Formosa Journal of Business and Economic Statistics (FJBES)
Vol. 2, No. 5 2026: 529-540

Financial Constraints and Corporate Tax Avoidance: Evidence from Indonesian Non-Financial Firms During 2020–2023

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A R T I C L E I N F O

Keywords: Financial Constraints, Tax Avoidance, Fixed Asset Intensity, Institutional Ownership, Indonesia

Received: 21 August
Revised: 23 September
Accepted: 23 October

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A B S T R A C T

This study examines how financial constraints, fixed asset intensity, and institutional ownership relate to corporate tax avoidance among Indonesian non-financial firms. Using 356 firm-year observations from 89 companies listed on the Indonesia Stock Exchange during 2020–2023, the study applies panel-data regression. Financial constraints are measured with the Kaplan–Zingales Index, while tax avoidance is proxied by the gap between the 22% statutory corporate income tax rate and the cash effective tax rate. The Random Effects Model is selected through Chow, Hausman, and Breusch–Pagan LM tests. Financial constraints are significantly and negatively associated with tax avoidance, whereas fixed asset intensity and institutional ownership are insignificant. The findings indicate that financial pressure may limit firms' capacity for sophisticated tax planning

DOI: https://doi.org/10.55927/fjbes.v2i5.686
ISSN-E: 3089-0470
https://mtiformosapublisher.org/index.php/fjbes

INTRODUCTION

Corporate taxation serves as a major source of public revenue, whereas for firms it represents a cash outflow that reduces resources available for operations, investment, and financing. This creates a continuing tension between public revenue objectives and firms' financial objectives. Corporate tax avoidance is therefore an important issue in accounting, taxation, and corporate finance research because firms may seek to reduce their tax burden through legally available tax-planning opportunities (Hanlon & Heitzman, 2010).

Financial constraints are particularly relevant to this issue. Firms that face difficulty accessing external finance may place a higher value on internally generated cash. From this perspective, tax savings can function as an additional source of internal liquidity. Prior research, however, indicates that the relationship between financial constraints and tax avoidance is not unidirectional. Financially constrained firms may have greater incentives to generate cash through tax planning, but they may also face greater costs or capacity limitations in implementing complex tax strategies. Empirical evidence has accordingly reported both positive and negative associations across settings (Edwards et al., 2013; Sun et al., 2023; Haque et al., 2023).

Evidence from Indonesia is also mixed. Nabila and Rachmawati (2023) report a positive association between financial constraints and tax avoidance among Indonesian manufacturing firms, while Suharto and Purwanto (2025) report a positive association in Indonesian firms exposed to geopolitical risk. By contrast, Asmanita and Muid (2025) find no significant effect in the banking sector. These differences suggest that the financial-constraints–tax-avoidance relationship may depend on industry characteristics, institutional settings, and the period examined.

The analysis is conducted on non-financial companies listed on the Indonesia Stock Exchange between 2020 and 2023. This period covers the initial COVID-19 shock and the subsequent recovery phase, providing a relevant setting for examining corporate financial pressure and tax decisions. Financial firms are excluded because their regulatory requirements, financing structures, and asset characteristics differ substantially from those of non-financial companies.

The study also examines fixed asset intensity and institutional ownership. Fixed assets may affect tax outcomes through depreciation and related deductions, while institutional ownership may influence managerial decisions through external monitoring. Existing Indonesian studies report inconsistent findings for both variables, particularly across industries (Phandi & Tjun, 2021; Yanti & Yasa, 2022; Pratiwi & Purwanto, 2025).

This study makes an empirical and contextual contribution. First, it provides evidence from a multi-sector sample of Indonesian non-financial firms during a period characterized by pandemic-related financial pressure and recovery. Second, it documents a statistically significant negative association between KZ-based financial constraints and the tax-avoidance proxy, contrary to the positive direction hypothesized in H1. Third, it shows that fixed asset intensity and institutional ownership do not have statistically significant partial

associations with tax avoidance at the 5% level. These findings contribute to the continuing discussion of whether financial pressure necessarily translates into more intensive tax planning.

LITERATURE REVIEW

Agency Theory

Agency theory explains the relationship between principals and agents and emphasizes the potential divergence between owners' interests and managerial decisions (Jensen & Meckling, 1976). Tax policy is relevant to agency theory because managers have discretion over the extent and form of tax planning. Tax avoidance may generate cash-flow benefits, but aggressive strategies can also create compliance, reputational, and agency costs. Consequently, tax decisions should be viewed as part of broader managerial decision-making rather than as a mechanical response to statutory tax rates.

Financial Constraints and Tax Avoidance

Financial constraints arise when a firm encounters difficulty in obtaining external funds or must bear relatively high financing costs. Kaplan and Zingales (1997) developed an index incorporating cash flow, dividends, cash holdings, leverage, and growth opportunities. The KZ Index is used in the present study because it combines several dimensions of corporate financial conditions. Nevertheless, subsequent research has emphasized that financial-constraint measures, including the KZ Index, should be interpreted cautiously (Hadlock & Pierce, 2010; Farre-Mensa & Ljungqvist, 2016).

The conventional incentive argument predicts a positive relationship between financial constraints and tax avoidance. When external financing is costly or difficult to obtain, tax savings can increase internal liquidity. Recent evidence, however, indicates that financing pressure can also be associated with less tax avoidance where firms face stronger financing-market discipline or limited capacity to implement sophisticated tax planning (Haque et al., 2023; Sun et al., 2023). This creates an incentive–capacity tension: constrained firms may have greater incentives to save tax but fewer resources to pursue complex tax strategies.

H1: Financial constraints have a positive relationship with corporate tax avoidance.

Fixed Asset Intensity and Tax Avoidance

Fixed asset intensity indicates the extent to which a firm's asset base is concentrated in fixed assets. Because fixed assets generate depreciation charges, their composition may influence taxable income and consequently create potential tax-planning effects. However, depreciation is also a normal accounting and tax mechanism, so a high fixed-asset ratio does not necessarily indicate aggressive tax avoidance. Phandi and Tjun (2021) report no significant effect of fixed asset intensity on tax avoidance in Indonesian banking firms, while Yanti and Yasa (2022) report different evidence in another Indonesian sector.

H2: Fixed asset intensity is positively associated with corporate tax avoidance.

Institutional Ownership and Tax Avoidance

Institutional investors may act as external monitors and potentially constrain managerial opportunism. Under agency theory, stronger monitoring may discourage tax strategies that create excessive regulatory or reputational risk. However, institutional investors are heterogeneous, and ownership percentage alone may not capture monitoring intensity. Indonesian evidence also remains mixed (Phandi & Tjun, 2021; Pratiwi & Purwanto, 2025).

H3: Greater institutional ownership is associated with lower levels of corporate tax avoidance.

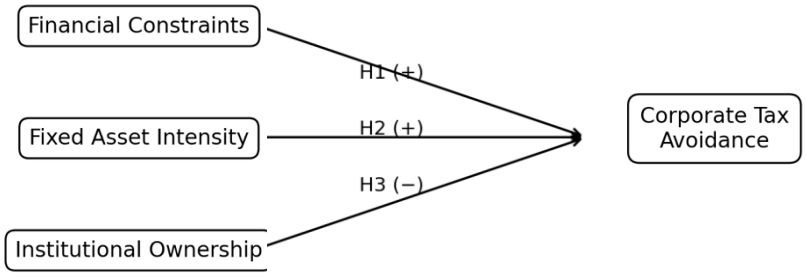


Figure 1. Conceptual framework

METHODOLOGY

Research Design and Sample

The research adopts a quantitative explanatory approach and relies on secondary information obtained from the annual financial reports of non-financial companies listed on the Indonesia Stock Exchange. The observation period is 2020–2023. The underlying research identifies a population of 851 non-financial firms and applies purposive selection based on listing status, profitability, and dividend-policy criteria. The final balanced panel contains 89 firms and 356 firm-year observations.

Table 1. Final sample distribution by industry

Industry sector	Number of firms
Consumer Non-Cyclicals	24
Energy	8
Basic Materials	10
Consumer Cyclicals	10
Industrials	10
Healthcare	9
Infrastructures	8
Properties & Real Estate	5
Transportation & Logistics	3
Technology	2

Industry sector	Number of firms
Total	89

Variable Measurement

Tax avoidance is measured using the difference between the statutory corporate tax rate and the firm's cash effective tax rate (CETR). The tax avoidance measure is specified as follows:

$$Tax\ Avoidance = 22\% - CETR$$

$$CETR = Cash\ Taxes\ Paid\ /\ Pre\text{-}tax\ Income$$

A larger value indicates a larger gap between the statutory rate and the cash effective tax rate and is interpreted as a higher level of tax avoidance. This measurement is retained from the underlying study. Because CETR-based measures can also reflect legitimate tax effects, the results are interpreted as associations with the tax-avoidance proxy rather than direct evidence of unlawful conduct.

Financial constraints are operationalized using the Kaplan–Zingales (KZ) Index, which combines several indicators of a firm's financial condition:

$$KZ = -1.002(CF/TA) - 39.368(DIV/TA) - 1.315(CA/TA) + 3.139LEV + 0.283Q$$

In this formulation, CF/TA represents operating cash flow relative to total assets, while DIV/TA captures cash dividends relative to total assets. CA/TA denotes the ratio of cash and cash equivalents to total assets, LEV represents total liabilities scaled by total assets, and Q denotes Tobin's Q. Higher KZ values are interpreted in the underlying study as indicating greater financial constraints.

Fixed asset intensity is captured by the proportion of net fixed assets in total assets. Institutional ownership, meanwhile, is calculated from the number of shares held by institutional investors relative to the firm's total outstanding shares. Year dummy variables for 2021, 2022, and 2023 are included, with 2020 as the reference year.

Panel Regression Model

The empirical model is specified as follows:

$$TA_{it} = a + \beta_1 KZ_{it} + \beta_2 FAI_{it} + \beta_3 IO_{it} + \gamma_1 YEAR2021_{it} + \gamma_2 YEAR2022_{it} + \gamma_3 YEAR2023_{it} + \varepsilon_{it}$$

The Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM) were considered. The Chow test, Hausman test, and Breusch–Pagan Lagrange Multiplier (LM) test were used to determine the preferred specification. The final estimation uses the Random Effects Model with panel EGLS and the Wansbeek–Kapteyn variance-component estimator.

RESEARCH RESULT

Descriptive Statistics

Table 2. Descriptive statistics

Statistic	Tax Avoidance	KZ	Fixed Asset Intensity	Institutional Ownership
Mean	−0.023336	−0.992285	0.336569	0.817350
Median	0.004533	−0.404802	0.298866	0.916102
Maximum	0.214936	2.446997	0.896972	0.999018
Minimum	−0.758861	−11.411780	0.005799	0.000000
Std. Deviation	0.149642	2.687107	0.223332	0.234659
N	356	356	356	356

Tax avoidance has a mean of −0.023336 and a median of 0.004533, indicating a left-skewed distribution. KZ has a mean of −0.992285 and a relatively wide range, reflecting heterogeneity in financial conditions. Fixed asset intensity averages 0.336569, while institutional ownership averages 0.817350, indicating that institutional investors hold a substantial proportion of shares in many sampled firms.

Multicollinearity and Model Selection

The centered VIF values range from 1.012 to 1.510, indicating no serious multicollinearity among the explanatory variables and year-dummy variables.

Table 3. Panel-data model selection

Test	Statistic	p-value	Decision
Chow: Cross-section F	1.944281	0.0000	FEM preferred to CEM
Hausman: Cross-section random	1.888698	0.9296	REM preferred to FEM
Breusch–Pagan LM	19.058724	0.0000	REM preferred to CEM

The Chow test indicates significant firm effects relative to the common-effects specification. The Hausman test does not reject the random-effects specification, while the Breusch–Pagan LM test supports random effects over common effects. Accordingly, the REM is selected as the principal estimator.

Baseline Random-Effects Regression

Table 4. Random-effects regression results

Variable	Coefficient	Std. Error	t-statistic	p-value
Constant	−0.047324	0.038220	−1.238195	0.2165
Financial Constraints (KZ)	−0.009849	0.003257	−3.023569	0.0027***
Fixed Asset Intensity	0.076003	0.040938	1.856547	0.0642
Institutional Ownership	−0.036848	0.038806	−0.949524	0.3430
Year 2021	0.046934	0.019816	2.368483	0.0184**
Year 2022	0.019320	0.019868	0.972404	0.3315
Year 2023	0.008754	0.019828	0.441476	0.6591
R-squared	0.046535			

Variable	Coefficient	Std. Error	t-statistic	p-value
Adjusted R-squared	0.030143			
F-statistic	2.838867			0.010348**
Durbin–Watson	1.704480			

Note. ** p < .05; *** p < .01. Estimates are based on the final 356-observation balanced panel. The regression uses panel EGLS with a Wansbeek–Kapteyn variance-component estimator

The regression results demonstrate that the model is statistically significant, with an F-statistic of 2.838867 and a corresponding p-value of 0.010348. The adjusted R-squared value of 0.030143 suggests that the variables incorporated into the model account for approximately 3.01% of the variation in the tax avoidance measure. However, this relatively limited explanatory power should be interpreted with caution, as corporate tax avoidance is a complex and multidimensional phenomenon that can be influenced by various factors not captured by the model.

Hypothesis Testing

Table 5. Summary of hypothesis testing

Hypothesis	Expected direction	Coefficient	p-value	Decision
H1: Financial constraints → tax avoidance	Positive	−0.009849	0.0027	Not supported; significant opposite direction
H2: Fixed asset intensity → tax avoidance	Positive	0.076003	0.0642	Not supported at 5%
H3: Institutional ownership → tax avoidance	Negative	−0.036848	0.3430	Not supported

Diagnostic Results

The residual normality test in the underlying EViews output rejects normality (Jarque–Bera = 566.9734; p < .001). The cross-sectional heteroskedasticity test is also significant (likelihood-ratio statistic = 352.4131; p < .001), whereas the period dimension is homoskedastic (p = 1.0000). The final REM therefore relies on the weighted GLS estimation reported by the underlying study. The Durbin–Watson statistic of 1.704480 does not indicate a material autocorrelation concern under the criterion used in the original analysis.

DISCUSSION

The analysis identifies a significant negative relationship between financial constraints and corporate tax avoidance. This finding contradicts the positive relationship hypothesized in H1. The result indicates that firms with higher KZ-based financial constraints tend to exhibit lower values of the tax-avoidance proxy.

The finding can be interpreted through an incentive–capacity perspective. Financially constrained firms may have stronger incentives to conserve cash, but they may simultaneously face limitations in obtaining specialized tax advice, maintaining sophisticated tax structures, and allocating managerial resources to complex tax planning. Under these conditions, the financial pressure that creates an incentive to save tax may also reduce the capacity to implement more complex tax strategies. This interpretation is consistent with evidence that financing conditions can affect the costs and benefits of corporate tax planning (Sun et al., 2023; Haque et al., 2023).

A second possible interpretation is creditor and external monitoring. Firms facing financing pressure may depend more heavily on external financing and therefore face closer scrutiny from creditors and other stakeholders. Aggressive tax strategies can generate regulatory and reputational risks that may be inconsistent with the objective of maintaining stable financing relationships. Evidence on refinancing constraints similarly indicates that credit-market pressures can affect firms' tax-avoidance decisions (Alexander & Pisa, 2023).

The result differs from studies reporting positive relationships between financial constraints and tax avoidance, including Nabila and Rachmawati (2023) and Suharto and Purwanto (2025). It also differs from Asmanita and Muid (2025), who find no significant effect in banking. The multi-sector Indonesian sample and the pandemic/recovery setting may contribute to the different result. International evidence also documents that the relationship can vary with the type of financing constraint and institutional context (Athira & Ramesh, 2023).

Fixed asset intensity is positive but statistically insignificant at the 5% level ($p = 0.0642$). This suggests that a higher proportion of fixed assets does not systematically translate into greater tax avoidance in the sampled firms under the study's conventional significance threshold. Although depreciation can reduce taxable income, the tax consequences of asset intensity differ across industries, and depreciation deductions do not necessarily represent aggressive tax planning. The result is consistent with Phandi and Tjun (2021) and differs from several sector-specific Indonesian studies that report significant effects.

Institutional ownership is negative but statistically insignificant. The direction is consistent with the expectation that institutional monitoring may discourage aggressive tax behavior, but the lack of statistical significance suggests that ownership percentage alone is not a sufficient indicator of monitoring effectiveness. Institutional investors vary in their objectives, investment horizons, and involvement in managerial oversight. Consequently, the aggregate institutional-ownership ratio may conceal differences in monitoring intensity.

The results should be viewed as demonstrating a statistical relationship rather than a causal effect. The model uses archival observational data and does not employ an experimental or quasi-experimental identification strategy. Although the negative coefficient associated with financial constraints represents a meaningful empirical result, it does not establish that greater financial constraints directly lead firms to engage in less tax avoidance.

CONCLUSIONS AND RECOMMENDATIONS

This study examines financial constraints, fixed asset intensity, and institutional ownership as determinants of corporate tax avoidance among 89 Indonesian non-financial firms over 2020–2023. Using 356 firm-year observations and a Random Effects Model, the study finds that the explanatory variables are collectively significant. However, financial constraints exhibit a significant negative relationship with tax avoidance, which is inconsistent with the direction proposed in the initial hypothesis. Meanwhile, fixed asset intensity and institutional ownership do not demonstrate statistically significant individual relationships with tax avoidance at the 5% significance level. The findings indicate that financial pressure does not automatically translate into more intensive tax planning. Instead, financial constraints may create a tension between the incentive to preserve cash and the organizational capacity to implement sophisticated tax-planning strategies.

For managers, the findings suggest that tax planning should be considered together with financing conditions, compliance risks, and stakeholder monitoring. For institutional investors, the results imply that ownership concentration alone should not be assumed to guarantee effective monitoring of tax decisions. For tax authorities, financial constraints should not be treated as a standalone indicator of tax-avoidance risk; financial and governance indicators should be evaluated jointly.

ADVANCED RESEARCH

Several aspects of the research should be considered when interpreting the findings. First, the KZ Index is an indirect proxy for financial constraints, and alternative measures such as the SA or WW indices may produce different classifications. Second, the tax-avoidance proxy is based on the difference between the 22% statutory rate and CETR and may capture legitimate tax effects in addition to deliberate tax avoidance. Third, the sample is restricted to firms meeting the profitability and dividend-policy criteria, which limits generalization to loss-making or non-dividend-paying firms.

Future research should extend the observation period, compare pre-pandemic and post-pandemic periods, employ alternative financial-constraint measures, and consider additional firm-level characteristics, including firm size, profitability, leverage, growth, multinational activity, and governance quality. Future studies may also distinguish active from passive institutional investors and use multiple tax-avoidance measures to strengthen measurement validity.

ACKNOWLEDGMENT

The authors gratefully acknowledge the academic guidance and institutional support received during the development of the underlying research. No external research grant was reported for this study.

Data availability statementThis study relies on secondary-source information collected from the annual reports and financial statements of firms listed on the Indonesia Stock Exchange (IDX). The study draws on information disclosed publicly by these companies.

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