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Tax Avoidance in Mining Companies

Tutty Nuryati¹, Rimi Gusliana Mais², Uswatun Khasanah³.

¹Universitas Bhayangkara Jakarta Raya, tutty.nuryati@dsn.ubharajaya.ac.id.

²Sekolah Tinggi Ilmu Ekonomi Indonesia Jakarta.

³Universitas Bhayangkara Jakarta Raya.

Corresponding Author: tutty.nuryati@dsn.ubharajaya.ac.id¹

Abstract: Revenue from tax funds is Indonesia's main revenue, where around 80% of Indonesia's APBN revenues come from tax revenues. This is certainly a concern of the Government to pay attention to everything related to increasing tax revenues. Tax evasion is something that is actually an attempt to minimize tax revenue by taxpayers, which of course the government does not want. However, this is an act that is permissible, as long as it is carried out within reasonable limits. The purpose of this study is to determine the extent to which tax avoidance is influenced by profitability, capital structure, and managerial ownership in mining companies listed on the Indonesia Stock Exchange in 2016-2020. This study used a descriptive quantitative approach and analyzed using linear regression with panel data using the Eviews 10 software program. This study used secondary data with data collection techniques using the documentation method through the official IDX website. The research population taken is mining companies listed on the Indonesia Stock Exchange in the 2016-2020 period. The sample was determined based on the purposive sampling method with a sample of 13 companies, so that the total observations in this study were 65 observations. The results of the study show that profitability has a significant effect on tax avoidance, while capital structure and managerial ownership have no effect on tax avoidance

Keywords: *Capital Structure, Managerial Ownership, Profitability, Tax Avoidance.*

Indonesian Abstract: Pendapatan dari sumber pajak merupakan sumber pendapatan utama Indonesia, di mana sekitar 80% dari pendapatan APBN Indonesia berasal dari penerimaan pajak. Hal ini tentu menjadi perhatian Pemerintah untuk memperhatikan segala hal yang berkaitan dengan peningkatan penerimaan pajak. Penghindaran pajak merupakan upaya yang dilakukan wajib pajak untuk meminimalkan penerimaan pajak, yang tentunya tidak diinginkan oleh pemerintah. Namun, hal ini merupakan tindakan yang diperbolehkan, selama dilakukan dalam batas yang wajar. Tujuan penelitian ini adalah untuk mengetahui sejauh mana penghindaran pajak dipengaruhi oleh profitabilitas, struktur modal, dan kepemilikan manajerial pada perusahaan pertambangan yang terdaftar di Bursa Efek Indonesia pada periode 2016-2020. Penelitian ini menggunakan pendekatan kuantitatif deskriptif dan dianalisis dengan regresi linier data panel menggunakan program perangkat lunak Eviews 10. Penelitian ini menggunakan data sekunder dengan teknik pengumpulan data menggunakan metode dokumentasi melalui situs web resmi BEI. Populasi penelitian yang diambil adalah perusahaan pertambangan yang terdaftar di Bursa Efek Indonesia pada periode 2016-2020.

Sampel ditentukan berdasarkan metode purposive sampling dengan jumlah sampel sebanyak 13 perusahaan, sehingga total observasi dalam penelitian ini adalah 65 observasi. Hasil penelitian menunjukkan bahwa profitabilitas memiliki pengaruh yang signifikan terhadap penghindaran pajak, sedangkan struktur modal dan kepemilikan manajerial tidak memiliki pengaruh terhadap penghindaran pajak.

Keywords: Struktur Modal, Kepemilikan Manajerial, Profitabilitas, Penghindaran Pajak.

INTRODUCTION

Tax revenue constitutes the primary source of government income in Indonesia, contributing more than 80% of total state revenue in the 2021 State Budget (APBN). Despite continuous improvements in the national tax administration system, efforts to optimize tax revenue remain challenging due to the conflicting interests between tax authorities and corporate taxpayers. From the government's perspective, taxes represent an essential source of public revenue used to finance governmental activities and national development. Conversely, for corporations, taxes are regarded as a business expense that reduces net profit (Dewinta & Setiawan, 2016). Consequently, many companies seek to minimize their tax liabilities through tax avoidance strategies by exploiting legal loopholes within the tax system. Although tax avoidance generally falls within the boundaries of applicable tax regulations, increasingly aggressive tax planning practices may exceed acceptable limits and potentially cause substantial losses to the government.

Tax avoidance is generally distinguished from tax evasion because it involves legitimate efforts by taxpayers to minimize, avoid, or reduce tax liabilities through arrangements permitted under existing tax legislation (Sari & Kinasih, 2021). Nevertheless, the boundary between legitimate tax planning and aggressive tax avoidance remains ambiguous, making tax avoidance an important and complex issue that continues to attract considerable academic and policy attention.

A notable example occurred in 2019, when PT Adaro Energy Tbk was alleged to have engaged in tax avoidance through transfer pricing practices by shifting substantial profits from Indonesia to affiliated entities located in jurisdictions with lower corporate tax rates. The alleged scheme was reported to have been implemented between 2009 and 2017, resulting in an estimated tax payment reduction of approximately IDR 1.75 trillion (USD 125 million) compared with the amount that should have been paid in Indonesia (Bisnis.com, 2019). This case illustrates the continuing challenges faced by governments in preventing aggressive tax planning, particularly in industries characterized by complex multinational operations and substantial financial resources.

Previous studies have identified several factors that influence corporate tax avoidance behavior, one of which is profitability, reflecting a firm's ability to generate earnings. Higher profitability generally leads to greater taxable income and consequently increases corporate tax obligations. As a result, highly profitable firms may have stronger incentives to implement tax planning strategies aimed at minimizing their tax burden. Empirical evidence, however, remains inconclusive. Anasta (2021) reported that firms with higher profitability tend to engage in lower levels of tax avoidance, while Oktamawati (2017) also found that profitability significantly influences corporate tax avoidance. Profitability is commonly measured using Return on Assets (ROA), which reflects management's efficiency in utilizing corporate assets to generate earnings.

According to Janrosl and Efriyenti (2018), Return on Assets is one of the primary indicators of corporate financial performance. A higher ROA indicates more efficient asset utilization and stronger profitability. As corporate earnings increase, tax obligations also rise, creating stronger incentives for firms to reduce their effective tax burden through various tax

planning strategies. Consequently, profitability is frequently considered one of the key determinants of tax avoidance behavior.

Another important determinant is capital structure, which reflects the proportion of debt financing used by a company. Fahmi (2015) defines capital structure as the composition of debt and equity employed to finance corporate operations. Excessive reliance on debt may expose firms to financial distress and lead to an extreme capital structure, in which companies become heavily burdened by debt obligations and experience difficulties in meeting their financial commitments. Therefore, firms are expected to maintain an optimal balance between debt and equity financing to ensure long-term financial sustainability.

The most widely used indicator of capital structure is the Debt-to-Equity Ratio (DER). According to Fahmi (2015), DER measures the proportion of total liabilities relative to shareholders' equity. A higher DER indicates greater dependence on external financing, resulting in increased interest expenses. Since interest payments are generally deductible for tax purposes, firms with higher leverage may have stronger incentives to reduce taxable income through debt financing (Darmawan & Sukartha, 2014). Supporting this argument, Ardianti (2019) found that leverage, as measured by DER, has a significant negative effect on tax avoidance.

Corporate tax avoidance is also influenced by managerial ownership, which represents the proportion of company shares owned by managers and directors who actively participate in corporate decision-making. According to Swissia and Purba (2018), greater managerial ownership aligns managers' interests with those of shareholders, encouraging management to make decisions that maximize firm value while bearing the consequences of their strategic choices. Similarly, Putri and Lawita (2019) reported that managerial ownership significantly affects corporate tax avoidance. Because managerial shareholders directly share both the benefits and risks associated with corporate decisions, ownership structure may influence managerial incentives regarding tax planning activities.

This study employs a quantitative research approach grounded in the positivist research paradigm. Data were collected using structured research instruments and analyzed through quantitative statistical techniques to test the proposed hypotheses (Sugiyono, 2017). The findings are expected to provide valuable insights for policymakers in designing strategies to improve corporate tax compliance and strengthen tax administration.

The mining industry represents one of Indonesia's most strategic economic sectors due to its essential role in supplying energy and natural resources that support national economic development. Nevertheless, tax transparency within the sector remains relatively limited. In 2020, only approximately 30% of the country's 40 largest mining companies had adopted transparent tax reporting practices, while the remaining companies exhibited relatively low levels of tax disclosure. This lack of transparency has contributed to repeated allegations of tax-related violations within the mining industry, resulting in tax payments that are substantially lower than the companies' actual tax obligations. These conditions highlight the importance of examining the determinants of tax avoidance in mining companies and provide a strong rationale for conducting the present study.

Literature Review and Hypothesis Development

Tax Avoidance

Tax avoidance refers to corporate efforts to minimize tax liabilities through strategies that remain within the boundaries of applicable tax laws and regulations. According to Rahayu (2017), tax avoidance is a legitimate practice whereby taxpayers reduce their tax burden without violating prevailing tax legislation. Similarly, Pohan (2017) defines tax avoidance as a legal and relatively safe tax planning strategy that exploits ambiguities or "grey areas" in tax laws and regulations to reduce the amount of tax payable. Unlike tax evasion, which involves

illegal activities, tax avoidance relies on lawful arrangements that take advantage of existing provisions in tax legislation.

Tax avoidance has become one of the most widely discussed issues in taxation research because it reflects the ongoing conflict between governments seeking to maximize tax revenue and corporations attempting to minimize tax expenses. Although tax avoidance is generally considered legal, excessively aggressive tax planning may undermine tax fairness and reduce government revenue, thereby attracting increasing scrutiny from regulators, investors, and society.

Corporate tax avoidance is commonly measured using the Cash Effective Tax Rate (Cash ETR or CETR), which represents the ratio of cash taxes paid to pre-tax accounting income (Handayani & Noviari, 2016). A lower Cash ETR generally indicates a higher level of tax avoidance because companies pay relatively less tax compared with their accounting earnings.

The Cash ETR is calculated as follows:

$$CETR = \frac{\text{Cash Taxes Paid}}{\text{Income Before Tax}}$$

A transaction is generally considered indicative of tax avoidance when it exhibits one or more of the following characteristics:

- 1) The company attempts to reduce its tax liability by exploiting permissible interpretations of tax regulations.
- 2) The company deliberately postpones tax payments to reduce its current tax burden.
- 3) The taxable income reported differs from the firm's actual economic income through legally acceptable tax planning strategies.

Previous studies by Pattiasina et al. (2019), Putra et al. (2018), and Khomsiyah and Muttaqin (2021) employed Cash ETR as the primary proxy for corporate tax avoidance. Accordingly, this study adopts the same measurement to ensure consistency with prior empirical research.

Profitability

Profitability reflects a company's ability to generate earnings from its operational activities and available resources. According to Fahmi (2015), profitability measures management's effectiveness in generating profits from sales, investments, and corporate assets. Similarly, Hery (2016) defines profitability as the firm's capability to generate earnings through its normal business operations. Companies with stronger profitability generally demonstrate superior operational efficiency and financial performance.

Several financial ratios are commonly used to assess profitability, including Gross Profit Margin (GPM), Net Profit Margin (NPM), Return on Equity (ROE), and Return on Assets (ROA). Among these indicators, Return on Assets (ROA) is one of the most widely used measures because it evaluates how efficiently management utilizes total assets to generate net income. ROA is also frequently referred to as Return on Investment (ROI), as it reflects the return generated from the firm's total investment in assets.

The Return on Assets is calculated as follows:

$$ROA = \frac{\text{Earning After Tax}}{\text{Total Assets}}$$

Higher ROA values indicate greater efficiency in asset utilization and stronger corporate financial performance. As profitability increases, corporate tax obligations also tend to rise, potentially creating stronger incentives for firms to engage in tax planning activities aimed at reducing their effective tax burden.

Capital Structure

Capital structure refers to the composition of long-term financing sources used by a company to support its operations. According to Prihadi (2019), capital structure represents the combination of debt and equity financing employed by a firm. Determining an optimal capital structure remains challenging because financing decisions involve trade-offs between financial risk, agency costs, and shareholder value. A firm's financing choices directly affect its financial leverage and overall risk profile. Excessive reliance on debt financing may increase financial distress risk due to higher interest obligations, whereas an appropriate balance between debt and equity can enhance financial flexibility and firm value.

Several ratios are commonly used to measure capital structure, including the Debt-to-Total Assets Ratio (DAR), Debt-to-Equity Ratio (DER), Times Interest Earned Ratio, Fixed Charge Coverage Ratio, and Long-Term Debt-to-Equity Ratio (Kasmir, 2018; Fahmi, 2015). Consistent with previous studies conducted by Dewinta and Setiawan (2016), Turyatini (2017), and Sunarsih et al. (2019), this study measures capital structure using the Debt-to-Equity Ratio (DER).

The Debt-to-Equity Ratio is calculated as follows:

$$DER = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

A higher DER indicates greater dependence on debt financing. Since interest expenses are generally deductible for tax purposes, highly leveraged firms may have stronger incentives to reduce taxable income through debt financing strategies.

Managerial Ownership

Managerial ownership refers to the proportion of company shares owned by managers, directors, and commissioners who actively participate in corporate decision-making. According to Pasaribu et al. (2016), managerial ownership aligns the interests of managers with those of shareholders because managers become both decision-makers and residual claimants of corporate performance.

Agency Theory suggests that managerial ownership reduces agency conflicts by encouraging managers to maximize firm value rather than pursuing personal interests. Managers who own company shares are more likely to make decisions that enhance long-term corporate performance because they directly bear the financial consequences of their decisions.

Previous empirical studies by Shafai et al. (2018) and Putri and Lawita (2019) found that managerial ownership significantly influences corporate tax avoidance behavior. Greater managerial ownership may either discourage aggressive tax planning due to increased concern for corporate reputation or encourage efficient tax planning aimed at maximizing shareholder wealth.

Managerial ownership is measured as follows:

$$\text{Managerial Ownership} = \frac{\text{Shares Owned by Management}}{\text{Total Outstanding Shares}}$$

Hypothesis Development

Profitability and Tax Avoidance

Profitability reflects a firm's ability to generate earnings from its operating activities and is generally associated with higher corporate tax obligations. As corporate profitability increases, taxable income also rises, creating stronger incentives for companies to engage in tax planning strategies aimed at minimizing their tax burden. From the perspective of Agency Theory, managers are motivated to maximize shareholder wealth, and one approach to achieving this objective is through efficient tax planning that reduces corporate tax expenses while remaining within the legal framework.

Previous empirical studies provide evidence supporting this relationship. Anasta (2021), Marlinda et al. (2020), and Sari and Kinasih (2018) found that profitability significantly influences corporate tax avoidance. These studies suggest that highly profitable firms are more likely to implement tax planning strategies because larger profits result in greater tax liabilities. Consequently, companies seek to reduce their tax burden by utilizing legal tax avoidance mechanisms.

Based on the above arguments, the following hypothesis is proposed:

H1: Profitability has a positive and significant effect on tax avoidance.

Capital Structure and Tax Avoidance

Capital structure represents the proportion of debt and equity used to finance corporate operations. According to Fahmi (2015), capital structure reflects the composition of long-term liabilities and shareholders' equity that serves as the firm's financing source. Similarly, Prihadi (2019) defines capital structure as the combination of permanent funding sources utilized by a company.

Debt financing may influence corporate tax planning because interest expenses arising from debt are generally tax-deductible. Consequently, firms with higher financial leverage can reduce taxable income through interest deductions, thereby lowering their effective tax burden. This condition provides an incentive for companies to adopt tax planning strategies that optimize the tax advantages associated with debt financing.

Empirical evidence supports this argument. Studies conducted by Khomsiyah and Muttaqin (2021), Saputro (2021), Turyatini (2017), and Sunarsih et al. (2019) reported that capital structure has a positive and significant effect on tax avoidance. These findings indicate that firms with higher leverage tend to engage in greater tax avoidance activities.

Accordingly, the following hypothesis is proposed:

H2: Capital structure has a positive and significant effect on tax avoidance.

Managerial Ownership and Tax Avoidance

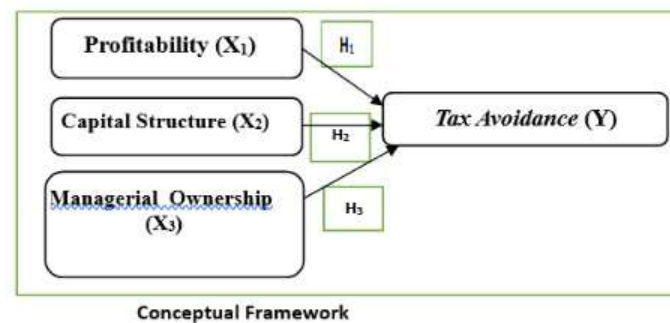
Agency Theory suggests that increasing managerial ownership reduces conflicts of interest between shareholders (principals) and managers (agents) by aligning their economic interests. When managers own company shares, they directly experience the financial consequences of corporate decisions, thereby encouraging them to maximize firm value and improve corporate performance. Greater managerial ownership may also influence corporate tax planning decisions. Managers who are also shareholders have stronger incentives to improve after-tax profitability through efficient tax management strategies while maintaining compliance with applicable tax regulations. Therefore, managerial ownership may encourage the implementation of tax planning practices that enhance shareholder value.

Previous empirical studies by Shafai et al. (2018), Putri and Lawita (2019), and Alghifari et al. (2020) found that managerial ownership has a positive and significant effect on tax avoidance. These findings indicate that companies with higher managerial ownership tend to exhibit lower effective tax rates, reflecting a greater tendency to engage in tax avoidance strategies.

Based on these arguments, the following hypothesis is proposed:

H3: Managerial ownership has a positive and significant effect on tax avoidance.

Based on the proposed hypotheses, the conceptual framework of this study is presented in Figure below



METHODS

Research Design and Sample Selection

The population of this study consists of mining companies listed on the Indonesia Stock Exchange (IDX) during the 2016–2020 observation period. A total of 47 companies were identified as the initial population. The sample was selected using a purposive sampling technique, which involves selecting observations based on predetermined criteria to ensure their relevance to the research objectives (Sugiyono, 2017). The sample selection criteria were as follows:

- 1) The company was listed on the Indonesia Stock Exchange (IDX) during the 2016–2020 period.
- 2) The company published complete annual financial statements consecutively from 2016 to 2020.
- 3) The company did not report net losses during the observation period.

After applying these selection criteria, 13 mining companies met the requirements and were included in the final sample. Using a five-year observation period (2016–2020), the study generated 65 firm-year observations for empirical analysis.

The sample selection process is summarized in table as below

Sample Selection

No.	Code	Company Name	No.	Code	Company Name
1	ADRO	Adaro Energy Tbk	8	MYOH	Samindo Resources Tbk
2	BSSR	Baramulti Suksessarana Tbk	9	PTBA	Bukit Asam Tbk
3	DEWA	Darma Henwa Tbk	10	TOBA	Toba Bara Sejahtera Tbk
4	GEMS	Golden Energy Mines Tbk	11	ELSA	Elnusa Tbk
5	HRUM	Harum Energy Tbk	12	RUIS	Radiant Utama Interinsco Tbk
6	ITMG	Indo Tambangraya Megah Tbk	13	ANTM	Aneka Tambang Tbk
7	MBAP	Mitrabara Adiperdana Tbk			

Research Strategy and Data Analysis

This study employed an associative research design, which aims to examine the relationships among two or more variables (Sugiyono, 2017). A quantitative research approach was adopted to empirically test the proposed hypotheses using statistical analysis. Quantitative methods are appropriate for investigating causal relationships among variables and generating objective empirical evidence. The study utilized secondary data obtained from the annual financial statements of mining companies listed on the Indonesia Stock Exchange (IDX) for

the 2016–2020 period. These financial reports provided the information required to measure the research variables and conduct empirical analysis.

To examine the relationships among the variables, the study employed panel data regression analysis, which combines cross-sectional and time-series observations to improve estimation efficiency and account for both individual firm characteristics and temporal effects. The analytical procedure consisted of three stages: (1) estimating the panel regression model, (2) selecting the most appropriate panel data model through model selection tests, and (3) testing the proposed hypotheses using the selected regression model.

Operational Definition of Variables

Independent Variables

Profitability (X_1)

Profitability reflects a company's ability to generate earnings from its assets and operational activities. According to Fahmi (2015), Return on Assets (ROA) measures the extent to which corporate investments generate returns expected by investors. Similarly, Dewinta and Setiawan (2016) state that profitability represents a firm's capability to generate profits over a given period based on its sales, assets, and shareholders' equity. Consistent with Anasta (2021), Marlinda et al. (2020), and Sari and Kinasih (2018), this study uses Return on Assets (ROA) as the proxy for profitability.

The ROA is calculated as follows:

$$\text{Return on Assets} = \frac{\text{Net Income After tax}}{\text{Total Assets}}$$

Capital Structure (X_2)

Capital structure describes the proportion of debt and equity financing used by a company to support its operations. According to Kasmir (2018), capital structure ratios measure the extent to which corporate assets are financed through debt. Likewise, Prihadi (2019) defines capital structure as the combination of permanent funding sources employed by a firm. This study measures capital structure using the Debt-to-Equity Ratio (DER). DER is widely used by investors and financial analysts to evaluate the proportion of liabilities relative to shareholders' equity and to assess a firm's financial leverage.

Following Khomsiyah and Muttaqin (2021), Saputro (2021), Turyatini (2017), and Sunarsih et al. (2019), DER is calculated as:

$$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

Managerial Ownership (X_3)

Managerial ownership refers to the proportion of company shares owned by managers and directors who actively participate in corporate decision-making (Pasaribu et al., 2016). Higher managerial ownership is expected to align the interests of managers with those of shareholders, thereby reducing agency conflicts and influencing corporate financial decisions, including tax planning.

Consistent with Shafai et al. (2018) and Putri and Lawita (2019), managerial ownership is measured as:

$$\text{Managerial Ownership} = \frac{\text{Shares Owned by Management}}{\text{Total Outstanding Shares}}$$

Dependent Variable

Tax Avoidance (Y)

The dependent variable in this study is tax avoidance, which is measured using the Cash Effective Tax Rate (Cash ETR). Cash ETR represents the proportion of taxes paid relative to pre-tax income and is widely used as a proxy for corporate tax avoidance. Lower Cash ETR values indicate a higher level of tax avoidance. Following Pattiasina et al. (2019), Putra et al. (2018), Masrurroch (2021), and Anasta (2021), the Cash ETR is calculated as:

$$CETR = \frac{\text{Cash Taxes Paid}}{\text{Income Before Tax}}$$

Data Analysis

The empirical analysis was conducted using EViews 10 statistical software. The analysis began with descriptive statistics, including the mean, median, mode, maximum, minimum, and standard deviation, to provide an overview of the characteristics of the research variables.

The primary analytical technique employed in this study is panel data regression analysis, which combines cross-sectional and time-series data to examine the relationships between multiple independent variables and the dependent variable. Panel data analysis offers several advantages, including increased degrees of freedom, improved estimation efficiency, and the ability to control for unobserved firm-specific heterogeneity.

The panel regression model is specified as follows:

$$TA = \alpha + \beta_1 \text{Pro} + \beta_2 \text{SM} + \beta_4 \text{KM} + e$$

where:

TA = Tax Avoidance

α = Constant

PRO = Profitability

CS = Capital Structure

MO = Managerial Ownership

β_1 – β_3 = Regression coefficients

ε = Error term

According to Ghazali (2018), panel data combine cross-sectional and time-series observations. When each cross-sectional unit has the same number of observations over time, the dataset is referred to as a balanced panel. Conversely, if the number of observations differs across units, the data constitute an unbalanced panel. Three alternative panel regression models were estimated:

- 1) Common Effects Model (CEM)
- 2) Fixed Effects Model (FEM)
- 3) Random Effects Model (REM)

To determine the most appropriate estimation model, three model selection tests were conducted:

- 1) Chow Test (CEM versus FEM)
- 2) Hausman Test (FEM versus REM)
- 3) Breusch–Pagan Lagrange Multiplier Test (REM versus CEM)

The final regression model was selected based on the results of these specification tests.

The study further evaluated the model's explanatory power using the coefficient of determination (R^2), which measures the proportion of variation in the dependent variable explained by the independent variables. An R^2 value closer to one indicates stronger explanatory power, whereas values closer to zero indicate relatively weak explanatory capability (Ghozali, 2018).

Finally, the hypotheses were tested using the t-test, which evaluates the individual significance of each independent variable while controlling for the effects of the remaining explanatory variables. Statistical significance was assessed at the 5% significance level ($\alpha = 0.05$)

RESULT AND DISCUSSION

Descriptive Statistics Analysis

This study employs the mean, median, and standard deviation to describe the characteristics of each research variable. The descriptive statistics provide an overview of profitability, capital structure, managerial ownership, and tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) during the 2016–2020 observation period.

Descriptive Statistics of the Research Variable

	ROA	DER	KM	CETR
Mean	0.103351	0.691520	0.070934	0.415846
Median	0.085900	0.614900	0.003000	0.365000
Maximum	0.394100	1.947000	0.400000	1.591300
Minimum	0.001400	0.096500	0.000000	0.046900
Std. Dev.	0.086854	0.446089	0.108890	0.285571

The descriptive statistics indicate that the average profitability, measured by Return on Assets (ROA), of mining companies listed on the Indonesia Stock Exchange during the study period was 0.1034 (10.34%). The minimum ROA was 0.0014 (0.14%), while the maximum reached 0.3941 (39.41%), with a standard deviation of 0.0868. Since the standard deviation is lower than the mean value, the profitability data can be considered relatively homogeneous, indicating a moderate level of variation among the sampled companies.

The average capital structure, measured by the Debt-to-Equity Ratio (DER), was 0.6915 (69.15%). The minimum DER was 0.0965 (9.65%), whereas the maximum value reached 1.947 (194.70%), with a standard deviation of 0.4461. As the standard deviation remains lower than the mean, the capital structure data are also regarded as relatively homogeneous, suggesting that the distribution of leverage across the sample firms is reasonably consistent.

For managerial ownership, the average proportion of shares held by management was 0.0709 (7.09%), with a standard deviation of 0.1089. Because the standard deviation exceeds the mean, the managerial ownership data exhibit relatively high variability, indicating a heterogeneous distribution among the sampled firms. This finding suggests considerable differences in managerial equity participation across mining companies.

Finally, the tax avoidance variable, proxied by the Cash Effective Tax Rate (Cash ETR), recorded an average value of 0.4158 (41.58%), with a standard deviation of 0.2856. Since the standard deviation is lower than the mean, the Cash ETR data can be considered relatively homogeneous, implying that the level of tax payments relative to pre-tax income does not vary substantially among the companies included in the sample.

Verification Analysis

This section examines the effects of profitability, capital structure, and managerial ownership on tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) using panel data regression analysis. The empirical analysis was conducted in several stages: (1) the Chow test, (2) the Hausman test, (3) the Lagrange Multiplier (LM) test, (4) interpretation of the regression model, (5) coefficient of determination analysis, and (6) hypothesis testing. Data processing was performed using EViews 9.0, and the results are presented below.

Chow Test (Fixed Effects Model vs. Common Effects Model)

The Chow test was conducted to determine whether the Fixed Effects Model (FEM) or the Common Effects Model (CEM) was more appropriate for estimating the panel regression model (Gujarati & Porter, 2009). This test serves as the initial step in identifying the most suitable estimation approach for panel data analysis.

Chow Test Results (Common Effects Model vs. Fixed Effects Model)

Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.309396	(12,49)	0.0199
Cross-section Chi-square	29.136097	12	0.0038

The Chow test results indicate that the Fixed Effects Model (FEM) is preferred over the Common Effects Model because the probability value is statistically significant at the 5% significance level ($p < 0.05$). Accordingly, the analysis proceeds with the Hausman test to determine whether the Fixed Effects Model or the Random Effects Model provides a better estimation.

Hausman Test (Fixed Effects Model vs. Random Effects Model)

The Hausman specification test was performed to determine whether the Fixed Effects Model (FEM) or the Random Effects Model (REM) is more appropriate for estimating the regression model (Gujarati & Porter, 2009). Since the Chow test favored the Fixed Effects Model, the Hausman test was subsequently conducted.

Hausman Test Results (Fixed Effects Model vs. Random Effects Model)

Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.354896	3	0.7161

The Hausman test results indicate that the Random Effects Model (REM) is the preferred specification because the probability value is greater than 0.05, implying that the null hypothesis cannot be rejected. Therefore, the analysis proceeds to the Lagrange Multiplier (LM) test to compare the Random Effects Model with the Common Effects Model.

Lagrange Multiplier (LM) Test (Random Effects Model vs. Common Effects Model)

The Breusch–Pagan Lagrange Multiplier (LM) test was conducted to determine whether the Random Effects Model (REM) or the Common Effects Model (CEM) is more appropriate for estimating the panel regression model (Gujarati & Porter, 2009).

Lagrange Multiplier Test Results

Lagrange Multiplier Tests for Random Effects			
Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives			
	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	4.117581	0.176187	4.293769
	(0.0424)	(0.6747)	(0.0383)

The LM test results indicate that the Random Effects Model (REM) is the most appropriate estimation technique, as the probability value is less than 0.05, indicating statistical significance at the 5% level. Based on the results of the Chow, Hausman, and LM tests, it can be concluded that the Random Effects Model (REM) is the most suitable model for examining the effects of profitability, capital structure, and managerial ownership on tax avoidance.

Since the final estimation employs the Random Effects Model using the Estimated Generalized Least Squares (EGLS) approach, additional classical assumption tests are not required, consistent with the recommendation of Gujarati and Porter (2009).

4. Multiple Panel Regression Analysis

Multiple panel regression analysis was employed to examine the effects of profitability, capital structure, and managerial ownership on tax avoidance. The regression estimation was performed using EViews 9.0, and the results are presented in Table 6.

Panel Multiple Regression Results

<i>Dependent Variable: CETR</i>				
<i>Method: Panel EGLS (Cross-section random effects)</i>				
<i>Date: 03/01/22 Time: 12:33</i>				
<i>Sample: 2016 2020</i>				
<i>Periods included: 5</i>				
<i>Cross-sections included: 13</i>				
<i>Total panel (balanced) observations: 65</i>				
<i>Swamy and Arora estimator of component variances</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	0.503	0.110884	4.537407	0.0000
ROA	-1.123586	0.484933	-2.316991	0.0239
DER	-0.006123	0.121511	-0.050391	0.9600
KM	0.466	0.453996	1.027210	0.3084
<i>Weighted Statistics</i>				
<i>R-squared</i>	0.124	<i>Mean dependent var</i>		0.245306
<i>Adjusted R-squared</i>	0.080	<i>S.D. dependent var</i>		0.244909
<i>S.E. of regression</i>	0.234	<i>Sum squared resid</i>		3.362600
<i>F-statistic</i>	2.879	<i>Durbin-Watson stat</i>		1.870683
<i>Prob(F-statistic)</i>	0.043			

Based on the regression results presented in Table 6, the estimated regression equation can be expressed as follows:

$$TA = 0,503 - 1,124 Pro - 0,006 SM + 0,466 KM$$

where:

- TA = Tax Avoidance (Cash Effective Tax Rate/CETR)
- PRO = Profitability (Return on Assets/ROA)
- DER = Capital Structure (Debt-to-Equity Ratio)
- MO = Managerial Ownership

The regression coefficients can be interpreted as follows.

Constant

The constant coefficient of 0.503 indicates that, when profitability, capital structure, and managerial ownership are assumed to be zero, the expected Cash Effective Tax Rate (CETR) of mining companies listed on the Indonesia Stock Exchange is 50.3%. This suggests that, in the absence of the explanatory variables, companies are expected to pay approximately half of their pre-tax earnings as taxes, indicating a relatively low level of tax avoidance.

Profitability (ROA)

Profitability has a negative coefficient of -1.124 , indicating that a 1% increase in Return on Assets (ROA) is expected to reduce the Cash Effective Tax Rate (CETR) by 1.124 percentage points. Since a lower CETR reflects a higher degree of tax avoidance, this result suggests that more profitable firms tend to engage in greater tax avoidance activities.

Capital Structure (DER)

Capital structure has a negative coefficient of -0.006 , implying that a 1% increase in the Debt-to-Equity Ratio (DER) is associated with a 0.006 percentage point decrease in CETR. Although the magnitude of the coefficient is relatively small, the result indicates that firms with higher leverage tend to exhibit a greater propensity for tax avoidance.

Managerial Ownership

Managerial ownership has a positive coefficient of 0.466, indicating that a 1% increase in managerial ownership is expected to increase the Cash Effective Tax Rate (CETR) by 0.466 percentage points. Because a higher CETR generally reflects lower tax avoidance, this finding suggests that greater managerial ownership is associated with lower levels of tax avoidance, whereas firms with lower managerial ownership are more likely to engage in tax avoidance strategies.

Coefficient of Determination

The coefficient of determination was calculated to assess the extent to which the three independent variables—profitability, capital structure, and managerial ownership—jointly explain variations in tax avoidance. Based on the regression results presented in Table 6, the adjusted R-squared value is 0.081, indicating that the three explanatory variables collectively account for 8.1% of the variation in tax avoidance among mining companies listed on the Indonesia Stock Exchange. The remaining 91.9% of the variation is explained by other factors not included in the present research model.

Hypothesis Testing

Effect of Profitability on Tax Avoidance

A summary of the hypothesis testing results for the effect of profitability on tax avoidance is presented in Table 7.

Hypothesis Testing Results for the Effect of Profitability on Tax Avoidance

Regression Coefficient	t-statistic	p-value	Decision
-1.124	-2.317	0.024	Supported

Based on the results presented in Table 7, the profitability variable produces a t-statistic of -2.317 with a p-value of 0.024. Since the p-value is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted at the 5% significance level. Therefore, profitability has a statistically significant effect on tax avoidance among mining companies listed on the Indonesia Stock Exchange. The findings provide empirical evidence that firms with higher profitability are more likely to engage in tax avoidance activities.

Effect of Capital Structure on Tax Avoidance

The hypothesis testing results for the effect of capital structure on tax avoidance are presented below.

Hypothesis Testing Results for the Effect of Capital Structure on Tax Avoidance

Regression Coefficient	t-statistic	p-value	Decision
-0.006	-0.050	0.960	Not Supported

According to Table 8, the t-statistic for capital structure is -0.050 , with a p-value of 0.960 . Since the p-value is greater than 0.05 , the alternative hypothesis is rejected. Accordingly, capital structure does not have a statistically significant effect on tax avoidance among mining companies listed on the Indonesia Stock Exchange.

Effect of Managerial Ownership on Tax Avoidance

The hypothesis testing results for the effect of managerial ownership on tax avoidance are presented in Table 9.

Hypothesis Testing Results for the Effect of Managerial Ownership on Tax Avoidance

Regression Coefficient	t-statistic	p-value	Decision
0.466	1.027	0.308	Not Supported

The managerial ownership variable yields a t-statistic of 1.027 and a p-value of 0.308 . Because the p-value exceeds the 5% significance level, the alternative hypothesis is rejected. Therefore, managerial ownership does not have a statistically significant effect on tax avoidance among mining companies listed on the Indonesia Stock Exchange.

Robustness Check

Although the Estimated Generalized Least Squares (EGLS) Random Effects Model does not require classical assumption tests (Gujarati & Porter, 2009), a robustness check was conducted to verify the reliability of the regression results. The robustness analysis employed the Robust Least Squares (RLS) estimator using the M-estimation approach.

While the estimated coefficients obtained from the Robust Least Squares model differ slightly from those generated by the EGLS Random Effects Model, the substantive conclusions remain unchanged. Specifically, profitability continues to exhibit a statistically significant effect on tax avoidance, whereas capital structure and managerial ownership remain statistically insignificant predictors of tax avoidance. These consistent findings across alternative estimation techniques demonstrate the robustness of the empirical results and strengthen the reliability of the study's conclusions.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The findings of this study indicate that profitability, proxied by Return on Assets (ROA), has a positive and statistically significant effect on tax avoidance among mining companies listed on the Indonesia Stock Exchange during the 2016–2020 period. This finding suggests that firms with higher profitability tend to engage more actively in tax avoidance practices. Higher profitability reflects superior financial performance and more efficient asset utilization, enabling firms to generate greater earnings. As corporate profits increase, tax liabilities also rise, providing stronger incentives for firms to implement tax planning strategies aimed at minimizing their tax burden.

Well-managed and consistently profitable firms generally adopt effective financial management practices, including tax planning. Tax planning is intended to optimize corporate tax expenditures while remaining within the boundaries of applicable tax regulations.

Consequently, companies with higher profitability are more likely to employ tax avoidance strategies to reduce their tax obligations. These findings are consistent with those reported by Anasta (2021), Marlinda et al. (2020), and Sari and Kinasih (2018), who also found that profitability positively influences tax avoidance.

In contrast, capital structure does not have a statistically significant effect on tax avoidance among mining companies during the study period. This finding implies that variations in firms' capital structure do not necessarily influence their tax avoidance behavior. A sound capital structure is generally regarded as an indicator of corporate financial health and is closely monitored by stakeholders, including shareholders and creditors. Maintaining a healthy financial structure is therefore considered more important than pursuing aggressive tax reduction strategies.

Capital structure in this study is represented by leverage, measured using the Debt-to-Equity Ratio (DER). Although greater leverage increases interest expenses, which reduce taxable income and consequently lower corporate tax liabilities, companies may not need to undertake additional tax avoidance strategies because the tax shield provided by debt financing already reduces their tax burden. Therefore, leverage alone does not appear to be a determining factor in tax avoidance decisions. This finding supports previous studies by Masrurroch et al. (2021) and Rahmawati and Mildawati (2019), which likewise reported that leverage has no significant effect on tax avoidance.

Similarly, managerial ownership does not have a statistically significant effect on tax avoidance among mining companies. This finding suggests that the proportion of shares owned by management does not significantly influence corporate tax avoidance practices. Higher managerial ownership generally strengthens managerial alignment with shareholders' long-term interests and increases internal monitoring, thereby discouraging excessively aggressive tax strategies that may expose the company to legal or reputational risks.

Managerial ownership also contributes to stronger corporate governance by enhancing internal oversight and accountability. As managerial ownership increases, management is expected to exercise greater caution in strategic decision-making, including tax-related decisions, in order to safeguard the firm's long-term reputation and sustainability. Consequently, companies with higher managerial ownership are less likely to pursue aggressive tax avoidance practices. This finding is consistent with the results reported by Sari and Kinasih (2021), who concluded that managerial ownership does not significantly affect tax avoidance.

Practical and Theoretical Implications

The findings of this study provide several important implications for both theory and practice. From a theoretical perspective, the study enriches the tax avoidance literature by providing additional empirical evidence regarding the determinants of corporate tax avoidance in the mining industry. Specifically, the findings demonstrate that profitability remains an important driver of tax avoidance, whereas capital structure and managerial ownership do not significantly influence firms' tax avoidance behavior. These results contribute to agency theory and corporate finance literature by suggesting that firms' tax planning decisions are more strongly associated with profitability than with financing structure or ownership characteristics.

From a practical perspective, the findings imply that highly profitable companies should receive greater attention from tax authorities because increased profitability creates stronger incentives to engage in tax planning strategies aimed at reducing tax liabilities. Accordingly, regulators should continue strengthening tax compliance monitoring and improving tax administration to minimize opportunities for aggressive tax avoidance.

The findings also indicate that maintaining a healthy capital structure and strengthening managerial ownership alone may not be sufficient to influence corporate tax avoidance behavior. Companies should therefore complement these governance mechanisms with

stronger internal controls, effective tax governance policies, and greater transparency in tax reporting. Such measures will help promote sustainable corporate governance while maintaining investor confidence and corporate reputation over the long term.

Research Limitations

This study has several limitations that should be considered when interpreting the findings. First, the analysis focuses exclusively on mining companies listed on the Indonesia Stock Exchange, which may limit the generalizability of the results to other industrial sectors with different operational characteristics and tax environments.

Second, the study covers the 2016–2020 observation period, and therefore does not capture more recent developments in tax regulations, corporate governance practices, or changes in firms' tax planning strategies.

Finally, due to time and data availability constraints, this study examines only three explanatory variables—profitability, capital structure, and managerial ownership. Future research is encouraged to incorporate additional determinants of tax avoidance, such as corporate governance quality, institutional ownership, firm size, liquidity, environmental, social, and governance (ESG) performance, political connections, and corporate social responsibility, in order to provide a more comprehensive understanding of corporate tax avoidance behavior.

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