IJAFIBS, 14 (1) (2026) pp. 234-244

Published by: TRIGIN Publisher

International Journal of Applied Finance and Business Studies

Journal homepage: www.ijafibs.pelnus.ac.id

The effects of sales growth, leverage, and firm size on tax avoidance: Evidence from Indonesian manufacturing companies, 2021–2025

Ratu Anggi Triani[1], Febby Febriana[2], Indra Sulistiana[3]

[1,2,3]Department of Management, Universitas Pamulang, Indonesia

ARTICLE INFO

Article history:

Received Jun 10, 2026
Revised Jun 17, 2026
Accepted Jun 27, 2026

Keywords:

Cash Effective Tax Rate;
Company Size;
Leverage;
Sales Growth;
Tax Avoidance.

ABSTRACT

Corporate tax avoidance remains relevant in Indonesia because low effective tax payments may weaken fiscal capacity, particularly when firms face financing and recovery pressures. This study examines the associations of sales growth, leverage, and firm size with the cash effective tax rate (CETR) of manufacturing firms listed on the Indonesia Stock Exchange. The final balanced sample comprises 10 firms and 50 firm-year observations for 2021–2025, selected through purposive screening for continuous listing, complete annual reports, and complete inputs for all variables. CETR is measured as cash taxes paid divided by profit before tax; therefore, a lower CETR indicates greater tax avoidance, whereas a higher CETR indicates lower tax avoidance. The available estimates were generated using pooled ordinary least squares as a baseline specification. Sales growth is negatively but not significantly associated with CETR ($\beta = -0.142$; $p = 0.085$), while leverage ($\beta = 0.017$; $p = 0.012$) and firm size ($\beta = 0.013$; $p = 0.017$) are positively associated with CETR. The model is jointly significant ($F = 6.252$; $p = 0.001$) and explains 29.0% of CETR variation (adjusted $R^2 = 0.243$). Because the dependent variable is CETR, the positive leverage and firm-size coefficients indicate higher cash tax rates and therefore lower—not higher—tax avoidance. Practically, tax authorities should prioritize persistent low-CETR patterns and the substance of financing arrangements rather than treating high leverage or large firm size as automatic evidence of avoidance. The contribution lies in clarifying the inverse interpretation of CETR and reassessing mixed evidence during the pandemic and early recovery period. Nevertheless, the small sample, detected heteroskedasticity, absence of fixed- or random-effects estimation, and lack of an ETR robustness test require cautious interpretation.

Corresponding Author:

Ratu Anggi Triani,
Department of Management,
Universitas Pamulang,
Jl. Surya Kencana No.1, Pamulang Bar., Kec. Pamulang, Kota Tangerang Selatan, Banten, Indonesia
Email: dosen03034@unpam.ac.id

1. INTRODUCTION

Taxes are a source of state revenue that has a strategic role in financing economic development, providing public services, and implementing various community welfare programs. In the structure Anggaran Pendapatan dan Belanja Negara (APBN). At the global level, corporate tax avoidance is associated with base erosion, profit shifting, and the use of legal arrangements that reduce taxable income across jurisdictions. Although avoidance differs from illegal tax evasion, both can reduce the resources available to governments. The literature therefore treats tax avoidance as a

multidimensional outcome shaped by financing, investment, ownership, governance, and institutional conditions (Beer et al., 2020; Hanlon & Heitzman, 2010; O.E.C.D., 2021).

At the global level, tax avoidance is still a concern for various countries because it has a direct impact on the government's fiscal capacity. OECD estimates Practices Base Erosion and Profit Shifting (BEPS) causing a loss of corporate tax revenue of USD100–240 billion annually or around 4–10% of the total corporate income tax revenue in the world. This condition shows that tax avoidance is not solely related to corporate compliance, but also related to the state's ability to finance economic and social development. These challenges tend to be greater in developing countries that still have a high dependence on tax revenues as the main source of state revenue (Cobham & Janský, 2020; Network, 2023; O.E.C.D., 2021).

Tax revenue is central to Indonesia's fiscal capacity because it finances public services, infrastructure, and social protection. Indonesia collected IDR 1,932.4 trillion in tax revenue in 2024, while the country's tax-to-GDP ratio remained below the Asia-Pacific average. This combination makes the quality of corporate tax compliance and the identification of unusually low tax payments important policy concerns (Kementerian Keuangan Republik Indonesia, 2025; OECD, 2025).

The Indonesian setting is especially relevant because the corporate income-tax rate has been maintained at 22%, while listed companies may qualify for a lower rate when regulatory conditions are met. Consequently, a firm's cash tax payment can differ from the statutory rate because of fiscal adjustments, prior-year settlements, tax incentives, loss carryforwards, and payment timing. Effective-tax-rate proxies must therefore be interpreted carefully and should not be treated as direct proof of misconduct (Direktorat Jenderal Pajak, 2023; Schwab et al., 2022).

A similar phenomenon has also been found in Indonesia. Data from the Ministry of Finance shows that tax revenues in 2023 will reach IDR 2,155.4 trillion and are the largest contributor to state revenue. However, Indonesia's tax ratio is still at a relatively low level when compared to a number of countries in the Southeast Asian region. This condition illustrates the condition that increasing corporate taxpayer compliance is still a challenge that needs serious attention. One of the factors that is often associated with suboptimal tax revenue is the practice of tax avoidance carried out through various legal tax planning strategies (Kementerian Keuangan RI, 2024; O.E.C.D., 2023).

The manufacturing sector is a relevant context for examining tax avoidance behavior. This industry makes a major contribution to the national economy as well as being one of the main contributors to tax revenue. Data from the Central Statistics Agency shows that the processing industry has consistently occupied a position as the largest contributor to Indonesia's Gross Domestic Product in recent years. The characteristics of the manufacturing sector characterized by transaction complexity, large capital requirements, and a variety of operational activities provide a wider space for companies to manage their tax obligations. On this basis, manufacturing companies listed on the Indonesia Stock Exchange were selected as the object of the research.

Manufacturing firms provide an important setting for this analysis. The sector remains one of the largest contributors to Indonesian gross domestic product and includes firms with complex supply chains, substantial fixed assets, debt financing, related-party transactions, and cross-border activities. These features can create legitimate tax-planning opportunities but also increase the need for transparent and risk-based tax supervision (Badan Pusat Statistik, 2025; Manihuruk et al., 2021). The urgency of research is even stronger when it is associated with changes in the business environment during the pandemic and post-pandemic period. The COVID-19 pandemic has put pressure on the company's production, sales, profitability, and liquidity. Various business strategy adjustments are made to maintain financial performance, including through cost efficiency and management of tax liabilities. After economic conditions began to improve, the company entered a recovery phase marked by changes in market demand patterns, funding restructuring, and the implementation of new tax policies through the Law on Harmonization of Tax Regulations (HPP Law). These changes have the potential to affect how companies manage their tax burdens and determine the tax strategies used.

Various previous studies have shown that the financial characteristics of companies are related to tax avoidance practices. Sales growth, for example, is often used as an indicator of a company's ability to increase revenue and generate profits. The increase in sales has the potential

to increase taxable profits, encouraging companies to conduct tax management more intensively to maintain the profit rate after tax (Dewinta & Setiawan, 2016; Prabowo, 2020). However, the results of previous studies still show mixed findings so that the relationship between sales growth and tax avoidance has not shown a consistent pattern.

Sales growth may affect cash tax payments through two competing channels. Higher sales can increase taxable profit and cash tax payments, but expansion may also require higher production, distribution, and financing costs that weaken taxable margins. Empirical evidence is mixed: Ainniyya et al. (2021) reported that higher sales growth was associated with a lower effective tax rate, whereas Putri et al. (2025) found an insignificant relationship in food-and-beverage manufacturing firms.

A widely cited Indonesian example is the 2019 Tax Justice Network report concerning PT Bentoel Internasional Investama Tbk, a tobacco manufacturer. The report alleged that income was shifted from Indonesia through intragroup interest and royalty payments and estimated a potential Indonesian revenue effect of approximately USD 14 million per year. This report is used here only as contextual evidence of tax-risk mechanisms in manufacturing, not as a judicial finding against every manufacturing company (Tax Justice Network, 2019).

The 2021–2025 observation window covers three economic phases: the acute pandemic period (2021–2022), the transition year (2022), and the early post-pandemic recovery period (2023–2024). The pandemic disrupted production, demand, liquidity, and financing, while the recovery period involved changes in profitability, debt structure, and tax administration. In this study, these phases provide contextual background; they are not modelled as a pandemic dummy, interaction term, or causal cross-period comparison.

In addition to sales growth, leverage is also widely used to explain a company's tax behavior. The use of debt in the funding structure results in an interest expense that can be recognized as a deduction of taxable income. From the perspective of Tax Planning Theory, these conditions provide tax benefits that can be utilized as part of a company's tax efficiency strategy. A number of studies have found that leverage increases companies' tendency to do tax avoidance, while other studies have found no significant effect. These differences in results show that the relationship between leverage and tax avoidance still needs further testing, especially in an economic environment that is changing quite quickly (Ngadiman & Puspitasari, 2014; Oktamawati, 2017). Leverage may reduce taxable income because interest is generally deductible within applicable tax rules, which is consistent with the debt tax-shield argument. Nevertheless, leverage can also be associated with higher cash tax rates when debt supports profitable operations or when interest-deduction restrictions limit tax benefits. Prior studies report inconsistent results: Ainniyya et al. (2021) found that leverage increased the effective tax rate, implying lower avoidance; Pesak et al. (2022) and Kurniawati and Prasetyo (2023) found no significant leverage effect; other studies report the opposite direction depending on proxy construction and sample context. Firm size is also one of the variables that is widely used in tax research. Companies with larger scales generally have more adequate resources to conduct tax planning systematically. The availability of professionals, access to tax consultants, and better information system support allows the management of tax obligations to be carried out more effectively. On the other hand, large companies also face a higher level of scrutiny from regulators, investors, and the public, so the push to maintain reputation and compliance also increases. Therefore, the influence of company size on tax avoidance is still a debate in various empirical studies (Ilmiyono & Agustina, 2020; Kurniasih & Sari, 2013).

Firm size is similarly ambiguous. Large firms possess greater resources for sophisticated tax planning, yet they also face stronger regulatory scrutiny, audit exposure, public visibility, and reputational costs. Putri et al. (2025) reported a significant firm-size relationship, whereas Ainniyya et al. (2021) and Kurniawati and Prasetyo (2023) found no significant effect. These differences indicate that size should not be interpreted mechanically as evidence of aggressive tax behaviour.

Although studies on tax avoidance have developed quite extensively, some research gaps are still found. First, the results of the study related to the influence of sales growth, leverage, and company size on tax avoidance have not shown consistency. Second, most of the research was conducted before the pandemic or has not specifically examined pandemic and post-pandemic

conditions. Third, changes in fiscal and tax policies after the pandemic have the potential to change the behavior of companies in managing their tax obligations. This condition shows that more up-to-date empirical evidence is still needed to explain the determinants of tax avoidance in manufacturing companies in Indonesia.

Based on this background, this study is directed to analyze the influence of sales growth, leverage, and company size on tax avoidance in manufacturing companies listed on the Indonesia Stock Exchange for the 2021–2025 period. Tax avoidance is proxied using the Cash Effective Tax Rate (CETR), sales growth is used as an indicator of operational performance, leverage is measured through Debt to Equity Ratio (DER), while company size is measured using the natural logarithm of total assets. A targeted review conducted for this revision identified at least four directly relevant Indonesian studies using data that include 2021 or later and examining tax avoidance in manufacturing or closely related listed-company settings (Pesak et al., 2022; Kurniawati & Prasetyo, 2023; Putri et al., 2025; Edo & Nengzih, 2025). However, these studies differ in sectors, proxies, periods, and econometric methods, and few explicitly correct the inverse interpretation of CETR. The empirical and measurement gaps therefore remain open.

Accordingly, this study investigates whether sales growth, leverage, and firm size are associated with CETR among 10 Indonesian manufacturing firms during 2021–2025. The study contributes by (1) presenting evidence from a balanced pandemic-to-early-recovery sample, (2) explicitly interpreting lower CETR as greater tax avoidance, (3) distinguishing statistical association from causal inference, and (4) translating the findings into cautious implications for tax authorities, investors, and corporate managers.

2. RESEARCH METHOD

This study applies a quantitative explanatory design using secondary data from annual reports and audited financial statements published by the Indonesia Stock Exchange and the sampled companies. The observation period is standardized to 2021–2025 because 10 firms observed for five years produce the 50 firm-year observations reported in the statistical output. References to 2021–2025 in the earlier manuscript were therefore corrected as an internal period-count inconsistency. The population consists of manufacturing issuers listed on the Indonesia Stock Exchange. Purposive sampling was used to retain firms that were continuously listed throughout 2021–2025, published complete annual reports and financial statements, reported the inputs required to calculate CETR, sales growth, DER, and firm size, and had complete data for every year. The final estimation sample contains 10 firms.

The limited sample is not claimed to be statistically representative of all Indonesian manufacturing firms. It reflects the strict complete-case requirement used to construct a balanced panel. Therefore, the results should be interpreted within the participating firms and should not be generalized to the entire manufacturing sector without additional evidence. Missing data were handled through complete-case screening at the firm level. No statistical imputation was applied. A firm with unavailable inputs in any study year was not included in the balanced estimation sample; consequently, the final dataset contains 10 firms × 5 years = 50 observations and no missing values in the variables used in the reported regression.

CETR was selected because it captures cash taxes actually paid relative to accounting profit before tax and is less directly affected by non-cash deferred-tax expense than a GAAP effective tax rate. However, CETR is an inverse proxy: lower CETR values are interpreted as greater tax avoidance, while higher CETR values indicate higher cash tax payments and lower tax avoidance. CETR is not evidence of illegality and can be affected by payment timing and prior-year tax settlements (Hanlon & Heitzman, 2010; Schwab et al., 2022). Sales growth is measured as the annual percentage change in net sales. Leverage is measured using the debt-to-equity ratio (DER). Firm size is measured as the natural logarithm of total assets expressed in IDR trillions. Using IDR trillions before taking the logarithm explains why SIZE can be negative for a firm whose total assets are below IDR 1 trillion; for example, ln (0.69) is approximately −0.37.

The available statistical output was generated using pooled ordinary least squares (OLS) in IBM SPSS. Pooled OLS is retained here as a baseline specification because it reproduces the reported coefficients. Nevertheless, the dataset is panel data, and pooled OLS does not control for

unobserved firm-specific heterogeneity or within-firm dependence. The coefficients are therefore interpreted as conditional associations rather than causal effects. For a stronger panel-data design, the model should be re-estimated using common, fixed, and random effects, followed by the Chow, Hausman, and Breusch–Pagan Lagrange Multiplier tests, with firm-clustered or heteroskedasticity-robust standard errors where appropriate (Baltagi, 2021; Wooldridge, 2020). Because those estimates are not available in the uploaded manuscript, they are not fabricated in this revision and remain a required robustness step before making stronger inferential claims.

No observations were mechanically deleted solely because they were large or small when the values could be traced to published financial statements. The available analysis does not report studentized residuals, leverage statistics, Cook's distance, or winsorized estimates. Accordingly, the manuscript does not claim that influential-observation risk has been eliminated; the maximum DER of 7.06 should be examined in a sensitivity analysis. The pandemic and post-pandemic periods are not represented by a dummy variable or interaction term in the reported model, and no formal cross-period coefficient comparison was conducted. The period is therefore contextual rather than a tested moderator. A valid cross-period analysis would require year indicators or interactions and sufficient observations in each phase.

The baseline model estimates CETR directly. To facilitate interpretation, an equivalent tax-avoidance index may be defined as TA = 1 − CETR. Under this transformation, every coefficient changes sign but retains the same significance level. Thus, a positive coefficient in the CETR model corresponds to a negative association with tax avoidance. Diagnostic analysis includes descriptive statistics, multicollinearity assessment, the Glejser heteroskedasticity test, and the reported Durbin–Watson statistic. Because the Glejser test is significant for leverage, conventional OLS standard errors may be unreliable. The regression results are therefore reported as the original baseline evidence and interpreted cautiously rather than presented as fully assumption-free estimates.

Table 1. List of research sample companies

No.	Company Name	Kode
1.	PT Indofood Sukses Makmur Tbk	INDF
2.	PT Unilever Indonesia Tbk	UNVR
3.	PT Semen Indonesia (Persero) Tbk	SMGR
4.	PT Indocement Tunggal Prakarsa Tbk	INTP
5.	PT Astra International Tbk	ASII
6.	PT Kalbe Farma Tbk	KLBF
7.	PT Charoen Pokphand Indonesia Tbk	CPIN
8.	PT Japfa Comfeed Indonesia Tbk	JPFA
9.	PT Pabrik Kertas Tjiwi Kimia Tbk	TKIM
10.	PT Lion Metal Works Tbk	LION

The sample includes firms from food, consumer goods, pharmaceuticals, cement, automotive, paper, poultry, and metal manufacturing. This cross-subsector composition increases contextual variation but does not eliminate purposive-sampling bias. The sample-selection rationale is data completeness across all five years, not an assertion that these 10 firms represent all IDX manufacturing issuers. Future revisions should retain and report a screening log showing the initial population and the number excluded under each criterion. The operational definitions are presented in Table 2. The dependent variable is CETR, not a directly increasing tax-avoidance score. Accordingly, all coefficient signs are interpreted first as changes in CETR and only then translated inversely into tax-avoidance implications.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (1)$$

Description: Y = Tax Avoidance (CETR); X_1 = Sales Growth; X_2 = Leverage (DER); X_3 = Company Size; α = constant; β = regression coefficient; ε = error term.

Where $CETR_{it}$ is cash taxes paid divided by profit before tax for firm i in year t; SG is sales growth; DER is total liabilities divided by total equity; SIZE is the natural logarithm of total assets

expressed in IDR trillions; α is the intercept; β is the estimated coefficient; and ε is the error term. For interpretation, $TA_{it} = 1 - CETR_{it}$.

Table 2. Variable operational definition

Variable	Definition	Proxy
Tax Avoidance (Y)	Efforts to legally minimize tax burden by exploiting loopholes in tax regulations	CETR = Tax Payment / Profit Before Tax
Sales Growth (X_1)	Annual change in net sales	SG =($Sales_t - Sales_{t-1}$) / $Sales_{t-1}$
Leverage (X_2)	Reliance on liabilities relative to shareholders' equity	DER = Total Liabilities / Total Equity
Company Size (X_3)	Scale of total assets	SIZE = Ln (Total assets in IDR trillions)

Data were analyzed using multiple linear regression to test the effect of independent variables on tax avoidance. Hypothesis testing was conducted using t-tests for partial effects and F-tests for simultaneous effects, while the coefficient of determination was used to assess the explanatory power of the model.

3. RESULTS AND DISCUSSIONS

Result

Statistics Descriptive

Table 3 summarizes 50 firm-year observations for 2020–2024. CETR ranges from 0.24 to 0.48, with a mean of 0.336 and a standard deviation of 0.0672. The mean should be read as an average cash tax rate of 33.6% of profit before tax, not as a 33.6% tax-avoidance rate. Sales growth ranges from −0.26 to 0.35, with a mean of 0.051, indicating average annual growth of approximately 5.1%. DER ranges from 0.26 to 7.06, with a mean of 1.463 and substantial cross-firm variation. The high maximum DER may be economically plausible but also creates potential influence risk that should be tested formally. SIZE ranges from −0.37 to 6.19, with a mean of 3.815. These values are possible because total assets were first expressed in IDR trillions and then transformed using the natural logarithm. A negative value indicates total assets below IDR 1 trillion, not a negative amount of assets.

Table 3. Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
CETR (Tax Avoidance)	50	0.24	0.48	0,336	0,0672
PT (Sales Growth)	50	-0.26	0.35	0,051	0,1065
DER (Leverage)	50	0.26	7.06	1,463	1,2988
SIZE (Company Size)	50	-0.37	6.19	3,815	1,6455

Diagnostic Tests and Model Limitations

The P–P plot indicates that the residual distribution does not depart severely from normality. However, residual normality alone does not establish model validity, especially when the data are panel-structured and heteroskedasticity is present.

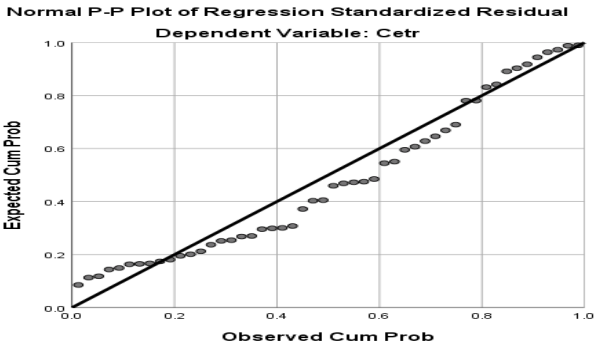

Figure 1. Normality test P-P Plot

The tolerance values exceed 0.10 and all VIF values are close to 1.0, indicating no material multicollinearity among sales growth, leverage, and firm size. The values reported in Table 4 should be used consistently: SG (Tolerance = 0.940; VIF = 1.063), DER (0.948; 1.055), and SIZE (0.981; 1.019.

Table 4. Multicollinearity diagnostics

Coefficients[a]			
		Collinearity Statistics	
Model		Tolerance	VIF
1	(Constant)		
	Sales_Growth	.940	1.063
	Leverage_DER	.948	1.055
	FIRM_SIZE	.981	1.019

a. Dependent Variable: Tax_Avoidance_CETR

The Glejser test yields p = 0.030 for leverage, which is below 0.05. Therefore, the homoskedasticity assumption is not fully satisfied. The earlier statement that all classical assumptions were met has been removed. Robust or clustered standard errors are needed to confirm statistical significance.

Table 5. Glejser heteroskedasticity test

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.019	.012		1.583	.120
	Sales_Growth	-.007	.043	-.023	-.164	.871
	Leverage_DER	.008	.003	.313	2.245	.030
	FIRM_SIZE	.004	.003	.210	1.536	.131

a. Dependent Variable: Abs_Res

The reported Durbin–Watson statistic is 1.340. The informal −2 to +2 rule is not a sufficient panel-data autocorrelation test, so this statistic cannot establish the absence of within-firm serial correlation. Panel-specific serial-correlation diagnostics should be added in a re-estimation.

Table 6. Reported model summary and durbin–watson statistic

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.538[a]	.290	.243	.05850	1.340

a. Predictors: (Constant), FIRM_SIZE, Leverage_DER, Sales_Growth
b. Dependent Variable: Tax_Avoidance_CETR

Pooled OLS Results and Hypothesis Tests

Table 7 reports the baseline pooled OLS coefficients with CETR as the dependent variable. The signs must therefore be interpreted as changes in cash tax rates, not as direct increases or decreases in tax avoidance.

Table 7. Baseline pooled OLS estimates (dependent variable: CETR)

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.270	.023		11.733	.000
	Sales_Growth	-.142	.081	-.225	-1.758	.085
	Leverage_DER	.017	.007	.336	2.632	.012
	FIRM_SIZE	.013	.005	.311	2.482	.017

Note. Positive coefficients indicate a higher CETR and, by inverse interpretation, lower tax avoidance.

The joint F test is statistically significant (F = 6.252; p = 0.001), indicating that sales growth, leverage, and firm size jointly explain variation in CETR in the pooled sample. This does not by itself establish a causal effect on tax avoidance.

Table 8. Joint significance test

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.064	3	.021	6.252	.001[b]
Residual	.157	46	.003		
Total	.222	49			

a. Dependent Variable: Tax_Avoidance_CETR
b. Predictors: (Constant), FIRM_SIZE, Leverage_DER, Sales_Growth

The model has $R^2 = 0.290$ and adjusted $R^2 = 0.243$. Thus, the three predictors explain 29.0% of the observed variation in CETR, while most variation is associated with omitted financial, governance, industry, and regulatory factors. The earlier R^2 values of 0.288 and 28.8% were corrected to match Table 9.

Table 9. Coefficient of determination

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.538[a]	.290	.243	.05850

a. Predictors: (Constant), FIRM_SIZE, Leverage_DER, Sales_Growth
b. Dependent Variable: Tax_Avoidance_CETR

An accounting ETR robustness test was not reported in the available output. Consequently, the manuscript cannot claim that the findings are consistent across CETR and ETR. Such a test is recommended because ETR and CETR capture different timing and recognition effects. Given the detected heteroskedasticity, small purposive sample, and pooled specification, the following results are presented as preliminary associations requiring confirmation through panel-data and robustness analyses.

Discussion

The Effect of Sales Growth on Tax Avoidance

Sales growth has a negative but statistically insignificant association with CETR ($\beta = -0.142$; $t = -1.758$; $p = 0.085$). Because lower CETR indicates greater tax avoidance, the coefficient direction is consistent with higher sales growth being associated with more avoidance, but the evidence is insufficient at the 5% level. A plausible explanation is that revenue expansion does not translate uniformly into taxable income. Manufacturing growth may require additional raw materials, labour, distribution, working capital, and depreciation, so the cash tax effect depends on the margin and tax treatment of the underlying expansion rather than sales growth alone.

The insignificant result is consistent with Putri et al. (2025), who also found that sales growth did not significantly explain tax avoidance in food-and-beverage manufacturing. It differs from Ainniyya et al. (2021), who reported a significant negative relationship between sales growth and ETR. The difference may arise from sector composition, period, sample size, and the choice between ETR and CETR. From an agency perspective, managers may seek after-tax performance, but pandemic-era priorities such as liquidity preservation and operational continuity can weaken the direct link between sales growth and tax planning. The result therefore supports a contingent rather than universal sales-growth explanation.

The Effect of Leverage on Tax Avoidance

Leverage has a positive and statistically significant association with CETR ($\beta = 0.017$; $t = 2.632$; $p = 0.012$). The correct interpretation is that higher DER is associated with a higher cash tax rate and therefore lower tax avoidance. The regression does not support the earlier claim that leverage increases tax avoidance. This result may appear inconsistent with the conventional interest tax-shield argument. However, DER captures overall financing structure, whereas the realized cash-tax outcome also reflects profitability, interest-deduction limits, non-deductible expenses, prior-year settlements, and the timing of tax payments. A positive CETR coefficient can therefore arise even when debt provides some tax benefit.

The direction is comparable to Ainniyya et al. (2021), who found a positive leverage–ETR association and explicitly interpreted it as lower tax avoidance. By contrast, Pesak et al. (2022) and

Kurniawati and Prasetyo (2023) found no significant leverage relationship. These mixed findings confirm that proxy direction and sample context are critical. For tax administration, high leverage should not be treated as automatic evidence of avoidance. Risk assessment should instead examine persistent low CETR, related-party debt, unusual interest expense, thin-capitalization exposure, and whether financing arrangements have commercial substance.

The Effect of Firm Size on Tax Avoidance

Firm size has a positive and statistically significant association with CETR (β = 0.013; t = 2.482; p = 0.017). Since the dependent variable is CETR, larger firms in this sample tend to pay a higher proportion of pre-tax profit in cash taxes, indicating lower tax avoidance rather than greater avoidance. The finding is consistent with political-cost, reputational, and monitoring arguments. Large listed firms are more visible to tax authorities, auditors, investors, and the public. Their greater tax-planning capacity may therefore be offset by stronger compliance systems, audit scrutiny, and concern about tax disputes or reputational damage.

Prior evidence remains mixed. Putri et al. (2025) reported a significant firm-size relationship, whereas Ainniyya et al. (2021) and Kurniawati and Prasetyo (2023) found no significant effect. Differences in proxy coding are particularly important because a positive coefficient on ETR or CETR implies lower avoidance, whereas a positive coefficient on an increasing avoidance index implies the opposite. Taken together, the baseline results suggest that structural characteristics are associated with cash tax payments, but not in the direction claimed by the earlier manuscript. Leverage and firm size increase CETR, while sales growth has no statistically significant association. The results should therefore be framed as evidence about cash effective tax rates rather than as proof that large or highly leveraged firms avoid more tax.

The study has several limitations. The sample contains only 10 purposively selected firms; pooled OLS does not control for firm fixed effects; heteroskedasticity is detected; formal influence diagnostics are unavailable; the pandemic and recovery phases are not tested through interactions; and no ETR, book-tax-difference, or alternative-CETR robustness measure is reported.

The practical implication for the Directorate General of Taxes is to use multi-indicator, risk-based supervision. Persistent low CETR should be combined with information on related-party transactions, interest deductions, profitability, capital intensity, tax-loss carryforwards, and audit history. Firm size and leverage alone are insufficient risk signals. For managers and investors, the results underline the need to disclose the drivers of cash tax rates clearly. Transparent reconciliation of current tax expense, deferred tax, tax payments, incentives, and prior-year settlements can reduce misinterpretation and improve the credibility of tax-risk assessment.

Future research should expand the sample, retain an auditable screening log, estimate fixed- and random-effects models with firm-clustered robust standard errors, test pandemic and post-pandemic interactions, examine influential observations, and compare CETR with GAAP ETR, long-run cash ETR, and book-tax differences. These steps would establish whether the baseline associations are robust and whether they differ across economic phases.

CONCLUSION

This study examined the associations of sales growth, leverage, and firm size with the cash effective tax rate of 10 Indonesian manufacturing firms over 2020–2024. Sales growth was negatively but not significantly associated with CETR, whereas leverage and firm size were positively and significantly associated with CETR. Because lower CETR represents greater tax avoidance, the positive leverage and firm-size coefficients indicate lower, not higher, tax avoidance; therefore, the earlier substantive interpretation has been corrected. The study contributes by clarifying CETR direction and providing cautious evidence from the pandemic-to-early-recovery context. Practically, tax authorities should focus on persistent low cash tax rates and the substance of financing and related-party arrangements rather than using leverage or firm size as standalone indicators, while managers should improve disclosure of the factors driving cash tax payments. The findings remain limited by the small purposive sample, pooled OLS specification, detected heteroskedasticity, lack of formal outlier diagnostics, absence of a tested pandemic interaction, and the unavailability of ETR or other robustness proxies. Future studies should use broader samples, panel-model selection tests, clustered robust standard errors, cross-period

interactions, and multiple tax-avoidance measures before drawing stronger causal or generalizable conclusions.

REFERENCES

Ainniyya, S. M., Sumiati, A., & Susanti, S. (2021). Pengaruh leverage, pertumbuhan penjualan, dan ukuran perusahaan terhadap tax avoidance. Owner: Riset dan Jurnal Akuntansi, 5(2), 525–535. https://doi.org/10.33395/owner.v5i2.453

Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. Journal of Accounting and Economics, 60(1), 1–17. https://www.sciencedirect.com/science/article/pii/S0165410115000178

Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. Journal of Accounting and Economics, 60(1), 1–17. https://doi.org/10.1016/j.jacceco.2015.02.003

Badan Pusat Statistik. (2025, February 5). Indonesia's economic growth 2024 was 5.03 percent. https://www.bps.go.id/

Baltagi, B. H. (2021). Econometric analysis of panel data (6th ed.). Springer.

Beer, S., de Mooij, R., & Liu, L. (2020). International Corporate Tax Avoidance: a Review of the Channels, Magnitudes, and Blind Spots. Journal of Economic Surveys, 34(3), 660–688. https://doi.org/10.1111/joes.12305

Brigham, E. F., & Houston, J. F. (2018). Fundamentals of financial management (14th ed.). Cengage Learning.

Cobham, A., & Janský, P. (2020). Global distribution of revenue loss from corporate tax avoidance. Journal of International Development, 32(2), 206–232. https://doi.org/10.1002/jid.3468

Desai, M. A., & Dharmapala, D. (2009). Corporate tax avoidance and firm value. Review of Economics and Statistics, 91(3), 537–546. https://doi.org/10.1162/rest.91.3.537

Dewinta, I. A. R., & Setiawan, P. E. (2016). The effect of firm size, firm age, profitability, leverage, and sales growth on tax avoidance. E-Jurnal Akuntansi Universitas Udayana, 14(3), 1584–1613.

Direktorat Jenderal Pajak. (2023, April 11). Lima jenis tarif PPh badan yang wajib diperhatikan. https://www.pajak.go.id/

Edo, R., & Nengzih, N. (2025). The effect of profitability, corporate social responsibility disclosure, and capital intensity on tax avoidance with company size as a moderating variable. Research Horizon, 5(5), 1967–1978. https://doi.org/10.54518/rh.5.5.2025.807

Hanlon, M., & Heitzman, S. (2010). A review of tax research. Journal of Accounting and Economics, 50(2–3), 127–178. https://doi.org/10.1016/j.jacceco.2010.09.002

Hendayana, Y., Ramdhany, M. A., Pranowo, A. S., Rachmat, R. A. H., & Herdiana, E. (2024). Exploring impact of profitability, leverage and capital intensity on avoidance of tax, moderated by size of firm in LQ45 companies. Cogent Business & Management, 11(1), Article 2371062. https://doi.org/10.1080/23311975.2024.2371062

Hery. (2020). Financial statement analysis. Grasindo.

Ilmiyono, A. F., & Agustina, R. A. (2020). Company Size, Sales Growth And Leverage Against Tax Avoidance In Property And Real Estate Companies on The Indonesian Stock Exchange for The Period of 2012-2018. The Accounting Journal of Binaniaga, 5(2), 85. https://doi.org/10.33062/ajb.v5i2.389

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kasmir. (2019). Financial statement analysis. Rajawali Pers.

Kementerian Keuangan Republik Indonesia. (2025, January 6). Kinerja pendapatan negara tahun 2024 tumbuh positif. https://www.kemenkeu.go.id/

Kementerian Keuangan RI. (2024). APBN Kita: Budget performance and facts. Kementerian Keuangan Republik Indonesia.

Kurniasih, T., & Sari, M. M. R. (2013). The effect of return on assets, leverage, corporate governance, firm size, and fiscal loss compensation on tax avoidance. Buletin Studi Ekonomi, 18(1), 58–66.

Kurniawati, F., & Prasetyo, T. U. (2023). Effects of profitability, leverage, and firm size on tax avoidance of F&B companies listed on IDX. Cakrawangsa Bisnis: Jurnal Ilmiah Mahasiswa, 4(1), 105–116. https://doi.org/10.35917/cb.v4i1.414

Lanis, R., & Richardson, G. (2015). Is Corporate Social Responsibility Performance Associated with Tax Avoidance? Journal of Business Ethics. https://doi.org/10.1007/s10551-014-2052-8

Manihuruk, R. S., Arieftiara, D., & Miftah, M. (2021). Tax avoidance in the Indonesian manufacturing industry. Journal of Contemporary Accounting, 3(1), 1–11. https://doi.org/10.20885/jca.vol3.iss1.art1

Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. American Economic Review, 53(3), 433–443.
Network, T. J. (2023). State of tax justice 2023. Tax Justice Network.
Ngadiman, N., & Puspitasari, C. (2014). The effect of leverage, institutional ownership, and firm size on tax avoidance in manufacturing companies listed on the Indonesia Stock Exchange during 2010–2012. Jurnal Akuntansi, 18(3), 408–421.
O.E.C.D. (2015). Limiting base erosion involving interest deductions and other financial payments: Action 4 – 2015 final report. OECD Publishing.
O.E.C.D. (2021). Corporate tax statistics 2021. OECD Publishing.
O.E.C.D. (2022). Corporate tax statistics 2022. OECD Publishing.
O.E.C.D. (2023). Revenue statistics in Asia and the Pacific 2023. OECD Publishing.
OECD. (2025). Revenue statistics in Asia and the Pacific 2025: Indonesia. OECD Publishing. https://www.oecd.org/
Oktamawati, M. (2017). The effect of executive characteristics, audit committees, firm size, leverage, sales growth, and profitability on tax avoidance. Jurnal Akuntansi Bisnis, 15(30), 23–40.
Pesak, P. J., Tanor, L. A. O., & Sumual, F. M. (2022). Tax avoidance during a pandemic. Journal of International Conference Proceedings, 5(2), 418–427. https://doi.org/10.32535/jicp.v5i2.1704
Pohan, C. A. (2021). Tax management: Tax and business planning strategies (Revised). Gramedia Pustaka Utama.
Prabowo, I. C. (2020). Capital structure, profitability, firm size and corporate tax avoidance: evidence from Indonesia palm oil companies. Business Economic, Communication, and Social Sciences Journal (BECOSS), 2(1), 97–103. https://doi.org/https://doi.org/10.21512/becossjournal.v2i1.6064
Putri, V. R., Falatifah, M., & Karlinah, L. (2025). Pengaruh profitabilitas, firm size dan sales growth terhadap tax avoidance. Owner: Riset dan Jurnal Akuntansi, 9(2), 1334–1356. https://doi.org/10.33395/owner.v9i2.2679
Putri, V. R., & Putra, B. I. (2017). The effect of leverage, profitability, firm size, and institutional ownership on tax avoidance. Jurnal Ekonomi Manajemen Sumber Daya, 19(1), 1–11.
Richardson, G., Wang, B., & Zhang, X. (2016). Ownership structure and corporate tax avoidance: Evidence from publicly listed private firms in China. Journal of Contemporary Accounting and Economics, 12(2), 141–158. https://doi.org/10.1016/j.jcae.2016.06.003
Schwab, C. M., Stomberg, B., & Xia, J. (2022). What determines effective tax rates? The relative influence of tax and other factors. Contemporary Accounting Research, 39(1), 459–497. https://doi.org/10.1111/1911-3846.12720
Tax Justice Network. (2019). Ashes to ashes: How British American Tobacco avoids tax in low- and middle-income countries. Tax Justice Network.
Watts, R. L., & Zimmerman, J. L. (1986). Positive accounting theory. Prentice Hall.
Wooldridge, J. M. (2020). Introductory econometrics: A modern approach (7th ed.). Cengage.