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# The effect of inventory intensity, capital intensity, and leverage on tax avoidance

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**ABSTRACT**

The objective of this research is to examine the impact of inventory intensity, capital intensity, and leverage Regarding tax avoidance among food and beverage sub-sector companies listed on the Indonesia Stock Exchange during the period 2019–2023 period. The research adopts a quantitative method utilizing multiple linear regression analysis. The findings indicate that capital intensity Exhibits a positive and significant influence on tax avoidance, whereas inventory intensity and leverage do not Have a significant impact. At the same time. Concurrently, these variables are not found to significantly influence tax avoidance.



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# INTRODUCTION

As a developing country, Indonesia is continually pursuing national development in order to improve public welfare. Taxation, being the principal source of state income, serve an essential function in supporting governmental expenditures. and supporting economic growth. While taxes are a necessity for the government, companies often perceive them as a financial burden that diminishes profits, prompting some to participate in tax avoidance practices.

Due to the significant recent increase in tax contributions, taxes have become a primary means of financing government activities, considered vital for supporting the implementation of national development programs. This effort is expected to gradually stimulate economic growth and enhance national welfare (Jingga & Lina, 2017; Salawati et al., 2021; Sritharan & Salawati, 2019)

From the government's perspective, taxes are a source of revenue used to finance various public programs. However, from a company's standpoint, taxes are seen as a cost that reduces profitability. This conflict of interest often drives taxpayers to pursue tax avoidance strategies (Alfaruqi et al., 2019)

Tax avoidance is a lawful strategy and permissible action, as it It does not breach prevailing laws. In practice, it involves no breach of legal regulations. According to (Khairunnisa et al., 2023), assets and company size are critical variables suspected of influencing a firm's likelihood to participate in tax avoidance. The greater a company's total assets, the more resources it has available for tax planning.

Tax avoidance is considered a legitimate strategy that complies with tax regulations and is therefore regarded as safe for taxpayers. This approach generally exploits loopholes or weaknesses within tax regulations to minimize tax liabilities. (Zalogo, E. F., Apriyanto, A., Rustam, A., Haryanti, T., Susilo, A., & Duri, 2025)

In companies operating in the food and beverage industry, tax avoidance practices can be analyzed by examining the average growth rate of tax avoidance across companies. The following data illustrates the average rate of tax growth avoidance in companies within this sub-sector:

Over the five-year study period, the average growth of tax avoidance in food and beverage sub-sector companies listed on the Indonesia Stock Exchange experienced fluctuations. In 2019, the average tax avoidance was recorded at 0.77. However, in 2020, it declined significantly to 0.23, with a negative growth rate of -70%. In 2021, the average further decreased to 0.18, reflecting a growth rate of -21.73%. In 2022, the average slightly increased to 0.21, with a growth rate of 16.67%. By 2023, the average tax avoidance rose significantly to 0.49, with a growth rate of 133%. This fluctuation may be influenced by several factors, including inventory intensity, capital intensity, and leverage.

Inventory intensity refers to the ratio of inventory to total assets. Firms that have a high proportion of inventory have a greater opportunity to manipulate inventory valuation and the cost of goods sold in order to reduce taxable income. Inaccurate inventory valuations—such as inflating the ending inventory value or overstating the cost of goods sold—can reduce accounting profit and directly affect the amount of tax payable. (Suciarti et al., 2020) explain that companies with high inventory intensity have greater flexibility in financial reporting, as inventory is an account susceptible to manipulation. Furthermore, companies operating in inventory-intensive sectors, such as manufacturing and retail, often employ inventory recording methods (e.g., FIFO or weighted average) to manage expense recognition, thus creating opportunities for legal but aggressive tax avoidance.

Capital intensity is defined as the proportion of fixed assets to total assets. (e.g., machinery, buildings, vehicles). Companies that allocate a large portion of fixed assets have greater potential to utilize depreciation expenses as deductions from taxable income. Fixed assets depreciate annually and can be expensed, legally reducing taxable income. Companies with high capital intensity also have the flexibility to select different depreciation methods—such as the straight-line or declining balance method—enabling them to adjust taxable income across periods. This flexibility creates opportunities for tax avoidance, especially among large firms with the capacity and resources for strategic tax planning. Haryanto & Ramadhanty, (2025) found that capital intensity is positively associated with tax avoidance, as depreciation on fixed assets can effectively reduce tax burdens. (Kusuma & Firnanti, 2023) also emphasized that a company's asset structure is a key determinant of aggressive tax avoidance strategies.

Leverage refers to the financial ratio that compares total debt to either total assets or equity. Interest expenses from debt are tax-deductible, thereby reducing pre-tax income and lowering tax liabilities. As a company's leverage increases, the more likely it is to obtain tax benefits from interest payments, making it an effective tax avoidance strategy. Highly leveraged companies typically have a stronger incentive to utilize interest deductions to minimize fiscal burdens and maintain cash flow. (Lim, 2011) asserts that firms with debt-based financing structures have a greater tendency to participate in tax avoidance, as interest payments on debt are deductible and can significantly reduce taxable income. Additionally, (Lanis & Richardson, 2012)) found that leverage has a substantial influence on the aggressive tax avoidance strategies of large corporations.

Numerous studies have explored the factors influencing tax avoidance, particularly the effects of inventory intensity, capital intensity, and leverage. However, previous findings have been inconsistent, warranting further investigation. For instance, (Riskatari, 2020) found that leverage had a significant positive effect on tax avoidance, while inventory intensity and capital intensity had no significant effect. In contrast, (Sari et al., 2023)) concluded that all three variables—both jointly and individually—significantly affected tax avoidance, highlighting the crucial role of asset structure and

financing in shaping tax strategies. On the other hand, (Yahya et al., 2023) reported that capital intensity had a negative effect on tax avoidance, suggesting that companies heavily invested in fixed assets were perceived as more transparent and less inclined toward aggressive tax planning.

In light of these conflicting results, this study aims to analyze the influence of inventory intensity, capital intensity, and leverage on tax avoidance practices among companies. Specifically, the study seeks to determine whether inventory intensity—as an indicator of the proportion of inventory within total assets—capital intensity—as a proxy for fixed asset investment—and leverage—as a measure of debt-based financing— Influence the extent of tax avoidance practiced by firms. Additionally, the study intends to assess the combined effect of these three variables on tax avoidance, in order to determine the extent to which asset structure and financing contribute to tax avoidance behavior. The findings are expected to provide empirical evidence and meaningful contributions to academic understanding academics, practitioners, and tax authorities for comprehending the. determinants of corporate tax avoidance.

# RESEARCH METHOD

This study adopts a numerical analysis approach using an associative analysis method to examine the effects of inventory intensity, capital intensity, and leverage on tax avoidance. The data used in this study consist of secondary data obtained from the annual financial statements of anufacturing companies listed on the Indonesia Stock Exchange (IDX) during the period 2020–2023. The manufacturing sector is selected because companies in this industry typically have well-defined asset structures and are considered susceptible to tax avoidance practices. The tax avoidance variable is measured using the Effective Tax Rate (ETR), as ETR reflects the proportion of a company's profit paid as tax. When the ETR is significantly lower than the statutory tax rate (e.g., 22% in Indonesia), it may indicate the existence of tax avoidance efforts. ETR represents a ratio that illustrates the actual tax burden paid by a company relative to its pre-tax income. Inventory intensity is measured by the proportion of inventory to total assets, capital intensity is defined by the ratio of fixed assets to total assets, and leverage is measured as the ratio of total debt to total assets. The data in this study were processed using SPSS version 25 to conduct the statistical analysis.

**Population**

This study targets a population of companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. This sub-sector was chosen because it falls under the broader manufacturing sector, and companies in this segment generally have a complex asset structure, with relatively large proportions of fixed assets and inventory—making it especially relevant for testing capital and inventory intensity variables. Additionally, companies in this sector frequently employ debt-based financing structures (leverage) and implement a range of tax strategies to reduce their tax obligations. This population was selected due to the high level of information disclosure available in public financial reports, which facilitates easier access to the secondary data required to measure the research variables. A total of 26 food and beverage Firms that were listed on the Indonesia Stock Exchange (IDX) between 2019 and 2023. formed the study's population.

**Sample**

The sample was determined using the **purposive sampling method**, a sampling technique based on specific criteria aligned with the research objectives. From the population of food and beverage sub-sector companies listed on the IDX during the 2019–2023 period, the following criteria were used for sample selection:

1. Food and beverage companies listed on the IDX.
2. Companies that published complete financial report data consecutively throughout the observation period.

3. Companies that did not report losses during the 2019–2023 period.
4. Companies for which all required research data variables were available in the financial statements during the observation years.

Based on these criteria, a total of **9 companies** were selected as the final research sample.

**Descriptive Analysis**

Descriptive analysis offers a summary overview of each research variable by examining the mean (average), standard deviation, maximum, and minimum values (Ghozali, 2016). The aim of this analysis is to give a general description of the data characteristics used in the study, highlighting the central tendency and variability of each variable.

**Multiple Linear Regression Analysis**

This study employs multiple linear regression analysis to determine the effect of the independent variables—Inventory Intensity ($X_1$), Capital Intensity ($X_2$), and Leverage ($X_3$)—on the dependent variable, Tax Avoidance (Y), which is measured using the Effective Tax Rate (ETR) or Cash Effective Tax Rate (CETR). This method was chosen because it allows for testing the simultaneous influence of multiple independent variables on a single dependent variable.

The multiple linear regression model in this study is formulated as follows:

$$\boldsymbol{Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Information:
Y = Tax Avoidance (measured by ETR)
$X_1$ = Inventory Intensity (Inventory / Total Assets)
$X_2$ = Capital Intensity (Fixed Assets / Total Assets)
$X_3$ = Leverage (Total Debt / Total Assets)
$\beta_0$ = Constant
$\beta_1$, $\beta_2$, $\beta_3$ = Regression coefficients
$\varepsilon$ = Error

**Classical Assumption Test**

The purpose of the classical assumption test is to confirm that the regression model adheres to the requirements of the BLUE (Best Linear Unbiased Estimator) principle, so that the estimation results are reliable. Before analyzing data, it is essential to ensure the data meets the assumption of normality. The assessment of normality is performed before the data is processed based on the proposed research models. This test examines whether the distribution of data for a single variable used in the research meets the criteria of normality. Data that is normally distributed is considered appropriate and reliable for validating research models. A normality test is applied to the residual data to verify compliance with the assumption of normality. The research uses the Kolmogorov Smirnov test. The decision-making criterion can be based on the probability value (Asymptotic Significance). If the probability is greater than 0.05, the regression model is considered to have a normal distribution; whereas if the probability is less than 0.05, the distribution is considered non-normal. This test aims to assess the presence of multicollinearity, or intercorrelation, between independent variables in a regression model. If a correlation occurs, , the issue is referred to as multicollinearity. An ideal regression model is characterized by the absence of correlation among its independent variablesTo identify multicollinearity, researchers commonly refer to the tolerance and VIF values of the independent variables) with the provision to detect the presence or absence of multicollinearity if VIF > 10 means there is a multicollinearity problem, if VIF < 10 means there is no multicollinearity. A tolerance value below 0.10 signals a multicollinearity problem, while a value above 0.10 indicates the absence of such a problem. Heteroscedasticity testing is used to detect

whether the residuals from one observation to another exhibit variance inconsistency within the regression model. According to Sugiyono (2019), in testing heteroscedasticity, researchers commonly use the Glejser test. The decision rule for the Glejser test is based on the significance value (Sig. 2-tailed). If the significance value is less than α = 0.05, it indicates the presence of heteroscedasticity. Conversely, if the significance value is greater than 0.05, it suggests that heteroscedasticity is not present.

**Hypothesis Testing**

The t-test assesses the partial effect of each independent variable (X) on the dependent variable (Y). With the following decision-making criteria: If the significant probability value is> 0.05 or $T_{count} < T_{table}$ then the hypothesis is rejected, Rejecting the hypothesis indicates that the independent variable does not have a positive and significant effect on the dependent variable. If the significant probability value is <0.05 or $T_{count} > T_{table}$ then the hypothesis is accepted, The hypothesis is accepted positively which indicates that the independent variable has a positive and significantly affects the dependent variable. The F-test, also known as the simultaneous significance test, is used to evaluate the overall ability of the independent variables $X_1$ and $X_2$ to explain the variance or behavior of the dependent variable Y. The F-test is also used to determine whether all independent variables simultaneously have regression coefficients equal to zero. This assessment is performed by comparing the significance of f count with the provisions: If the calculated F-value is less than the critical F-value at a 0.05 significance level, then the alternative hypothesis (H1) is rejected; conversely, if the calculated F-value exceeds the critical F-value at α = 0.05, H1 is accepted.

**Coefficient of Determination (r2)**

The coefficient of determination, denoted by $R^2$, is utilized to determine how the variation in the dependent variable's value is influenced by the independent variable's value. The value of the coefficient of determination ranges from 0 to 1. An R-square value approaching one indicates a stronger influence of the independent variable on the dependent variable. A small coefficient of determination (r2) The value suggests that the independent variables have a very limited capacity to account for the variation in the dependent variable.

# RESULTS AND DISCUSSIONS

The research examined food and beverage sub-sector firms registered on the Indonesia Stock Exchange (IDX)during the 2019–2023 period, involving a total of 9 companies as the sample.

**Descriptive Statistical Analysis**

To present a numerical summary of the dataset, descriptive statistical methods were employed, including the mean (average), Each variable's lowest and highest values, along with its standard deviation, were analyzed.

Tabel 1. Descriptive Statistical Test

| Descriptive Statistics[s] | | | | | |
|---|---|---|---|---|---|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Inventory Intensity | 45 | .00 | 10.70 | .7576 | 1.71779 |
| Capital Intensity | 45 | .02 | 42.34 | 4.0871 | 8.07666 |
| Leverage | 45 | .00 | 16.60 | 1.7989 | 3.97226 |
| Tax Avoidance | 45 | .00 | 2.76 | .3784 | .57809 |
| Valid N (listwise) | 45 | | | | |

*Source: SPSS Version 25 Test Results*

The Inventory Intensity variable shows a minimum value of 0.00 and a maximum of 10.70, with a mean of 0.7576 and a standard deviation of 1.7177. The Capital Intensity variable ranges from

a minimum of 0.02 to a maximum of 42.34, with an average value of 4.0871 and a standard deviation of 8.076. The Leverage variable exhibits a minimum value of 0.00 and a maximum of 16.60, with a mean of 1.7989 and a standard deviation of 3.9723. Meanwhile, the Tax Avoidance variable has a minimum of 0.00, a maximum of 2.76, an average of 0.3784, and a standard deviation of 0.5781.

**Normality Test**

It examines whether the regression variables, including both dependent and independent ones, exhibit a normal distribution. The normality assumption is considered met if the significance value is above 0.05.

**Table 2.** Results of the Kolmogorov Smirnov Test (Before Otlier

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | Unstandardized Residual |
| N | | 45 |
| Normal Parametersa,[b] | Mean | .0000000 |
| | Std. Deviation | .17283601 |
| Most Extreme Differences | Absolute | .627 |
| | Positive | .627 |
| | Negative | -.112 |
| Test Statistic | | .627 |
| Asymp. Sig. (2-tailed) | | .122[c] |

*Source: SPSS Version 25 Test Results*

The outcomes of the normality assessment conducted through the Kolmogorov-Smirnov test, after data transformation, obtained an Asymp. Sig. (2-tailed) value of 0.122, which exceeds the significance limit of 0.05. Thus, he residuals in the regression analysis can be considered normally distributed.

**Multicollinearity Test**

**Table 3.** Multicollinearity Test Results

| Coefficients[a] | | | | | |
|---|---|---|---|---|---|
| | Unstandardized Coefficients | | Standardized Coefficients | Collinearity Statistics | |
| Model | B | Std. Error | Beta | Tolerance | VIF |
| (Constant) | .290 | .115 | | | |
| Inventory Intensity | -.010 | .050 | -.031 | .955 | 1.047 |
| Capital Intensity | .024 | .011 | .331 | .957 | 1.045 |
| Leverage | .017 | .022 | .116 | .966 | 1.035 |
| a. Dependent Variable: Tax Avoidance | | | | | |

*Source: SPSS Version 25 Test Results*

The table above shows that there is no multicollinearity in the inventory intensity, capital intensity, and leverage variables, as indicated by a VIF value below 10.00 and a tolerance value exceeding 0.10. Therefore, these variables can be stated as being in normal condition.

**Hetereoscedasticity Test**

**Table 4.** Hetereoscedasticity Test Results

| Coefficients[a] | | | | | |
|---|---|---|---|---|---|
| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | B | Std. Error | Beta | | |
| (Constant) | .107 | .084 | | 1.267 | .213 |
| Inventory Intensity | -.008 | .037 | -.030 | -.225 | .823 |

| | | | | | |
|---|---|---|---|---|---|
| Capital Intensity | .027 | .008 | .456 | 3.374 | .092 |
| Leverage | .035 | .016 | .299 | 2.224 | .072 |

a. Dependent Variable: Tax Avoidance

Source: SPSS Version 25 Test Results

Based on the Glegser test output in the table above, the *Inventory Intensity variable* has a sig. value of 0.823, while the *Capital Intensity variable has a sig. value* of 0.092. Both indicate the absence of heteroscedasticity based on the sig. > 0.05 criteria. Likewise, the *Leverage variable* has a sig. value of 0.072, indicating the absence of heteroscedasticity. Thus, it can be concluded that all variables in the model do not show any symptoms of heteroscedasticity, because each meets the requirements of a significance value greater than 0.05 in the Glejser test.

**Multiple Linear Regression Test**

Table 3.5 Multiple Linear Regression Test Results

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | .290 | .115 | | 2.534 | .015 |
| Inventory Intensity | -.011 | .050 | -.032 | -.213 | .832 |
| Capital Intensity | .024 | .011 | .330 | 2.208 | .033 |
| Leverage | .017 | .022 | .114 | .766 | .448 |

a. Dependent Variable: Tax Avoidance

*Source: SPSS Version 25 Test Results*

The resulting regression equation can be formulated as follows:

**Y =-0.290+-0.011X1+0.024X2++0.017X3**

The value of the regression coefficient for -0.011 on the Inventory Intensity variable indicates that an increase in Inventory Intensity has an effect on decreasing the level of tax avoidance by 0.011, the regression coefficient value of 0.024 on the Capital Intensity variable indicates that an increase in Capital Intensity has an effect on increasing the level of tax avoidance by 0.024, and the value of the regression coefficient of 0.017 on the *Leverage variable* indicates that an increase *in Leverage contributes to increasing the level of tax avoidance by 0.017. From the results of the regression analysis, it can be seen that the Capital Intensity* variable has the most significant contribution to tax avoidance with an effect of 24%. This finding indicates that the tendency for increasing tax avoidance is more influenced by high *Capital Intensity* .

**Partial Test (t-Test)**

**Table 6.** Partial Test Results (t-Test)

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | .290 | .115 | | 2.534 | .015 |
| Inventory Intensity | -.011 | .050 | -.032 | -.213 | .832 |
| Capital Intensity | .024 | .011 | .330 | 2.208 | .033 |
| Leverage | .017 | .022 | .114 | .766 | .448 |

a. Dependent Variable: Tax Avoidance

*Source: SPSS Version 25 Test Results*

The t-statistic was utilized to conducted by evaluating the calculated t-statistic against the tabulated t-value, where Degrees of freedom (df) were obtained by subtracting the number of independent variables (k) from the total number of observations (n). In this study, the degrees of freedom were 40 (i.e., 45 observations minus 5 parameters). Using a significance threshold of 0.05, the critical t-table value was 2.021. Inventory Intensity variable has a t-count of -0.213 and a significance level of 0.832. Since the significance value is greater than α = 0.05 and the t-count (-0.213) is less than the t-table value (-2.021), The findings indicate that Inventory Intensity does not show a statistically significant effect on tax avoidance. Capital Intensity variable has a t-count of 2.208 and a significance level of 0.033. Because this significance value is less than α = 0.05 and the t-count (2.208) exceeds the t-table value (2.021), it can be concluded that Capital Intensity has a significant positive effect on tax avoidance. Meanwhile, leverage variable—measured through the Debt to Asset Ratio—has a t-count of 0.766 and a significance level of 0.448. As the obtained significance level is higher than 0.05 and the t-count does not exceed the t-table value of 2.021, The results lead to the conclusion that Leverage has no statistically significant impact on tax avoidance.

**Simultaneous Test (f Test)**

**ANOVA[a]**

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 2.117 | 4 | .529 | 1.684 | .173[b] |
| Residual | 12.572 | 40 | .314 | | |
| Total | 14.689 | 44 | | | |

[a.] Dependent Variable: Tax Avoidance

[b.] Predictors: (Constant), Inventory Intensity, Capital Intensity, Leverage

*Source: SPSS Version 25 Test Results*

Outcomes of the ANOVA ( *Analysis of Variance* ) test shown as presented in the above table, obtained an F-count value of 1.684 with a significance level of 0.173, so F-count (1.684) < F-table (2.61), accordingly, the conclusion is that simultaneously the three variables do not have indicate a substantial on tax avoidance.

**Coefficient of Determination Test**

Table 8. Results of the Determination Coefficient Test

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .380a | .144 | .059 | .560634 |

a. Predictors: (Constant), Inventory Intensity, Capital Intensity, Leverage

*Source : SPSS Version 25 Test Results*

The proportion of variance explained or R Square (R2) value of 0.144, shows that the independent variables, namely Inventory Intensity, Capital Intensity, and Leverage, are able to explain the dependent variable, namely tax avoidance, by 14.4%, the remaining 85.6% is explained by other factors outside the variables studied in this study, such as activity ratios and other variables not included in this model.

**The Effect of Inventory Intensity on Tax Avoidance**

Based on the results of the statistical tests conducted, the Inventory Intensity variable showed no significant implication for tax avoidance practices. This is indicated by a *t*-value of -0.213, which is lower than the *t*-table value of 2.021, and a significance level above 0.05. These results suggest that, partially, inventory intensity does not have a strong relationship in explaining differences in tax avoidance behavior between the companies studied.

Theoretically, inventory Intensity denotes the ratio of a company's current assets held in the form of inventory compared to total assets. A higher inventory intensity is generally expected to provide firms with greater flexibility to manipulate the cost of goods sold or inventory valuations, thereby reducing taxable income (Salihu et al., 2013). In this context, enterprises characterized by elevated inventory intensity exhibit a stronger potential to be involved in earnings management, which may lead to tax avoidance strategies. However, the empirical findings of this study do not support this theoretical expectation.

Several factors may explain the insignificant effect of inventory intensity on tax avoidance:

1. Industry characteristics: The companies analyzed may operate in industries that are not highly dependent on inventory in their core operations. As a result, inventory does not serve as a critical factor in their tax avoidance strategies (Saqiva & Pusposari, 2023)
2. Regulatory constraints: Indonesia has implemented increasingly strict tax regulations and accounting standards, particularly concerning inventory recording and transparency. These measures, such as those outlined in Director General of Taxes Regulation No. PER-22/PJ/2013 on Tax Audit Procedures, limit the ability of firms to manipulate inventory for tax avoidance purposes.
3. Alternative tax planning strategies: The companies in the study may prefer using other, more effective methods for tax avoidance, such as managing interest expenses (leverage), applying depreciation on fixed assets, or utilizing available tax incentives, rather than manipulating inventory (Saka et al., 2019).
4. Ethical and governance factors: Strong managerial ethics and good corporate governance may also reduce the likelihood of using inventory as a tool for tax avoidance. Firms that prioritize transparency and integrity are less tend to participate in manipulative accounting practices (Armstrong et al., 2015)

In conclusion, the insignificant relationship between a company's inventory investment and its tax avoidance practices found in this study suggests that inventory is not the primary instrument used by companies for tax avoidance. Instead, firms may rely on other, more fiscally and operationally relevant strategies to reduce their tax obligations

**The Effect of Capital Intensity on Tax Avoidance**

According to the findings of the statistical tests conducted, Capital Intensity as an independent variable was found to has a notable impact on tax avoidance. This is evidenced by the calculated t-value of 2.208, which exceeds the tabulated t-value at 2.021, along with a significance level below 0.05. These findings indicate that An increase in a company's capital intensity is associated with a higher likelihood of engaging in tax avoidance.

Capital intensity refers to the proportion of fixed assets relative to total assets. Enterprises exhibiting elevated levels of capital intensity typically own substantial fixed assets, such as buildings, machinery, and equipment, which can be leveraged to obtain tax benefits in the form of depreciation expenses. These expenses are non-cash deductions that reduce taxable income without affecting cash flow, making them a strategic tool in tax avoidance practices.

As stated by (Hanlon & Heitzman, 2010), firms characterized by a high degree of fixed asset investment are more likely to identify and exploit loopholes in accounting and tax regulations to legally minimize their tax liabilities. In addition, such firms often operate on a larger scale and possess greater resources and tax planning expertise, enabling them to implement more sophisticated and structured tax avoidance strategies.

These findings align with earlier studies conducted by (Frank, M. M., Lynch, L. J., & Rego, 2009) which revealed that firms with high capital intensity are more actively involved in managing tax obligations. These firms have greater flexibility in managing depreciation and amortization schedules and can take advantage of investment-related tax incentives.

Therefore, the findings of this study support the conclusion that capital intensity is a significant determinant of tax avoidance behavior. It provides companies with ample fiscal leverage to reduce taxable income through legitimate accounting mechanisms that comply with existing tax regulations.

**The Effect of Leverage on Tax Avoidance**

The evidence obtained through the statistical tests provide evidence that the leverage variable shows no significant impact on tax avoidance. This is evidenced by a calculated t-value of 0.766, which is lower than the t-table value of 2.021, and a significance level greater than 0.05. Therefore, statistically, there is insufficient evidence to conclude that leverage has a partial influence on tax avoidance practices among the companies sampled in this study.

Leverage calculates the ratio of debt used within the firm's capital composition and is typically assessed using the debt-to-total-assets ratio. According to tax theory, the greater the company's leverage, the higher its interest expenses—which are tax-deductible—thereby potentially reducing taxable income. As such, leverage is often considered a mechanism for tax avoidance.
However, the observed results of this research suggest otherwise. Several explanations may account for the insignificant effect of leverage on tax avoidance:

1. Limited tax benefit realization: Companies with high levels of debt may not necessarily take full advantage of the tax benefits associated with interest expenses. This may be especially true if the interest expense is relatively low or constrained by tax rules such as Indonesia's thin capitalization regulation (Directorate General of Taxes Regulation No. PER-25/PJ/2018), which limits the deductibility of interest to prevent abuse of debt structures.
2. Increased financial risk and oversight: Highly leveraged firms often face greater bankruptcy risk and increased scrutiny from both creditors and tax authorities. This may discourage them from pursuing aggressive tax avoidance strategies to avoid attracting additional regulatory attention.
3. Alternative tax strategies: Many companies may prefer to implement tax avoidance through other means—such as transfer pricing, utilization of tax incentives, or cross-border tax planning—that are not directly related to their debt levels.

This result aligns with prior research, including studies by (Hanah et al., n.d.) and (Dyreng et al., 2010), which also observed that the relationship between leverage and tax avoidance can be inconsistent and may depend on various factors, such as industry characteristics, company size, and the prevailing tax regulations.

# CONCLUSION

Based on the results of the statistical analysis, it can be concluded that partially, Inventory Intensity has no significant effect on tax avoidance, while Capital Intensity shows a significant influence on tax avoidance. Meanwhile, Leverage also does not have a significant impact on tax avoidance. Simultaneously, the three variables—Inventory Intensity, Capital Intensity, and Leverage—do not have a significant effect on tax avoidance practices. Theoretically, each variable is assumed to contribute to tax avoidance: Inventory Intensity through the potential manipulation of inventory, Capital Intensity through the benefits of fixed asset depreciation, and Leverage through interest expense deductions. However, the empirical results of this study indicate that collectively, these three variables do not provide a strong enough contribution in influencing tax avoidance. For future research, it is recommended that: Companies design tax planning strategies that do not merely rely on regulatory loopholes but also consider transparency and social responsibility aspects, including efficient management of fixed assets aligned with tax strategies. Future researchers are encouraged to consider additional variables such as company size, the effectiveness of corporate governance, as well as external factors such as recent tax regulations. Moreover, the use of samples from more diverse sectors and a longer observation period may increase the validity of research

results. For the government, it is advisable to pay more attention to the structure of companies' fixed assets when formulating tax policies, particularly regarding depreciation mechanisms, considering the empirical evidence that capital intensity is closely related to tax avoidance practices.

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