

The Effect of Capital Intensity, Profitability, and Leverage on Tax Avoidance in Transportation and Logistics Companies Listed on the Indonesian Stock Exchange

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Abstract

The purpose of this study is to determine the effect of capital intensity, profitability, and leverage on tax avoidance in transportation and logistics companies listed on the Indonesia Stock Exchange. Tax avoidance is a deliberate approach taken by individuals, organizations, or legal entities to reduce their tax liabilities legally. This study uses secondary financial statement data accessible through the Indonesia Stock Exchange website at www.idx.co.id. The population in this study consists of 84 transportation and logistics companies, and the sample used comprises 28 companies. The sampling method used is purposive sampling, with data analysis techniques employing multiple linear regression through the SmartPLS version 4 program. The results of this study indicate that capital intensity influences tax avoidance. Meanwhile, profitability and leverage do not influence tax avoidance.

Keywords: Capital Intensity, Profitability, Leverage, And Tax Avoidance

1. Introduction

Taxes are one of the primary sources of state revenue, contributing significantly to the funding of various government activities. In Indonesia, taxes not only serve as a tool for collecting funds but also as an instrument to achieve broader social and economic objectives. However, tax avoidance practices have become a serious concern among companies, including in the transportation sector. This phenomenon not only harms state revenue but also creates unfair competition in the market. According to the latest data from the Directorate General of Taxes, the transportation sector shows a significant level of tax avoidance, which has the potential to disrupt national economic stability. This shows that tax avoidance is an issue that needs to be addressed seriously, especially in the context of companies listed on the Indonesia Stock Exchange (IDX). Taxes serve as a source of revenue for the government, but for business taxpayers, taxes are an expense that must be paid, which ultimately reduces a company's net

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profit. Companies seeking large profits will strive to minimize their tax costs. According to Article 17(1)(b) of Law No. 36 of 2008 on Income Tax, the tax rate for corporations is 25%. This rate remains in effect until the 2019 tax year. Additionally, in accordance with Government Regulation in Lieu of Law of the Republic of Indonesia No. 1 of 2020 (Perpu No. 1 of 2020), the overall corporate income tax rate will be reduced to 22% in 2020 and 2021, and further reduced to 20% in 2022.

One example of tax avoidance occurred in a company engaged in coal extraction and marketing, specifically PT. Adaro Energi, Tbk. According to a 2019 study by Global Witnesses worldwide, it was found that the company used transfer pricing to move its income and profits to its subsidiary, Coaltrade Service, located in Singapore. The company's operations involve two steps: first, coal is extracted in Indonesia, then sold by the company to Coaltrade at a discounted price, and finally, Coaltrade resells it at a higher price. Additionally, Coaltrade recorded a bonus of US\$55 million received from external entities and other Adaro companies. The purpose of this accounting is to reduce the company's taxes, as the tax rate in Singapore is 17% lower than in Indonesia. The study also shows that the corporation, through its international subsidiary, avoided paying US\$125 million (Rp 1.75 trillion) in taxes in Indonesia between 2009 and 2017.

Some factors influencing tax avoidance include capital intensity, profitability, and leverage. These three factors can be used as metrics to assess tax avoidance. Capital intensity is one of the factors that encourages tax savings. Capital intensity measures a company's investment in fixed assets. Most fixed assets depreciate, which can reduce a company's profitability, thereby affecting tax calculations. The higher the depreciation expense, the lower the income and profit, which in turn reduces the company's tax rate ([Wilyaka, 2022](#)). High profitability of a company implies its ability to manage assets effectively to generate profits and minimize taxes to maximize income. According to, profitability reflects a company's capacity to generate profits, which can influence tax avoidance. Leverage is a measure that shows the extent to which a company uses borrowed funds to finance its operations. Many companies in the transportation and logistics sector use debt to finance expansion and investment. High leverage can provide tax benefits through tax deductions on interest expenses. However, excessive use of debt also increases financial risk. This phenomenon creates a dilemma for companies: on one hand, they want to take advantage of the tax benefits of debt, but on the other hand, they must consider the risks associated with high debt obligations ([Yanti et al., 2022](#)).

Previous studies have not found consistent results regarding the effect of capital intensity and profitability (for example. The purpose of this study is to examine the effect of capital intensity, profitability, and leverage. The independent variables used are capital intensity, profitability, and leverage.

2. Literature Review

2.1 Theoretical Foundation

2.1.1 Tax avoidance

Tax avoidance is a deliberate approach taken by individuals, organizations, or legal entities to legally reduce their tax liabilities. This is often achieved by exploiting loopholes in tax laws or by using financially advantageous laws to minimize tax liabilities owed to the government ([Dyrenge, 2022](#)). Taxpayers engage in tax avoidance when they deliberately take actions to

reduce the amount of tax they have to pay. Although tax evasion may not be prohibited by law, this approach is considered unsatisfactory because it exploits loopholes in current tax laws to avoid paying taxes or conducting transactions solely for the purpose of tax avoidance. ([Zikri, 2022](#)).

2.1.2 Capital intensity

A company's investment operations, including investments in fixed assets and inventory, are referred to as the Capital Intensity Ratio. The Capital Intensity Ratio is often associated with the percentage of a company's capital that is allocated to its fixed assets and inventory. A company's ownership of fixed assets allows it to claim tax deductions based on the annual depreciation of those assets. Capital intensity refers to the level of investment a company makes in fixed assets. Ownership of fixed assets will result in reduced tax payments for the company, as fixed assets incur depreciation expenses. ([Dian, 2020](#)).

2.1.3 Profitability

Profitability is a ratio used to measure a company's ability to generate profits using sales, assets, and capital levels (Indriani and Juniarti, 2020). As a measure of a company's profitability, return on assets (ROA) looks at how much money a business generates from its assets. Return on Assets (ROA) measures the use of capital in the future by analyzing a company's profitability over a certain period of time. The selection of the ROA indicator in calculating the profitability ratio is based on its ability to assess a company's ability to use its current assets effectively and efficiently to generate profits. A higher ratio indicates superior organizational performance in generating profits by leveraging its current assets. (Darmawan and Sukartha in Napitupulu, 2020).

2.1.4 Leverage

Leverage is a financial metric that measures a company's capacity to meet its long-term financial commitments. Leverage refers to the level of debt issued by a company when utilizing debt-based financing, as explained by [Ghofir and Yusuf \(2020\)](#) and Sari (2020).

2.2 Previous Research

Relevant prior research is what we mean when we talk about a subject of research for example, the study of tax avoidance will be considered a prior study. This research has to do with research conducted by Reinaldy in 2021. There is a gap between this study and his predecessor's research. This study is different from other reference studies that examined the consumption of commodities by mining companies traded on the Indonesia Stock Exchange between 2016 and 2018. Companies listed on the Indonesia Stock Exchange are the focus of this research. Research is planned to be conducted between 2022 and 2024.

2.3. A. Framework of Thought

Based on the theoretical and previous research foundations, a framework for this study was established as follows:

2.4 Hypothesis

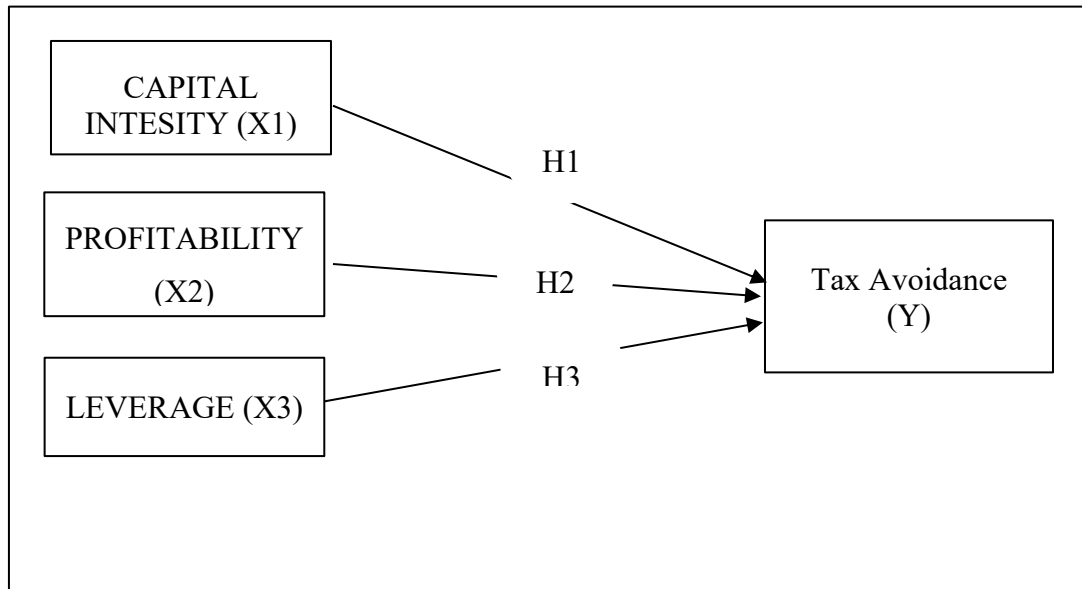
Based on previous theories and studies, the following hypothesis was proposed:

H1: Capital intensity affects tax avoidance.

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H2: Profitability continues to affect Tax Avoidance.

H3: Leisure Remains Influential on Tax Avoidance



Research Method

3.1. Object of Research

The research object used in this study is a transportation and logistics sector company listed on the Indonesia Stock Exchange from 2022 to 2024.

3.2 Types and Sources of Data

1. Data Type

This study used secondary data collected indirectly. Secondary data in the form of an annual financial report (annual report) of transportation and logistics companies listed on the Indonesia Stock Exchange for the period 2022–2024. Secondary data is data that has been collected and made available by other parties, so researchers can use it as needed (Sanusi, 2013).

2. Data source

The data sources used in this study are capital intensity, profitability and leverage taken from the annual financial statements of transportation and logistics companies listed on the Indonesian stock exchange from 2022-2024. Supporting data in this study was obtained through data sourced from www.idx.co.id and consisted of annual financial statements published by the Indonesia Stock Exchange (IDX).

3.3 Population and Sample

According to (Kasmir, 2022:175), Population refers to areas to be studied, such as organizations, individuals, regions, or other data. The population may include the number of companies, the number of employees, or a specific time range. The population of this study is transport-related

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companies listed on the Indonesia Stock Exchange from 2022 to 2024. Between 2022 and 2024, the study's population consisted of 37 transport-related companies and logistics companies traded on the Indonesia Stock Exchange.

According to Kasmir (2022:175), Samples are part of the population used as data in research. Sampling should reflect and represent the population as a whole. To select the samples that fit this study, researchers used purposive sampling techniques. The following criteria are used to determine this sample:

1. Transportation and logistics sub-sector companies that were active and registered on the IDX during the 2022-2024 period.
2. Transportation sub-sector companies that did not have financial statements and annual reports during the 2022-2024 period.
3. Companies that do not present complete data for all variables in financial statements.

The selection process resulted in 28 transportation and logistics companies to be used as research samples. The total number of observations is 84 as studies cover 2022–2024. A total of 28 companies from the logistics and transportation industries were used as research samples:

3.4 Research Variables and Operational Definition of Variables

By outlining the processes that must be followed to achieve a particular goal, operational variables facilitate the measurement of other variables by making them observable and measurable. Knowing what factors affect tax avoidance on transportation and logistics companies listed on the Indonesia Stock Exchange is the primary purpose of this research. A total of three independent variables and one dependent variable formed this study. In this study, tax avoidance was the dependent variable studied, with capital intensity, profitability, and leverage as independent variables.

Table 1. Operational Variables

Variabel	Definisi Operasional	Indikator	Skala
1. <i>Capital intensity</i>	Capital intensity capital intensity is a ratio used to show the efficiency of capital use that companies have invested in the form of fixed assets (Nuryeni and Hidayati, 2021).	$\text{capital intensity} = \frac{\text{fixed assets}}{\text{total assets}}$	Ratio
2. Profitability	Profitability Profitability is the ratio used to measure a company's ability to earn profit using sales, assets, and capital levels (Indriani and Juniarti, 2020)	$ROA = \frac{\text{net profit}}{\text{total assets}}$	Ratio
3. <i>Leverage</i>	Leverage Leverage is the ratio of total debt to total capital, which measures how much a company's capital is financed from debt	$DAR = \frac{\text{total liabilities}}{\text{total equity}}$	Ratio

(Kasmir, 2016)		
Variabel	CETR is a ratio that measures how	Ratio
Dependen :	much tax a company pays	<i>CETR</i>
Tax Avoidance	compared to its profit (Ihsan, 2022)	$= \frac{\text{tax payment}}{\text{profit before tax}}$

3.5. Data Analysis Methods

The data obtained from this study are quantitative data. In processing data, researchers use smart PLS tools, while the analysis technique used is regression analysis.

3.6. General Overview of Research

The research was conducted on a transportation and logistics company, a company that manages the entire process of efficient and timely transfer and/or management of goods and/or people, including transportation, warehousing, distribution, and logistics information systems. A transportation and logistics company is a business that provides services to move goods or people using various modes of transport (land, sea, air, and railway) and manages the flow of goods from producers to end consumers efficiently, quickly, and on time.

4. Results and Discussion

4.1. Descriptive Statistical Analysis

A descriptive analysis of the data taken for this study is secondary data in the form of financial position reports and annual reports of transportation and logistics companies 2022-2024 listed on the Indonesia Stock Exchange (IDX). The following is a table of descriptive statistics for each study variable:

Tabel 2. Descriptive Statistical Analysis

	Mean	Median	Observed min	Observed max	Standard deviation
Intercept	0.000	0.000	0.000	0.000	0.000
X1	0.516	0.518	0.005	0.929	0.265
X2	0.043	0.030	-0.380	0.599	0.127
X3	2.279	0.455	-19.625	135.985	15.636
Y	-0.536	-0.113	-9.221	2.154	1.704

source: processed data (2025)

4.2. Results of Data Analysis

4.2.1 Structural Model Testing (Inner Model)

Structural testing of the model was conducted to view the relationship between the construct, significance value, and R-square of the research model. R squared values can be used to assess the effect of certain independent variables on the dependent variable. The R-square values of this study are shown in the table below:

Tabel 3. Coefficient Determination

	R-square	R-square adjusted
Tax Avoidance (Y)	0.106	0.073

source: processed data (2025)

Based on the data in table 3 it shows that the R-square value of the Tax Avoidance variable is 0.106 or 10.6%. This value indicates that the variables of capital intensity, profitability and leverage can be explained by the variable of tax avoidance of 10.6%, while the remaining 80.4% is influenced by other variables not examined in this study.

Tabel 4. Path Coefficient Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Capital Intesity -> Tax Avoidance	0.335	0.319	0.133	2.513	0.012
Profitability -> Tax Avoidance	-0.031	-0.030	0.064	0.487	0.626
Leverage -> Tax Avoidance	0.055	0.032	0.062	0.885	0.376

source: processed data (2025)

From the ANOVA Summary data in table 4 it can be seen about the Regression F value, and the P-Value used as a reference for making decisions about hypotheses of influence or effectiveness. Hypotheses have a significant effect if the data processing results show a Regression value of $F > 1.96$ or a value of < 0.005 .

1. Effect of Capital Intensity on Tax Avoidance.

Based on the results of the study, it shows that there is an effect between the influence of capital intensity on tax avoidance. Where 2,513 statistics are obtained, which is greater than table t, or can also be seen in the value that represents $0.012 < 0.05$, which means there is a significant influence, and in the original value the sample has a positive value of 0.335 shows the direction of the relationship between the influence of capital intensity on tax avoidance is positive.

2. Effect of Profitability on Tax Avoidance.

Based on the results of the study, it showed that there was no effect between the effect of profitability on tax avoidance. Where the t-statistics are obtained by 0.487 which is less than the t-table or also can be seen in the palae showing $0.626 > 0.05$, which means there is no effect, and in the original sample the negative value is -0. The number 031 indicating the direction of the relationship between the effect of profitability on tax avoidance is positive.

3. The Effect of Leverage on Tax Avoidance

Based on the results of the study, it shows that there is an effect between the effect of leverage

on tax avoidance. Where 0.885 is obtained, the value of t statistics is smaller than t tables or can also be seen in the value of $0.376 > 0.05$, which means no effect, and in the original sample value of $0.376 > 0.05$. In 2005 the direction of the relationship between leverage effect on tax avoidance was positive.

5.1 Conclusion

Based on the discussion of the opinion of going concern audit for transportation and logistics companies on the Indonesia Stock Exchange (IDX) using the independent variables capital intensity, profitability, and leverage that the author presents in chapter IV, the author concludes several things as follows:

1. The results of the second hypothesis test show that the capital intensity variable has no effect on tax avoidance. However, capital intensity simultaneously has an effect on tax avoidance. This is evidenced by the significance value in the hypothesis test with a value of 0.002 or less than 0.05. This means that the proportion of fixed assets owned by a company is not necessarily used as a means of tax saving through depreciation.
2. The results of the second hypothesis test show that the profitability variable does not affect tax avoidance. However, profitability simultaneously has an effect on tax avoidance. This is evidenced by the significance value in the hypothesis test with a value of 0.002 or less than 0.05. This shows that a company's profit level is not always a major factor in determining the aggressiveness of companies in practicing tax avoidance.
3. The results of the second hypothesis test show that the leverage variable has no effect on tax avoidance. However, leverage simultaneously has an effect on tax avoidance. This is evidenced by the significance value in the hypothesis test with a value of 0.002 or less than 0.05. This shows that the higher the company's debt level, the greater the interest expense that can be used as a deduction from taxable income, so that companies tend to use leverage to engage in tax avoidance.

Based on the conclusions of the study results, the following suggestions were made:

1. For future researchers, it is recommended to add other more diverse variables such as company size, managerial ownership, audit quality, intangible asset intensity, and corporate governance mechanisms so that the research model can be more comprehensive in explaining tax avoidance practices. Research with a more extended time period or using cross-sector panel data should be conducted so that the results obtained are more robust and generalizable.
2. For companies, the results of this study provide an overview that tax avoidance strategies are mostly carried out through the management of funding structures (leverage). Therefore, companies need to be careful in managing their debt levels so as not to cause long-term financial risks, even though it provides tax benefits. This research can also be used as input in formulating more effective policies to minimize tax avoidance practices, for example by tightening regulations related to the use of debt and tax incentives for corporate asset investments.

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