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Institutional Ownership, Managerial Ownership, and Firm Size as Determinants of Tax Avoidance in Mining Companies

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Abstract–Given the importance of taxation as the primary source of government revenue, the practice of tax avoidance remains a concern, as many companies seek to minimize their tax liabilities through various strategies that remain within the bounds of the law. This study aims to analyze the influence of institutional ownership, managerial ownership, and firm size on tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) for the period 2022-2024. 2024 providing updated empirical evidence amid evolving tax regulations in Indonesia's post-pandemic economic recovery. The study utilizes secondary data obtained from the companies' annual financial reports during the observation period. The sample was selected using purposive sampling with a quantitative approach and hypothesis testing methods. Data analysis was conducted via multiple linear regression using SPSS software. The results indicate that institutional ownership has a positive effect on tax avoidance. This finding indicates that the presence of institutional ownership has not yet been able to strengthen the company's oversight function in curbing tax avoidance practices. Meanwhile, managerial ownership and firm size do not influence tax avoidance. These results suggest that the extent of share ownership by management or the size of the firm has not yet become a determining factor in the level of tax avoidance among mining companies listed on the IDX.

Keywords: Firm Size; Institutional Ownership; Managerial Ownership; Tax Avoidance

1. INTRODUCTION

Taxation plays a vital role as a source of state revenue and as a means for the public to contribute to the sustainability of national development and the economy. This is demonstrated in the 2025 State Budget (APBN) report, which shows that tax revenue accounts for more than 82.1% of total state revenue, up from 77.5% in the previous year, and is used to fund various strategic sectors such as education, health, and social protection (Direktorat Jenderal Pajak, 2025). This situation demonstrates that taxation is crucial for maintaining fiscal stability and the sustainability of national development, as without tax revenue, various government programmes aimed at improving the quality of life for the public cannot operate optimally

Although taxation is the primary source of state revenue, in practice there are still companies as taxpayers that seek to reduce their tax liabilities through various methods and tax-saving schemes. One such form of effort is known as tax avoidance, namely an act of avoiding tax liabilities undertaken through entirely legal channels by exploiting loopholes or weaknesses found in tax regulations, with the aim of reducing the amount of tax liability borne by the company whilst remaining within the applicable legal framework (Fitriya, 2023)

The practice of tax avoidance by companies does not arise suddenly, but is influenced by various internal factors, particularly corporate governance, which functions as a control mechanism over management behaviour in tax decision-making. One factor related to corporate governance that is considered to play a significant role is institutional ownership. Institutional ownership refers to the shareholding of a company by entities such as banks, pension funds, insurance companies, limited liability companies, and various other financial institutions that have an interest in the management of the company (Pambudi et al., 2025).

According to Pangestika (2021), the higher the level of institutional ownership, the lower the incidence of tax avoidance. Meanwhile, according to Fajarani (2021), institutional ownership has no effect on tax avoidance, suggesting that the presence of institutional ownership has not yet been able to act as a determining factor in reducing corporate tax avoidance practices. Another factor related to corporate governance is managerial ownership. Managerial ownership is the percentage of shares held by management involved in the decision-making process, including directors and commissioners (Haloho, 2021). This finding is supported by Fajarani (2021) research, which revealed that managerial ownership has a significant effect on tax avoidance, suggesting that management's involvement in share ownership can influence corporate tax avoidance practices. Conversely, research by Septanta (2023) indicates that managerial ownership does not affect tax avoidance, thus highlighting a discrepancy with previous research findings.

Furthermore, different scales entail different tax policies and strategies. A firm size reflects how large or small it is, which can be assessed through various approaches depending on the specific context, thereby providing information on the company's scale in various operational and financial aspects (Wansu & Dura, 2024). A number of previous studies have examined the relationship between company size and tax avoidance practices, yielding mixed results. According to Amelia & Febyansyah (2023), an increase in firm size is associated with a decrease in a company's inclination to engage in tax avoidance. Larger companies are typically more compliant with tax regulations as they possess greater stability in generating profits compared to smaller firms. However, according to Agustina et al. (2023) company size has not been shown to have an impact on tax avoidance practices.

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Tax revenue is derived from various economic sectors that make a significant contribution to state revenue. The mining sector is one of the sectors that makes a significant contribution to tax revenue in Indonesia, although its performance has remained volatile in recent years. In 2023, tax revenue from the mining sector performed quite well, with growth reaching 69.3% and a contribution of around 8% to the total tax revenue in January 2023, amounting to Rp162.23 trillion, driven by high commodity prices and increased economic activity in the mining sector (Kementrian Keuangan, 2023). However, in 2024, the state's tax revenue from the mining sector experienced a significant decline, with actual tax revenue recorded at Rp96.35 trillion and a contraction of 37.3% compared to the previous year, due to moderating commodity prices and increased tax refunds (Kementrian Keuangan, 2024). Furthermore, in 2025, tax revenue from the mining sector is projected to be around Rp205.7 trillion, contributing approximately 11.4% to national tax revenue; however, its performance remains under pressure due to weakening commodity prices and the performance of the oil and gas sub-sector (Kementrian Keuangan, 2025). These fluctuations in tax revenue from the mining sector indicate that the sector's contribution to tax revenue is not always stable and is heavily influenced by economic conditions and the performance of mining companies. Consequently, there is a need to monitor corporate tax practices, including the possibility of tax avoidance by companies in the mining sector. This study aims to analyze the influence of institutional ownership, managerial ownership, and firm size on tax avoidance.

Despite the growing body of research on tax avoidance, most prior studies have focused on manufacturing or multi-sector samples, leaving the mining sector with its unique regulatory environment, commodity-driven volatility, and high economic significance relatively underexplored in the Indonesian context. Moreover, the inconsistent findings across previous studies regarding the roles of institutional ownership, managerial ownership, and firm size underscore the need for sector-specific investigation using more recent data. This study therefore contributes to the accounting and taxation literature by providing updated empirical evidence on the determinants of tax avoidance within Indonesia's mining sector, addressing both the sectoral gap and the unresolved debates in prior research.

2. RESEARCH METHODS

2.1 Type of Research and Population and Sample

This study employs a quantitative data analysis approach in its data processing. The collected data was subsequently processed and analyzed through a series of stages. Research data used is classified as secondary data derived from the audited annual financial reports of relevant companies in the mining sector listed on the Indonesia Stock Exchange for the period 2022-2024.

This study employed a purposive sampling method, with the sample based on specific criteria tailored to the objectives and focus of the research. The criteria used as a reference in the sample selection process for this study were companies operating in the mining sector and listed on the Indonesia Stock Exchange (IDX), which have presented complete audited financial statements consecutively and have not incurred losses during the period 2022–2024. This purposive sampling approach was deliberately chosen to ensure that only companies with sufficient data quality and operational consistency are included, thereby enhancing the reliability and validity of the analysis. Companies that incurred losses were excluded from the sample because negative earnings may distort the measurement of tax avoidance, as loss-making firms naturally bear no tax burden regardless of any avoidance behavior. The mining sector was specifically selected given its significant and volatile contribution to Indonesia's national tax revenue, as well as the limited number of sector-specific studies examining tax avoidance determinants within this industry.

2.2 Operational Definitions

2.2.1. Institutional Ownership

Institutional ownership refers to the holding of shares by institutional investors, including limited liability companies such as those with foreign parent companies pension funds, insurance companies, and mutual funds as a form of collective investment vehicle (Widyatama & Radianto, 2024). This variable is incorporated into the study based on legitimacy theory, which suggests that institutional investors, as prominent stakeholders, are particularly sensitive to the company's public image and social legitimacy. The presence of institutional ownership is therefore expected to encourage management to adopt tax behaviors that are perceived as socially responsible and compliant, in order to maintain the company's legitimacy in the eyes of regulators, the public, and the broader investment community

2.2.2. Managerial Ownership

Managerial ownership reflects the proportion of shares held by internal management who directly contribute to and are actively involved in the formulation and adoption of strategic decisions taken by the company, thereby influencing the company's financial and operational policies (Krisna & Herijawati, 2026). This variable is examined through the lens of agency theory, wherein managerial ownership presents a paradoxical condition. Rather than aligning managerial interests with those of other shareholders, managers who simultaneously hold shares may exploit their dual position as both decision-makers and owners to prioritize personal financial gain. In this context, managerial shareholders may be inclined to pursue aggressive tax avoidance strategies as a means of maximizing after-tax returns that directly benefit themselves, thereby exacerbating rather than mitigating the agency conflict between management and other stakeholders.

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2.2.3. Firm Size

Company size refers to the scale of a company, measured in terms of total assets or total sales, which reflects its operational capacity and financial strength in conducting its business activities (Brigham & Houston, 2022). Firm size is included as a variable in this study based on legitimacy theory, which argues that larger companies are more visible to the public, regulators, and other stakeholders, and therefore face greater pressure to demonstrate socially legitimate behavior, including tax compliance. As a result, larger firms are more likely to avoid aggressive tax avoidance practices in order to preserve their reputational standing and maintain societal acceptance of their operations.

2.2.4. Tax Avoidance

Tax avoidance is a method of legally minimizing tax liability whilst complying with tax regulations; it is carried out by taxpayers by exploiting loopholes in the law. This is done to reduce the amount of tax due (Widyatama & Radianto, 2024). As the dependent variable in this study, tax avoidance is examined in relation to ownership structure and firm size, given that prior research has produced inconsistent findings regarding these relationships, particularly within sector-specific contexts such as the mining industry in Indonesia.

2.3 Research Hypotheses

Institutional ownership refers to shareholding by institutional investors such as limited liability companies including foreign business entities pension funds, insurance companies and mutual funds (Widyatama & Radianto, 2024). According to legitimacy theory, institutional ownership acts as a monitoring mechanism that encourages management to safeguard the company's reputation and legitimacy by avoiding excessive tax avoidance practices. Institutional investors tend to pressure management to implement transparent governance and comply with regulations, thereby making companies more cautious in their tax planning. Research conducted by Rini & Nurhayati (2024) indicates that institutional ownership exerts a significant negative influence on tax avoidance practices. This finding is consistent with the results of studies by Pangestika (2021) and Reswita et al. (2024), which state that institutional ownership has a significant negative influence on tax avoidance because institutional investors have the capacity to tighten oversight of management policies.
H1: Institutional ownership has a negative effect on tax avoidance

Managerial ownership refers to the proportion of shares held by a company's internal management who are directly and actively involved in the formulation and adoption of strategic decisions, including directors and commissioners who contribute to the control and management of the company's overall operations (Wahyudi & Pawestri, 2006). Based on agency theory, managerial ownership means that managers have a direct interest in the company's performance because they also act as shareholders. This encourages managers to increase after-tax profits so that the value of the returns they receive is greater. One way this is achieved is by reducing the tax burden through tax avoidance practices, as tax savings will directly increase net profit and the returns they receive. The findings of Hendrianto (2022) indicate that managerial ownership has a positive effect on tax avoidance. Furthermore, Meliani & Lesmana (2023) also state that managerial ownership has been shown to have a positive effect on tax avoidance practices. This situation arises when managers hold shares in the companies they manage, meaning they are no longer merely managers but also owners with a direct stake in enhancing the company's value and performance.
H2: Managerial ownership has a positive effect on tax avoidance

Firm size reflects the scale of a business, which can be measured by its total assets or total sales, this also illustrates the company's operational capacity and financial strength in sustaining and conducting all its business activities on a sustainable basis (Brigham & Houston, 2022). Based on legitimacy theory, large companies strive to maintain their public image and trust by conducting all their activities in accordance with established norms and regulations. Consistent findings are also demonstrated by Purnamasari & Yuniarwati (2024) and Suhartono & Ekadjaja (2024), who state that firm size has a negative influence on tax avoidance practices. Companies operating on a larger scale generally face higher levels of accountability, alongside increasing demands for transparency from various stakeholders who are concerned about the company's performance and behaviour.
H3: Firm size has a negative effect on tax avoidance

2.4 Conceptual Framework

Figure 1 is conceptual framework in this study.

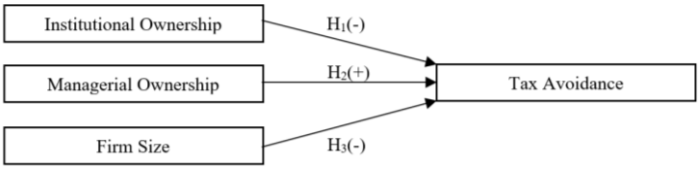


Figure 1. Research Conceptual Framework

2.6 Data Analysis and Testing Techniques

Data were analyzed using SPSS version 29. The data analysis technique utilised classical assumption tests, comprising tests for normality, multicollinearity, heteroscedasticity, and autocorrelation. Furthermore, multiple linear regression

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analysis was employed to examine the influence of more than one independent variable. Hypothesis testing was conducted using the F-test, t-test, and the coefficient of determination (R^2).

3. RESULTS AND DISCUSSION

3.1 Research Results

3.1.1. Data Research's Overview

Table 1. Sample Criteria

Description	Total
Mining companies listed on the Indonesia Stock Exchange (IDX) during the period 2022–2024 (91 companies x 3 years)	273
Excluded: Companies that have not presented complete audited financial statements for each consecutive year during the 2022–2024 period	(76)
Minus: Companies that incurred losses during the 2022–2024 period	(71)
Minus: Outlier Data	(6)
Total research sample data	120

The data used in this study covers companies operating in the mining sector and listed on the Indonesia Stock Exchange (IDX) between 2022 and 2024, whose financial statements have been audited. The data source utilised in this study is secondary data obtained from the Indonesia Stock Exchange (IDX). Total 273 companies listed in this sector throughout the study period, 120 companies were found to meet the established criteria for inclusion as a sample in this study. Next, the data was filtered by excluding companies that did not provide complete and consistent audited financial statements throughout the study period, resulting in a reduction of 76 observations. In addition, companies that incurred losses during the study period were also excluded from the sample, resulting in a total reduction of 71 observations. Subsequently, outlier testing and removal were carried out to minimise the influence of extreme values on the analysis results. Outliers were removed because extreme values that do not reflect the population conditions can influence the analysis results; therefore, outliers need to be addressed before further analysis is carried out (Ghozali, 2018). Outliers were identified using the case-wise diagnostics method with the aid of SPSS 29 software, data reduction of 6 observations.

3.1.2. Data Analysis

Table 2. Statistics Descriptive

	N	Minimum	Maximum	Mean	Std. Deviation
Institutional Ownership (X1)	120	0	100	75.379	27.53412
Managerial Ownership (X2)	120	0	76.07	4.9812	14.55149
Firm Size (X3)	120	13.01	29.17	21.9126	4.00779
ETR (Y)	120	0	55.25	20.0617	12.14029
Valid N (listwise)	120				

The institutional ownership variable has an average value of 75.37%, indicating that the majority of the company shares in the sample are held by institutional investors. The maximum value of 100% was recorded by PT Bumi Resources Tbk in 2022. Meanwhile, the minimum value of 0.00% across the three research samples, all from PT Ulima Nitra Tbk between 2022 and 2024, demonstrates a very wide variation in institutional ownership across companies. A standard deviation of 27.53412 indicates that the data exhibits a considerable degree of dispersion.

The managerial ownership variable has an average value of 4.98%, indicating that, in general, the proportion of shares held by management is relatively small. The minimum value of 0.00 was recorded in 58 of the study's samples, one of which was PT Alamtri Minerals Indonesia Tbk for the period 2022-2024. This suggests that there are some companies where management holds no shares, whilst the maximum value of 76.07% comes from PT Sunindo Pratama Tbk in 2022 indicating the existence of a company with a very high level of managerial ownership.

The firm size variable has an average value of 21.91, reflecting the scale of the firms in the research sample. The minimum value of 13.01, from PT Atlas Resources Tbk in 2022, indicates a relatively small company based on total assets or the indicator used, whilst the maximum value of 29.17, from PT Sumber Global Energy Tbk in 2024, reflects a company of a much larger scale. This difference indicates a fairly clear variation in company size between small and large companies in the sample. The standard deviation of 4.00779 indicates that the dispersion of company size data is relatively smaller compared to other variables.

The dependent variable for tax avoidance, proxied by the effective tax rate (ETR), has an average value of 20.06%. This indicates that, in general, the companies in the research sample have an effective tax burden of 20.06%. This means that the average tax burden of manufacturing companies during the study period was below the corporate income tax rate of 22%, indicating a tendency for companies to engage in tax avoidance. The maximum ETR value of 55.25%, recorded by PT Radiant Utama Interinsco Tbk in 2023, indicates that there are companies with a relatively high tax burden, whilst the minimum value of 0.00% across five research samples, one of which was PT Sumber Energi Andalan Tbk in 2022-

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2023, suggests the presence of companies with a very low tax burden. The standard deviation of 12.14029 indicates that the distribution of ETR data varies considerably between companies

Table 3. Normality Test (Before)

		Unstandardized Residual
N		120
Normal Parameters[a,b]	Mean	0
	Std. Deviation	11.53693484
Most Extreme Differences	Absolute	0.082
	Positive	0.082
	Negative	-0.056
Test Statistic		0.082
Asymp. Sig. (2-tailed)		.044[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Table 3 shows an Asymp Sig. (2-tailed) value of 0.044, which is less than 0.05, meaning that the data are not normally distributed. This indicates that the regression model does not fully satisfy the assumption of normality, which may affect the accuracy of statistical tests, particularly in hypothesis testing.

Table 4. Multicollinearity Test (Before)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	31.232	8.55		3.653	0		
	Institutional Ownership (X1)	-0.168	0.052	-0.382	-3.266	0.001	0.569	1.757
	Managerial Ownership (X2)	-0.187	0.095	-0.224	-1.976	0.05	0.604	1.655
	Firm Size (X3)	0.112	0.295	0.037	0.38	0.705	0.82	1.219

Table 4 shows that the institutional ownership variable has a Tolerance value of 0.569 and a VIF of 1.757, the managerial ownership variable has a Tolerance value of 0.604 and a VIF of 1.655, and the firm size variable has a Tolerance value of 0.82 and a VIF of 1.219. It is noted that for the Tolerance and VIF values of the variables included in the independent model, a Tolerance value greater than 0.10 and a VIF value less than 10 indicate that there is no multicollinearity and that they are suitable for use in further regression analysis.

Table 5. Heteroscedasticity Test (Before)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	18.475	5.27		3.506	0.001
	Institutional Ownership (X1)	-0.095	0.032	-0.354	-2.987	0.003
	Managerial Ownership (X2)	-0.132	0.058	-0.26	-2.268	0.025
	Firm Size (X3)	-0.084	0.182	-0.045	-0.461	0.645

Table 5 shows that the significance values for the institutional ownership variable are 0.003, for managerial ownership 0.025, and for firm size 0.645. These results indicate that the institutional ownership and managerial ownership variables have significance values of less than 0.05, whilst the firm size variable has a significance value greater than 0.05. Consequently, it can be concluded that the regression model in this study still exhibits heteroscedasticity, as there are independent variables with significance values of less than 0.05.

Table 6. Autocorellation Test (Before)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.311[a]	0.097	0.074	11.68517	1.033

Table 6 shows that the Durbin-Watson statistic is 1.033; this value is then compared with the lower and upper limits in the Durbin-Watson table. With a sample size (n) of 120 and three independent variables (k), the DU value is 1.7536, the 4-DU value is 2.2464, the DL value is 1.6513 and the 4-DL value is 2.3487. It is noted that the Durbin-Watson value is less than the DL value, i.e. 1.033 < 1.6513. Consequently, the data exhibits autocorrelation or fails the autocorrelation test.

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Table 7. Lag Tranformation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-0.027	0.934		-0.029	0.977
	LAG_RES	0.484	0.081	0.482	5.959	0

Table 7 above, the LAG_RES coefficient is found to be 0.484. This value corresponds to the Rho (ρ) coefficient, which forms the basis for the Cochrane-Orcutt transformation. The significance of this Rho value is reinforced by a t-value of 5.959 with a Sig. value of 0, which is smaller than the significance level of 0.05; it can therefore be concluded that there is a significant correlation between the residuals in the current period and those in the previous period.

The Cochrane-Orcutt transformation is one of the methods used to address the issue of autocorrelation in linear regression analysis. Before the Cochrane-Orcutt transformation can be carried out, a lag transformation must first be performed as an initial step to estimate the rho (ρ) value. Therefore, the Rho value of 0.484 obtained was used as the basis for transforming all variables in the model.

$$INST^* = INST_t - (0{,}484 \times INST_{t-1})$$

$$MNJR^* = MNJR_t - (0{,}484 \times MNJR_{t-1})$$

$$SIZE^* = SIZE_t - (0{,}484 \times SIZE_{t-1})$$

$$TA^* = TA_t - (0{,}484 \times TA_{t-1})$$

Notes:
INST*, MNJR*, SIZE* = transformed independent variables
TA* = transformed dependent variable
t = current period
t-1 = previous period

Table 8. Statistics Descriptive after Transformation

	N	Minimum	Maximum	Mean	Std. Deviation
Institutional Ownership (X1)	119	-34.45	91.37	38.638	21.39569
Managerial Ownership (X2)	119	-36.6	69.55	2.798	10.84518
Firm Size (X3)	119	0.4	19.66	11.3331	3.27443
ETR (Y)	119	-12.69	43.25	10.3285	10.58658
Valid N (listwise)	119				

Descriptive statistical analysis in this study was performed on data that had undergone the Cochrane-Orcutt transformation. It should be noted that the minimum, maximum, mean and standard deviation values presented in Table 8 above do not reflect the original data values for each variable, but rather the transformed values obtained by subtracting from each observation the product of the Rho value and the observation from the previous period. The number of observations for this descriptive statistical analysis was reduced from 120 to 119. This reduction occurred because the Cochrane-Orcutt transformation process requires the creation of a lag variable.

Table 9. Normality Test (After)

		Unstandardized Residual
N		119
Normal Parameters[a,b]	Mean	0
	Std. Deviation	10.0531488
Most Extreme Differences	Absolute	0.063
	Positive	0.063
	Negative	-0.047
Test Statistic		0.063
Asymp. Sig. (2-tailed)		.200[c,d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

The purpose of this test is to determine whether the residuals from the regression model are normally distributed, as required by the classical assumptions. Based on the test results presented in Table 9, an Asymp. Sig. (2-tailed) value of 0.200 was obtained. As this significance value is greater than the significance level of 0.05, it can be concluded that the regression model residuals are normally distributed. This confirms that the Cochrane-Orcutt transformation

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successfully corrected the normality violation identified in the pre-transformation stage, making the regression results more reliable for hypothesis testing.

Table 10. Multicollinearity Test (After)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	10.279	4.833		2.127	0.036		
	Institutional Ownership (X1)	-0.136	0.057	-0.275	-2.38	0.019	0.587	1.704
	Managerial Ownership (X2)	-0.109	0.108	-0.112	-1.016	0.312	0.644	1.552
	Firm Size (X3)	0.496	0.308	0.153	1.609	0.11	0.864	1.157

Based on Table 10, the Institutional Ownership variable has a Tolerance value of 0.587 and a VIF value of 1.704. The Managerial Ownership variable has a Tolerance value of 0.644 and a VIF value of 1.552. The Firm Size variable obtained a Tolerance value of 0.864 and a VIF value of 1.157. All of these independent variables showed Tolerance values greater than 0.10 and VIF values less than 10.00. Thus, it can be concluded that there is no evidence of multicollinearity among the independent variables in the regression model after data transformation, meaning that the assumption of freedom from multicollinearity has been met. This result indicates that each independent variable contributes uniquely to explaining tax avoidance, and their regression coefficients can be interpreted independently without the risk of overlapping influence among variables.

Table 11. Heteroscedasticity Test (After)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	8.632	3.102		2.782	0.006
	Institutional Ownership (X1)	-0.045	0.037	-0.148	-1.227	0.222
	Managerial Ownership (X2)	-0.005	0.069	-0.009	-0.075	0.94
	Firm Size (X3)	0.065	0.198	0.032	0.327	0.745

Based on Table 11, the Institutional Ownership variable obtained a significance value of 0.222, the Managerial Ownership variable obtained a significance value of 0.94, and the Firm Size variable obtained a significance value of 0.745. All three independent variables showed significance values greater than 0.05 therefore, it can be concluded that there is no evidence of heteroscedasticity in the regression model following data transformation. This means the model's error variance is consistent across all observations, suggesting that the relationship between the independent variables and tax avoidance is stable regardless of the scale or ownership level of the companies in the sample.

Table 12. Autocorellation Test (After)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.313[a]	0.098	0.075	10.18343	1.794

Based on Table 12, a Durbin-Watson value of 1.794 was obtained. With a sample size (n) of 119 and the number of independent variables (k) being 3, the lower limit (dL) was calculated as 1.6270 and the upper limit (du) of 1.7514. According to the Durbin-Watson table, the DW value of 1.794 lies between du (1.7514) and 4-du (2.2486), so it can be concluded that there is no evidence of autocorrelation in the regression model following the Cochrane-Orcutt transformation. This indicates that the tax avoidance behavior observed in one period no longer systematically influences the next, confirming that the transformation effectively eliminated the temporal dependency in the data and that the model is now appropriate for reliable inference.

Table 13. Multiple Linear Regression

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	10.279	4.833		2.127	0.036
	Institutional Ownership (X1)	-0.136	0.057	-0.275	-2.38	0.019
	Managerial Ownership (X2)	-0.109	0.108	-0.112	-1.016	0.312
	Firm Size (X3)	0.496	0.308	0.153	1.609	0.11

Based on Table 13 above, the multiple linear regression equation in this study can be formulated as follows:

$$TA = 10{,}279 - 0{,}136\ INST - 0{,}109\ MNJR + 0{,}496\ SIZE + \varepsilon$$

Notes:

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TA = Tax avoidance
α = Constant
$\beta_{1,2,3}$ = Regression coefficients
INST = Institutional ownership
MNJR = Managerial ownership
SIZE = Firm size
ε = Error

The regression equation can be interpreted as follows. Firstly, the constant term of 10.279 indicates that if all independent variables are set to zero, the ETR value is 10.279. Secondly, the regression coefficient for the Institutional Ownership variable is negative at -0.136, meaning that a one-unit increase in the Institutional Ownership variable will reduce the ETR value by 0.136, assuming all other variables remain constant. Thirdly, the regression coefficient for the Managerial Ownership variable is negative at -0.109, meaning that a one-unit increase in the Managerial Ownership variable will reduce the ETR value by 0.109, assuming all other variables remain constant. Fourthly, the regression coefficient for the Firm Size variable is positive at 0.496, meaning that a one-unit increase in the Firm Size variable will increase the ETR value by 0.496, assuming all other variables remain constant.

Table 14. F-test

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	1299.16	3	433.053	4.176	.008[b]
	Residual	11925.764	115	103.702		
	Total	13224.924	118			

Based on Table 14 the calculated F-value is 4.176 with a significance level of 0.008. As this significance value is smaller than the significance level of 0.05, it can be concluded that the variables Institutional Ownership, Managerial Ownership, and Firm Size simultaneously have a significant effect on the Effective Tax Rate (ETR). This suggests that ownership structure and firm characteristics, when considered together, play a meaningful role in shaping corporate tax avoidance behavior in the mining sector, lending empirical support to the theoretical frameworks of agency theory and legitimacy theory adopted in this study.

Table 15. T-test

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	10.279	4.833		2.127	0.036
	Institutional Ownership (X1)	-0.136	0.057	-0.275	-2.38	0.019
	Managerial Ownership (X2)	-0.109	0.108	-0.112	-1.016	0.312
	Firm Size (X3)	0.496	0.308	0.153	1.609	0.110

Table 15 shows the Institutional Ownership variable has a calculated t-value of -2.380 with a significance level of 0.019. As this significance level is less than 0.05, it can be concluded that Institutional Ownership has a significant partial effect on ETR. The negative regression coefficient of -0.136 indicates that Institutional Ownership has a negative effect on ETR, meaning that the higher the level of institutional ownership, the lower the ETR value will be. This finding implies that institutional investors in Indonesia's mining sector have not yet effectively exercised their monitoring role to curb tax avoidance. The Managerial Ownership variable yields a calculated t-value of -1.016 with a significance level of 0.312. As this significance level is greater than 0.05, it can be concluded that managerial ownership does not have a significant partial effect on ETR. Consequently, the level of managerial ownership has not been shown to have a significant impact on ETR values or on the tendency of companies to engage in tax avoidance practices. This result suggests that managerial shareholding in mining companies has not reached a level sufficient to meaningfully alter tax decision-making behavior. The Company Size variable yielded a t-statistic of 1.609 with a significance level of 0.110. As this significance level is greater than 0.05, it can be concluded that Company Size does not have a significant partial effect on ETR. Consequently, the size of the company has not been shown to have a significant influence on the ETR value or on the company's tendency to engage in tax avoidance practices. This outcome indicates that in the mining sector, firm size alone does not determine the degree of tax avoidance, contrary to the expectation of legitimacy theory which posits that larger firms face greater public scrutiny and thus tend to be more tax compliant.

Table 16. R^2-test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.313[a]	0.098	0.075	10.18343

Table 16 the Adjusted R-squared value is 0.075, or 7.5%. This value indicates that the variables Institutional Ownership, Managerial Ownership, and Firm Size collectively account for 7.5% of the variation in the Effective Tax Rate (ETR) variable, whilst the remaining 92.5% is explained by other variables outside the model that were not included in this study.

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3.2 Discussion

3.2.1 Effect of Institutional Ownership on Tax Avoidance

Institutional ownership has a negative effect on the effective tax rate (ETR), meaning that the higher the level of institutional ownership, the lower the ETR. Given that the ETR is the inverse of tax avoidance, these results indicate that the higher the proportion of institutional ownership in a company, the greater the tendency for that company to engage in tax avoidance practices. These findings are consistent with those reported by Natalia (2021) and Setiawan et al. (2021), who stated that institutional share ownership has a positive effect on tax avoidance.However, these findings are not consistent with the legitimacy theory used as the theoretical framework in this study. According to legitimacy theory, companies are expected to operate in accordance with the norms and values prevailing in society, including in fulfilling their tax obligations, as an effort to maintain legitimacy in the eyes of the public and stakeholders. In this context, institutional ownership acts as a supervisory mechanism that encourages companies to maintain regulatory compliance, as institutional investors generally demand greater transparency and accountability. The findings of this study indicate that institutional investors are not always focused on maintaining the company's legitimacy. On the contrary, institutional investors also have an interest in maximising their returns, so they tend to encourage management to adopt aggressive tax strategies through tax avoidance practices in order to increase after-tax returns. Consequently, the results of this test reject the hypothesis that institutional ownership has a negative effect on tax avoidance.

This is consistent with the agency theory perspective developed by Jensen & Meckling (1976), which explains that an agency relationship arises when a principal delegates decision-making to an agent to act on their behalf. In the context of this study, institutional investors, as principals holding a large shareholding, wield significant power and influence in monitoring and guiding management decisions.

3.2.2 Effect of Managerial Ownership on Tax Avoidance

Managerial ownership does not have a significant partial effect on tax avoidance. This finding is inconsistent with previous research conducted by Hendrianto (2022) and Meliani & Lesmana (2023), which stated that managerial ownership has a positive effect on tax avoidance, this situation arises when managers also hold shares in the companies they manage, so that they no longer act solely as operational managers, but also transform into owners with a direct interest in driving sustainable increases in the company's value. The lack of an effect of managerial ownership on tax avoidance in this study can be explained by the following. The proportion of shares held by management in the mining companies sampled in this study tends to be very small compared to the total number of shares in circulation, meaning that the influence of managers as shareholders is not yet strong enough to encourage or hinder decision-making regarding the company's tax policy. The finding Sari et al. (2022) that a lower proportion of share ownership by management within a company leads to management tending to pay less attention to the interests of shareholders.

3.2.3 Effect of Firm Size on Tax Avoidance

Firm size does not have a significant partial effect on tax avoidance therefore, the results of this test reject the hypothesis that firm size has a negative effect on tax avoidance. The results of this study differ from those of Purnamasari & Tahir (2025) and Suhartono & Ekadjaja (2024), who found that firm size has a significant effect on tax avoidance. From the perspective of legitimacy theory, companies seek to obtain and maintain legitimacy from society by ensuring that their operational activities comply with prevailing norms, values, and regulations. However, in practice, this influence does not always follow a consistent pattern, given that large-scale companies are also equipped with far more adequate resources to design and implement legal and structured tax planning strategies. Furthermore, tax avoidance can, in principle, be undertaken by companies of all sizes, small, medium, or large as, fundamentally, every company seeks to minimise its tax burden in order to maximise its profits. These profits can then be used for reinvestment or distributed to investors in the form of dividends (Hermawan et al., 2021). This suggests that the incentive to pursue tax efficiency is not solely influenced by company size; consequently, company size does not have a significant impact on tax avoidance in this study.

4. CONCLUSION

Institutional ownership has a significant negative effect on the effective tax rate (ETR). However, as tax avoidance has an inverse relationship with the ETR, these results indicate that institutional ownership has a significant positive effect on tax avoidance. This means that the higher the level of institutional ownership, the greater the tendency for companies to engage in tax avoidance. This indicates that institutional investors do not always act as watchdogs promoting tax compliance; rather, they tend to encourage management to adopt more aggressive tax policies in order to maximize profits for shareholders. Managerial shareholding has no significant effect on tax avoidance. This finding suggests that the extent of management's shareholding does not influence the company's tax policies. Consequently, the presence or absence of managerial shareholding has no significant impact on the company's propensity to engage in tax avoidance practices. Last, firm size does not have a significant impact on tax avoidance. This finding suggests that differences in firm size, whether large or small are not a determining factor in decision-making regarding tax strategies. Consequently, differences in firm size do not result in significant differences in companies willingness to engage in tax avoidance practices.

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Limitation of this study covers an observation period of only three years, namely 2022–2024 and the independent variables used in this study, namely institutional ownership, managerial ownership and firm size can only explain 7.5% of the variation in tax avoidance, whilst the remaining 92.5% is influenced by other factors outside the research model. Future research is recommended to use a longer observation period of five years or more and recommended to include other independent variables that may influence tax avoidance. In addition to the theoretical contributions, this study also provides several practical implications for companies and tax regulators. For companies, particularly those with high institutional ownership, the results highlight the importance of strengthening corporate governance and ensuring that tax strategies remain aligned with ethical standards and regulatory compliance. Institutional investors are expected not only to focus on profit maximization but also to encourage sustainable and transparent tax practices. For tax authorities and regulators, the findings suggest the need for stricter supervision and evaluation of companies with dominant institutional ownership, as such ownership may increase the tendency toward aggressive tax avoidance practices. In addition, regulators may consider improving tax monitoring policies and corporate governance regulations to minimize opportunities for tax avoidance.

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