International Journal of Academe and Industry Research
Volume 5 Issue 4 December 2024
DOI: https://doi.org/10.53378/ijair.353108

Effect of sales growth, capital intensity and debt to equity ratio on tax avoidance as moderated by firm size

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Abstract

This study aims to analyze the effect of sales growth, capital intensity, and debt to equity ratio on tax avoidance with firm size as a moderating variable. This quantitative research focused on seventeen food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022. Data were analysed using Structural Equation Modelling with a Partial Least Square approach. The findings revealed that sales growth and debt to equity ratio do not significantly impact tax avoidance, while capital intensity does. Additionally, firm size does not moderate the relationship between sales growth or debt to equity ratio and tax avoidance but strengthens the effect of capital intensity on tax avoidance. These results offer valuable insights for financial management within the sector, highlighting the importance of strategic asset management in reducing tax burdens. The study's findings suggest that regulators may need to refine tax policies to address the nuanced effects of capital investment on tax avoidance behaviors, especially in large firms.

Keywords: *sales growth, capital intensity, debt to equity ratio, tax avoidance*

Article History:

Received: *August 14, 2024* ***Revised***: *September 17, 2024*
Accepted: *September 19, 2024* ***Published online***: *October 1, 2024*

Suggested Citation:
Winarta, P., Siburian, M.E., Simorangkir, E.N. & Sitepu, W.R.B. (2024). Effect of sales growth, capital intensity and debt to equity ratio on tax avoidance as moderated by firm size. *International Journal of Academe and Industry Research*, 5(4), 1-22. https://doi.org/10.53378/ijair.353108

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1. Introduction

Tax avoidance has become a critical issue in corporate finance, especially in industries where growth and profitability are subject to high scrutiny. As companies expand, particularly in the food and beverage sector, tax strategies become more complex, involving capital investments, profit management, and balancing debt obligations. In the context of growing regulatory pressures and increased financial transparency, companies are under more scrutiny than ever regarding their tax strategies. The relationship between financial performance and tax obligations is increasingly examined as governments seek to minimize tax avoidance practices (Mkadmi & Ali, 2024; Sarhan et al., 2024; Nebie & Cheng, 2023) which can negatively impact national revenue. As such, understanding the factors that lead companies to engage in tax avoidance is essential for both regulatory bodies and the companies themselves. Empirical evidence showed that sales growth (Shubita, 2024; Rosalin & Chrismastuti, 2023; Resca & Ramadhan, 2023; Hendayana et al., 2024), capital intensity (Hendayana et al., 2024), debt-to-equity ratio (Tang et al., 2022; Sani et al., 2024; Rosalin & Chrismastuti, 2023; Hendayana et al., 2024) and firm size (Rizka & Rahayu, 2023; Rosalin & Chrismastuti, 2023; Hendayana et al., 2024) have significant effects on corporate tax avoidance.

Sales growth can have a significant impact on corporate tax avoidance practices. As sales increase, companies tend to have more revenue sources that need to be efficiently managed to optimize their tax liabilities (Stephanie & Herijawati, 2022). Some companies may use tax avoidance strategies to reduce the tax burden they have to pay, thereby increasing the net profits they can achieve (Akbar et al., 2020). This can include exploiting tax loopholes or placing entities in jurisdictions with lower tax rates. Although tax avoidance can be legal, it is important to remember that corporate ethics and social responsibility must also be considered to maintain reputation and support long-term business sustainability (Suyanto & Kurniawati, 2022). Meanwhile, capital intensity, or the extent to which a company relies on assets and capital investments in its operations, can also have a significant impact on tax avoidance practices. Companies with high capital intensity may have more opportunities to use tax avoidance methods, such as recognizing amortization or depreciation of assets, to reduce taxable income (Firmansyah & Triastie, 2020). Additionally, complex capital structures, such as the use of debt, can be used to manipulate interest expenses and reduce taxable profits. This suggests that capital intensity can be an important factor in designing corporate tax avoidance strategies, with efforts to maximize net profits and reduce tax liabilities. It is important for companies to consider the ethical and tax compliance consequences of adopting such strategies to maintain a balance between financial efficiency and social responsibility (Prabowo & Sahlan, 2021). On the other hand, companies with higher debt-to-equity ratios tend to engage in more tax avoidance. This means that companies with higher debt-to-equity ratios tend to have lower debt costs, which can help them in tax avoidance (Fitriya, 2021). The debt-to-equity ratio is used to determine the comparison between total debt and equity (Rahayu & Kartika, 2021), which shows the amount of collateral available to creditors. High corporate debt indicates that the company's financial condition is not good, a condition that reduces the need for large tax payments due to the high burden borne by the company (Lianawati, 2021). Lastly, company size, categorization as large or small, has implication on tax avoidance. The larger the company, the more operations it carries. Therefore, it becomes possible for the company to exploit existing weaknesses to avoid taxes (Rahmadani et al., 2020). The larger the company, the greater the tax avoidance activity, as companies with relatively large total assets tend to be more profitable, and thus strive to minimize their tax needs (Prabowo & Sahlan, 2021).

Given the empirical evidence and arguments on the factors affecting tax avoidance, this study focuses on the Indonesian manufacturing sector, analyzing how variables like sales growth, capital intensity, and debt-to-equity ratio influence tax avoidance, with firm size as a moderating factor. By doing so, this study provides a comprehensive look into the financial strategies employed by companies in the Indonesian food and beverage sector and offers implications for policy improvements to ensure fair tax contributions across firms of different sizes. Ultimately, the findings of this study are expected to contribute to a more nuanced understanding of corporate tax behavior in emerging economies. Policymakers can utilize these insights to design more effective tax regulations, while companies can gain a clearer understanding of how to optimize their financial strategies within legal and ethical boundaries. The research will fill a gap in the literature on tax avoidance in the Indonesian food and beverage sector, offering both theoretical contributions and practical implications for financial management and regulatory frameworks.

2. Background of the Study

The study of tax avoidance becomes particularly relevant in the food and beverage sector, which is a vital part of the Indonesian economy, as it consistently shows growth in sales and investments. For instance, the sales data, fixed assets, profitability, debt levels, and tax payments of several food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2018-2022 show some area of concerns. As shown in table 1, PT Ultrajaya Milk Industry & Trading Company, Tbk. has a significant increase in sales from 2018 to 2022, indicating growth in sales activities. This sales increase could lead to higher earnings, potentially affecting tax obligations. Fixed assets also grew year by year, suggesting ongoing investment in infrastructure and assets, which could influence cost allocation and depreciation, affecting tax liabilities. However, profitability fluctuated annually, with a notable increase in 2019, but a decline in 2020 and 2021 before rising again in 2022. This variability can impact taxable profits and tax payments. While the debt levels decreased from 2018 to 2022, the company's total assets increased from 2018 to 2020 but decreased from 2020 to 2022, showing inconsistency with rising tax payments. Tax payments followed an inconsistent pattern, possibly due to profit fluctuations, tax regulations, or tax planning strategies. Further analysis is needed to understand these impacts.

Table 1

Sales, fixed assets, profitability, debt levels, and tax payments for 2018-2022 (In Millions of Rupiah).

Company	Year	Sales	Fixed Asset	Profit	Asset	Liabilities	Tax
PT. Ultrajaya Milk Industry & Trading Company Tbk.	2018	5,472,882	1,453,145	701,607	5,555,871	78,231	291,922
	2019	6,241,419	1,556,666	1,035,865	6,608,422	19,291	278,947
	2020	5,967,362	1,715,401	1,109,666	8,754,116	2,236	321,089
	2021	6,616,642	2,165,353	1,267,793	7,406,856	1,339	331,696
	2022	7,656,252	2,260,183	965,486	7,376,375	1,449	427,799
PT Indofood Sukses Makmur, Tbk..	2018	73,394,728	42,388,236	4,961,851	96,537,796	24,945,155	3,460,973
	2019	76,592,955	43,072,504	5,902,729	96,198,599	20,975,714	2,361,672
	2020	81,731,469	45,862,919	8,752,066	163,136,516	51,281,924	2,784,615
	2021	99,345,618	46,751,821	11,203,585	169,356,193	20,822,032	3,577,269
	2022	110,830,272	47,410,528	9,192,569	180,433,300	23,087,536	3,775,947
PT Buyung Poetra Sembada, Tbk.	2018	1,430,785	363,407	90,195	758,846	164,241	30,452
	2019	1,653,031	353,945	103,723	848,676	177,829	50,625
	2020	1,173,189	379,776	38,038	906,044	193,193	19,963
	2021	933,597	442,033	11,844	987,563	285,540	11,381
	2022	925,708	329,698	90,572	811,603	92,597	10,546

Source: Data processed by the researcher.

On the other hand, PT Indofood Sukses Makmur, Tbk., sales experienced annual fluctuations with a significant increase from 2018 to 2022. Fixed assets showed consistent growth, possibly reflecting a strategy of increasing investment in physical assets, perhaps due to more efficient technology or operational restructuring. Profitability also fluctuated yearly, not always aligning with sales trends, indicating other factors like operational costs or external factors may be influencing profitability. The company uses debt for operations, benefiting from interest expenses in income tax calculations. Tax payments did not consistently align with sales, fixed assets, or profitability. The size of the company, indicated by total assets, increased, while tax payments fluctuated, suggesting that company size does not directly correlate with tax payments. In years like 2019 and 2020, tax payments were relatively low despite varying sales and profitability.

For PT Buyung Poetra Sembada, Tbk., sales declined significantly from 2018 to 2020, indicating reduced demand or issues with marketing or production strategies. This decline may reduce revenue and profits, impacting tax payments. However, reduced sales could also lower operational expenses, potentially decreasing tax liability. Fixed assets varied annually with no clear trend. High fixed assets might indicate significant investment in infrastructure, affecting tax through various depreciation methods. Profitability showed significant fluctuations, dropping sharply from 2018 to 2020 before rising in 2021 and 2022. High profitability generally results in higher taxable income, but the decline from 2018-2020 might reduce tax payments. Debt usage fluctuated, and decreasing sales could reduce revenue and profits, affecting tax payments. High fixed assets suggest significant investment, which might have tax implications based on fiscal policies. Company size increased, but tax payments declined, showing a mismatch between company size and tax payments. Fluctuating profitability impacts tax payments, with higher profitability leading to higher taxes and vice versa.

3. Hypotheses Development

3.1. Sales growth and tax avoidance

Sales growth can impact tax avoidance by influencing how companies manage their resources and tax liabilities. A growing body of literature has explored this relationship, often yielding mixed results. Study by Naimah et al. (2023) found that while sales growth can enhance profitability, it does not necessarily drive companies to engage in tax avoidance. This may be due to companies focusing on long-term sustainability and adhering to tax compliance to protect their reputations. However, other research highlights that firms experiencing rapid sales growth may develop more complex tax strategies. For instance, Akbar et al. (2020)

suggested that increased sales give firms more financial flexibility, enabling them to allocate resources towards tax planning, potentially exploiting loopholes or benefiting from tax incentives. However, this behavior is not universal. As Fauzan et al. (2019) pointed out, many companies with strong sales growth maintain a conservative approach to tax planning, prioritizing compliance over avoidance due to reputational risks and the growing scrutiny of corporate governance.

The relationship between sales growth and tax avoidance may also be contingent on factors such as industry, company size, and regional tax policies. Nadya and Purnamasari (2020) found that in certain sectors, sales growth was associated with more aggressive tax avoidance strategies, while in other industries, especially those under heavy regulatory oversight, the relationship was negligible. This suggests that the context in which a firm operates significantly influences how it responds to sales growth in relation to tax obligations. These findings indicate that while sales growth has the potential to increase tax avoidance activities in some firms, it is not a definitive driver. Instead, company-specific factors, including governance structures, regulatory environments, and long-term strategic goals, play a critical role in determining whether increased sales lead to more aggressive tax planning. Hence, this study hypothesizes that:

H_1: Sales growth has no significant effect on tax avoidance.

3.2. Capital intensity and tax avoidance

Capital intensity, which refers to the extent to which a company relies on investments in physical assets and capital, can influence tax avoidance strategies. Companies with high capital intensity, as is often the case in manufacturing or infrastructure industries, tend to have more opportunities for tax avoidance. This is because physical assets such as factories or equipment can provide more opportunities to apply tax methods that optimize costs and take advantage of tax incentives related to capital investment. Companies with high capital intensity may be able to shift profits or effectively exploit tax barriers across various jurisdictions, thereby reducing their tax burden and increasing overall fiscal efficiency (Prabowo & Sahlan, 2021). Given these arguments, this study posits that:

H_2: Capital intensity negatively affects tax avoidance.

3.3. Debt to equity ratio and tax avoidance

The higher the debt to equity ratio, the higher the amount of third-party debt financing used by the company, and the higher the interest burden generated from this debt, which will reduce the company's tax burden (Suartama, 2022). The debt to equity ratio is a ratio used to measure the extent to which a company's equity is financed by debt (Suparman, 2018). This means that most of the debt burden borne by the company is compared to its equity. It can be said that this ratio of solvency is used to measure the extent of the company's ability to pay all its obligations, both short-term and long-term, if the company is dissolved (liquidated). Companies that receive funding from third-party loans must, of course, be able to repay their obligations in the form of principal and interest, so that aggressive tax planning behavior also increases, using these loans to further develop the company so that depreciation costs become larger (Nindika et al., 2021). Hence, this study argues that:

H_3: The debt-to-equity ratio does not significantly influence tax avoidance.

3.4. Firm size and tax avoidance

Firm size significantly influences a company's approach to tax avoidance (Sari et al., 2022). Larger firms typically have more resources, including access to specialized tax expertise, advanced financial strategies, and greater lobbying power, allowing them to engage in more sophisticated and effective tax avoidance practices (Romdoni & Pandoyo, 2022). Their complex organizational structures and international operations provide additional avenues for minimizing tax liabilities through methods such as profit shifting, transfer pricing, and the use of tax havens. In contrast, smaller firms, with limited resources and simpler operations, generally have fewer opportunities and face higher relative costs for engaging in similar tax avoidance activities. Consequently, larger firms are often better equipped to reduce their overall tax burden compared to smaller firms (Suyanto & Kurniawati, 2022).

Sales growth on tax avoidance moderated by firm size. Company size can act as a moderator in influencing the relationship between sales growth and tax avoidance (Fauzan et al., 2019). Larger companies, with complex assets and operations, may have greater flexibility to develop more complex and effective tax avoidance strategies (Sawitri et al., 2022). Large-scale operations can provide companies with access to various tax incentives and regulatory loopholes that can be used to reduce the tax burden. On the other hand, smaller companies may have limited resources and expertise to implement complex tax avoidance strategies (Nadya &

Purnamasari, 2020). Therefore, company size can act as a moderating variable that influences the extent to which sales growth impacts a company's tax avoidance decisions, with larger companies likely having greater ability to optimize their tax structures as sales growth increases (Suyanto & Kurniawati, 2022).

Capital intensity on tax avoidance moderated with firm size. Company size can serve as a moderating factor influencing the relationship between capital intensity and tax avoidance. Larger companies with large-scale operations and significant asset portfolios may have the flexibility and resources to implement more complex and effective tax avoidance strategies (Khairunnisa, 2020). At the same time, company size can strengthen the relationship between capital intensity and tax avoidance, as large companies with significant physical assets typically have more opportunities to exploit tax loopholes and incentives related to capital investment. Conversely, smaller companies with low capital intensity may face limitations in implementing complex tax avoidance strategies due to limited resources. Therefore, company size can act as a moderating factor that influences the impact of capital intensity on a company's ability to engage in tax avoidance practices (Prabowo & Sahlan, 2021).

Debt to equity ratio on tax avoidance moderated with firm size. The debt to equity ratio plays a significant role in tax avoidance strategies, as companies with higher debt levels relative to equity can benefit from interest expense deductions, effectively reducing taxable income. Firms with a high debt to equity ratio are often more incentivized to engage in tax avoidance to alleviate financial pressures from interest obligations (Dewi & Noviari, 2017). However, its effect on tax avoidance can be moderated by firm size. Larger firms typically have more resources, expertise, and opportunities to engage in sophisticated tax planning, which can enhance or mitigate the impact of debt to equity ratio on tax avoidance. As a result, while smaller firms with high debt to equity ratio might rely heavily on tax avoidance as a strategy, larger firms may exhibit a more complex relationship where firm size either amplifies or diminishes the tax avoidance behavior driven by their debt levels (Nindika et al., 2021).

Given these empirical evidence, this study posits that:

H_4: Firm size positively moderates the relationship between the independent variables and tax avoidance.

Figure 1

Research model

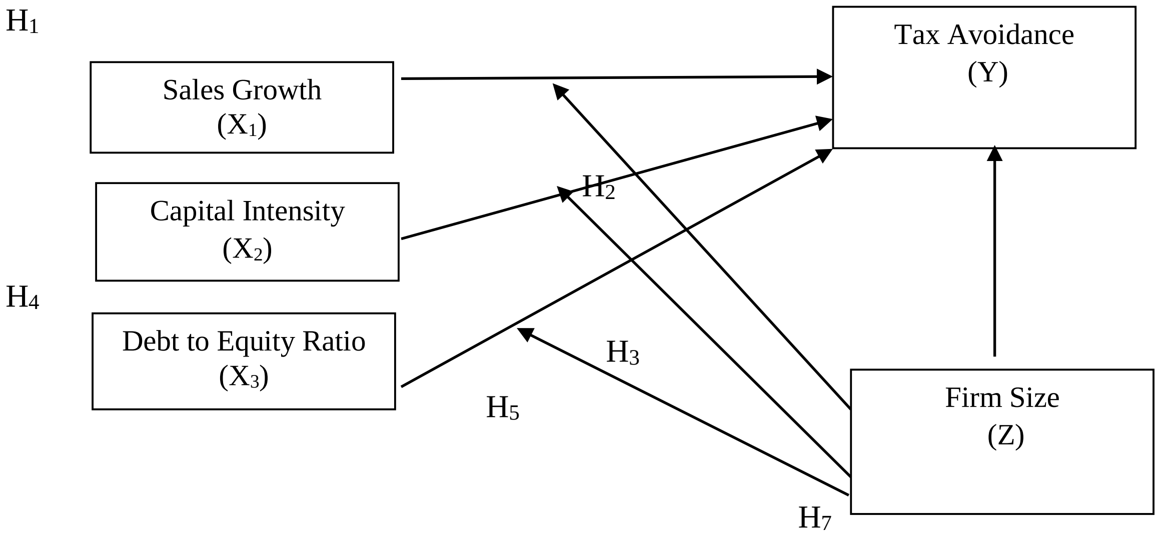

Figure 1 shows the research model is designed to examine the influence of sales growth, capital intensity, and debt-to-equity ratio on tax avoidance, with firm size acting as a moderating variable. The relationship between these variables is explored to understand how financial performance indicators impact tax avoidance strategies within food and beverage manufacturing companies.

Companies with increasing sales often face greater tax liabilities due to higher revenue streams. However, firms may employ tax avoidance strategies to reduce these obligations. This suggests a significant link between sales growth and tax avoidance, but the extent of this relationship may vary depending on the firm's ability to exploit tax loopholes or tax incentives.

Capital intensity refers to the proportion of a company’s assets tied up in fixed assets such as machinery and equipment. Firms with higher capital intensity might engage in tax avoidance by utilizing depreciation and amortization of assets to reduce taxable income. This variable has been shown to have a significant impact on tax avoidance, especially in sectors requiring substantial capital investment .

The debt to equity ratio reflects a company's reliance on debt financing. Higher debt levels can lead to tax benefits as interest payments on debt are tax-deductible, reducing the overall tax burden. The role of debt to equity ratio in tax avoidance is well-documented, particularly in companies with significant debt.

Larger firms often have more resources and greater access to sophisticated tax planning strategies. They are better positioned to leverage their size in minimizing tax liabilities. Firm size is expected to moderate the relationships between sales growth, capital intensity, debt-to-equity ratio, and tax avoidance.

4. Methodology

This research adopts a quantitative approach to investigate the influence of sales growth, capital intensity, and debt-to-equity ratio on tax avoidance, with firm size as a moderating variable. The design is specifically chosen to allow statistical analysis of relationships between variables, ensuring an objective measurement of their effects. The study focuses on food and beverage manufacturing companies listed on the IDX from 2018 to 2022.

The population for this study consists of all food and beverage sector manufacturing companies listed on the IDX between 2018 and 2022. After applying purposive sampling techniques, 17 companies were selected based on specific criteria, including the availability of consistent financial reporting during the entire period. The final sample consisted of 85 firm-year observations. The purposive sampling method ensures that only companies relevant to the research objectives are included, allowing for more reliable and valid results

Data were collected from secondary sources, specifically the audited annual financial statements of the selected companies, which were obtained from the IDX website. These financial statements provide detailed information on the variables being studied, such as sales growth, capital intensity, debt-to-equity ratio, firm size, and tax avoidance indicators. Data collection was completed in July 2024, ensuring that the latest available data were included in the analysis.

The data were analyzed using Structural Equation Modeling (SEM) with a Partial Least Squares (PLS) approach. SEM-PLS was chosen for its ability to handle complex relationships between variables, especially when multiple dependent variables and moderating effects are involved. This method also allows for the testing of both direct and indirect effects. Convergent and discriminant validity tests were conducted to ensure the accuracy of the measurement models. Additionally, Composite Reliability and Cronbach's Alpha tests were used to assess the reliability of the constructs.

This study uses a quantitative research design to quantify the effects of financial variables on tax avoidance. The approach allows for rigorous hypothesis testing and the use of statistical tools to examine the relationships between sales growth, capital intensity, and debt-to-equity ratio, with firm size as a moderator. The choice of SEM-PLS as the analytical tool is justified by its robustness in analyzing complex relationships, making it suitable for financial research involving multiple interrelated variables.

5. Findings and Discussion

5.1. Results

Descriptive statistical analysis aims to provide a description of the variables used in this study, namely sales growth, capital intensity, debt to equity ratio, tax avoidance and firm size. The result is shown in table 2.

Table 2

Descriptive statistics results

Description	N	Minimum	Maximum	Mean	Std. Deviation
Sales growth.	75	-0.465	0.504	0.092	0.151
Capital intensity	75	0.031	0.832	0.374	0.221
Debt to equity ratio	75	-0.577	0.838	0.163	0.224
Firm size	75	27.304	32.826	29.001	1.560
Tax avoidance	75	-2.142	2.295	0.158	0.480

Source*:* Data processed by researcher.

The results of the R-Square test can be seen in table 3.

Table 3

R-Square (R2)

Description	R Square	R Square Adjusted
Tax avoidance	0.289	0.214

Source*:* Data processed by researcher.

The R-Square value for this model is 0.214, indicating that 21.4% of the variance in tax avoidance can be explained by the independent variables: sales growth, capital intensity, debt-to-equity ratio, and firm size. This relatively low explanatory power suggests that the model accounts for only a small portion of the factors influencing tax avoidance. The remaining 78.6% of the variance is likely due to other variables not included in the analysis. Compared to the expected values in tax-related studies, this indicates that additional variables, such as governance mechanisms or industry-specific factors, might further clarify the determinants of tax avoidance.

In this context, the model's lower explanatory power suggests that while the financial variables considered play a role in tax avoidance, they are not the sole determinants. This implies the need for future research to explore other aspects, such as regulatory changes, corporate governance, or macroeconomic conditions, which could provide a more comprehensive understanding of the factors that drive tax avoidance behaviors.

Table 4 displays the direct effects.

Table 4

Direct effect

	Original Sample (O)	T-Statistics	P Values
Sales growth -> Tax avoidance.	0.008	0.065	0.948
Capital intensity -> Tax avoidance.	-0.237	2.466	0.014
Debt to equity ratio -> Tax avoidance.	0.121	0.899	0.369
Firm size -> Tax avoidance.	0.316	2.167	0.031

Source*:* Data processed by researcher.

The sales growth variable has a positive and insignificant effect on tax avoidance with a coefficient of 0.008. An increase in one unit of sales growth will have an effect on an increase in tax avoidance of 0.008 units. The significance value of sales growth is 0.948, or above 0.05. The capital intensity has a negative and significant influence on tax avoidance with a coefficient of -0.237. An increase in one unit of capital intensity will have an effect on an decrease in tax avoidance of 0.237 units. The significance value of capital intensity is 0.014 or lower than 0.05. The debt to equity ratio has a positive and insignificant effect on tax avoidance with a coefficient of 0.121. An increase in one unit of debt to equity ratio will affect the increase in tax avoidance by 0.121 units. The significance value of debt to equity ratio is 0.369 or above 0.05. The firm size has a positive and significant effect on tax avoidance with a coefficient of 0.316. An increase in one unit of firm size will affect the increase of tax avoidance by 0.316 units. The significance value of firm size is 0.031 or lower than 0.05.

The result of the indirect effects is shown in table 5.

Table 5

Total indirect effect

	Original Sample (O)	**T-Statistics**	**P Values**
Sales growth -> Firm size -> Tax avoidance.	-0.014	0.093	0.926
Capital intensity -> Firm size -> Tax avoidance.	0.475	3.130	0.002
Debt to equity ratio-> Firm size -> Tax avoidance.	-0.163	1.821	0.069

Source*:* Data processed by researcher.

The regression coefficient value of sales growth moderated by firm size is -0.014, with a negative sign, which means that if there is an increase in sales growth moderated by firm size by 1, tax avoidance will decrease by 0.014. The significance value of sales growth moderated by firm size is 0.926, which is above 0.05, so it can be concluded that firm size cannot moderate the effect of sales growth on tax avoidance. The regression coefficient value of capital intensity moderated by firm size is 0.475, with a postive sign, which means that if there is an increase in capital intensity moderated by firm size by 1, tax avoidance will increase by 0.475. The significance value of capital intensity moderated by firm size is 0.002, which is lower than 0.05, so it can be concluded that firm size can moderate the effect of capital intensity on tax avoidance. The regression coefficient value of the debt to equity ratio moderated by firm size is -0.163, with a negative sign, which means that if there is an increase in the debt to equity ratio moderated by firm size by 1, tax avoidance will decrease by 0.163. The significance value of the debt to equity ratio moderated by firm size is 0.069, which is above 0.05, so it can be concluded that firm size cannot moderate the effect of the debt to equity ratio on tax avoidance.

5.2. Discussion

Hypothesis 1. The hypothesis test results show that sales growth has a positive but not significant effect on tax avoidance in food and beverage sector manufacturing companies listed in the IDX. The lack of impact of sales growth on tax avoidance could be due to several factors. Companies may focus on sustainable growth rather than seeking tax loopholes to avoid tax obligations. Additionally, companies with good reputations and strong social responsibility are often more likely to comply with tax regulations properly to support their sustainability and reputation. Therefore, even with increasing sales, the company's tax policies may remain consistent to fulfill their responsibilities to the government and society as a whole. This result aligns with the findings of Naimah et al. (2023) that sales growth does not affect tax avoidance.

Hypothesis 2. The hypothesis test results show that capital intensity has a negative and significant effect on tax avoidance in food and beverage sector manufacturing companies listed in the IDX. Capital intensity refers to the degree to which a company invests in fixed assets such as machinery, equipment, and buildings relative to its total assets. The results showed that capital intensity has a negative and significant effect on tax avoidance. This suggests that companies with higher capital intensity are less likely to engage in tax avoidance practices. One possible explanation for this relationship is that firms with substantial investments in fixed assets might be more transparent and subject to stricter scrutiny by tax authorities. Additionally, these firms may benefit from tax incentives related to capital investments, reducing the need or incentive to engage in aggressive tax planning strategies. Moreover, the negative relationship between capital intensity and tax avoidance could be attributed to the long-term focus of firms with high capital intensity. These companies are often more concerned with sustainable growth and maintaining good relationships with stakeholders, including the government, which may discourage them from engaging in tax avoidance. In contrast, companies with lower capital intensity might rely more on financial maneuvering, including tax avoidance, to maximize short-term profits. This research aligns with the findings of Sulaeman and Surjandari (2024) that capital intensity affect tax avoidance.

Hypothesis 3. The hypothesis test results show that the debt to equity ratio has a positive but not significant effect on tax avoidance in food and beverage sector manufacturing companies listed in the IDX. If a company uses debt to finance its operations, it will result in a higher debt ratio and increase the interest expense that must be paid, leading the company to consider not using excessive debt. A high debt ratio also causes the company to be viewed as less healthy by investors and creditors if it cannot show a good profit situation, which will affect the funding the company receives in the future. The use of large amounts of debt will create significant risks for the company, causing management to act cautiously and avoid taking risks with high debt to engage in tax avoidance. This research aligns with the findings of Sormin (2019) that the debt to equity ratio affects tax avoidance. The difference in results may be due to the researcher using different variable criteria from previous research, where the researcher used the debt to equity ratio variable in accordance with the provisions of the Indonesian Ministry of Finance Regulation No. 169/PMK.010/2015, while previous researchers used the debt to equity ratio variable without considering the applicable regulations.

Hypothesis 4. The hypothesis test results show that firm size has a positive and significant effect on tax avoidance in food and beverage sector manufacturing companies listed in the IDX. This relationship indicates that larger firms are more likely to engage in tax avoidance strategies compared to smaller companies. Larger firms typically have more complex organizational structures and greater access to resources, allowing them to implement sophisticated tax planning strategies. These strategies might include profit shifting, the use of tax havens, or the exploitation of legal loopholes to minimize their tax liabilities. The scale and complexity of these firms provide them with more opportunities to maneuver within the tax system, reducing their overall tax burden. Larger companies often face greater pressure from shareholders to maximize profits, which can drive them to adopt more aggressive tax avoidance tactics. They may have dedicated tax planning teams or employ the services of tax professionals who specialize in finding ways to minimize tax expenses legally. The significant positive relationship between firm size and tax avoidance in the food and beverage sector highlights how larger companies, due to their resources and organizational capabilities, are better positioned to engage in such practices, which might be less accessible to smaller firms (Dewi & Noviari, 2017). This trend is consistent with findings across various industries, where the scale of a company often correlates with its ability to engage in tax avoidance. This research aligns with the findings of Sopiyana (2022), who provided evidence that firm size can affect tax avoidance. Furthermore, Romdoni and Pandoyo (2022) observed that larger companies are more capable of utilizing tax professionals and specialized teams to identify opportunities for tax minimization. The ability to leverage such resources contributes to a firm's capacity to navigate complex tax regulations effectively. This behavior, while legal, raises concerns about fairness and the role of corporate governance in regulating tax practices. If larger firms can disproportionately reduce their tax liabilities through aggressive tax planning, it may create an uneven playing field, disadvantaging smaller competitors who lack similar resources. Therefore, the results suggest a need for stricter regulatory oversight and the development of policies targeting large corporations to ensure more equitable tax contributions across firms of all sizes.

Hypothesis 5. The hypothesis test results show that firm size cannot moderate the effect of sales growth on tax avoidance. Although large companies may have more resources for tax avoidance, factors such as business complexity, ownership structure, and the company's openness to legal and reputational risks may influence tax decisions more than firm size itself. Additionally, strict tax regulations and stronger law enforcement may reduce incentives for companies, regardless of their size, to engage in aggressive tax avoidance. Therefore, in this context, firm size cannot moderate the effect of sales growth on the tax avoidance strategies adopted by companies. This research aligns with the findings of Rizka and Rahayu (2023). These findings suggest that firm size alone is not sufficient to influence the relationship between sales growth and tax avoidance. Instead, other organizational factors such as corporate governance practices, risk tolerance, and market competition could be more significant in moderating this relationship. For policymakers, this highlights the need to develop tax regulations that address broader organizational complexities, rather than simply focusing on firm size when attempting to curb tax avoidance practices. Moreover, this study contributes to the growing body of literature suggesting that firm size may have a limited role in moderating the effects of financial variables on tax behavior, particularly in sectors subject to high regulatory scrutiny.

Hypothesis 6. The hypothesis test results show that firm size can moderate the effect of capital intensity on tax avoidance. Capital intensity, which measures the extent of a company's investment in fixed assets, generally has a negative effect on tax avoidance. However, this relationship can be affected by the size of the firm. Larger firms, with their more complex organizational structures and greater resources, may have the capacity to better leverage their capital investments to optimize tax planning strategies. This means that in larger firms, the negative impact of capital intensity on tax avoidance may be diminished or even reversed due to their ability to engage in more sophisticated tax planning. Smaller firms may not have the same level of access to tax planning resources and may thus be more straightforward in their capital investment reporting, leading to a stronger negative relationship between capital intensity and tax avoidance. Essentially, while capital intensity tends to reduce tax avoidance, larger firms might mitigate this effect through their advanced tax planning capabilities, using their size to shield or even exploit their capital investments for tax benefits. This moderating role of firm size suggests that the overall impact of capital intensity on tax avoidance is not uniform across different firm sizes, highlighting the complexity of tax planning behaviors in the corporate sector. This research aligns with the findings of Khamisan and Astuti (2023).

Firm size can moderate the relationship between capital intensity and tax avoidance. Studies have demonstrated that larger firms, due to their extensive resources and more complex organizational structures, have greater flexibility in applying sophisticated tax avoidance strategies, particularly in managing capital-intensive investments. Prabowo and Sahlan (2021) argue that firms with high capital intensity can effectively exploit tax incentives related to capital investments, such as depreciation and amortization. However, in larger firms, the availability of advanced tax planning capabilities may diminish the negative impact of capital intensity on tax avoidance, leading to more aggressive tax planning. Research by Khairunnisa (2020) suggests that larger firms can leverage their size to strengthen the effect of capital intensity on tax avoidance, utilizing their capital investments to minimize tax liabilities through complex strategies such as asset shifting and exploitation of tax loopholes. This contrasts with smaller firms, which often face limitations in accessing such resources, leading to a stronger negative relationship between capital intensity and tax avoidance in their case. These studies emphasize that larger firms not only have more opportunities for tax avoidance but can also manipulate capital investment reporting more effectively to optimize tax outcomes. This behavior could be interpreted as a risk to equitable tax contributions across firms, suggesting that tax policies should be re-evaluated to address these disparities

Hypothesis 7. The hypothesis test results show that firm size cannot moderate the effect of the debt to equity ratio on tax avoidance. The inability of firm size to moderate the effect of the debt to equity ratio on tax avoidance indicates that other factors are more dominant in the company's tax decisions. Although large companies may have greater access to capital markets to obtain funds through debt and may have more resources to manage their financial structure, factors such as tax regulations, company policies, and risk management strategies may have a greater influence on tax decisions than the firm size itself. Additionally, government actions to reduce tax avoidance practices, such as implementing anti-tax avoidance rules, may limit the effectiveness of tax avoidance strategies related to the debt to equity ratio, regardless of firm size. Therefore, in this context, firm size cannot moderate the effect of the debt to equity ratio on the tax avoidance strategies adopted by companies. This research aligns with the findings of Sulaeman and Surjandari (2024), which provide evidence that firm size cannot moderate the effect of the debt to equity ratio on tax avoidance.

6. Conclusion

This study examined the effects of sales growth, capital intensity, and the debt-to-equity ratio on tax avoidance, with firm size as a moderating variable. The findings revealed that capital intensity has a significant effect on tax avoidance, while firm size significantly influences tax avoidance behavior. However, sales growth and the debt-to-equity ratio have no significant effect on tax avoidance. Additionally, firm size does not moderate the effect of sales growth or the debt-to-equity ratio on tax avoidance but does strengthen the relationship between capital intensity and tax avoidance. However, these results are not generalizable beyond the food and beverage sector or other time periods due to the purposive sampling method used, which limits the findings' applicability even within the selected population.

The findings suggest that policymakers and managers should prioritize capital intensity and firm size when designing strategies to manage tax avoidance. Understanding these relationships can help organizations optimize their financial strategies while ensuring compliance with tax regulations.

Disclosure statement
No potential conflict of interest was reported by the author(s).

Funding
This work was not supported by any funding.

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