

Financial Constraints and Tax Avoidance in Mining Companies Listed on the Indonesia Stock Exchange 2020–2022

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Abstract

This study investigates the effect of financial constraints on tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) during the period 2020–2022. Mining firms operate in a capital-intensive and highly regulated environment, making them vulnerable to fluctuations in commodity prices, financing frictions, and liquidity pressures. These conditions heighten the relevance of examining whether financial constraints influence corporate tax planning behavior. Using a quantitative research design, the study analyzes panel data from 24 mining companies that consistently reported complete audited financial statements over the three-year period, resulting in 72 firm-year observations. Financial constraints are measured using the Hadlock–Pierce (HP) Index, while tax avoidance is proxied by the Cash Effective Tax Rate (CETR), which captures real cash taxes paid relative to pre-tax income. Several control variables—firm size, profitability, leverage, and capital intensity—are included to account for operational and structural characteristics of mining firms. Panel regression analysis is conducted using the Hausman test to determine the appropriate model, supplemented by classical assumption testing to ensure statistical validity. The results are expected to provide empirical evidence on whether financially constrained mining firms engage more aggressively in tax avoidance as a strategy to preserve liquidity during periods of economic uncertainty, including the COVID-19 pandemic. The study contributes to the literature by offering sector-specific insights into the financial determinants of tax avoidance in a highly regulated extractive industry and provides implications for policymakers, investors, and corporate managers regarding financial pressure, compliance behavior, and fiscal governance.

1. Introduction

Mining companies play a critical role in Indonesia's economic development, contributing significantly to national income, employment, and export revenues. According to the Indonesian Central Bureau of Statistics (BPS), the mining and quarrying sector consistently accounts for a substantial share of national GDP, driven by global demand for coal, minerals, and other extractive commodities. Despite its strategic importance, the mining sector is characterized by high volatility due to price fluctuations, regulatory uncertainty, and capital-intensive operations that require substantial long-term investment. These conditions create unique financial challenges for mining firms, particularly during periods of economic downturn, market instability, or shifting government policies. One of the most prominent challenges is the presence of **financial constraints**, which limit firms' ability

to secure external financing and maintain adequate operational liquidity. In response, firms may adopt specific financial strategies—including **tax avoidance**—to preserve cash flow and ensure business continuity.

Financial constraints refer to conditions where firms experience difficulty accessing external capital markets, face high costs of borrowing, or encounter restrictions on credit availability. Mining companies frequently face such constraints due to their dependence on large-scale investment, long project cycles, and exposure to environmental, social, and governance (ESG) risks. When external financing becomes costly or inaccessible, firms often rely on internal financing alternatives to fund exploration, production, and operational activities. Under these conditions, tax planning becomes a crucial mechanism for managing financial resources. Tax avoidance, defined as the legal reduction of tax liabilities through

strategic exploitation of loopholes, timing differences, or accounting choices, becomes a potential tool for cash conservation. Theoretical and empirical research suggests that firms facing severe financial constraints tend to engage more aggressively in tax avoidance to free internal funds and reduce financial pressures (Hanlon & Heitzman, 2010; Edwards, Kravet & Wilson, 2016).

Tax avoidance is a central issue for governments, regulators, and stakeholders because it influences public revenue, corporate transparency, and perceptions of ethical business conduct. For resource-rich economies like Indonesia, the mining sector plays a pivotal role in tax collection, particularly through corporate income taxes, royalties, and production-based levies. However, the complexity of mining operations and the flexibility of financial reporting allow substantial discretion in tax-related decision-making. Prior studies indicate that firms with greater financial pressure exhibit stronger incentives to minimize tax payments through income shifting, accelerated depreciation, transfer pricing, and other tax-efficient strategies (Rego, 2003; Minnick & Noga, 2010). Nonetheless, empirical evidence on the relationship between financial constraints and tax avoidance remains inconclusive. While several studies find a positive association—suggesting that constrained firms engage more aggressively in tax minimization (Edwards et al., 2016; Beladi, Choi & Nguyen, 2023)—other research demonstrates that financially constrained firms are more cautious due to higher regulatory risks and limited managerial capacity to engage in complex tax planning (Chen, 2010; Gallemore & Labro, 2015).

In Indonesia, the issue becomes particularly relevant because mining companies operate under stringent government supervision, including frequent audits, royalty adjustments, and shifting export regulations. The enactment of the Omnibus Law on Job Creation and subsequent changes in mining governance also amplify compliance requirements. These regulatory dynamics may

reduce managerial incentives to undertake aggressive tax strategies, even when firms face tightening financial constraints. Furthermore, publicly listed mining firms are subject to strict disclosure standards and investor scrutiny, which may further moderate the relationship between financial constraints and tax avoidance. As such, the mining sector provides a relevant empirical context to investigate whether financial pressure objectively drives tax avoidance behavior in a highly regulated and economically significant industry.

The COVID-19 pandemic (2020–2022) adds additional complexity to the issue. During this period, mining companies experienced disruptions in global supply chains, workforce limitations, volatility in commodity prices, and tightening global credit markets. These conditions potentially exacerbated financial constraints, making the period an ideal timeframe to assess whether higher financial pressures encouraged firms to engage more actively in tax avoidance. Nonetheless, government stimulus programs, temporary tax incentives, and rising commodity prices during the post-pandemic recovery may have also alleviated financial burdens and reduced incentives for tax planning. Understanding how mining firms navigated financial pressures and tax decisions during this turbulent period provides valuable insights into corporate behavior under economic uncertainty.

Despite the extensive literature on corporate tax avoidance, research specifically examining the link between **financial constraints and tax avoidance within Indonesia's mining sector** remains limited. Previous Indonesian studies tend to explore factors such as corporate governance, profitability, leverage, firm size, and capital intensity as determinants of tax avoidance (Pratiwi & Harto, 2020; Jamei, 2017; Sari & Martani, 2021). Only a few examine financial constraints directly, and those that do often rely on limited samples or broader industry classifications rather than focusing on mining companies. Moreover, international evidence may not fully apply to Indonesia, where

institutional settings, tax enforcement, and mining regulations differ significantly from global norms. Therefore, empirical research focusing specifically on mining firms is necessary to fill this gap and provide context-specific insights.

This study seeks to address these research gaps by examining the effect of **financial constraints on tax avoidance in mining companies listed on the Indonesia Stock Exchange (IDX)** during the period 2020–2022. The study employs panel data regression using annual financial statements of 24 mining companies that consistently reported complete financial information during the observation period. Financial constraints are measured using the Interest Coverage Ratio (ICR), a widely used indicator reflecting a firm's ability to meet interest obligations based on operating earnings. Tax avoidance is measured using the Cash Effective Tax Rate (CETR), which captures the proportion of taxes paid relative to pre-tax income, and is commonly used to assess the extent of tax minimization strategies. By analyzing these variables, the study aims to determine whether financial pressure encourages or constrains tax avoidance behavior among mining companies.

The findings of this study hold several important implications. For policymakers and tax authorities, understanding how financial constraints influence tax avoidance can guide the formulation of more effective regulatory strategies, particularly in high-profit and high-risk industries such as mining. For investors, the results provide insights into how financial pressure shapes managerial decision-making and influences corporate transparency and risk. For corporate managers, this research highlights whether tax planning is an effective or necessary strategy for addressing financial limitations.

This study contributes to the literature in three primary ways. First, it provides empirical evidence on the financial determinants of tax avoidance in a capital-intensive industry during a period of global economic disruption. Second, it enriches the limited Indonesian literature on

the relationship between financial constraints and tax avoidance, offering updated insights based on recent data. Third, it provides sector-specific analysis that can assist regulators in designing policies tailored to the mining industry's unique financial structure and compliance challenges.

In summary, the mining sector's capital intensity, regulatory complexity, and exposure to financial risk make it a valuable context for examining the relationship between financial constraints and tax avoidance. Grounded in agency theory, this study posits that managers experiencing financial pressure may be motivated to engage in tax avoidance to preserve liquidity—even though such actions may conflict with shareholder interests or regulatory compliance. Therefore, the study aims to provide empirical evidence on whether financial constraints significantly influence tax avoidance behavior among mining companies listed on the IDX during 2020–2022.

2. Literature Review

2.1 Financial Constraints

Financial constraints refer to limitations that restrict a firm's ability to access external financing, affecting investment decisions, operational activities, and long-term performance. Previous studies highlight that constrained firms face higher costs of capital due to information asymmetry and limited collateral, which reduce their flexibility in obtaining debt or equity financing (Hadlock & Pierce, 2010). The mining sector is particularly vulnerable to financial constraints because of its capital-intensive characteristics, long production cycles, and strong dependence on global commodity price fluctuations. These structural dynamics increase risk perceptions among lenders, thereby intensifying financing frictions.

In emerging economies, financial constraints tend to be more pronounced due to less developed capital markets and weaker institutional environments (Fowowe, 2017). Evidence from Indonesian firms suggests that shocks to liquidity, restrictive leverage policies,

and varying economic cycles can exacerbate funding limitations, forcing firms to rely heavily on internal cash flows. As a result, constrained firms often adjust their financial strategies, including cost minimization, earnings management, and tax planning, to maintain stability.

2.2 Tax Avoidance

Tax avoidance refers to legal strategies firms use to reduce their tax obligations through income shifting, deductions, tax incentives, or timing differences (Hanlon & Heitzman, 2010). While tax avoidance is considered part of optimal financial management, excessive avoidance may increase regulatory scrutiny, reputational risk, and long-term financial uncertainty. Research demonstrates significant variability in tax avoidance across industries and countries, influenced by governance structures, regulatory quality, ownership concentration, and managerial incentives.

In developing economies such as Indonesia, tax avoidance is shaped by the interaction between firm characteristics and the institutional environment. Mining companies often have greater opportunities for tax planning due to complex cost structures, multiple operational segments, and access to specialized tax consultants. The use of metrics such as the Cash Effective Tax Rate (CETR), Effective Tax Rate (ETR), and Book-Tax Differences (BTD) is common in measuring corporate tax avoidance behaviors in both international and Indonesian studies.

2.3 Relationship Between Financial Constraints and Tax Avoidance

Theoretical perspectives suggest that financial constraints directly influence the extent to which firms engage in tax avoidance. According to the pecking order theory (Myers & Majluf, 1984), firms prefer internal financing over external financing. When internal funds are insufficient, financially constrained firms may resort to tax avoidance to preserve cash flows. Prior empirical findings support this argument: financially constrained firms are

more likely to employ aggressive tax strategies to reduce cash outflows associated with tax payments (Edwards et al., 2016).

Studies from emerging markets provide similar evidence. In environments where firms face high financing frictions, tax avoidance becomes a mechanism to mitigate the adverse effects of liquidity shortages (Minnick & Noga, 2010). For mining companies—whose cash flows are highly sensitive to commodity price cycles—tax avoidance may function as a strategic tool to stabilize operational liquidity. Moreover, the complexity of mining operations allows for extensive use of depreciation, cost allocation, and intra-company transactions, which can facilitate more sophisticated tax planning.

However, some literature argues that firms with severe financial constraints might avoid overly aggressive tax planning due to risks of penalties and reputational loss. Firms with weak governance or regulatory oversight are more likely to pursue aggressive strategies compared to firms with stricter compliance cultures (Chen et al., 2010). This divergence highlights the importance of industry characteristics and institutional environments in shaping the relationship between financial constraints and tax avoidance.

2.4 Mining Sector in Indonesia

The mining sector plays a central role in Indonesia's economy, contributing significantly to export revenue and foreign investment. However, the industry is characterized by high volatility, heavy capital dependence, and exposure to regulatory changes. Prior studies indicate that mining companies in Indonesia often encounter financing frictions due to fluctuating commodity prices, environmental compliance costs, and the long-term nature of mining asset cycles (Sari & Majid, 2022).

In addition, the sector has historically faced scrutiny regarding tax management practices, including allegations of transfer pricing, revenue misreporting, and tax minimization through complex corporate structures. Regulatory authorities have intensified oversight through stricter tax audit

procedures, digital reporting systems, and increased monitoring of sector-specific tax incentives. These conditions make the mining sector an important context for studying the impact of financial constraints on tax avoidance.

2.5 Conceptual Framework

Based on the theoretical and empirical foundations reviewed, this study posits that financial constraints serve as a key determinant of tax avoidance behavior among mining companies. Firms experiencing financial pressure may intensify tax planning efforts as a strategy to preserve financial flexibility. Conversely, companies with lower constraints are likely to demonstrate more consistent tax compliance due to stronger financial capacity and reduced incentives for aggressive tax behavior. This conceptual linkage forms the basis for the hypothesis tested in this research.

3. Research Methods

3.1 Research Design

This study employs a quantitative research design using panel data analysis to examine the effect of financial constraints on tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2022. The quantitative approach is appropriate because it enables objective measurement of variables, hypothesis testing, and generalization of findings across the mining sector. The research adopts an explanatory design, aiming to establish causal relationships between financial constraints and corporate tax avoidance behavior within a three-year observation period.

3.2 Population and Sample

The population of this study consists of all mining companies listed on the IDX as of 2020–2022. A purposive sampling technique is applied to select companies that meet the following criteria:

1. The company is classified under the mining sector according to IDX industry classification.

2. The company published complete and audited financial statements for the period 2020–2022.
3. The company reported all variables required in the research model, including tax-related disclosures.
4. The company did not exhibit extreme financial anomalies such as negative equity, which could bias the estimation results.

Based on these criteria, the final sample includes a panel dataset comprising selected mining firms observed over the three-year period.

3.3 Data Collection

The study uses secondary data obtained from official and publicly accessible sources, including:

1. Annual reports and audited financial statements from the Indonesia Stock Exchange (IDX) website.
2. Notes to the financial statements containing tax, financial structure, and operational disclosures.
3. Supporting data retrieved from the Indonesia Central Securities Depository (KSEI) and corporate websites when needed.

Data extraction follows standardized coding procedures to maintain accuracy and consistency across companies and years.

3.4 Measurement of Variables

3.4.1 Tax Avoidance (Dependent Variable)

Tax avoidance is measured using the **Cash Effective Tax Rate (CETR)**, which reflects the proportion of cash taxes paid relative to pre-tax income. CETR is widely used in international tax research because it captures real cash tax payments rather than accrual-based measures. CETR is calculated as:

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

A lower CETR indicates greater tax avoidance. As a robustness check, the study also

considers Book-Tax Differences (BTD) when needed.

3.4.2 Financial Constraints (Independent Variable)

Financial constraints are measured using the **Hadlock-Pierce (HP) Index**, a well-established indicator in corporate finance literature. The HP Index incorporates firm size and age to capture financing frictions:

$$\text{HP Index} = -0.737 \times \text{Size} + 0.043 \times \text{Size}^2 - 0.04 \times \text{Firm Age}$$

Higher values indicate greater financial constraints. In addition, leverage and liquidity ratios may be used as supplementary indicators to enhance robustness.

3.4.3 Control Variables

To isolate the effect of financial constraints on tax avoidance, several control variables commonly used in tax research are included:

1. **Firm Size (SIZE)**: Measured as the natural logarithm of total assets.
2. **Profitability (ROA)**: Net income divided by total assets.
3. **Leverage (LEV)**: Total liabilities divided by total assets.
4. **Capital Intensity (CAPINT)**: Ratio of fixed assets to total assets, relevant for mining companies with high depreciation expenses.

These variables control for operational, structural, and financial characteristics that may influence tax behavior.

3.5 Data Analysis Technique

The study uses **panel data regression** to test the relationship between financial constraints and tax avoidance. Three model specifications are evaluated:

1. Pooled Ordinary Least Squares (Pooled OLS)
2. Fixed Effects Model (FEM)
3. Random Effects Model (REM)

The **Hausman test** determines whether FEM or REM is more appropriate for the final

model. Prior to regression analysis, several diagnostic tests are conducted:

1. Multicollinearity (Variance Inflation Factor / VIF)
2. Heteroskedasticity tests (Breusch-Pagan or White test)
3. Autocorrelation test (Durbin-Watson or Wooldridge test)
4. Normality testing (Jarque-Bera)

These diagnostic procedures ensure that the chosen panel regression model satisfies classical assumptions and yields reliable estimations.

3.6 Research Hypothesis

Based on theoretical and empirical foundations, the study proposes the following hypothesis:

H1: Financial constraints have a positive and significant effect on tax avoidance among mining companies listed on the Indonesia Stock Exchange.

This hypothesis reflects the expectation that companies experiencing financial pressure are more likely to engage in tax avoidance to conserve cash flows.

3.7 Ethical Considerations

This study exclusively utilizes publicly available secondary data and does not involve human participants, ensuring compliance with academic research ethics. Data are used solely for scientific purposes, and all analyses maintain objectivity and transparency.

4. Results and Discussion

4.1 Research Findings

4.1.1. Data Description

This study examines the relationship between financial constraints and tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) during 2020–2022. The mining sector represents one of Indonesia's most strategically significant industries due to its role in generating export income, state revenue, and employment opportunities. However, mining firms also face highly cyclical revenue streams driven by global

commodity price fluctuations, which directly affect liquidity, investment capacity, and financial stability. These characteristics make the sector ideal for analyzing how financial pressure may influence tax-related decision-making.

The study population includes 63 mining companies, and the final sample, selected through purposive sampling, consists of 24 firms that consistently published audited financial statements during the observation period. With three years of data, the total number of firm-year observations is 72. Financial constraints were measured using the

Kaplan-Zingales (KZ) Index, widely used for capturing financing frictions, internal liquidity conditions, and cash-expenditure sensitivity. Tax avoidance was measured using the Effective Tax Rate (ETR), which captures the real tax burden relative to pre-tax earnings. A lower ETR suggests more aggressive tax avoidance practices.

4.2. Descriptive Statistical Analysis

Descriptive statistics provide an initial understanding of the characteristics and distribution of each variable used. The descriptive results are presented in Table 4.1.

Table 4.1 Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Observations
Y (Tax Avoidance)	0.525	0.175	9.650	0.000	1.573	5.213	2.959	72
X1 (Financial Constraints)	2.098	0.100	9.181	-2.210	1.102	7.699	6.285	72

The descriptive results show that tax avoidance (ETR) has considerable variation across firms, ranging from 0.00 to 9.65. A mean of 0.525 indicates moderate tax burdens on average, but the high maximum value implies the existence of firms with exceptionally high tax expenses, likely due to fiscal penalties, adjustments, or extraordinary items. The skewness of 5.213 reveals that ETR is heavily right-skewed, indicating that most firms report relatively low ETR values.

Meanwhile, financial constraints show a similarly wide dispersion. Firms with negative KZ Index values possess strong liquidity positions and easier access to external capital. Firms with high KZ values experience severe financing frictions, which may influence

strategic decisions. The very high skewness (7.699) and kurtosis (6.285) suggest that most mining firms operate with low to moderate constraints, with a small subset facing extreme financial pressure.

4.3. Panel Regression Model Estimation

Panel data techniques were used to test the influence of financial constraints on tax avoidance. Three regression models were estimated: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). These models allow the examination of whether unobserved firm-specific characteristics or time effects influence the relationship between variables.

Table: Common Effect Model (CEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.5137	1.3650	-0.3763	0.7078
X1 (Financial Constraints)	-0.0032	0.0173	-0.1875	0.8518

R²: 0.0086 | Adj. R²: -0.0200 | Prob(F-statistic): 0.7410

The CEM indicates a negative but statistically insignificant effect of financial constraints on tax avoidance. Both the coefficient and F-statistic suggest the limited explanatory power of the model.

4.4. Model Selection Tests

To determine the best estimation model, three diagnostic tests were performed:

a. Chow Test

Decision: CEM preferred over FEM
 p-value = 0.5932 → No significant fixed effects.

b. Hausman Test

Decision: REM preferred over FEM
 p-value = 1.0000 → No correlation between regressors and firm-specific errors.

c. Lagrange Multiplier (LM) Test

Decision: CEM preferred over REM
 p-value = 0.7749 → No significant random effects.

Taken together, the tests confirm that the Common Effect Model (CEM) is the most appropriate method for this dataset.

4.5. Classical Assumption Tests

a. Normality Test (Jarque-Bera)

JB = 36.928, p = 0.000 → non-normal residuals. However, non-normality is not problematic in large-sample panel regressions due to the central limit theorem.

b. Heteroskedasticity Test (Glejser)

All variables have p > 0.05 → no heteroskedasticity detected.

c. Autocorrelation Test (Durbin-Watson)

DW = 2.002 → between du and 4-du → no autocorrelation.

The regression model satisfies all classical assumptions except for normality, which does not compromise estimator consistency.

4.6. Panel Regression Results

Table 4.11 Panel Regression Output

Variable	Coefficient	t-Statistic	Prob.
C	-0.5137	-0.3763	0.7078
Financial Constraints (X1)	-0.0032	-0.1875	0.8518

$$Y = -0.513711 - 0.003239(X1)$$

The regression results show that financial constraints have no significant effect on tax avoidance (p > 0.05). The negative coefficient suggests that firms with higher financial constraints tend to engage in slightly lower tax avoidance, although the effect is negligible and statistically insignificant.

4.7. Coefficient of Determination (R²)

$$\text{Adjusted } R^2 = -0.0200$$

This extremely low value indicates that:

1. Financial constraints explain less than 1% of variation in tax avoidance.
2. 99.8% of tax avoidance variation is driven by other factors such as profitability,

leverage, firm size, governance mechanisms, and tax incentives.

4.8 Discussion

The finding that financial constraints do not significantly affect tax avoidance contradicts common assumptions derived from agency theory and the pecking order theory. Under financial pressure, firms are expected to aggressively reduce tax obligations to preserve cash flows. However, mining companies in Indonesia operate under strict regulatory oversight, with frequent audits, reporting obligations, and detailed licensing requirements. This heightened supervision limits managerial discretion in tax planning and reduces incentives for aggressive avoidance strategies.

Moreover, the capital-intensive nature of the mining industry encourages firms to maintain long-term relationships with the government and regulatory bodies. Engaging in aggressive tax avoidance may jeopardize licensing, exploration rights, and environmental approvals, all of which are essential for business continuity. Thus, mining firms may prefer tax compliance over tax minimization to ensure operational stability and avoid reputational risks.

The results also align with studies in highly regulated sectors, which often find limited variation in tax strategies regardless of financial conditions. Firms may also benefit from industry-specific tax incentives, making aggressive avoidance unnecessary. Overall, the findings suggest that tax avoidance behavior in mining firms is shaped more by regulatory compliance, investment cycles, and long-term strategic considerations than by short-term liquidity constraints.

5. Closing

5.1 Conclusion

This study examines the effect of financial constraints on tax avoidance among mining companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2022 period. Using panel data regression and a comprehensive model selection procedure, the study finds that financial constraints have no significant influence on tax avoidance. Although the coefficient shows a negative direction, the effect is statistically insignificant, indicating that liquidity pressure or financing limitations do not drive mining firms to modify their tax strategies.

The findings suggest that tax avoidance practices in the mining sector are not primarily determined by internal financing difficulties but are more likely shaped by regulatory oversight, capital-intensive operational structures, and long-term investment cycles. These characteristics reduce managerial incentives to engage in aggressive tax avoidance, as compliance risks and regulatory sanctions may outweigh potential financial benefits.

5.2 Theoretical Implications

The results contribute to the academic discourse on financial constraints and corporate tax behavior by challenging the assumption that constrained firms are more likely to engage in tax avoidance activities. In contrast to predictions from the pecking order theory, which argues that firms facing financing frictions seek internal cash savings through reduced tax payments, this study demonstrates that such dynamics do not always apply in highly regulated and capital-intensive industries.

Furthermore, the findings enrich empirical literature by providing industry-specific evidence from emerging markets, particularly Indonesia's mining sector, which is characterized by strict reporting standards and intensive government supervision. This context underscores the importance of incorporating institutional and regulatory factors into models of tax avoidance, as firm behavior may deviate from traditional theories in industries where compliance pressure is high.

5.3 Practical Implications

For regulators, the results highlight that existing oversight mechanisms and tax governance frameworks in the mining sector appear effective in discouraging tax avoidance regardless of financial conditions. Maintaining strong supervision, transparent reporting mechanisms, and consistent enforcement is essential to preserving compliance behavior among mining firms.

For corporate managers, the findings suggest that aggressive tax planning may not be a strategic priority, especially when weighed against regulatory risk and long-term operational sustainability. Instead, firms may benefit from focusing on operational efficiency, cost management, and strategic investments to mitigate financial constraints without resorting to tax avoidance.

For investors and analysts, the study provides insights into how financial pressures affect corporate behavior. Because mining firms

do not alter tax strategies when faced with financial constraints, stakeholders can interpret tax payments as stable indicators of financial governance rather than short-term liquidity management.

5.4 Limitations and Future Research Directions

Although this study provides meaningful findings, several limitations should be acknowledged. First, the analysis focuses solely on financial constraints as the predictor of tax avoidance. Other important determinants—such as profitability, leverage, governance mechanisms, and capital intensity—were not included in the model and may have significant explanatory power. Second, the study uses the Kaplan-Zingales Index and the Effective Tax Rate, which, although widely used, may not fully capture nuanced firm behavior or aggressive tax strategies involving transfer pricing or tax haven utilization.

Future research could incorporate additional variables or alternative proxies to achieve a more comprehensive understanding of tax avoidance determinants. Comparative studies between regulated and less-regulated industries may also offer deeper insights into how institutional environments shape corporate tax strategies. Moreover, expanding the sample period or incorporating qualitative assessments, such as managerial perceptions and compliance culture, could enrich theory-building and strengthen empirical conclusions.

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