



THE EFFECT OF DEBT COVENANT AND TUNNELING INCENTIVE ON TAX AVOIDANCE: THE MODERATING ROLE OF FIRM SIZE IN MINING COMPANIES

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Abstract

This study aims to examine the effect of debt covenant and tunneling incentive on tax avoidance, with firm size serving as a moderating variable, in mining sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period. Tax avoidance is measured using the Effective Tax Rate (ETR), while debt covenant is proxied by the ratio of EBITDA to interest expense, tunneling incentive by controlling ownership, and firm size by the natural logarithm of total assets. This study employs a quantitative approach using purposive sampling, resulting in a sample of 28 companies with 140 firm-year observations. Data were analyzed using panel data regression and Moderated Regression Analysis (MRA). The results indicate that debt covenant has a significant effect on tax avoidance as proxied by ETR, whereas tunneling incentive does not have a significant effect. In addition, firm size is unable to moderate the effects of either debt covenant or tunneling incentive on tax avoidance. The findings further suggest that greater debt covenant pressure is associated with higher ETR values, indicating lower levels of tax avoidance, while controlling ownership does not directly influence corporate tax behavior. This study contributes to the accounting and taxation literature and provides insights for regulators in monitoring corporate tax practices.

Keywords: Debt covenant; Firm size; Tax avoidance; Tunneling incentive

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh debt covenant dan tunneling incentive terhadap tax avoidance dengan ukuran perusahaan sebagai variabel moderasi pada perusahaan sektor pertambangan yang terdaftar di Bursa Efek Indonesia periode 2020–2024. Tax avoidance diukur menggunakan Effective Tax Rate (ETR), sedangkan debt covenant diproksikan dengan rasio EBITDA terhadap beban bunga, tunneling incentive diukur menggunakan kepemilikan saham pengendali, dan ukuran perusahaan diukur menggunakan logaritma natural total aset. Penelitian ini menggunakan pendekatan kuantitatif dengan teknik purposive sampling sehingga diperoleh sampel sebanyak 28 perusahaan dengan total 140 observasi. Analisis data dilakukan menggunakan regresi data panel dan Moderated Regression Analysis (MRA). Hasil penelitian menunjukkan bahwa debt covenant berpengaruh signifikan terhadap tax avoidance yang diproksikan dengan ETR, sedangkan tunneling incentive tidak berpengaruh signifikan terhadap tax avoidance. Selain itu, ukuran perusahaan tidak mampu memoderasi pengaruh debt covenant maupun tunneling incentive terhadap tax avoidance. Temuan penelitian juga menunjukkan bahwa semakin tinggi tekanan debt covenant, semakin tinggi nilai ETR yang mengindikasikan tingkat tax avoidance yang lebih rendah, sedangkan kepemilikan saham pengendali tidak berpengaruh langsung terhadap perilaku perpajakan perusahaan. Penelitian ini diharapkan dapat memberikan kontribusi bagi pengembangan literatur akuntansi dan perpajakan serta menjadi bahan pertimbangan bagi regulator dalam mengawasi praktik perpajakan perusahaan.

Kata Kunci: Debt covenant; Tax avoidance; Tunneling incentive; Ukuran perusahaan

INTRODUCTION

Tax revenue constitutes the primary source of Indonesia's state budget, and the government expects both individual and corporate taxpayers to consistently fulfill their tax obligations in a stable and sustainable manner (Alfandia & Putri, 2023). However, in its efforts to optimize tax revenue, the Indonesian government faces several challenges, including the practice of tax avoidance by taxpayers seeking to minimize their tax burden (Majidah et al., 2022). Tax avoidance remains a serious issue in Indonesia. Reports from various institutions indicate that corporate tax avoidance practices result in substantial potential losses in government revenue (Globalwitness, 2019). This suggests that although tax avoidance is generally conducted within the boundaries of existing tax regulations, it may still adversely affect the country's fiscal capacity. Furthermore, the mining sector is considered one of the



industries with a high risk of engaging in tax avoidance practices due to its complex characteristics, including high capital intensity, cross-border transactions, and the potential use of transfer pricing schemes. These characteristics create opportunities for companies to implement various tax planning strategies aimed at reducing their tax liabilities while remaining compliant with applicable regulations.

One factor that is believed to influence tax avoidance practices is debt covenant (Mayaningsih et al., 2023). A debt covenant refers to restrictive clauses included in debt agreements between a company and its creditors, designed to protect creditors' interests by limiting managerial actions that may increase the risk of default (Pangaribuan, 2022). The pressure to comply with these contractual provisions can influence managerial decisions, including corporate tax policies. Under certain circumstances, management may engage in tax avoidance strategies to increase after-tax earnings, thereby ensuring that financial ratios remain within the thresholds required by creditors (Sari & Kurniatio, 2022).

Previous studies have produced inconsistent findings regarding the relationship between debt covenant and tax avoidance. Several studies have found that debt covenant significantly affects tax avoidance, suggesting that pressure arising from debt agreements encourages companies to adopt tax management strategies in order to maintain financial performance and avoid violations of debt contracts (Majidah et al., 2022; Sari & Kurniatio, 2022). In contrast, other studies have reported that debt covenant does not have a significant effect on tax avoidance (Waluyo et al., 2023). These conflicting findings indicate that the effect of debt covenant on tax avoidance is not universal and may be influenced by other factors.

In addition, tunneling incentive is also considered a factor that may influence tax avoidance. Tunneling incentive reflects the motivation of controlling shareholders to transfer corporate resources for their personal benefit or the benefit of their affiliated groups (Suripto & Novitaria, 2021). In the context of taxation, tunneling practices are often closely associated with tax avoidance because profit-shifting strategies can be used to legally reduce a company's tax burden (OpraVita, 2023).

However, previous studies have reported inconsistent findings regarding the relationship between tunneling incentive and tax avoidance. Several studies suggest that tunneling incentive is not always a determining factor driving companies to engage in tax avoidance, indicating that the relationship cannot be generalized across different industries and observation periods. Waluyo et al. (2023) found that tunneling incentive does not significantly affect tax avoidance. Similarly, Armadhana et al. (2025), in their study of multinational companies in Indonesia during the 2022–2024 period, also reported that tunneling incentive has no significant effect on tax avoidance.

These inconsistent findings suggest that other factors may influence the relationship between the independent variables and tax avoidance. One relevant factor is firm size. Large firms generally possess greater resources, more complex organizational structures, and better access to professional tax planning services, which may enhance their ability to implement tax avoidance strategies. On the other hand, larger firms are also subject to greater scrutiny from tax authorities, creditors, investors, and the public, which may constrain their tax avoidance behavior (Oktaviani et al., 2021).

Based on the background described above, this study aims to examine the effect of debt covenant and tunneling incentive on tax avoidance, with firm size serving as a moderating variable, in mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. This study is expected to contribute to the development of accounting and taxation literature and provide valuable insights for regulators in monitoring and addressing corporate tax avoidance practices.



LITERATURE REVIEW

Agency Theory and Positive Accounting Theory

This study is grounded in Agency Theory, which explains the existence of conflicts of interest between principals and agents within a company. Such conflicts arise from differences in objectives and information asymmetry, which may encourage management to engage in opportunistic behavior, including decisions related to corporate tax policies (Jensen & Meckling, 1976). In the context of taxation, tax avoidance can be viewed as a managerial strategy aimed at maximizing specific interests, whether to satisfy contractual obligations or to serve the interests of controlling shareholders (Fablo & Fletcher, 2024; Waluyo et al., 2023).

In addition, this study adopts Positive Accounting Theory developed by Watts & Zimmerman (1986), which suggests that managers tend to select accounting policies based on economic incentives and contractual pressures. One of the key hypotheses within this theory is the debt covenant hypothesis, which posits that firms facing high debt pressure are more likely to choose policies that enhance financial performance in order to avoid violations of debt agreements (Nurlela et al., 2024).

Tax Avoidance

Tax avoidance refers to a tax planning strategy undertaken by companies to legally minimize their tax burden by exploiting loopholes within tax regulations (Pohan, 2018; Vito & Grossetti, 2024.) Although considered legal, this practice may reduce government tax revenues and generate significant economic implications (Partati & Almalita, 2022). In this study, tax avoidance is measured using the Effective Tax Rate (ETR), which reflects the proportion of income tax expense to pre-tax income. ETR is calculated by dividing income tax expense by earnings before tax. A lower ETR indicates a higher level of tax avoidance, as the company pays a relatively smaller amount of tax compared to its earnings. Conversely, a higher ETR indicates a lower level of tax avoidance.

Debt Covenant

A debt covenant refers to a restrictive clause or provision included in a debt agreement between a company and its creditors. These provisions are designed to limit corporate actions that may increase the risk of default. Debt covenants constitute an integral part of debt contracts aimed at controlling the behavior of borrowers throughout the loan period, particularly with respect to financial policies that may elevate credit risk (Ross et al., 2022). The existence of debt covenants serves as a protective mechanism for creditors against the risk of opportunistic managerial behavior after loan funds have been disbursed (Rodríguez, 2024).

Megginson et al. (2021) argue that covenants are used to restrict corporate policies that may be detrimental to creditors while simultaneously providing a monitoring mechanism for assessing a company's financial condition. In this study, debt covenant is measured using the interest coverage ratio, which represents the level of debt covenant pressure faced by a company.

Tunneling incentive

Tunneling incentive refers to the motivation or incentive of controlling shareholders to obtain private benefits by transferring corporate resources or profits in ways that may disadvantage the company and its minority shareholders. In the context of corporate governance, this condition frequently arises in firms with concentrated ownership structures, where controlling shareholders possess the power to influence corporate decisions for their own interests.

The G20/OECD Principles of Corporate Governance 2023 emphasize the importance of protecting minority shareholders from abusive actions undertaken by controlling shareholders, including abusive self-dealing practices that may harm the company and other



investors (OECD, 2023). In this study, tunneling incentive is measured by the percentage of shares owned by controlling shareholders, reflecting the magnitude of both the incentive and the control power that can influence corporate policies, including tax-related decisions.

Firm Size

Firm size is a concept used to describe the scale of a company, reflecting its economic capacity, operational complexity, and ability to manage resources and business risks. According to Ross et al. (2022) firm size represents the scale of a company's operations, which is associated with total assets, the level of business activities, and the firm's ability to generate cash flows. Large firms generally possess more complex organizational structures and broader operational activities than smaller firms.

From the perspective of financial statement analysis, Subramanyam (2017) argues that firm size reflects the magnitude of economic resources controlled by a company and can be used to assess its ability to sustain business continuity. In this study, firm size is measured using the natural logarithm of total assets (Ln Total Assets).

Debt Covenant on Tax Avoidance

A debt covenant is a restrictive clause included in debt agreements to protect creditors' interests by controlling managerial actions (Ross et al., 2022; Rodríguez, 2024). The pressure to comply with covenant provisions encourages management to maintain financial performance in order to avoid violations of debt contracts. Previous studies have reported inconsistent findings regarding the relationship between debt covenant and tax avoidance. Several studies have found that debt covenant significantly affects tax avoidance, as debt-related pressure influences managerial decisions regarding financial and tax policies (Majidah et al., 2022; Sari & Kurniatio, 2022). This argument is consistent with the debt covenant hypothesis of Positive Accounting Theory, which suggests that firms tend to choose policies that improve financial performance in order to avoid breaches of debt agreements (Watts & Zimmerman, 1986). However, other studies have reported that debt covenant does not have a significant effect on tax avoidance (Leyloh, 2025; Waluyo et al., 2023). These inconsistent findings indicate that the effect of debt covenant on tax avoidance is not universal and may depend on other factors, such as the level of creditor monitoring and firm-specific conditions. Nevertheless, previous studies have produced inconsistent findings regarding the direction of this relationship. Therefore, this study re-examines the effect of debt covenant on tax avoidance in mining companies listed on the Indonesia Stock Exchange.

H1: Debt covenant has a positive effect on tax avoidance.

Tunneling Incentive on Tax Avoidance

Tunneling incentive refers to the motivation of controlling shareholders to transfer corporate resources for their personal benefit or the benefit of affiliated groups, potentially harming minority shareholders (OECD, 2023; Suropto & Novitaria, 2021). Such practices are commonly conducted through mechanisms such as related-party transactions, profit shifting, and transfer pricing arrangements (Mallin, 2019; Tricker, 2022). In the taxation context, tunneling incentive may encourage tax avoidance practices as a means of maximizing the benefits obtained by controlling shareholder groups (Akmali, 2024; Rohmani & Amin, 2022).

However, previous studies have reported inconsistent findings regarding the effect of tunneling incentive on tax avoidance. Some studies have found a significant relationship, while others have reported no significant effect (Waluyo et al., 2023; Armadhana et al., 2025). These conflicting results suggest that the relationship between tunneling incentive and tax avoidance may depend on firm-specific characteristics and differences in monitoring mechanisms.

H2: Tunneling incentive has a positive effect on tax avoidance.



Firm Size as a Moderating Variable

Firm size reflects a company's economic capacity, operational complexity, and the level of external scrutiny it faces (Ross et al., 2022; Subramanyam, 2017). Large firms generally possess greater resources to engage in tax planning activities; however, they are also subject to higher political pressure and more intensive monitoring by regulators, investors, and the public (Brigham & Houston, 2019; Baginski et al., 2020). From the perspective of the Political Cost Hypothesis, large firms tend to be more cautious in their tax-related decisions due to their greater exposure to regulatory oversight and public attention (Watts & Zimmerman, 1986).

Consequently, firm size may either strengthen or weaken the relationship between debt covenant and tax avoidance, as well as the relationship between tunneling incentive and tax avoidance. The availability of greater resources and more sophisticated management systems may facilitate tax planning activities, while increased scrutiny may constrain aggressive tax behavior. Therefore, firm size is expected to play a moderating role in the relationship between the independent variables and tax avoidance.

H3: Firm size moderates the effect of debt covenant on tax avoidance.

H4: Firm size moderates the effect of tunneling incentive on tax avoidance.

METHODS

This study employs a quantitative approach to examine the effects of debt covenant and tunneling incentive on tax avoidance, as well as the moderating role of firm size. The research object consists of mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. The population includes all mining companies listed on the IDX. The sample was selected using a purposive sampling technique based on the following criteria: (1) companies consistently listed on the IDX throughout the observation period, (2) companies with identifiable ownership structures, and (3) companies presenting their financial statements in Indonesian Rupiah. Based on these criteria, 28 companies were selected, resulting in a total of 140 firm-year observations over the five-year period.

The study utilizes secondary data obtained from companies' annual reports and financial statements available on the official Indonesia Stock Exchange website (www.idx.co.id) and the respective corporate websites. Data were collected using the documentation method. The dependent variable is tax avoidance, measured using the Effective Tax Rate (ETR), calculated as the ratio of income tax expense to earnings before tax. A lower ETR indicates a higher level of tax avoidance, whereas a higher ETR indicates a lower level of tax avoidance.

The independent variables consist of debt covenant, proxied by the interest coverage ratio (EBITDA divided by interest expense), and tunneling incentive, measured by the percentage of shares owned by controlling shareholders. The moderating variable is firm size, measured using the natural logarithm of total assets (Ln Total Assets).

Data analysis was conducted using panel data regression and Moderated Regression Analysis (MRA) with the assistance of EViews software. The selection of the appropriate panel data model was performed through the Chow test, Hausman test, and Lagrange Multiplier test to determine the most suitable model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The regression models employed in this study are formulated as follows:

Panel data regression equation:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \varepsilon_{it}$$

Moderated Regression Analysis (MRA) equation:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{1it} Z_{it} + \beta_4 X_{2it} Z_{it} + \varepsilon_{it}$$

Where:



- Y = Tax avoidance
- α = Regression constant
- ε = Error term
- t = Year (2020–2024)
- X1 = Debt covenant
- X2 = Tunneling incentive
- Z = Firm size
- X1Z = Interaction between debt covenant and firm size
- X2Z = Interaction between tunneling incentive and firm size

Hypothesis testing was conducted using the t-test to examine the partial effects of the independent variables, the F-test to assess their simultaneous effects, and the coefficient of determination (Adjusted R²) to evaluate the model's ability to explain variations in the dependent variable. The moderating variable was considered significant when the interaction term exhibited a significance value of ≤ 0.05 .

RESULT AND DISCUSSION

Research Result

Table 1 Descriptive Statistics Results

	Y	X1	X2	Z
<i>Mean</i>	1.910371	17.07822	0.554226	21.16441
<i>Median</i>	2.036045	7.846872	0.580000	20.78534
<i>Maximum</i>	11.75233	97.18012	0.926000	27.81553
<i>Minimum</i>	-6.250425	0.006954	0.235723	15.79442
<i>Std. Dev.</i>	2.719030	22.18181	0.155148	3.072033
Observations	140	140	140	140

Source: Processed Data (2026)

Based on the descriptive statistics results, the Tax Avoidance variable (Y), measured using the Effective Tax Rate (ETR), has a mean value of 1.9104, with a minimum value of -6.2504 observed in PT Dian Swastatika Sentosa Tbk (DSSA) and a maximum value of 11.7523 observed in PT Alfa Energi Investama Tbk (FIRE). The standard deviation of 2.7190 indicates variation in tax avoidance practices among the sample companies. These extreme ETR values were primarily caused by very small pre-tax income figures and the recognition of deferred tax benefits, which mathematically generated ETR values outside the normal range.

The maximum ETR value of 11.7523 and the minimum value of -6.2504 suggest the presence of special circumstances in several sample firms, such as relatively low pre-tax income or the recognition of tax benefits, causing ETR values to fall outside the normal range. These observations were retained in the analysis because they were derived from officially published financial statements and reflect the actual conditions of the companies during the study period.

The Debt Covenant variable (X1) has a mean value of 17.0782, with a minimum value of 0.0070 observed in PT Energi Mega Persada Tbk (ENRG) and a maximum value of 97.1801 observed in PT Samindo Resources Tbk (MYOH). The standard deviation of 22.1818 indicates considerable variation in debt covenant levels across the sample companies.

The Tunneling Incentive variable (X2) has a mean value of 0.5542, with a minimum value of 0.2357 recorded by PT Astrindo Nusantara Infrastruktur Tbk (BIPI) and a maximum value of 0.9260 recorded by PT Archi Indonesia Tbk (ARCI). The standard deviation of 0.1551 indicates relatively low variation in tunneling incentive among the sample firms.

The Firm Size variable (Z) has a mean value of 21.1644, with a minimum value of 15.7944 observed in PT Elnusa Tbk (ELSA) and a maximum value of 27.8155 observed in PT Super Energy Tbk (SURE). The standard deviation of 3.0720 indicates a moderate degree of variation in firm size across the companies included in the study.



Table 2 Panel Data Regression Results (Fixed Effect Model/FEM)

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	-0.091700	3.162556	-0.028996	0.9769
X1	0.020920	0.009860	2.121648	0.0361
X2	0.825700	2.036709	0.405409	0.6860

Source: Processed Data (2026)

Table 2 presents the results of the panel data regression analysis using the Fixed Effect Model (FEM), which was selected as the most appropriate model based on the Chow test and Hausman test results. The regression analysis was conducted to examine the effects of debt covenant and tunneling incentive on tax avoidance in mining companies listed on the Indonesia Stock Exchange during the 2020–2024 period.

$$Y_{it} = -0.091700 + 0.020920X_1 + 0.825700X_2 + \varepsilon_{it}$$

The constant value of -0.0917 indicates that when Debt Covenant (X1) and Tunneling Incentive (X2) are assumed to be constant or equal to zero, the value of ETR (Y) is -0.0917. The coefficient of Debt Covenant is 0.0209, indicating that a one-unit increase in Debt Covenant is associated with an increase of 0.0209 units in ETR, assuming other variables remain constant. Meanwhile, the coefficient of Tunneling Incentive is 0.8257, indicating that a one-unit increase in Tunneling Incentive is associated with an increase of 0.8257 units in ETR, holding other variables constant.

Table 3 Moderated Regression Analysis (MRA) Results

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	0.942595	1.306994	0.721193	0.4723
X ₁	-0.067060	0.072627	-0.923350	0.3579
X ₂	1.127771	2.337320	0.482506	0.6304
X ₁ Z	0.004502	0.003771	1.194004	0.2351
X ₂ Z	-0.000594	0.004902	-0.121113	0.9038

Source: Processed Data (2026)

Based on the moderation regression results, the following equation was obtained:

$$Y_{it} = 0.942595 - 0.067060X_1 + 1.127771 X_2 + 0.004502 X_1Z - 0.000594X_2Z_{it} + \varepsilon_{it}$$

The constant value of 0.9426 indicates that when all independent variables are assumed to be constant, the value of Tax Avoidance is 0.9426. The coefficient of Debt Covenant (X1) is -0.0671, indicating that a one-unit increase in Debt Covenant is associated with a decrease of 0.0671 units in Tax Avoidance, assuming other variables remain constant. The coefficient of Tunneling Incentive (X2) is 1.1278, indicating that a one-unit increase in Tunneling Incentive is associated with an increase of 1.1278 units in Tax Avoidance.

The interaction coefficient between Debt Covenant and Firm Size (X1Z) is 0.0045, indicating that a one-unit increase in the interaction between Debt Covenant and Firm Size is associated with an increase of 0.0045 units in Tax Avoidance. Meanwhile, the interaction coefficient between Tunneling Incentive and Firm Size (X2Z) is -0.0006, indicating that a one-unit increase in the interaction between Tunneling Incentive and Firm Size is associated with a decrease of 0.0006 units in Tax Avoidance, assuming other variables remain constant.

Table 4 Hypothesis Testing Results

Variabel	Koefisien	t-Statistic	Prob.	Keputusan
<i>Debt Covenant (X1)</i>	0.020920	2.121648	0.0361	H1 accepted.
<i>Tunneling Incentive (X2)</i>	0.825700	0.405409	0.6860	H2 rejected.
X1*Z	0.004502	1.194004	0.2351	H3 rejected.
X2*Z	-0.000594	-0.121113	0.9038	H4 rejected.

Source: Processed Data (2026)



Based on the hypothesis testing results, the Debt Covenant variable (X1) has a probability value of 0.0361, which is lower than the significance level of 0.05. This indicates that Debt Covenant has a significant effect on Tax Avoidance. Therefore, H1 is accepted. In contrast, the Tunneling Incentive variable (X2) has a probability value of 0.6860, which is greater than 0.05, indicating that Tunneling Incentive does not have a significant effect on Tax Avoidance. Accordingly, H2 is rejected.

The moderation test results show that the interaction between Debt Covenant and Firm Size (X1Z) has a probability value of 0.2351, which exceeds the 0.05 significance level. This finding indicates that Firm Size does not moderate the effect of Debt Covenant on Tax Avoidance; therefore, H3 is rejected. Similarly, the interaction between Tunneling Incentive and Firm Size (X2Z) has a probability value of 0.9038, which is also greater than 0.05. This result suggests that Firm Size does not moderate the effect of Tunneling Incentive on Tax Avoidance. Consequently, H4 is rejected.

Table 5 F-Test Results

F-statistic	Prob(F-statistic)	Keterangan
4.829336	0.003165	Signifikan

Source: Processed Data (2026)

The results of the F-test indicate that debt covenant and tunneling incentive jointly have a significant effect on tax avoidance, as evidenced by a significance value of 0.003165, which is lower than the 0.05 significance threshold. This finding suggests that the research model is statistically valid and appropriate for explaining the relationship between the independent variables and the dependent variable.

Table 6 Coefficient of Determination Results

Model	R-squared	Adjusted R-squared
Regresi Data Panel (FEM)	0.096273	0.076338
<i>Moderated Regression Analysis (MRA)</i>	0.627319	0.520345

Source: Processed Data (2026)

Based on the coefficient of determination results, the panel data regression model has an Adjusted R-squared value of 0.076338. This indicates that Debt Covenant and Tunneling Incentive are able to explain 7.63% of the variation in Tax Avoidance, while the remaining 92.37% is explained by other factors outside the research model.

Meanwhile, the Moderated Regression Analysis (MRA) model has an Adjusted R-squared value of 0.520345. This result indicates that Debt Covenant, Tunneling Incentive, and their interactions with Firm Size are able to explain 52.03% of the variation in Tax Avoidance, while the remaining 47.97% is explained by other factors not included in the model.

Discussion

The Effect of Debt Covenant on Tax Avoidance

The results indicate that debt covenant has a significant effect on tax avoidance, which is proxied by the Effective Tax Rate (ETR). The positive coefficient obtained from the regression model suggests that an increase in debt covenant is associated with an increase in ETR. Given that a higher ETR reflects a lower level of tax avoidance, this finding indicates that companies facing greater debt covenant pressure tend to exhibit lower levels of tax avoidance.

From the perspective of Agency Theory, managers as agents are encouraged to comply with contractual obligations to creditors and maintain the credibility of the company. As a result, firms facing higher debt covenant pressure tend to be more cautious in adopting policies that may increase regulatory or contractual risks, including aggressive tax avoidance practices (Jensen & Meckling, 1976; Waluyo et al., 2023).

Furthermore, Positive Accounting Theory suggests that firms with high debt levels are likely to adopt accounting and financial policies aimed at maintaining financial stability and



avoiding violations of debt agreements (Watts & Zimmerman, 1986). In this context, management may prioritize compliance with contractual obligations and the preservation of relationships with creditors rather than engaging in aggressive tax avoidance strategies. This finding implies that debt covenant functions as a monitoring mechanism that constrains opportunistic managerial behavior related to tax planning.

This result differs from studies suggesting that debt covenant encourages tax avoidance as a means of improving after-tax earnings and avoiding debt covenant violations (Leyloh, 2025; Sari & Kurniatio, 2022). Instead, the present study provides evidence that stronger debt covenant pressure is associated with lower levels of tax avoidance among mining companies listed on the Indonesia Stock Exchange.

The Effect of Tunneling Incentive on Tax Avoidance

The results indicate that tunneling incentive does not have a significant effect on tax avoidance. This finding suggests that controlling ownership does not directly encourage firms to engage in tax avoidance practices. Theoretically, tunneling incentive is associated with conflicts of interest between majority and minority shareholders, whereby controlling shareholders may have incentives to transfer corporate resources for their own benefit (Waluyo et al., 2023).

However, in practice, such actions are not necessarily carried out through tax avoidance mechanisms. Controlling shareholders may prefer alternative methods, such as transfer pricing arrangements or related-party transactions, to extract private benefits. Furthermore, the strict regulatory environment in the mining sector, coupled with increasingly rigorous tax regulations, may limit firms' opportunities to engage in tax avoidance activities. This finding is consistent with previous studies suggesting that the effect of tunneling incentive on tax avoidance is inconsistent and often insignificant (Akmali, 2024; Putra & Rahayu, 2023).

The Moderating Effect of Firm Size on the relationship Between Debt Convinent and Tax Avoidance

The results show that firm size does not moderate the relationship between debt covenant and tax avoidance. This finding indicates that the effect of debt covenant pressure on tax avoidance remains relatively consistent regardless of firm size. Theoretically, although larger firms possess greater resources and capabilities to engage in tax planning activities, they are also subject to greater scrutiny from regulators, investors, and the public, making them more cautious in their tax-related decisions (Rohmani & Amin, 2022).

As a result, these opposing effects may offset each other, preventing firm size from functioning as a moderating variable. This finding suggests that debt covenant pressure is a more dominant factor influencing tax avoidance than firm-specific characteristics such as firm size (Lestari & Halimah, 2025; Majidah et al., 2022).

The Moderating Effect of Firm Size on the relationship Between Tunneling Incentive And Tax Avoidance

The results further indicate that firm size does not moderate the relationship between tunneling incentive and tax avoidance. This finding suggests that tunneling practices are not determined by the size of a firm but are more closely related to ownership structure and internal corporate policies. In addition, larger firms are generally subject to stricter monitoring and regulatory oversight, which may limit opportunities for aggressive tax behavior (Putra & Rahayu, 2023).

On the other hand, tunneling incentive is commonly manifested through mechanisms such as related-party transactions and other forms of resource transfers, which are not necessarily associated with tax avoidance activities (Suripto & Novitaria, 2021; Waluyo et al., 2023). This finding reinforces previous studies reporting that the relationship between tunneling



incentive and tax avoidance is inconsistent and often statistically insignificant (Akmali, 2024; Armadhana et al., 2025).

CONCLUSION

Based on the results of this study, it can be concluded that debt covenant has a significant effect on tax avoidance as proxied by the Effective Tax Rate (ETR). The positive coefficient indicates that an increase in debt covenant is associated with an increase in ETR, which reflects a lower level of tax avoidance. This finding suggests that companies facing greater debt covenant pressure tend to be more cautious in their tax-related decisions and are less likely to engage in aggressive tax avoidance practices. Meanwhile, tunneling incentive does not have a significant effect on tax avoidance, indicating that controlling ownership does not directly encourage tax avoidance behavior.

Furthermore, firm size does not moderate the effect of either debt covenant or tunneling incentive on tax avoidance. This finding suggests that the relationship between the independent variables and tax avoidance is not influenced by firm size. Therefore, debt covenant pressure and tunneling incentive tend to independently affect corporate tax policies regardless of the scale of the firm.

Recommendations

Based on the findings of this study, companies are advised to pay greater attention to debt structure management, particularly with regard to debt covenant compliance, while maintaining a balance between tax efficiency and regulatory compliance. Investors and creditors are also encouraged to strengthen their monitoring of debt covenant conditions as indicators of financial risk and managerial behavior.

In addition, the government should enhance tax supervision and strengthen tax policies to minimize tax avoidance practices, particularly within the mining sector. Future studies are recommended to incorporate additional variables, such as profitability, leverage, and corporate governance, and to expand the scope of industries and observation periods in order to obtain more comprehensive findings.

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