Determinants of Tax Avoidance through Profitability, Leverage, and Firm Size in Manufacturing Companies of the Food and Beverage Subsector

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Abstract. This study examines how profitability, leverage, and firm size shape tax avoidance in food and beverage manufacturing companies listed on the Indonesia Stock Exchange from 2021 to 2024. Using purposive sampling, 30 companies were selected, yielding 120 firm-year observations. Panel regression analysis was applied, with tax avoidance measured by the Effective Tax Rate (ETR). The results show that higher profitability and larger firm size are associated with lower tax avoidance, while higher leverage increases tax avoidance. These findings carry different implications: regulators should strengthen oversight, policymakers may adjust tax incentives to curb avoidance, and corporate practitioners are encouraged to implement governance-based tax strategies.

Keywords: Tax Avoidance, Profitability, Leverage, Firm Size, Effective Tax Rate

1 Introduction

Taxation plays an essential role in maintaining economic stability and supporting sustainable national development. As the primary source of government revenue, taxation finances strategic programs in infrastructure, health, education, and social welfare [1]. In Indonesia, corporate income tax contributes substantially to overall state revenue; therefore, strengthening corporate tax compliance and improving tax management practices are critical to achieving fiscal sustainability and equitable economic distribution [2].

The issue of tax avoidance has become increasingly relevant in Indonesia's manufacturing sector, which consistently contributes to national GDP and employment. Within this sector, the food and beverage subsector serves as a key driver of industrial expansion. Its capital-intensive and asset-heavy characteristics, combined with sensitivity to regulatory changes, make it an appropriate setting for examining corporate tax behavior [5]. During the post-pandemic recovery period (2021-2024), the importance of effective tax management has intensified as firms navigate cost volatility, operational adjustments, and financial restructuring.

Prior research has explored determinants of tax avoidance using various firm-level financial indicators. Among these, profitability, leverage, and firm size are among the

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most frequently examined due to their consistent conceptual relevance [6][7]. Profitability reflects management's effectiveness in generating income from assets, leverage indicates the degree of debt utilization and potential tax benefits through interest deductions, and firm size reflects a firm's operational scale, visibility, and capacity to engage in structured tax planning [8].

Despite extensive empirical evidence, research findings remain mixed. Some studies report that profitability and leverage positively influence tax avoidance because profitable or highly leveraged firms have stronger incentives to reduce taxable income [9][10]. Conversely, other studies identify a negative association between firm size and tax avoidance, suggesting that larger firms adopt more conservative tax strategies in response to heightened regulatory scrutiny and reputational pressures [11]. These differing results indicate the need for further empirical examination, particularly within specific industry contexts.

This research analyzes the effects of profitability, leverage, and firm size on corporate tax avoidance in Indonesia's food and beverage manufacturing subsector. By focusing on a single industry, this study provides more refined insights into how internal financial characteristics shape tax-related decision-making.

1.1 Literature Review and Hypothesis Development

Agency Theory. developed by Jensen and Meckling, explains the contractual relationship between principals and agents within corporate organizations [19]. Managers are delegated authority to act on behalf of shareholders; however, information asymmetry and differing interests may create agency conflicts, where managerial actions do not always align with shareholder wealth maximization.

In taxation, agency theory provides a relevant framework for understanding managerial incentives behind tax avoidance. Since managers are evaluated using financial performance indicators, including profitability and return on assets, they may attempt to reduce tax liabilities to report higher after-tax income, thereby enhancing perceived firm value [18]. Nevertheless, firms also face reputational and regulatory pressures. Large corporations under substantial public and institutional scrutiny often avoid aggressive tax positions because political and reputational costs may outweigh potential tax savings [9][11]. This implies that tax avoidance is shaped not only by financial motives but also by behavioral considerations and external monitoring.

Profitability. reflects a firm's ability to convert assets into earnings and represents managerial effectiveness in utilizing available resources [4]. Firms with higher profitability typically face greater public visibility, which may discourage aggressive tax practices due to reputational concerns. Empirical studies show that profitable firms tend to adopt more compliant tax behaviors to preserve legitimacy and avoid regulatory sanctions [7][12]. Thus, profitability is expected to reduce corporate incentives for tax avoidance.

H1: Profitability has a negative effect on tax avoidance.

Leverage. represents the role of debt financing within its overall capital structure. In agency theory, debt introduces monitoring from creditors and simultaneously provides tax benefits through interest deductibility, creating a natural tax shield. Companies exhibiting high leverage may therefore have stronger incentives to reduce taxable income through tax avoidance schemes to optimize financing costs and meet debt-related obligations [13].

H2: Leverage has a positive effect on tax avoidance.

Firm Size. denotes the magnitude and the organizational complexity of a firm's operations, commonly measured using total assets or their logarithmic transformation [6]. Larger firms tend to receive more regulatory attention and are subject to higher expectations of transparency, which encourages conservative tax practices and discourages aggressive tax avoidance. This aligns with the political cost hypothesis, which states that firms with greater public exposure adopt tax strategies that minimize reputational and regulatory risk [11][14].

H3: Firm size has a negative effect on tax avoidance.

The research framework in this study is presented in Figure 1.

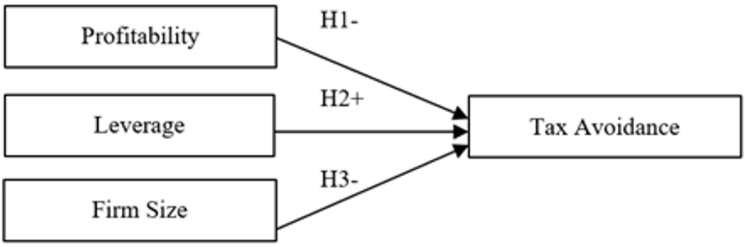

Fig. 1. Research framework

2 Research Method

This research adopts a quantitative methodology and utilizes secondary data derived from the audited annual financial reports of food and beverage manufacturing firms listed on the Indonesia Stock Exchange (IDX). The study population comprises 43 companies operating within the subsector. A purposive sampling technique is employed using three criteria: (1) firms that remained continuously listed on the IDX throughout the 2021–2024 period, (2) firms that report their financial statements in Indonesian Rupiah (IDR) to minimize potential exchange rate bias, and (3) firms that disclose income tax expense information required to compute the effective tax rate (ETR). Applying these criteria results in a final sample of 30 firms, yielding 120 firm-year observations over the study period. The data are analyzed using EViews version 12, incorporating descriptive statistics, classical assumption tests, and panel regression analysis. To mitigate potential heteroskedasticity and autocorrelation, the Panel-Corrected Standard Errors (PCSE) estimation technique is applied, thereby improving

the reliability of the regression results. Detailed operational definitions and measurement indicators for each variable are provided in Table 1.

Table 1. Operationalization of research variables

Variable	Proxy	Scale	Sources
Tax Avoidance	$ETR = \frac{Tax\ Expense}{Pretax\ Income}$	Ratio	Sari et al. [1]
Profitability	$ROA = \frac{EAT}{Total\ Asset}$	Ratio	Sari et al. [1]
Leverage	$DER = \frac{Total\ Liabilities}{Total\ Equity}$	Ratio	Sari et al. [1]
Firm Size	$SIZE = Ln\ (Total\ Asset)$	Ratio	Sari et al. [1]

3 Result and Discussion

The classical assumption tests were conducted to ensure the robustness of the regression model. As shown in Figure 2, the normality test produced a significance value of 0,782181 (> 0,05), indicating that the data are normally distributed.

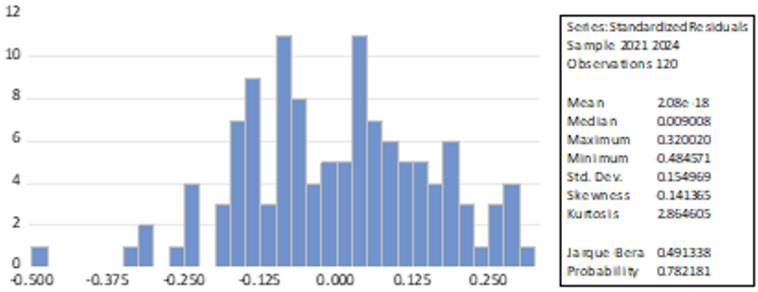

Fig. 2. Normality test

As shown in Table 2, the multicollinearity test revealed that all independent variables had tolerance values greater than 0,80 and VIF values below 10, confirming that multicollinearity is not present.

Table 2. Multicollinearity test

	ROA	DER	SIZE
ROA	1,000000	0,220666	0,341572
DER	-0,294667	1,000000	0,149220
SIZE	0,444075	-0,162753	1,000000

Table 3. Heteroskedasticity test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2,062991	1,446353	1,426340	0,1573
ROA	-0,316393	0,379849	-0,832944	0,4072

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-0,000821	0,005564	-0,147557	0,8830
SIZE	-0,000691	0,000510	-1,354309	0,1791

Similarly, as shown in Table 3, the heteroskedasticity test yielded significance values of ≥ 0,05 for all variables, indicating the absence of heteroskedasticity.

Table 4. Autocorrelation test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	570,0582	435	0,0000
Pesaran scaled LM	4,578903		0,0000
Bias-corrected scaled LM	-0,421097		0,6737
Pesaran CD	2,860527		0,0042

Finally, as shown in Table 4, the Bias-Corrected Scaled LM test for autocorrelation produced a significance value of 0,6737 (> 0,05), demonstrating that no autocorrelation exists in the regression model. Overall, all classical assumption requirements were satisfied, confirming that the regression model is robust and reliable for hypothesis testing.

Table 5. Partial test (t-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1,655136	0,382839	-4,323320	0,0000
ROA	0,1586211	0,063107	2,950701	0,0041
DER	-0,005147	0,001762	-2,920396	0,0045
SIZE	0,050271	0,013530	3,715580	0,0004

3.1 The Effect of Profitability on Tax Avoidance

As shown in Table 5, profitability has a significant negative effect on tax avoidance (p = 0,0041 < 0,05), supporting H1. This indicates that firms with higher profitability tend to reduce tax avoidance, resulting in higher Effective Tax Rates (ETR). For instance, companies in the top quartile of ROA exhibit an average ETR of 22,5%, compared to 18,3% for firms in the bottom quartile.

This finding aligns with Haamzah and Bahri [6], Satyani et al. [12], Junaidi and Yunita [11], Riyadi and Rahmayani [3], and Aini and Ikram [7], who reported that profitable firms demonstrate greater tax compliance. Conversely, it differs from Dahrani [2] and Pramana and Darmayanti [10], who found that higher profitability encourages more aggressive tax avoidance.

From an agency theory perspective [19], managers in highly profitable firms face greater scrutiny from shareholders, regulators, and the public. To protect the firm's reputation and long-term sustainability, managers are incentivized to adopt prudent tax strategies, resulting in lower levels of tax avoidance.

3.2 The Effect of Leverage on Tax Avoidance

From Table 5 reveals that leverage positively affects tax avoidance ($p = 0{,}0045 < 0{,}05$), supporting H2. Firms with higher debt ratios report lower ETRs, indicating greater use of debt-related tax shields. For example, firms with debt-to-equity ratios above 1.5 show an average ETR of 17,8%, compared to 21,9% for firms with lower leverage. This result is consistent with Emira and Pertiwi [13], who found that high-leverage firms exploit interest deductions to reduce taxable income. In contrast, some studies, such as Dahrani [2], Pramana and Darmayanti [10], and Riyadi and Rahmayani [3] reported negative or insignificant effects.

According to agency theory [19], managers may use debt strategically to benefit from tax shields while preserving liquidity for financial obligations. As a result, higher leverage motivates firms to engage in tax planning to lower ETRs legally and efficiently [13].

3.3 The Effect of Firm Size on Tax Avoidance

As indicated in Table 5, firm size negatively affects tax avoidance ($p = 0{,}0004 < 0{,}05$), supporting H3. Larger firms tend to have higher ETRs, reflecting lower tax avoidance. For instance, firms with total assets above IDR 5 trillion show an average ETR of 23,1%, whereas smaller firms average 19,2%.

This aligns with Riyadi and Rahmayani [3] and Haamzah and Bahri [6], who concluded that larger firms exhibit stronger compliance. However, studies by Pramana and Darmayanti [10] and Sari et al. [1] reported a positive relationship, and Dahrani [2] and Satyani et al. [12] found no significant effect.

The political cost hypothesis [14] explains this pattern: large firms operate under high public and regulatory visibility, creating reputational risks for aggressive tax avoidance. Consequently, they adopt conservative tax strategies to maintain credibility and stakeholder trust.

4 Conclusion and Suggestions

4.1 Conclusion

This study provides empirical evidence on how internal financial characteristics shape corporate tax behavior within Indonesia's food and beverage manufacturing subsector. The analysis shows that firms with stronger financial performance tend to adopt more cautious and compliant tax management practices, reflecting an emphasis on maintaining credibility and long-term stability. Meanwhile, companies with higher dependence on debt financing demonstrate a greater tendency to optimize allowable deductions to manage their tax burden. In addition, firms with larger operational scales appear to exercise more

conservative tax approaches, consistent with their broader visibility, stronger governance structures, and heightened regulatory scrutiny. Overall, the findings indicate

that corporate tax behavior is not only driven by financial incentives but is also influenced by governance considerations, risk management priorities, and the institutional environment in which firms operate. These insights contribute to a more comprehensive understanding of tax management dynamics in industry-specific contexts and highlight the importance of aligning financial strategies with responsible tax governance.

4.2 Limitation

This study has several limitations: a) the observation period covers only the 2021-2024 fiscal years, which may not fully capture long-term variations in corporate tax behavior, b) the sample is limited to food and beverage manufacturing firms listed in Indonesia, thereby restricting the generalizability of the findings to other sectors, c) the analysis relies solely on secondary data obtained from publicly available financial statements, which may not fully reflect the internal decision-making processes related to tax management, d) the study examines only three financial variables, which are profitability, leverage, and firm size excluding other potentially relevant factors such as liquidity, sales growth, audit quality, or governance mechanisms, e) the research does not classify tax avoidance practices based on their level of aggressiveness, which may influence interpretation, and f) macroeconomic conditions and regulatory developments during the study period are not incorporated into the model, even though such factors may affect corporate tax strategies.

4.3 Suggestion

Based on these limitations, several recommendations are proposed: a) extend the observation period beyond 2024 to provide a clearer understanding of long-term patterns in corporate tax behavior, b) expand the research scope to include firms from various industrial sectors to improve generalizability and enable comparative analysis, c) incorporate qualitative approaches such as interviews, surveys, or case studies to obtain deeper insights into managerial perspectives and tax decision-making processes, d) include additional explanatory variables, such as audit quality, ownership structure, governance mechanisms, or firm-specific characteristics to build a more comprehensive model, e) categorize tax avoidance practices based on their level of aggressiveness to enhance the clarity of interpretation, and f) consider incorporating macroeconomic indicators and relevant regulatory developments to strengthen the contextual robustness of future research findings.

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