensive nature of mining operations, combined with international commodity transactions and transfer pricing opportunities, increases firms' flexibility in structuring tax planning strategies. This condition is reinforced by Aristyatama & Riyadi (2023), who found that the mining sector exhibits the highest level of tax avoidance on the Indonesia Stock Exchange and differs significantly from other sectors, thereby requiring more targeted taxation oversight and governance mechanisms.

In light of growing concerns about tax avoidance, recent research has highlighted the importance of corporate governance mechanisms, particularly institutional ownership, in shaping firms' tax-related decision-making. In contemporary governance literature, institutional ownership is generally viewed as a key external monitoring device. Institutional investors possess stronger monitoring capabilities supported by analytical resources, professional expertise, and long-term investment orientation. Drobetz et al. (2025) emphasize that institutional investors play a crucial role in strengthening governance through active supervision, engagement, and influence over strategic corporate decisions. This monitoring function is expected to curb managerial opportunistic behavior, including the motivation to undertake aggressive tax avoidance. Supporting this perspective, several studies in the Indonesian context find that institutional ownership is negatively related to tax avoidance, as it promotes greater transparency, accountability, and governance discipline (Pontoh & Kustinah, 2024; Susilawati & Tarmidi, 2024).

However, several studies report contrasting findings. Chyz et al. (2023) indicate that certain institutional investors with a short-term performance focus may incentivize firms to pursue more aggressive tax avoidance strategies in order to maximize shareholder value. Similar evidence is provided by Bradshaw et al. (2019) and Tan (2017), who find that institutional investors under intense market pressure may adopt more aggressive tax

planning practices. The inconsistent empirical findings indicate that the impact of institutional ownership on tax avoidance is contingent on contextual factors, including investor characteristics, governance quality, and the institutional environment in which firms operate. This variation suggests that the monitoring role of institutional ownership is not uniform and warrants further empirical testing, particularly in capital-intensive industries such as Indonesia's mining sector.

In addition to ownership structure, board gender diversity has emerged as an important internal governance mechanism that may influence tax avoidance decisions. Within modern corporate governance frameworks, gender diversity is often associated with enhanced ethical orientation, broader perspectives in risk assessment, and stronger oversight discipline. Drawing on Upper Echelons Theory (Hambrick & Mason, 1984), which argues that organizational outcomes mirror executives' cognitive and value orientations, the values and cognitive characteristics of top executives, recent empirical studies confirm that board composition plays a role in shaping fiscal decision-making and tax-related strategies (Giannopoulos et al., 2025; Kyaw et al., 2017). Therefore, corporate tax avoidance decisions are not solely determined by economic incentives and ownership structure, but may also be influenced by the demographic and psychological attributes of board members.

In line with this view, Budiana & Kusuma (2022) argue that gender diversity on boards of directors affects ethical orientation and risk perception, with female participation tending to promote more prudent, tax-compliant decision-making. Empirical findings from Indonesia indicate that greater gender diversity is associated with lower levels of tax avoidance. Sofianty et al. (2022) found that female representation on boards of directors strengthens ethical values and financial reporting transparency, thereby reducing tax avoidance. These findings are reinforced by Budiana & Kusuma (2022), who show that female representation on boards contributes to greater corporate sustainability and reduced tax aggressiveness among Southeast Asian companies, including Indonesian companies. The Blau Index is employed to capture board gender diversity because it reflects proportional composition more comprehensively than simple headcount measures (Sofianty et al., 2022). This understanding underscores the relevance of gender diversity as a moderator of the relationship between governance mechanisms, such as institutional ownership, and companies' fiscal strategy decisions (Mouakhar et al., 2021).

Research on institutional ownership and board gender diversity has developed rapidly in recent years; however, empirical findings remain inconsistent across different contexts. Several studies report that institutional ownership strengthens monitoring mechanisms and reduces tax avoidance by constraining managerial opportunism (Bird & Karolyi, 2017; Khan et al., 2017). In contrast, other studies document that certain types of institutional investors, particularly those with short-term performance orientation, may support more aggressive tax avoidance strategies to enhance immediate shareholder returns (Bradshaw et al., 2019; Chyz et al., 2023). Likewise, previous studies on gender diversity report inconsistent findings. Some studies find that female board representation enhances governance quality, ethical orientation, and tax compliance, thereby reducing tax avoidance (Kyaw et al., 2017). However, other findings indicate that demographic diversity alone does not automatically strengthen oversight effectiveness unless accompanied by substantive authority, committee involvement, and active participation in strategic decision-making (Dang & Nguyen, 2022; Mouakhar et al., 2021).

These inconsistencies reveal a theoretical and empirical gap concerning whether governance mechanisms influence tax avoidance independently or whether their

effectiveness depends on the interactive dynamics between ownership structure and board composition. Although prior studies have examined institutional ownership and board gender diversity in relation to tax avoidance, most empirical evidence is derived from manufacturing, financial, or cross-industry samples. The Indonesian mining sector provides a distinct institutional context characterized by concentrated ownership structures, heightened fiscal scrutiny, strong regulatory oversight, and structural complexities inherent in extractive industries. These characteristics may condition how governance mechanisms operate in constraining tax avoidance compared to other sectors. Consequently, the joint and moderating effects of institutional ownership and board gender diversity within Indonesian mining firms remain underexplored. Examining this interaction in a capital-intensive, highly regulated setting, therefore, addresses a clear sector-specific gap and offers context-sensitive insights into how governance mechanisms shape tax avoidance decisions.

In terms of conceptual contribution, this study extends prior research by integrating institutional ownership as an external monitoring mechanism and board gender diversity as an internal governance attribute within a unified analytical framework to explain tax avoidance. The conceptual framework further includes firm-specific control variables, such as firm size, leverage, and profitability, to capture structural variations that may affect corporate tax avoidance decisions. By controlling for these characteristics, the study isolates the governance effect on tax avoidance more rigorously. Furthermore, this study employs the Blau Index to measure gender diversity, which captures proportional board composition more comprehensively than a simple binary indicator. This approach allows for a more refined assessment of how board composition interacts with ownership structure in shaping tax avoidance strategies. By incorporating these components into the conceptual framework, the study offers a more nuanced and context-sensitive perspective on how institutional ownership and board diversity jointly shape tax avoidance in an emerging market environment.

The relationship between institutional ownership and tax avoidance can be interpreted through agency theory, which underscores the importance of monitoring mechanisms in constraining managerial opportunism that may give rise to agency costs. Institutional ownership refers to equity holdings by financial institutions such as pension funds, insurance companies, investment firms, and banks. These institutional investors typically have the analytical resources, professional competence, and long-term economic incentives necessary to effectively oversee managerial decision making (Drobotz et al., 2025). Through active oversight and engagement, institutional ownership reinforces governance discipline. It diminishes managerial incentives to pursue overly aggressive tax avoidance strategies that could expose firms to regulatory penalties, reputational damage, and long-term financial uncertainty. Therefore, stronger institutional monitoring is expected to constrain aggressive tax planning and promote more compliant tax positions.

Empirical evidence from Indonesia indicates that institutional ownership reduces tax avoidance by enhancing transparency and accountability in corporate decision-making (Pontoh & Kustinah, 2024; Susilawati & Tarmidi, 2024). International research confirms that monitoring-oriented institutional investors can reduce companies' tendency to engage in aggressive tax planning and other tax avoidance practices that can pose reputational and regulatory risks. These findings provide a theoretical and empirical basis for the claim that institutional ownership can reduce tax avoidance through stronger oversight mechanisms. Referring to this explanation, the hypothesis proposed is as follows.

### H<sub>1</sub>: Institutional Ownership Harms Tax Avoidance

The moderating role of gender diversity on boards of directors is grounded in boards' role as internal control mechanisms that shape corporate governance effectiveness. Greater gender diversity fosters more dynamic discussions, expands perspectives in risk evaluation, and enhances the precision of managerial oversight (Laili & Tjaraka, 2024). A gender-diverse board composition can strengthen institutional oversight, as interactions between a diverse board and institutional shareholders create a more accurate and responsive oversight framework for corporate strategic policies.

Previous studies have shown that gender diversity is positively associated with improved oversight quality and strengthened governance discipline, including in the context of practices with fiscal implications (Kyaw et al., 2017). Evidence from Indonesia further suggests that the inclusion of women on boards of directors can promote greater accountability in decision-making processes related to strategic risks (Tamimi & Firmansyah, 2024). The use of the Blau Index as a measure of gender diversity provides a more comprehensive picture of the board's ability to strengthen oversight mechanisms. This enhanced oversight function supports the proposition that gender diversity can reinforce the relationship between institutional ownership and firms' fiscal strategy decisions, including tax avoidance behavior. Based on the foregoing discussion, the following hypothesis is proposed:

### H<sub>2</sub>: Gender Diversity Strengthens The Influence of Institutional Ownership on Tax Avoidance

## **RESEARCH METHODS**

This study employs a quantitative explanatory research design to examine the relationship between institutional ownership and corporate tax avoidance, as well as the moderating role of board gender diversity. The study examines the causal links between governance mechanisms and tax outcomes using panel data regression analysis.

The analysis utilizes secondary data obtained from the Bloomberg database. The sample selection was conducted using Bloomberg's filtering system, specifying the Indonesia Stock Exchange (IDX) as the exchange category and selecting firms classified under the Oil, Gas & Coal and Metals & Minerals sectors. By restricting the exchange to IDX, the study ensures that all sampled firms are officially listed on the Indonesian capital market. The sector classification follows Bloomberg's industry categorization for mining-related industries, representing companies engaged in extractive and resource-based activities during the 2022-2024 observation period.

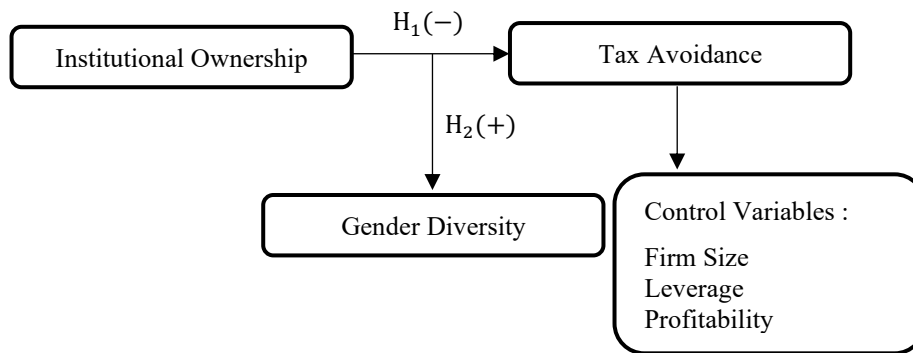
The population consists of firms listed under these sector classifications during 2022-2024. Sample selection was conducted using purposive sampling criteria. Firms were included in the final sample if they were consistently listed during the observation period and provided complete financial and governance data, including tax expense, pre-tax income, institutional ownership information, and board gender composition. Firms with incomplete data on these variables were excluded from the analysis. After applying these selection criteria, the final dataset comprises 125 firm-year observations.

**Table 1. Sample Selection**

Sample Selection Result	2024	2023	2022	Total
Number of firms classified under Oil, Gas & Coal and Metals & Minerals (Bloomberg) listed on the IDX	126	126	126	378
Firms with incomplete data on institutional ownership, tax variables, or board gender composition	(49)	(101)	(103)	(253)
Final firm-year observations	77	25	23	125

Source: Data Processed, 2025

The conceptual framework and hypotheses outlined below are designed to examine the relationships among the research variables empirically.



**Figure 1. Sample Selection**

Source: Data Processed, 2025

The operational definitions and measurement approaches for all variables are presented in table 2. In this study, tax avoidance is proxied by the Effective Tax Rate (ETR), which is the ratio of tax expense to pre-tax income. Prior literature frequently uses ETR as an empirical indicator of tax avoidance because it reflects the extent to which firms minimize their effective tax burden relative to accounting income. A lower ETR implies that a firm remits a smaller share of its income as tax and is therefore typically interpreted as exhibiting higher tax avoidance and a more aggressive tax posture. Given the inverse relationship between ETR and tax avoidance, the interpretation of the regression coefficients in this study accounts for this negative association. Accordingly, a positive coefficient on ETR indicates reduced tax avoidance, whereas a negative coefficient signals increased tax avoidance.

Institutional ownership is measured as the percentage of shares owned by institutional investors relative to total shares outstanding, reflecting the intensity of external monitoring. Board gender diversity is measured using the Blau Index, which reflects the proportional distribution of board members across gender categories. A higher Blau Index indicates greater diversity.

To account for firm-specific factors that may affect tax avoidance, this study incorporates firm size, leverage, and profitability as control variables. The natural logarithm of total assets measures firm size; leverage is defined as total liabilities divided by total assets; and profitability is proxied by return on assets (ROA).

**Table 2. Operational Definition of Variables**

Variable	Operational Definition	Measurement	Scale
Tax Avoidance (ETR)	Corporate tax avoidance proxied by the Effective Tax Rate	Current Tax Expense / Income Before Tax	Ratio
Institutional Ownership (INST)	Proportion of shares held by institutional investors	Institutional shares / Total outstanding shares	Ratio
Gender Diversity (GENDER)	Board gender diversity measured using the Blau Index	$1 - \sum P_i^2$	Ratio
Firm Size (SIZE)	Firm size based on total assets	Ln (Total Asset)	Ratio
Leverage (LEV)	Degree of debt financing	Total Liabilities / Total Assets	Ratio
Profitability (ROA)	Firm profitability	Net Income / Total Assets	Ratio

Source: Data Processed, 2025

To evaluate both the direct and moderating relationships, the study applies multiple regression modeling consistent with the stated research objectives. The empirical model used was formulated as follows:

$$ETR_{it} = \alpha + \beta_1 INST_{it} + \beta_2 GENDER_{it} + \beta_3 (INST_{it} \times GENDER_{it}) + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \varepsilon_{it}$$

The entire data processing was conducted using Stata statistical software to ensure the accuracy of estimates and consistency of analysis results. The model was estimated after performing the classical assumption tests to ensure the validity of the regression results.

## RESULTS AND DISCUSSION

Table 3 reports the descriptive statistics for the variables examined in this study. The mean Effective Tax Rate (ETR) is 24.740%, with a standard deviation of 16.320%, a minimum of 0.000, and a maximum of 87.700. Institutional ownership records an average of 16.430% and a standard deviation of 23.580%, with a range of 0.000 to 81.040%. Board gender diversity has a mean of 15.280%, a standard deviation of 18.790%, a minimum of 0.000, and a maximum of 50.000. Firm size has a mean of 29.870 and a standard deviation of 1.720, with a range of 25.740 to 32.830. Leverage exhibits a mean of 0.420 and a standard deviation of 0.250, with a minimum of 0.020 and a maximum of 2.380. Profitability, proxied by ROA, has an average of 10.350 with a standard deviation of 11.790, ranging from -1.090 to 69.490.

**Table 3. Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
ETR	125	24.740	16.320	0.000	87.700
INST	125	16.430	23.580	0.000	81.040
GENDER	125	15.280	18.790	0.000	50.000
SIZE	125	29.870	1.7200	25.740	32.830
LEV	125	0.420	0.250	0.020	2.380
ROA	125	10.350	11.790	-1.090	69.490

Source: Data Processed, 2025

Based on the descriptive statistics, the research variables demonstrate sufficient variation across firms and observation periods. The average ETR provides an overview

of the effective tax burden borne by mining companies, while the wide minimum–maximum range indicates heterogeneity in firms’ tax avoidance levels. Because ETR is inversely associated with tax avoidance, differences in ETR capture the extent to which firms pursue tax avoidance strategies. Similarly, variation in institutional ownership represents differences in ownership structures that may affect the strength of external monitoring over managerial decisions, including those related to tax avoidance. Meanwhile, board gender diversity also shows an uneven distribution across the sample, supporting its relevance as a governance-related demographic characteristic and as a moderating variable in explaining variations in tax avoidance across firms.

The choice of the panel regression model was determined through a series of specification tests. As reported in table 4, the Chow test yields a probability value of 0.040. Because this value is below the 0.050 significance threshold, the null hypothesis is rejected, indicating that the Fixed Effects model is preferable to the Pooled OLS model.

**Table 4. Chow Test**

Types	Prob > F
Chow Test	0.040

Source: Data Processed, 2025

Following the Chow test results favoring the Fixed Effects model, a Hausman test was conducted to compare the Fixed Effects and Random Effects estimators. As reported in table 5, the probability value is 0.970, which is above the 0.050 significance threshold. Accordingly, the null hypothesis cannot be rejected, and the Random Effects model is deemed more appropriate and efficient for estimating the panel data in this study.

**Table 5. Hausman Test**

Types	Prob > Chi2
Hausman Test	0.970

Source: Data Processed, 2025

The Random Effect Model was chosen because it accounts for firm-specific heterogeneity that is not fully observable but is assumed not to be systematically correlated with the explanatory variables. This approach enables the panel variation (between firms and across time) to be utilized more efficiently and supports statistical inference for a broader population of listed mining companies. In addition, the unbalanced panel structure and the relatively short observation period further justify the use of the Random Effects estimator to better account for cross-sectional variation across firms.

The multicollinearity diagnostics reported in Table 6 indicate that all variables have VIF values below 10, with an average VIF of 2.510, suggesting no multicollinearity issues in the regression model.

**Table 6. Classical Assumption Test: Multicollinearity**

Variable	VIF	1/VIF
INST	1.010	0.990
INST x	1.000	0.990
GENDER		
SIZE	4.920	0.200
LEV	3.790	0.260
ROA	1.820	0.550
Mean VIF	2.510	

Source: Data Processed, 2025

In addition to the multicollinearity test presented in table 6, further diagnostic tests were conducted to examine potential violations of panel-data error-term assumptions. Serial correlation was assessed using the Wooldridge test for autocorrelation in panel data (xtserial). The test produces a Prob > F value of 0.145, which is above the 0.050 significance threshold. Accordingly, the null hypothesis of no first-order autocorrelation cannot be rejected, indicating that the residuals are free from serial correlation.

Heteroskedasticity across panels was examined using the Modified Wald test (xttest3). The test produces a Prob > chi2 value of 0.000, which is statistically significant at the 5% level. This result indicates heteroskedasticity in the panel data. Although serial correlation is not detected, heteroskedasticity may lead to inefficient standard errors and unreliable statistical inference. To address this issue, the Random Effect model was estimated using firm-level cluster-robust standard errors. This procedure adjusts the variance-covariance matrix to provide consistent and reliable inference even when heteroskedasticity exists within panels. Accordingly, all reported significance levels in this study are based on cluster-robust standard errors to ensure statistical robustness.

Following these diagnostic procedures and robustness adjustments, the Random Effect GLS regression model was employed to estimate the relationships between governance variables and firms’ tax avoidance decisions in the mining sector.

Table 7 presents the model summary. The Prob > chi2 value of 0.000 indicates that the independent variables jointly have a significant effect on ETR. The R Square of 0.220 suggests that institutional ownership, board gender diversity, and control variables (size, leverage, and profitability) explain 22% of the variation in ETR. In contrast, the remaining variation is explained by other factors not included in this model.

**Table 7. Model Summary**

Model	R Square	Prob > chi2
1	0.220	0.000

Source: Data Processed, 2025

The regression results are reported in table 8. The findings show that institutional ownership has a positive and statistically significant coefficient, whereas the interaction between institutional ownership and gender diversity is not statistically significant.

**Table 8. Random Effect GLS Regression**

ETR	Coefficient	Std. err.	z	P >  z	[ 95% conf. interval ]
INST	0.210	0.066	3.190	0.001	0.081 0.339
INST x GENDER	-0.003	0.003	-0.930	0.352	-0.008 0.003
SIZE	0.960	0.911	1.050	0.292	-0.825 2.745
LEV	14.762	5.526	2.670	0.008	3.931 25.592
ROA	-0.245	0.128	-1.910	0.056	-0.496 0.007
_CONS	-8.088	26.785	-0.300	0.763	-60.586 44.409
SIGMA_U	9.540				
SIGMA_E	12.166				
RHO	0.381	(fraction of variance due to u i)			

Source: Data Processed, 2025

This study uses the Effective Tax Rate (ETR) as the primary proxy for tax avoidance, consistent with prior empirical research on corporate taxation. ETR is commonly adopted because it directly reflects the firm's effective tax burden relative to

its accounting income. In this study, ETR enables the analysis of cross-sectional differences in tax outcomes among Indonesian mining companies during the observation period. However, caution is warranted when interpreting ETR because the metric may be affected not only by deliberate tax planning but also by firm-specific accounting characteristics.

First, ETR can be influenced by temporary book–tax differences between accounting income and taxable income, particularly in asset-intensive industries such as mining. Mining companies often experience substantial depreciation and amortization expenses, long-term capital expenditure cycles, and differences in timing between revenue recognition and deductible expenses. These characteristics may cause fluctuations in reported ETR that do not fully reflect deliberate tax avoidance strategies, but rather reflect the firm’s operational structure and accounting treatment.

Second, ETR can also be sensitive to non-recurring events and special tax positions. For example, changes in deferred tax balances, recognition of tax benefits, impairment charges, and losses carried forward may distort the effective tax rate for certain periods. As a result, firms may exhibit extremely low or high ETR values not only due to aggressive tax planning but also due to temporary accounting effects. This issue is particularly relevant in the mining sector, where profitability can vary substantially from year to year due to commodity price movements and production volatility.

Third, the use of an unbalanced panel dataset may introduce differences in firm-year coverage. However, the Random Effect GLS estimator is expected to yield efficient estimates given the sample's structure. Despite this, variations in firm characteristics, firm maturity, and reporting consistency may contribute to heterogeneity in ETR outcomes. To mitigate this risk, the study includes firm fundamentals such as leverage, profitability, and firm size as control variables, which helps reduce the likelihood that the main results are driven by omitted firm-level characteristics.

In relation to robustness considerations, the main finding that institutional ownership has a significant effect on corporate tax outcomes remains theoretically coherent. Institutional shareholders generally possess stronger monitoring capacity and greater incentives to protect long-term firm value, which discourages excessive risk-taking behavior, including aggressive tax strategies that may increase exposure to regulatory sanctions and reputational costs. Accordingly, the significant relationship between institutional ownership and ETR is consistent with the monitoring mechanism predicted by agency theory. With respect to the moderating hypothesis, the insignificant interaction between institutional ownership and board gender diversity may also be interpreted in light of robustness considerations. Although diversity is frequently linked to improvements in monitoring quality, demographic diversity alone does not necessarily translate into substantive governance effectiveness. The Blau Index, which measures gender diversity, captures proportional representation but does not directly reflect board members' influence, decision-making authority, or involvement in key oversight committees. Therefore, the non-significant moderation result may indicate that the effectiveness of monitoring in tax-related decisions is primarily driven by ownership oversight rather than board demographic composition.

To enhance robustness in future studies, researchers may consider alternative proxies of tax avoidance that better capture different aspects of corporate tax planning behavior. One potential approach is to use Cash ETR, which reflects actual cash taxes paid and may reduce sensitivity to accrual-based accounting adjustments. An alternative measure is book–tax differences (BTD), which can capture differences between

accounting income and taxable income. Furthermore, future research may conduct sensitivity analyses, such as winsorizing extreme ETR values or omitting observations with unusual tax expense patterns, to ensure that outliers do not drive the findings.

Taken together, the robustness assessment indicates that although ETR remains a widely accepted proxy for tax avoidance, careful interpretation is required due to the mining sector's distinctive accounting and operational characteristics. Notwithstanding these considerations, the study's primary results consistently indicate that institutional ownership is an important governance mechanism associated with lower tax avoidance. In contrast, board gender diversity does not exhibit a significant moderating effect during the observed sample period.

The hypothesis-testing results indicate that institutional ownership has a significant effect on tax avoidance, proxied by the Effective Tax Rate (ETR) in this study. Conceptually, ETR reflects the proportion of current tax expense relative to income before tax. Given the inverse relationship between ETR and tax avoidance, a higher ETR corresponds to a lower level of tax avoidance. In contrast, a lower ETR signals a greater propensity for aggressive tax avoidance. The regression results indicate that institutional ownership has a coefficient of 0.210 and a p-value of 0.001 ( $< 0.050$ ), demonstrating a positive, statistically significant effect on ETR. Because ETR is inversely associated with tax avoidance, this finding suggests that institutional ownership reduces tax avoidance. Accordingly, the evidence supports the view that greater institutional ownership is associated with lower tax avoidance, suggesting that institutional investors serve as an effective external monitoring mechanism to promote fiscal compliance.

These findings are consistent with Agency Theory, which emphasizes the inherent conflict of interest between managers and shareholders. Institutional ownership is widely considered a stronger monitoring mechanism because institutional investors possess analytical capabilities, financial resources, and economic incentives to actively supervise managerial decisions. In the taxation context, stronger monitoring can discourage managerial incentives to pursue aggressive tax strategies that may yield short-term gains but increase firms' exposure to tax sanctions, litigation expenses, and reputational risks over the long term. In mining companies, the monitoring role of institutional investors becomes particularly relevant due to sector-specific characteristics such as high asset intensity, commodity price volatility, and strong regulatory exposure. These conditions make tax-related decisions more sensitive to compliance risk and long-term sustainability considerations, rather than being driven purely by short-term fiscal efficiency. Therefore, institutional investors can encourage mining firms to adopt more prudent tax strategies that align tax planning objectives with regulatory compliance and governance discipline.

This finding is consistent with the evidence from Bird & Karolyi (2017) and Khan et al. (2017), who demonstrate that institutional investors enhance governance oversight and mitigate managerial opportunism, including aggressive tax avoidance. Similarly, Pontoh & Kustinah (2024) and Susilawati & Tarmidi (2024) document that institutional ownership enhances transparency and mitigates tax avoidance among Indonesian firms by improving managerial oversight and disclosure quality. In an international context, Drobetz et al. (2025) and Giannopoulos et al. (2025) also report that institutional monitoring limits earnings management and tax aggressiveness, thereby reinforcing the role of institutional investors as key governance actors in maintaining fiscal discipline.

Despite its consistency with prior research, this study provides novel empirical evidence by focusing on the Indonesian mining sector. This industry has received limited attention in governance and taxation literature. Unlike manufacturing and financial

sectors commonly examined in earlier studies, mining firms face unique regulatory challenges, cyclical profitability, and complex asset structures that increase exposure to aggressive tax strategies. The finding that institutional ownership remains effective under these conditions demonstrates the robustness of institutional monitoring across different regulatory and industrial environments. Accordingly, this study contributes to the literature by deepening the understanding of how ownership structure affects tax avoidance in a highly regulated, capital-intensive industry, while providing context-specific evidence from a developing economy.

From a practical perspective, reinforcing the role of institutional shareholders as an external governance mechanism can enhance corporate tax compliance. This implication is particularly important in the mining sector, given its strategic contribution to government revenue and its relatively high exposure to tax avoidance risk. Regulators and policymakers may therefore consider policies that enhance transparency in ownership structures and strengthen tax-related disclosure requirements to reinforce the effectiveness of institutional monitoring.

The second hypothesis tests whether board gender diversity amplifies the effect of institutional ownership on tax avoidance. The empirical findings indicate that board gender diversity does not significantly moderate the relationship between institutional ownership and tax avoidance. It suggests that gender diversity within the board structure neither enhances nor diminishes the effectiveness of institutional investor monitoring in curbing tax avoidance among mining firms. The interaction term (INST  $\times$  GENDER) yields a significance value of 0.352 ( $p > 0.050$ ), indicating that board gender diversity, as proxied by the Blau Index, does not significantly moderate the impact of institutional ownership on ETR. Given the inverse relationship between ETR and tax avoidance, the insignificant interaction implies that gender diversity does not reinforce the role of institutional ownership in mitigating tax avoidance.

This result contrasts with several prior studies suggesting that gender diversity enhances governance quality and ethical oversight. For instance, Budiana & Kusuma (2022) found that gender-diverse boards foster ethical leadership and improve transparency among Southeast Asian corporations. Similarly, Sofianty et al. (2022) found that female directors reduce tax aggressiveness by improving ethical judgment and financial reporting transparency in Indonesian firms. Dang & Nguyen (2022) also show that greater female representation on boards in emerging markets is associated with a lower propensity to adopt risky financial and tax strategies. In addition, Kyaw et al. (2017) reported that gender diversity enhances governance quality and encourages tax compliance among firms operating in GCC and Asian markets.

However, the absence of a moderating effect in this study suggests that gender diversity, as currently observed in Indonesian mining firms, may not yet represent substantive participation capable of influencing strategic tax-related decisions. One possible explanation is that female representation remains relatively limited and may be concentrated in non-executive or symbolic roles, thereby restricting its influence on complex fiscal decisions. This interpretation aligns with the concept of symbolic representation, which formally recognizes demographic diversity. However, it does not necessarily translate into effective participation in board-level strategic deliberations, particularly in technically complex areas such as corporate tax planning.

Moreover, tax avoidance decisions in mining companies may be more strongly driven by structural and institutional factors, including ownership concentration, capital intensity, regulatory oversight, and exposure to commodity price volatility. These

characteristics reduce the relative influence of demographic attributes compared to ownership structure and financial strategy. From a measurement perspective, although the Blau Index captures proportional gender diversity, it does not fully reflect directors' expertise, tenure, committee involvement, or decision-making authority. Therefore, even when a board exhibits higher gender diversity, it may not automatically enhance governance effectiveness unless accompanied by meaningful engagement in audit, risk, or taxation oversight functions.

In addition, the governance structure of Indonesian mining firms is often characterized by concentrated ownership and strong controlling shareholders, including family ownership or politically connected entities. In such environments, strategic financial decisions, including tax planning policies, tend to be centralized at the ownership or executive management level, thereby limiting the influence of board-level demographic composition on fiscal strategies. Furthermore, the mining sector is subject to intensive government regulation, royalty obligations, export controls, and commodity price fluctuations, which impose structural constraints on corporate financial decisions. Under these conditions, tax avoidance strategies may be driven more by ownership control and regulatory considerations than by board diversity dynamics. Consequently, the moderating role of gender diversity may be structurally constrained within this industry context.

The novelty of this study lies in demonstrating that, within the Indonesian mining sector, board gender diversity does not necessarily enhance the monitoring effectiveness of institutional ownership in reducing tax avoidance. Unlike prior research reporting consistent positive effects of female board representation on tax compliance, this study provides context-specific evidence suggesting that these effects may depend on industry characteristics, governance structures, and regulatory environments. By focusing on a capital-intensive and highly regulated industry, this study extends the governance and taxation literature by showing that demographic diversity alone may not be sufficient to influence tax avoidance without corresponding institutional empowerment.

In practice, these findings imply that increasing board gender diversity should be accompanied by strengthening substantive governance roles, such as greater female participation in audit and risk committees and the inclusion of members with financial or taxation expertise. For future research, incorporating additional governance dimensions, including ownership concentration, board tenure, and representation of female directors in key oversight committees, may provide deeper insights into how diversity interacts with institutional monitoring in shaping tax avoidance.

## **CONCLUSION**

This study presents empirical evidence that institutional ownership plays an important role in influencing tax avoidance among Indonesian mining companies. Greater institutional ownership is linked to higher effective tax rates, suggesting lower tax avoidance and stronger tax compliance. These findings support agency theory by confirming that institutional investors function as effective external monitoring mechanisms that constrain managerial opportunism in tax-related decision-making. Conversely, board gender diversity does not significantly moderate the relationship between institutional ownership and tax avoidance. This result suggests that, in the mining sector context, demographic diversity alone may not be sufficient to enhance

governance effectiveness in tax oversight without substantive involvement in strategic decision-making and monitoring.

Overall, this study contributes to the corporate governance and taxation literature by showing that institutional ownership serves as a key governance mechanism in mitigating tax avoidance in a highly regulated, capital-intensive industry. From a practical perspective, these findings imply that regulators may consider strengthening disclosure requirements related to institutional ownership structures to enhance transparency in monitoring effectiveness. Companies may also encourage more active institutional shareholder engagement in governance processes, particularly in audit and risk oversight functions that directly relate to tax compliance. In addition, efforts to promote board diversity should be accompanied by policies that ensure substantive participation of diverse directors in audit committees or tax-related oversight roles to generate measurable governance outcomes.

Despite these contributions, this study has several limitations. First, tax avoidance is proxied solely by the Effective Tax Rate (ETR), which may not fully capture cash-based tax planning strategies or temporary accounting differences. Second, the sample is confined to mining firms over the 2022–2024 period, which may limit the generalizability of the results to other industries and varying economic conditions. Third, gender diversity is measured using the Blau Index, which reflects proportional representation but does not capture directors' expertise, tenure, or influence on committees. Future research is therefore encouraged to employ alternative tax avoidance measures such as Cash ETR or book-tax differences, extend the observation period, incorporate additional governance attributes (e.g., audit committee composition or institutional investor characteristics), and explore comparative analyses across industries to provide a more comprehensive understanding of governance dynamics and corporate tax avoidance.

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