Tax Burden, Exchange Rate, Foreign Ownership, Profitability, and Transfer Pricing in Indonesian Mining Companies

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Abstract

This study examines the associations of tax burden, exchange rate exposure, foreign ownership, and profitability with transfer pricing practices among mining companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024. Using secondary data from annual reports, purposive sampling selected nine of 58 companies, yielding 45 firm-year observations and 37 after outlier treatment. Transfer pricing was proxied by Related-Party Receivables (RPT), explanatory variables were Effective Tax Rate (ETR), foreign exchange gains or losses relative to pretax profit or loss, foreign shareholding, and Return on Assets (ROA). Descriptive statistics, assumption tests, and multiple linear regression were performed using SPSS 24. Exchange rate exposure showed a significant positive association with RPT ($\beta = 5.207$, $p = 0.010$), supporting H_2. Tax burden ($\beta = -0.088$, $p = 0.885$), foreign ownership ($\beta = 0.103$, $p = 0.552$), and profitability ($\beta = -0.942$, $p = 0.069$) were insignificant. The overall model was significant ($F = 3.199$, $p = 0.026$), with adjusted $R^2 = 0.196$. Exchange rate exposure was the only individually significant predictor of the transfer pricing proxy, without establishing causality or aggressive pricing behavior. The analysis covers nine companies, a five-year period, and 37 observations; the model explains 19.6% of RPT variation. The findings extend Indonesian tax accounting evidence and inform management, investors, and tax authorities assessing related-party transactions, while highlighting the importance of careful proxy interpretation.

Keywords: *Exchange Rate, Foreign Ownership, Mining Companies, Profitability, Tax Burden, Transfer Pricing*

1. INTRODUCTION

Economic globalization has increased cross-border transactions among multinational companies, creating opportunities for transfer pricing, which refers to pricing transactions involving goods, intangible assets, or services between associated enterprises (OECD, 2022). Although legitimate when conducted under the arm's length principle, transfer pricing may facilitate tax avoidance through profit shifting to low-tax jurisdictions (Mediaty, Usman, Ashar, & Fitriani, 2025; Taylor, Richardson, & Lanis, 2015). Differences in national tax rates can strengthen these incentives (Beer, de Mooij, & Liu, 2020; Heckemeyer, & Overesch, 2017). Indonesia's mining sector is particularly exposed to cross-border transactions because of its extensive international operations and affiliated trading networks (Johannesen, Tørsløv, & Wier, 2020). A prominent example involves allegations that PT Adaro Energy Tbk transferred coal profits through its Singapore subsidiary, Coaltrade Services International Pte. Ltd. (Global, 2019). Such concerns underscore the importance of transfer pricing oversight, including the regulatory framework established under Minister of Finance Regulation No. 172/PMK.03/2023.

Tax burden is frequently identified as a motivation for transfer pricing because multinational companies may adjust affiliated transaction prices to reduce tax liabilities (Fernández-Rodríguez, García-Fernández, & Martínez-Arias, 2021; Klassen, Lisowsky, & Mescall, 2017). Amidu, Coffie, and Acquah (2019) found that transfer pricing facilitates tax avoidance, whereas Widiasmara and Purwaningsih (2020) reported no significant relationship. Exchange rate fluctuations may also influence related-party transactions by affecting foreign currency liabilities and corporate profitability (Jayanti & Supadmi, 2023). However, empirical findings remain inconsistent, with Malindo and Mulyono (2025) identifying a significant effect and Oktafiana and Najihah (2025) reporting no effect. Foreign ownership may increase opportunities for intra-group transactions through complex multinational structures (Cristea & Nguyen, 2016), although Haryadi, Giriati, and Wendy (2025) found no significant association. Similarly, profitability may influence transfer pricing incentives

through higher taxable income (Richardson, Taylor, & Lanis, 2013; Thinh, & An, 2023), but Wahyudi, Sutrisno, and Rusydi (2021) reported insignificant effects.

Previous research further demonstrates inconsistent relationships between these determinants and transfer pricing. Tax burden has shown significant (Davies, Martin, Parenti, & Toubal, 2018; Liu, Schmidt-Eisenlohr, & Guo, 2020; Malindo and Mulyono, 2025; Wier, 2020), insignificant (Evi, Septo, & Sasongko, 2023; Widiasmara and Purwaningsih, 2020), and negative associations (Thinh & An, 2023). Exchange rate effects have likewise varied across studies Larasati and Arieftiara (2023), Malindo and Mulyono (2025), and Oktafiana and Najihah (2025). Foreign ownership has been associated with increased profit shifting (Cristea & Nguyen, 2016), insignificant relationships (Haryadi et al., 2025; Isdiputra, & Pangestuti, 2024), and negative effects (Zakaria & Metalia, 2025). Profitability has demonstrated positive associations (Richardson et al., 2013; Oktafiana and Najihah, 2025) but also insignificant effects (Wahyudi et al., 2021). These differences indicate that transfer pricing relationships may depend on industry characteristics, economic conditions, and research periods.

Several research gaps remain. First, Indonesian studies predominantly examine manufacturing (Widiasmara and Purwaningsih, 2020; Zakaria and Metalia, 2025), consumer goods (Malindo & Mulyono, 2025), and banking (Putri, Zakaria, Said, Ghapar, & Anita, 2024), while mining-sector research has focused more on tax management than transfer pricing (Nur, Yuniarti, & Rusmianto, 2022). Second, limited studies jointly investigate exchange rates, tax burden, foreign ownership, and profitability, despite conflicting exchange rate findings (Larasati and Arieftiara, 2023; Malindo and Mulyono, 2025; Oktafiana and Najihah, 2025). Third, prior research often overlooks the distinction between legitimate transfer pricing and transfer mispricing, which involves deviations from arm's length pricing (Wier, 2020). Finally, evidence covering 2020–2024 remains limited despite post-pandemic recovery, currency fluctuations, and commodity price volatility.

Accordingly, this study investigates the individual and simultaneous associations of tax burden, exchange rate exposure, foreign ownership, and profitability with transfer pricing practices among mining companies listed on the Indonesia Stock Exchange during 2020–2024. Its novelty lies in integrating these determinants within a mining-sector model, emphasizing exchange rate exposure, and using the related-party receivable ratio as a proxy for affiliated transaction intensity rather than direct evidence of transfer mispricing. Grounded in agency theory, the findings are expected to enrich international tax accounting literature and provide insights for corporate management, investors, and the Directorate General of Taxes (*Direktorat Jenderal Pajak/DJP*) regarding the evaluation and oversight of related-party transactions.

2. LITERATURE REVIEW

2.1 The Effect of Tax Burden on Transfer Pricing Practices

Agency theory, introduced by Jensen and Meckling (1976), describes a contractual relationship in which principals delegate decision-making authority to agents, potentially creating conflicts of interest and agency costs comprising monitoring expenditures, bonding expenditures, and residual loss. In companies with concentrated ownership, agency conflicts may arise between managers and shareholders (type I) or between controlling and minority shareholders (type II), particularly when controlling shareholders influence intra-group resource allocation (Claessens et al., 2000; Lo et al., 2010). In the context of transfer pricing, foreign shareholders may seek to maximize global profits by shifting income among affiliated companies across tax jurisdictions (Cristea & Nguyen, 2016; Davies et al., 2018). Information asymmetry may facilitate such decisions, although related-party transactions are not inherently abusive because they can improve operational efficiency or serve private interests at the expense of minority shareholders and tax authorities (Habib et al., 2017; Kohlbeck & Mayhew, 2017).

Transfer pricing refers to determining prices for goods, services, intangible assets, financing, and other transactions between associated enterprises (OECD, 2022). In Indonesia, Article 18(3)–(4) of Law No. 36 of 2008 authorizes tax authorities to adjust transactions involving related parties, while

Minister of Finance Regulation No. 172 of 2023 governs the application of the arm's length principle. This principle requires related-party transactions to reflect conditions comparable to those between independent entities. Accordingly, legitimate transfer pricing must be distinguished from transfer mispricing, which involves deliberately manipulating transaction prices to shift taxable profits (Klassen et al., 2017; OECD, 2022; Cristea & Nguyen, 2016; Liu et al., 2020). Wier (2020) and Davies et al. (2018) provide transaction-level evidence of tax-motivated mispricing among multinational companies. However, financial statement data generally reveal related-party transaction intensity rather than direct evidence of mispricing. Therefore, this study measures transfer pricing practices using a related-party transaction proxy without assuming that such transactions constitute tax avoidance.

Tax constitutes a mandatory contribution to the state under Law No. 28 of 2007 concerning General Provisions and Tax Procedures. Corporate tax expense comprises current and deferred taxes, with deferred tax potentially influencing earnings management and tax avoidance (Pramesti et al., 2024; Ardiles et al., 2024). Higher tax burdens may encourage companies to adopt tax-minimization strategies, including profit shifting through affiliated transactions (Efenyumi & Nworie, 2025; Kovermann & Velte, 2019). Tax avoidance may also be influenced by fiscal loss compensation (Daniel et al., 2022). The tax burden is commonly measured using the Effective Tax Rate (ETR), which indicates the proportion of pretax profit absorbed by income tax expense (Fernández-Rodríguez et al., 2021; Hanlon & Heitzman, 2010). This measure has also been applied in studies examining tax management among Indonesian mining companies (Nur, Yuniarti, & Rusmianto, 2022).

From an agency-theory perspective, tax obligations may influence managerial decisions because they affect corporate profitability and shareholder returns. Higher tax burdens may increase incentives to shift profits through affiliated transactions (Klassen et al., 2017). Empirical evidence supports this relationship: Malindo and Mulyono (2025) identify a significant association between tax burden and transfer pricing, while Zakaria and Metalia (2025) report a positive effect of tax planning. Similarly, Heckemeyer and Overesch (2017) identify transfer pricing as an important channel of multinational profit shifting, and Liu et al. (2020) demonstrate that affiliated export prices respond to tax differentials. Sari et al. (2022) further show that tax expenses moderate factors influencing transfer pricing decisions. These findings suggest that higher corporate tax burdens may be associated with greater related-party transaction intensity, although such transactions do not necessarily establish deliberate tax-motivated mispricing.

H_1: Tax burden has a positive effect on *transfer pricing* practices in mining companies listed on the IDX for the 2020-2024 period

2.2 The Effect of Exchange Rate on Transfer Pricing Practices

The exchange rate is the price of one currency expressed in the currency of another country, that is, the amount of local currency that must be paid to obtain one unit of foreign currency, an increase in the exchange rate is known as appreciation, while a decrease is called depreciation (Ha et al., 2020). A currency that appreciates can purchase more foreign currency, whereas depreciation indicates a condition in which the value of the currency weakens against other currencies. The exchange rate is a highly dynamic macroeconomic variable that is influenced by, among other things, inflation, both permanent inflation caused by rising demand pressure for goods and services and temporary inflation resulting from temporary disruptions such as rising energy costs or natural disasters (Ha et al., 2020), as well as by national income and the international balance of payments position, a surplus in which indicates increased foreign exchange inflows and can strengthen the value of the domestic currency (Setianingrum et al., 2026).

Exchange rate fluctuations create uncertainty in cross-border transactions, encouraging multinational companies to optimize cash flows among entities within their group to minimize exposure to currency risk. When the rupiah depreciates, companies with foreign currency liabilities face increased expenses, creating an incentive to accelerate the transfer of funds abroad through

payments for related-party transactions before exchange rate conditions deteriorate further. Conversely, when the rupiah appreciates, companies can take advantage of this condition to withdraw funds from foreign entities. The impact of the exchange rate on financial performance can be measured by the ratio of foreign exchange gains or losses to profit before tax; the larger this proportion, the more significant the impact of exchange rate fluctuations on the company's operating results (Jayanti & Supadmi, 2023).

Based on agency theory, managers with more complete information about the company's financial condition can use exchange rate fluctuations as a basis for setting transfer prices among related entities, either as a currency risk mitigation strategy or as an effort to maximize the profits earned by the group as a whole (Jayanti & Supadmi, 2023). When foreign currencies strengthen, the foreign exchange gains earned by companies increase, encouraging them to sell their products abroad through transfer pricing schemes to earn greater profits than from domestic sales. Malindo and Mulyono (2025) find that the exchange rate has a significant effect on transfer pricing in Indonesian consumer goods companies. The relevance of this variable is greater in the mining sector, because commodity prices and export contracts are generally denominated in US dollars, and a large part of the production is sold to affiliated trading companies abroad, so that currency movements simultaneously affect reported profit and the value of intra-group receivables. However, the empirical evidence is still mixed, as Larasati and Arieftiara (2023) report a negative relationship and Oktafiana and Najihah (2025) find no effect, which indicates that the role of the exchange rate must be tested in a specific sectoral context.

H_2: Exchange rate has a positive effect on transfer pricing practices in mining companies listed on the IDX for the 2020-2024 period

2.3 The Effect of Foreign Ownership on Transfer Pricing Practices

Foreign ownership is the proportion of a company's shares owned by foreign investors, including individuals, financial institutions, and parent companies domiciled abroad. Under *Pernyataan Standar Akuntansi Keuangan/PSAK* No. 15, a controlling shareholder is an entity that holds 20% or more of the shares, either directly or indirectly, and can therefore exert significant influence over the entity. Foreign ownership in companies listed on the IDX is governed by Law Number 25 of 2007 concerning Investment and sectoral regulations, including share divestment provisions that require mining companies originally owned by foreign investors to gradually increase the portion of national ownership. Dominant foreign ownership indicates a special relationship between companies listed on the IDX and their parent companies or affiliates abroad, and this special relationship serves as a prerequisite for transfer pricing transactions. Foreign ownership structure is measured as the percentage of ordinary shares held by foreign parties at year-end relative to total outstanding shares (Alkurdi & Mardini, 2020; Haryadi et al., 2025).

Based on agency theory, foreign investors as principals can influence company management policies to engage in transfer pricing for the benefit of the group as a whole, for example, by pressuring subsidiaries in Indonesia to set the selling prices of mining commodities to overseas affiliates below market prices so that profits are concentrated in the parent entity located in a country with a lower tax rate. A high proportion of foreign ownership reflects international affiliate relationships that broaden opportunities and strengthen companies' motivation to engage in transfer pricing transactions (Putri et al., 2024), while more complex organizational structures create the potential for transfer prices that do not comply with the arm's length principle. Cristea and Nguyen (2016) find that foreign ownership increases profit shifting through transfer pricing, and similar findings are reported by Alkurdi and Mardini (2020) and Putri et al. (2024), who show that foreign ownership is positively associated with tax avoidance. At the cross-country level, Johannesen et al. (2020) show that less developed countries are more exposed to profit shifting by multinational firms, and in Indonesia, Habib et al. (2017) show that related-party transactions, particularly related-party loans, can be used to transfer resources within business groups. Lo et al. (2010) further show that

tunneling incentives of controlling shareholders shape transfer pricing behavior, which is relevant when foreign shareholders hold a controlling stake.

H_3: Foreign ownership has a positive effect on transfer pricing practices in mining companies listed on the IDX for the 2020-2024 period

2.4 The Effect of Profitability on Transfer Pricing Practices

Profitability is a company's ability to generate profit in relation to sales, total assets, or equity in a given period (Whetyningtyas, Arumsari, Ashari, & Mulyani, 2025). Profitability is an indicator for assessing an entity's capability to earn income by utilizing its total assets (Nawangsih, Ridwansyah, & Anggraini, 2025). High profitability reflects a company's competitive advantage and operational efficiency, but it also generates larger tax obligations, thereby encouraging tax-saving efforts (Nurwita, 2025). For mining companies, profitability is strongly influenced by commodity prices in international markets, production volume, and operating costs; therefore, it varies from year to year and affects the tax strategies adopted, including transfer pricing decisions. Commonly used profitability ratios include Return on Assets (ROA), Return on Equity (ROE), gross margin ratio, profit margin ratio, and earnings per share. In transfer pricing research, the most widely used measure of profitability is ROA because it reflects the ability of all of a company's assets to generate profit (Richardson, Taylor, & Lanis, 2013; Whetyningtyas et al., 2025).

The relationship between profitability and transfer pricing can be explained from two perspectives. First, highly profitable companies generate larger profits and therefore bear a larger tax burden, which encourages management to use transfer pricing schemes to shift part of their profits to affiliated entities in jurisdictions with lower tax rates (Dharmapala & Riedel, 2013). Second, from the earnings management perspective, companies with low profitability may also be motivated to engage in transfer pricing as a means of income smoothing to maintain the image of their financial performance in the eyes of shareholders and creditors (Amidu, Coffie, & Acquah, 2019). Based on agency theory, managers as agents with more complete information about the company's financial condition can use high profitability as a justification for more aggressive tax planning. Dharmapala and Riedel (2013) show that positive earnings shocks at the parent level are followed by higher reported profits in low-tax affiliates, which is consistent with tax-motivated income shifting by profitable groups. Richardson et al. (2013) find that profitability is positively associated with transfer pricing aggressiveness, and Thinh and An (2023) find that return on equity positively affects the transfer pricing behavior of foreign direct investment enterprises. In the mining sector, Nur, Yuniarti, and Rusmianto (2022) find that profitability has a significant negative effect on the effective tax rate, meaning that the higher the profitability, the lower the effective tax rate of mining companies. Oktafiana and Najihah (2025) also find that profitability has a significant positive effect on transfer pricing, whereas Wahyudi, Sutrisno, and Rusydi (2021) find no significant effect; therefore, the direction of this relationship still requires further evidence.

H_4: Profitability has a positive effect on transfer pricing practices in mining companies listed on the IDX for the 2020-2024 period

2.5 The Simultaneous Effect of Tax Burden, Exchange Rate, Foreign Ownership, and Profitability on Transfer Pricing Practices

Transfer pricing decisions are influenced by a combination of external and internal company factors. In this study, external factors include the exchange rate as an indicator of macroeconomic conditions and government fiscal policy, as reflected in the size of the tax burden borne by companies, while internal factors include foreign ownership, which reflects international affiliate relationships, and profitability, which indicates profit capacity as a basis for tax avoidance motivation. When external pressures in the form of a rising tax burden and strengthening foreign exchange rates occur simultaneously with high foreign ownership and high profitability, the risk of transfer pricing will increase further. Lo, Wong, and Firth (2010) show that tax and tunneling incentives jointly shape transfer pricing behavior, and Evi, Septo, and Sasongko (2023) find that tax burden, firm size, and

foreign ownership simultaneously affect transfer pricing. Accordingly, the four variables are expected to jointly influence transfer pricing practices. The research model is presented in Figure 1.

H_5: Tax burden, exchange rate, foreign ownership, and profitability simultaneously affect transfer pricing practices in mining companies listed on the IDX for the 2020-2024 period

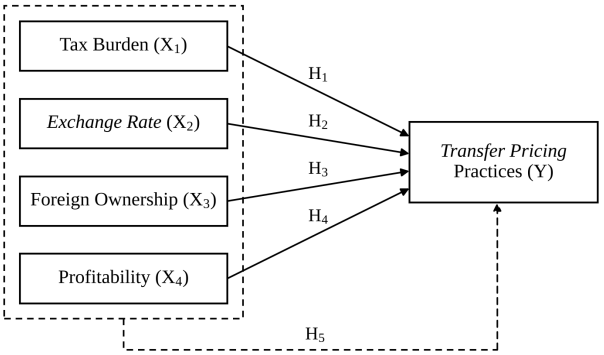


Figure 1. Research model

3. RESEARCH METHODOLOGY

The research population consisted of all mining companies listed on the Indonesia Stock Exchange (IDX), totaling 58 companies. The mining sector was chosen because mining companies in Indonesia generally operate multinationally and have numerous cross-border transactions with related parties; they are among the largest contributors to state tax revenue, and the 2020-2024 period covers the post-COVID-19 economic recovery, which affected exchange rate fluctuations and corporate profitability. The sample was determined using the purposive sampling technique, namely a sampling technique based on specific considerations or criteria aligned with the research objectives (Etikan et al., 2016). The criteria used were mining sector companies listed on the IDX in 2020-2024, publishing complete annual financial statements, having receivable transactions with related parties during the research period, having data on tax burden, exchange rate, and foreign ownership;,and generating positive ROA during the research period. The criteria were applied sequentially: of the 58 mining companies, 19 were not listed on the IDX throughout the 2020-2024 period, 4 did not publish complete annual financial statements, 7 had no receivables from related parties, 9 lacked complete data on tax burden, exchange rate, or foreign ownership, and 10 did not generate positive ROA during the research period. The requirement of related-party receivables is necessary because the dependent variable cannot be calculated without them, while the requirement of positive ROA ensures that the ETR can be interpreted meaningfully, as the ratio of tax expense to profit before tax has no clear economic meaning when a company reports a loss. The selection process yielded 9 companies with a five-year observation period, resulting in 45 observations (Table 1), the numbers in parentheses indicate the number of companies that did not meet the criteria. Of these 45 firm-year observations, 37 were used in the regression analysis after outlier treatment, as explained in the data analysis section below.

Table 1. Research sample selection process

No	Sample Selection Criteria	Number
Total mining companies listed on the IDX		58
1	Mining sector companies not listed on the IDX in 2020-2024	(19)
2	Companies that did not publish complete annual financial statements	(4)
3	Companies without receivable transactions with related parties during the research period	(7)
4	Companies without data on tax burden, exchange rate, and foreign ownership	(9)
5	Companies that did not generate positive ROA during the research period	(10)

No	Sample Selection Criteria	Number
Final research sample		9
Total observations (9 companies × 5 years)		45

The data used are secondary data in the form of annual financial statements (annual reports) of mining companies listed on the IDX for the 2020–2024 period, obtained from the official IDX website (www.idx.co.id) and the official website of each sample company. The data were collected using the documentation method, namely by reviewing, recording, and analyzing official documents related to the research variables, such as related party transactions, share ownership structure, and other relevant financial data. The dependent variable is transfer pricing practices (*Y*), measured using the Related Party Receivable (RPT) ratio rather than the five OECD (2022) transfer pricing methods: Comparable Uncontrolled Price (CUP), Resale Price Method (RPM), Cost Plus Method (CPM), Profit Split Method (PSM), and Transactional Net Margin Method (TNMM). These methods assess arm's length pricing through comparable transactions, resale margins, cost-based markups, profit allocation, or net profitability. However, their application requires detailed transaction data and reliable comparables, which are generally unavailable in published financial statements (Kumalasari et al., 2025; OECD, 2022).

Accordingly, this study adopts the RPT ratio, calculated as related-party receivables divided by total receivables (Sari et al., 2022). This proxy is selected because direct identification of transfer mispricing requires confidential transaction-level information and comparable market prices (Davies et al., 2018; Wier, 2020). Furthermore, PSAK 7 requires disclosure of related-party relationships and outstanding balances, allowing the RPT ratio to be calculated from audited financial statements, although disclosure compliance may vary (Astuti et al., 2021). The proxy is also relevant to mining companies that conduct transactions through affiliated trading entities, potentially generating related-party receivables. Previous studies have used related-party balances to examine intra-group resource transfers and financial reporting risks (Habib et al., 2017; Kohlbeck & Mayhew, 2017), while Sari et al. (2022) applied the RPT ratio as an accounting-based transfer pricing proxy. Nevertheless, the RPT ratio reflects the relative concentration of receivables from affiliated parties rather than transaction prices or deviations from the arm's length principle. Therefore, higher RPT values indicate greater related-party receivable exposure, not necessarily aggressive transfer pricing or profit shifting. Data were obtained from the related-party disclosures in the Notes to the Financial Statements (*Catatan Atas Laporan Keuangan/CALK*) and the Statement of Financial Position, consistent with PSAK 7 disclosure requirements (Astuti et al., 2021).

The independent variables are tax burden (X_1), exchange rate (X_2), foreign ownership (X_3), and profitability (X_4). Tax burden is proxied by the Effective Tax Rate (ETR), namely income tax expense divided by profit before tax (Sari et al., 2022), with data obtained from the Statement of Comprehensive Income, a higher ETR indicates a heavier tax burden per unit of pre-tax profit. The exchange rate is measured as foreign exchange gains or losses divided by profit or loss before tax (Jayanti & Supadmi, 2023), with data obtained from the Statement of Comprehensive Income or CALK, a positive value indicates a net foreign exchange gain and a negative value a net foreign exchange loss, so this variable reflects the impact of exchange rate movements on the company's profit rather than the level of the rupiah exchange rate itself. Foreign ownership is measured as the number of foreign-owned shares divided by total outstanding shares (Haryadi et al., 2025), with data obtained from the company profile section of the annual report or CALK, and it is expressed as a proportion between 0 and 1 in the statistical analysis. Profitability is proxied by Return on Assets (ROA), namely net income divided by total assets (Whetyningtyas et al., 2025), with data obtained from the Statement of Financial Position and the Income Statement. All variables were calculated annually for each company from the audited financial statements for the 2020–2024 period. The operationalization of variables is presented in Table 2.

Table 2. Operationalization of variables

Variables	Variable Definition	Measurement	Scale
Transfer Pricing Practices (*Y*)	The determination of prices in transactions between parties with a special relationship, whether involving transfers of tangible goods, intangible goods, services, or other financial transactions (OECD, 2022)	RPT = Related Party Receivables / Total Receivables	Ratio
Tax Burden (X_1)	The amount of income tax that a company is obliged to pay on the taxable income it earns in a given period	ETR = Income Tax Expense / Profit Before Tax	Ratio
Exchange Rate (X_2)	The price of a currency expressed in the currency of another country (Ha et al., 2020)	ER = Foreign Exchange Gain (Loss) / Profit (Loss) Before Tax	Ratio
Foreign Ownership (X_3)	The proportion of a company's shares owned by foreign investors, whether individuals, financial institutions, or parent companies domiciled abroad	KA = (Shares Owned by Foreign Parties / Total Outstanding Shares) x 100%	Ratio
Profitability (X_4)	A company's ability to generate profit in relation to sales, total assets, or equity in a given period (Whetyningtyas et al., 2025)	ROA = Net Income / Total Assets	Ratio

The data were analyzed using descriptive statistics, classical assumption tests, and multiple linear regression analysis in SPSS version 24. Descriptive statistics were used to provide an overview of the research data through the minimum, maximum, average (mean), and standard deviation values (Kaliyadan & Kulkarni, 2019). Classical assumption tests were conducted to ensure that the regression model was a Best Linear Unbiased Estimator (BLUE) (Ernst & Albers, 2017). Normality was tested using the Shapiro-Wilk test, and the data were considered normal if the significance value was greater than 0.05, if the data were not normally distributed, outlier treatment was performed by identifying and excluding firm-year observations with extreme values that caused the residuals to deviate from normality, and the test was repeated using the Kolmogorov-Smirnov test with the exact test Monte Carlo approach (Monte Carlo Sig. 2-tailed). The model was considered free of multicollinearity if the tolerance value was greater than 0.10 and the Variance Inflation Factor (VIF) value was less than 10 (Kim, 2019). Heteroscedasticity was tested using Spearman's rho test by correlating the independent variables with their residuals and was considered absent if the significance value was greater than 0.05 (Yang et al., 2019). Autocorrelation was tested using the Durbin-Watson (DW) test and was considered absent if $dU < DW < 4 - dU$ (Uyanto, 2020). The multiple linear regression model used is as follows Formula 1:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e \quad (1)$$

Y is transfer pricing practices, α is the constant, β_1 to β_4 are the regression coefficients, X_1 is tax burden, X_2 is exchange rate, X_3 is foreign ownership, X_4 is profitability, and e is the term of error. The model's ability to explain the variation in transfer pricing practices was assessed using the Adjusted R^2 because its value adjusts to the number of independent variables in the model (Karch, 2020). H_1 to H_4 were tested partially using the *t*-test, an independent variable was considered to have a significant effect if the absolute calculated *t*-value was greater than the two-tailed t-table value at $\alpha = 0.05$ with degrees of freedom of $n - k - 1 = 37 - 4 - 1 = 32$ (2.037) with a significance value of less than 0.05, and a hypothesis was accepted only if the sign of the coefficient was also consistent with the hypothesized direction. H_5 was tested using the F-test and was accepted if the calculated F-value exceeded the F-table value (df 4 and 32, 2.668) and the significance value was less than 0.05. Because the data are observational, the term effect in the hypotheses refers to a statistical relationship estimated by regression and does not imply causality.

4. RESULTS AND DISCUSSION

Table 3. Results of descriptive statistical analysis

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Tax Burden/ETR (X_1)	45	0.06	0.71	0.2927	0.12980
Exchange Rate/ER (X_2)	45	-0.08	1.12	0.0310	0.17120
Foreign Ownership/KA (X_3)	45	0.00	0.99	0.4083	0.32733
Profitability/ROA (X_4)	45	0.00	0.62	0.1248	0.14115
Transfer Pricing/TP (Y)	45	0.00	1.00	0.3561	0.37422

Table 3 shows that the tax burden (ETR) has a minimum value of 0.06 at Harum Energy Tbk, meaning that its tax expense was only 6% of profit before tax, and a maximum value of 0.71 at Bumi Resources Minerals Tbk, meaning that its tax expense reached 71% of profit before tax. The mean ETR of 0.2927 indicates that the sample companies generally bore a tax burden of approximately 29.27% of profit before tax, with a standard deviation of 0.12980, which is smaller than the mean; therefore, the data are homogeneously distributed. The Exchange Rate (ER) has a minimum value of -0.08 at Aneka Tambang Tbk, meaning that the company incurred a foreign exchange loss of 8% of profit before tax, and a maximum value of 1.12 at Merdeka Copper Gold Tbk, meaning that foreign exchange gains reached 112% of profit before tax; therefore, exchange rate movements made a very large contribution to the company's profit in that year. The mean ER of 0.0310 indicates that the foreign exchange gains of the sample companies were generally only about 3.10% of profit before tax, with a standard deviation of 0.17120, which is much larger than the mean; therefore, the data are heterogeneously distributed.

Foreign ownership (KA) has a minimum value of 0.00 at Ifishdeco Tbk, meaning that foreign share ownership was close to zero percent, and a maximum value of 0.99 at Golden Energy Mines Tbk, meaning that approximately 99% of its shares were owned by foreign parties. The mean KA of 0.4083 indicates that, in general, approximately 40.83% of the sample companies' shares were owned by foreign parties, with a standard deviation of 0.32733, which is smaller than the mean, so the data are homogeneously distributed. Profitability (ROA) has a minimum value of 0.00 at Merdeka Copper Gold Tbk, meaning that its net income was very small relative to total assets, and a maximum value of 0.62 at Golden Energy Mines Tbk, meaning that every IDR 1 of total assets generated net income of IDR 0.62, or 62%. The mean ROA of 0.1248 indicates that every IDR 1 of total assets of the sample companies generally generated net income of approximately IDR 0.1248, or 12.48%, with a standard deviation of 0.14115, which is larger than the mean, so the data are heterogeneously distributed. Transfer pricing practices (TP) have a minimum value of 0.00 at Merdeka Copper Gold Tbk, meaning that the proportion of its related-party receivables was very small, and a maximum value of 1.00 at Vale Indonesia Tbk, meaning that almost all of its receivables came from related parties. The mean TP of 0.3561 indicates that, in general, approximately 35.61% of the sample companies' receivables came from transactions with related parties, with a standard deviation of 0.37422, which is larger than the mean, so the data are heterogeneously distributed.

The results of the classical assumption tests are presented in Table 4. The initial normality test using Shapiro-Wilk yielded a significance value of $0.000 < 0.05$ for all variables, indicating that the data were not normally distributed. After outlier treatment, in which eight firm-year observations with extreme values were excluded, the data analyzed amounted to 37 observations (an unbalanced pooled sample of the nine companies), which were estimated using ordinary least squares, and the normality test was repeated using the Kolmogorov-Smirnov test with the exact test, Monte Carlo approach. The results show a test statistic of 0.134, with a Monte Carlo significance of (2-tailed) of $0.485 > 0.05$, indicating that the residuals of the regression model are normally distributed.

Table 4. Summary of classical assumption test results

Test	Test Results	Criteria	Remarks
Normality (Shapiro-Wilk) before outlier treatment	Sig. of ETR, ER, KA, ROA, and TP 0.000 (N = 45)	Sig. > 0.05	Not normally distributed
Normality (Kolmogorov-Smirnov) after outlier treatment	N = 37, test statistic 0.134, asymp. Sig. 0.091, Monte Carlo Sig. 0.485 (99% CI: 0.472–0.498)	Sig. > 0.05	Normally distributed
Multicollinearity	ETR: tolerance 0.823, VIF 1.215 ER: tolerance 0.990, VIF 1.010 KA: tolerance 0.985, VIF 1.015 ROA: tolerance 0.827, VIF 1.210	Tolerance > 0.10, VIF < 10	No multicollinearity
Heteroscedasticity (Spearman rho)	Sig. ETR 0.796, ER 0.566, KA 0.497; ROA 0.588	Sig. > 0.05	No heteroscedasticity
Autocorrelation (Durbin-Watson)	DW 2.210, dU 1.7233, 4 – dU 2.2767	dU < DW < 4 – dU	No autocorrelation

All independent variables had tolerance values greater than 0.10 and VIF values less than 10, indicating no multicollinearity among the independent variables. Spearman's rho test showed that the correlation between each independent variable and the unstandardized residual had a significance value greater than 0.05, indicating no heteroscedasticity. The Durbin-Watson value of 2.210 lies between dU and 4 – dU (1.7233 < 2.210 < 2.2767), indicating that the regression model is free of autocorrelation. The results of the multiple linear regression analysis and t-test are presented in Table 5.

Table 5. Results of multiple linear regression analysis and t-test

Variables	Coefficient (B)	Std. Error	Beta	*t*-value	Sig.	Decision
(Constant)	0.455	0.231	-	1.969	0.058	-
Tax Burden/ETR (X_1)	-0.088	0.601	-0.024	-0.146	0.885	H_1 rejected
Exchange Rate/ER (X_2)	5.207	1.910	0.409	2.726	0.010	H_2 accepted
Foreign Ownership/KA (X_3)	0.103	0.171	0.090	0.601	0.552	H_3 rejected
Profitability/ROA (X_4)	-0.942	0.501	-0.309	-1.882	0.069	H_4 rejected

Based on Table 5, the Formula 2 is as follows:

$$TP = 0.455–0.088X1 + 5.207X2 + 0.103X3–0.942X4 + e \quad (2)$$

The constant of 0.455 indicates that if the tax burden, exchange rate, foreign ownership, and profitability are equal to zero, the predicted value of the Related Party Transactions (RPT) is 0.455, although the constant is not significant at the 5% level (sig. 0.058). The tax burden coefficient of -0.088 means that a one-unit increase in tax burden is associated with a decrease in the value of transfer pricing proxy by 0.088, while the exchange rate coefficient of 5.207 means that a one-unit increase in the exchange rate is associated with an increase in the value of transfer pricing proxy by 5.207, assuming other variables remain constant. The foreign ownership coefficient of 0.103 means that a one-unit increase in foreign ownership is associated with an increase in the value of transfer pricing proxy by 0.103, and the profitability coefficient of -0.942 means that a one-unit increase in ROA is associated with a decrease in the value of transfer pricing proxy by 0.942, assuming other variables remain constant, only the exchange rate coefficient is statistically significant, so the other coefficients should not be interpreted as reliable relationships. With a two-tailed t-table value of 2.037 (α = 0.05, df = 32), the exchange rate has a significant positive relationship with the transfer pricing proxy (2.726 > 2.037, sig. 0.010 < 0.05), so H_2 is accepted. Tax burden (|-0.146| = 0.146 < 2.037, sig. 0.885 > 0.05), foreign ownership (0.601 < 2.037, sig. 0.552 > 0.05), and profitability (|-1.882| = 1.882 < 2.037, sig. 0.069 > 0.05) have no significant relationship with the transfer pricing

proxy, so H_1, H_3, and H_4 are rejected. The results of the simultaneous test are presented in Table 6.

Table 6. Results of the simultaneous test (F-test)

Model	Sum of Squares	*df*	Mean Square	F	Sig.
Regression	1.556	4	0.389	3.199	0.026
Residual	3.891	32	0.122		
Total	5.447	36			

Table 6 shows a calculated F-value of 3.199, which is greater than the F-table value of 2.668 (df 4 and 32), with a significance value of 0.026 < 0.05. Thus, tax burden, exchange rate, foreign ownership, and profitability simultaneously have a significant effect on transfer pricing practices, and H_5 is accepted. The R value was 0.534 and the R Square was 0.286, with an Adjusted R Square of 0.196 and a standard. The error of the estimate of 0.34870 indicates that the four independent variables jointly explain 19.6% of the variation in transfer pricing practices, while the remaining 80.4% is explained by other factors outside the research model, such as firm size, bonus mechanisms, and tunneling incentives.

4.1 The Effect of Tax Burden on Transfer Pricing Practices

The *t*-test results show a calculated t-value of -0.146, whose absolute value is smaller than the two-tailed *t*-table value of 2.037, with a significance level of 0.885 > 0.05 and a coefficient of -0.088. Thus, tax burden, proxied by the Effective Tax Rate (ETR), has no significant effect on transfer pricing practices, and H_1 is rejected. The level of the effective tax burden borne by a company does not necessarily drive it to engage in transfer pricing practices because this decision is not driven solely by the magnitude of the tax burden but is also constrained by tax authority oversight mechanisms, such as the obligation to prepare Transfer Pricing Documentation (TP Documentation) and anti-tax-avoidance rules (Mediaty et al., 2025). Consequently, the magnitude of ETR does not necessarily reflect a profit-shifting motive through related-party transactions, and management can respond to a high tax burden through other tax strategies that are more measured and comply with applicable regulations. This is consistent with Ruqayya et al. (2026), who show that tax planning can legally reduce the tax burden.

Within the agency theory framework, transfer pricing is often associated with the motive of minimizing the tax burden by shifting profits to low-tax countries. However, the stringency of transfer pricing regulations in Indonesia, such as the obligation to apply the arm's length principle and the obligation to prepare transfer pricing documentation as regulated by the Directorate General of Taxes, functions as an external control mechanism that limits management's room to exploit information asymmetry. The role of tax audits is also reflected in the finding of Pratama et al. (2026) that tax audit effectiveness, auditor competence, and procedural clarity are positively associated with the certainty of taxpayers' refund resolution. The stricter this oversight, the greater the agency cost that management must bear if it engages in aggressive transfer pricing, so that the incentive to do so decreases even when the tax burden is high. The results of this study are consistent with Evi et al. (2023) and Widiasmara and Purwaningsih (2020), who find that tax burden has no significant effect on transfer pricing decisions, but inconsistent with Davies et al. (2018) and Malindo and Mulyono (2025), who show that taxes have a significant effect on transfer pricing.

4.2 The Effect of Exchange Rate on Transfer Pricing Practices

The *t*-test results show that the calculated *t*-value of 2.726 exceeds the critical value of 2.037, with a significance level of 0.010 ($p < 0.05$) and a regression coefficient of 5.207. Thus, the exchange rate variable has a significant positive association with the transfer pricing proxy (RPT), supporting H_2. This finding indicates that companies with greater foreign exchange exposure relative to pretax profit tend to report higher related-party receivables. Exchange rate fluctuations may influence the volume, pricing, and settlement timing of affiliated transactions, particularly in multinational mining companies engaged in foreign-currency-denominated activities.

The coefficient of 5.207 indicates that a 0.01 increase in the foreign exchange gains or losses ratio is associated with an approximately 0.052 increase in RPT, equivalent to 5.2 percentage points, holding other variables constant. The standardized coefficient of 0.409, the largest among the independent variables (Table 5), suggests a relatively strong association. This relationship may reflect mining companies' exposure to US dollar-denominated exports and related-party transactions, where currency fluctuations affect both receivable balances and foreign exchange gains or losses (Jayanti & Supadmi, 2023).

From an agency-theory perspective, information asymmetry regarding foreign currency exposure may provide management with greater discretion in arranging affiliated transactions. However, the significant association does not establish opportunistic behavior or deliberate transfer mispricing, as the RPT ratio measures related-party receivable intensity rather than deviations from arm's length prices. Identifying mispricing requires transaction-level evidence (Davies et al., 2018; Wier, 2020). This finding aligns with Malindo and Mulyono (2025), who reported a significant exchange rate effect on transfer pricing, but differs from Oktafiana and Najihah (2025), who found no significant effect, and Larasati and Arieftiara (2023), who identified a negative relationship. These differences suggest that exchange rate associations may vary across industries, periods, and measurement approaches.

4.3 The Effect of Foreign Ownership on Transfer Pricing Practices

The *t*-test results show a calculated *t*-value of 0.601, below the critical value of 2.037, with a significance level of 0.552 ($p > 0.05$) and a regression coefficient of 0.103. Thus, foreign ownership has no statistically significant association with transfer pricing practices, and H_3 is not supported. This finding suggests that foreign shareholding does not necessarily reflect the intensity of related-party transactions, as foreign investors may hold portfolio investments without direct operational control or extensive transactions with overseas affiliates.

From the perspective of Type II agency conflict, controlling shareholders may influence corporate policies at the expense of minority shareholders (Claessens et al., 2000). Foreign controlling shareholders may therefore have opportunities to influence intra-group transactions. Conversely, stronger corporate governance and internal monitoring mechanisms could limit opportunistic behavior (Kovermann & Velte, 2019). However, the insignificant coefficient does not establish that such monitoring mechanisms are effective, as ownership control and monitoring quality were not directly examined. This result aligns with Haryadi et al. (2025) and Isdiputra and Pangestuti (2024), who found no significant association between foreign ownership and transfer pricing, but differs from Cristea and Nguyen (2016), who identified a positive relationship between foreign ownership and profit shifting through affiliated transactions. These differences may reflect variations in ownership structures, operational control, and research contexts.

4.4 The Effect of Profitability on Transfer Pricing Practices

The *t*-test results show a calculated *t*-value of -1.882, whose absolute value (1.882) is smaller than the two-tailed *t*-table value of 2.037, with a significance level of 0.069 > 0.05 and a coefficient of -0.942. Thus, profitability, proxied by Return on Assets (ROA), has no significant relationship with the transfer pricing proxy, and H_4 is rejected. The coefficient is also negative, which is opposite to the hypothesized positive direction; although the significance value of 0.069 is close to 0.10, it does not meet the 0.05 criterion used in this study, so the result is not interpreted as significant. A company's ability to generate profit from managing its assets is not a primary consideration for management in designing transaction schemes with related parties because companies with high and low profitability show relatively similar tendencies in transfer pricing practices, therefore, this variable cannot serve as a strong indicator for predicting such practices.

Theoretically, information asymmetry between management and shareholders can create an opportunity for management to use the level of profitability as a pretext for opportunistic actions through transfer pricing. However, the insignificance of this effect indicates that transfer pricing decisions in the sample companies are not driven solely by the level of financial performance

achieved by management, because profitability is also influenced by market conditions and the company's general operational efficiency. In addition, companies with both high and low profitability face reputational and legal risks if they are found to engage in transfer pricing; therefore, management's considerations in making such decisions do not depend entirely on financial performance achievements. This finding is consistent with Dewi et al. (2023), who find that ROA has no effect on tax aggressiveness in banking subsector companies, and with Sapitri et al. (2026), who find that ROA does not moderate the relationship between corporate governance mechanisms and the risk of financial statement fraud. The results of this study are consistent with Wahyudi et al. (2021), who state that profitability has no significant effect on transfer pricing aggressiveness, but inconsistent with Richardson et al. (2013) and Oktafiana and Najihah (2025), who find that profitability has a significant positive effect on transfer pricing.

4.5 The Simultaneous Effect of Tax Burden, Exchange Rate, Foreign Ownership, and Profitability on Transfer Pricing Practices

The simultaneous test results show a calculated F-value of 3.199, which is greater than the F-table value of 2.668, with a significance level of 0.026 < 0.05, so H_5 is accepted and the four variables jointly have a statistically significant relationship with the transfer pricing proxy in mining companies listed on the IDX for the 2020–2024 period. From the perspective of agency theory, management as an agent may act opportunistically, one way being through transfer pricing with related parties to minimize the tax burden or manage earnings, and such decisions are determined not by a single factor but by a combination of tax conditions, economic conditions, ownership structure, and company performance. Although tax burden, foreign ownership, and profitability have no significant partial effect, the F-test examines the model as a whole rather than each variable separately, and the exchange rate, which has a significant partial relationship, is the main contributor to the significance of the overall model. However, the Adjusted R-Square value of 0.196 indicates that the model's ability to explain transfer pricing practices, at 19.6%, falls into the weak category, while the remaining 80.4% is explained by other factors outside the model, such as firm size, bonus mechanisms, and tunneling incentive. This simultaneous finding is consistent with Evi, Septo, and Sasongko (2023) and Merle, Al-Gamrh, and Ahsan (2019), who show that tax and financial factors jointly influence transfer pricing.

5. CONCLUSIONS

5.1 Conclusion

This study finds that tax burden, foreign ownership, and profitability are not significantly associated with transfer pricing practices, measured by the Related-Party Receivable ratio (RPT), among mining companies listed on the IDX during 2020–2024. Conversely, the exchange rate variable, measured by foreign exchange gains or losses relative to profit before tax, shows a significant positive association with RPT. Collectively, the four variables significantly explain variation in the transfer pricing proxy, although the model's explanatory power remains limited (Adjusted R^2 = 0.196). These findings suggest that related-party receivable intensity is more closely associated with exchange rate exposure than with tax burden, foreign ownership, or profitability. However, the observational design and accounting-based proxy do not establish causality or deliberate transfer mispricing. Mining companies should maintain compliance with the arm's length principle and ensure transparent reporting of related-party transactions. Investors should consider exchange rate exposure and related-party disclosures alongside profitability and ownership structures when assessing potential transfer pricing risks.

5.2 Research Limitations

This study is limited to nine mining companies listed on the IDX for the 2020–2024 period, and the model includes only tax burden, exchange rate, foreign ownership, and profitability, so 80.4% of the variation in transfer pricing practices is explained by other factors outside the model. In addition, transfer pricing is measured using the related-party receivable ratio, which reflects the intensity of related-party transactions but not whether transfer prices comply with the arm's length principle, and the regression is based on 37 observations after outlier treatment, which limits the statistical power and generalizability of the results.

5.3 Suggestions and Directions for Future Research

Future researchers are advised to extend the research period and increase the sample size so that the results are more representative and can be generalized more broadly. Future researchers may also add other variables that are theoretically relevant to transfer pricing practices, such as tunneling incentives, management bonus mechanisms, leverage, firm size, or audit quality, to improve the model's ability to explain the factors influencing transfer pricing practices. Future studies with access to transaction-level data or transfer pricing documentation could compare intra-group prices with arm's length prices to directly test transfer mispricing and use alternative proxies such as related-party sales or purchases.

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AUTHOR CONTRIBUTIONS

IANR conducted the source thesis research and empirical analysis. DA served as a contributing author, participating in manuscript drafting and critical review. R supervised the research and contributed to the manuscript review and finalization. ER contributed to data validation, manuscript improvement, and final editing. All authors have reviewed and approved the final version of the manuscript.

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