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The Effect of Size, Profitability, Leverage and Capital Intensity on the Effective Tax Rate (ETR) in Food and Beverage Industry Sub-Sector Companies Listed on the Indonesia Stock Exchange (IDX)

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Abstract. This study aims to analyze the effect of Company Size, Profitability, Leverage, and Capital Intensity on Effective Tax Rate (ETR) in food and beverage industry sub- sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2020-2023. The approach used is quantitative with an associative approach, which allows empirical identification of the relationship between independent and dependent variables. The sample was determined using purposive sampling method, which resulted in 31 companies in the food and beverage industry sector with a total of 124 observations. Data analysis was performed using panel data regression using Eviews software version 12. The results showed that company size and leverage had no significant effect on ETR. Meanwhile, profitability and capital intensity have a significant positive effect on ETR. Simultaneously, the four independent variables proved to have a significant effect on ETR. These findings provide important implications for company management and policy makers to consider internal factors in the formulation of a tax strategy that is balanced between fiscal efficiency and regulatory compliance.
Keywords: Capital Intensity, Company Size, Effective Tax Rate, Leverage, and Profitability.

INTRODUCTION

State revenue is a primary indicator reflecting a country's progress, particularly through tax revenue, which demonstrates the financial capacity to finance sustainable development (Ajeigbe et al., 2024; Ubali et al., 2024). Tax, as a compulsory contribution from citizens to the state, is coercive in nature without direct compensation but is fully utilized for the benefit of the state and the welfare of its people (Fakhruzy, 2020). Through tax revenues, the government can formulate budgets to improve infrastructure, education, health, and other public sectors (Hafizd et al., 2024). Thus, taxation is not only a civic obligation but also one of the pillars for achieving equitable economic development (Olika, 2024; Zaneta & Syalendra, 2024). In developing countries, stable tax revenues reflect economic independence while reducing reliance on foreign debt (Gnangnon, 2022; Piancastelli & Thirlwall, 2021).

The taxation sector serves as the largest contributor to the State Budget (APBN), supporting the continuity of government programs (Amalia et al., 2025). In 2023, tax revenue reached IDR 1,867 trillion, exceeding the initial target of IDR 1,718 trillion, equivalent to 102.8% of the target and contributing approximately 77% to total state revenue (mediakeuangan.kemenkeu.go.id). This achievement is particularly significant amid global economic uncertainties, reaffirming the vital role of taxation in sustaining development and demonstrating Indonesia’s fiscal resilience (Anggraeni, 2024; Muslim et al., 2024).

Changes in tax regulations in recent years have also played an important role in optimizing revenues (Amaliah et al., 2023; Nasution & Syaputra, 2022). One strategic policy was the reduction of the corporate income tax (PPh) rate, which declined from 28% in 2009 to 22% in 2019. This policy was intended to improve taxpayer compliance, attract investment, and create a more competitive business climate. Consequently, the tax base among private entities

expanded, and economic activity increased. Such measures align with government strategies to reduce the tax burden on businesses, allowing them to focus more on business development, productivity improvement, and economic growth (Ikpe et al., 2024; Zaneta & Syalendra, 2024).

In the corporate context, taxation directly affects net income (Ali et al., 2022; Hanappi et al., 2023). Many firms perceive taxes as a burden, making tax management essential to legally minimize such expenses (Rely, 2023; Wibowo, 2024). Well-managed earnings information assists managers in formulating business strategies, while company owners use it to evaluate performance and predict future income (Umoh, 2025). Consequently, earnings management and tax management play strategic roles in supporting business decisions while ensuring sustainable company operations (Arian, 2024; Suharto, 2023).

Tax management is associated not only with cost efficiency but also with compliance to prevent administrative or criminal sanctions (Holly & Lukman, 2021). Proper tax strategies support long-term business stability, maintain liquidity, and improve financial efficiency (Elumilade et al., 2022). Effective tax management enables companies to create greater fiscal space for expansion while maintaining credibility with regulators and investors (Wibowo, 2024).

The food and beverage subsector was chosen as the research focus due to its substantial contribution to the national economy (Konstantinidis et al., 2021). In 2024, the manufacturing industry contributed 18.98% to Indonesia's GDP, growing 4.43% year-on-year, with the food and beverage subsector recording a growth rate of 5.90% (Kompas.com). In the first half of 2023, the manufacturing sector contributed 27.4% of total tax revenue, equivalent to IDR 970.2 trillion (nasional.kontan.co.id). This industry is relatively stable due to its anti-cyclical nature but continues to face challenges from dynamic tax regulations and global competition (Desyatnyuk & Marshalok, 2019).

In this study, agency theory is employed as the conceptual framework to explain the conflict of interest between principals (owners) and agents (managers) regarding taxation decisions (Chen et al., 2023). Variables such as firm size, profitability, leverage, and capital intensity are considered significant in determining the Effective Tax Rate (ETR) (Anasta & Putranto, 2022; Gita et al., 2021). These factors are not only financial in nature but also reflect the dynamics of corporate strategy in navigating tax regulations and market pressures (Jati et al., 2025).

However, prior research on the effects of these variables on ETR has produced inconsistent findings. Some studies report a positive correlation between firm size and ETR, while others find a negative relationship (Jony, 2020). Similar inconsistencies are observed in studies on profitability, leverage, and capital intensity (Widyastuti et al., 2022). Therefore, this research seeks to address these gaps by simultaneously analyzing the influence of firm size, profitability, leverage, and capital intensity on the ETR of food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2020–2023 period, with the aim of producing more comprehensive and relevant findings. Based on this background, the research formulates the central question of whether firm size, profitability, leverage, and capital intensity have positive and significant effects—both individually and simultaneously—on ETR in food and beverage subsector companies listed on the IDX in 2023. Accordingly, the study aims to empirically examine these relationships.

The novelty of this research lies in its comprehensive, simultaneous analysis of multiple determinants of ETR within the Indonesian food and beverage subsector during a period of unprecedented economic disruption. It addresses inconsistencies in prior literature while providing context-specific insights relevant to post-pandemic fiscal management. The expected contributions include theoretical enrichment of taxation literature, practical guidance for companies in designing efficient tax strategies, policy insights for regulators, reference material for academics, and investment considerations for investors in the food and beverage industry.

MATERIALS AND METHOD

The research applied in this study was quantitative, using a positivist approach to analyze structured and standardized data on firm size, profitability, leverage, and capital intensity, as well as their impact on the Effective Tax Rate (ETR) of food and beverage manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2023. The collected data were statistically analyzed to test the proposed hypotheses and identify patterns or correlations among the variables under study.

An associative approach was employed to examine the relationships between the independent variables—size, profitability, leverage, and capital intensity—and the dependent variable, ETR (Unaradjan). This method allowed the analysis of causal correlations and the effects of these variables, providing insights into how firm characteristics influenced corporate taxation practices.

The study population consisted of food and beverage manufacturing companies listed on the IDX during the 2020–2023 period. This subsector was selected due to its economic importance and the availability of financial data. Samples were obtained using purposive sampling based on specific criteria: (1) companies that published consecutive annual financial reports from 2020 to 2023; (2) companies that remained listed during the entire study period; (3) financial reports presented in Indonesian Rupiah (IDR); and (4) firms reporting positive profits, as ETR calculations were only meaningful for profitable entities. Based on these criteria, 31 companies were selected from a total of 95.

The 2020–2023 period was chosen to capture the impact of economic fluctuations and the effects of the COVID-19 pandemic, which influenced corporate operations, financial strategies, and tax management policies. Using data from this timeframe provided a relevant perspective on how firms adjusted to external pressures through fiscal efficiency and tax burden management. Employing IDR as the reporting currency ensured consistency across variables, eliminated exchange rate distortions, and reflected the domestic financial context.

The research was limited to firms with positive earnings during the study period to maintain the accuracy of ETR measurement, as negative earnings could yield non-representative ETR values and weaken the reliability of the results (Adams & Balogun, 2020). This restriction improved the validity and consistency of the analysis in assessing the relationship between the independent variables and ETR within the Indonesian food and beverage subsector.

Data collection was conducted using document analysis of secondary data obtained from company financial statements available on the official IDX website (www.idx.co.id). These data included firm-specific information needed to measure the study variables. The research

process involved several key steps: conducting a preliminary review to establish the research background and formulate questions, collecting relevant financial data, reviewing related literature, developing a conceptual framework and hypotheses, and designing an empirical model encompassing population selection, sampling procedures, data collection methods, and statistical analysis techniques.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis Results

Descriptive statistical analysis in this study involved collecting, presenting, and summarizing key data characteristics to portray the sample comprehensively and provide an overall picture of the research variables used in the empirical model; applied to 31 food and beverage subsector companies listed on the IDX over 2020–2023 (124 firm-year observations), it reported for ETR a mean of 0.249 (median 0.221), range 0.008–0.853, and standard deviation 0.118 indicating substantial cross-firm dispersion, with some firms paying very high and others very low effective taxes; for Firm Size, the mean was 29.417 and median 29.388, spanning 26.298 (PT Wahana Interfood Nusantara, 2020) to 32.826 (PT Indofood Sukses Makmur, 2022), with a moderate dispersion (SD = 1.4746) that reflects asset-scale differences; Profitability averaged 0.092 (median 0.077), ranged 0.003 (PT Austindo Nusantara Jaya, 2020) to 0.284 (PT Sekar Bumi, 2023), and showed relatively low variability (SD = 0.0598), consistent with all sampled firms being profitable during the window; Leverage posted a mean of 0.864 (median 0.860), a broad range of 0.109 (PT Wilmar Cahaya Indonesia, 2022) to 2.465 (PT Tunas Baru Lampung, 2022), and high dispersion (SD = 0.583), evidencing heterogeneous financing policies across firms; and Capital Intensity recorded a mean of 1.312 (median 1.195), varied from 0.269 (PT Tigaraksa Satria) to 3.877 (PT Austindo Nusantara Jaya, 2020), with relatively high variability (SD = 0.733), indicating wide differences in fixed-asset utilization policies within the subsector.

1. Model Specification Test Results

   The data regression panel provides three estimation model approaches, namely the Common Effect Model, the Fixed Effect Model, and the Random Effect Model. To determine the most suitable model, three test methods were used. First, the Chow Test (F-statistic) is useful for distinguishing between the Common Effect Model and the Fixed Effect Model. Second, the Hausman Test is applied to determine the choice between the Fixed Effect Model and the Random Effect Model. Third, if necessary, further testing can be carried out to ensure the validity of the selected model based on the data characteristics of the panel used.

2. Chow Test Results

   The Chow test is one of the statistical techniques used to determine the most accurate data panel model between the Common Effect Model and the Fixed Effect Model (Rahutami, 2011). This test is applied by knowing the probability value of the cross-section of the Chi-square. If the probability value is greater than 0.05, then there is no significant difference between cross-section units, so the appropriate model is the Common Effect Model. On the other hand, if the probability value is less than or equal to 0.05, then there is a significant difference between the cross-section units, so the appropriate model to use is the Fixed Effect

Model. The probability value (Prob.) of the cross-section of Chi-square is as much as 0.0000. This value is smaller than the significance level of 0.05, so it can be concluded that there is a significant difference between the cross-section units in the model tested. Thus, the Fixed Effect Model is the Fixed Effect Model, as it is able to accommodate the differences in individual (firm) characteristics in the sample more accurately. Therefore, Chow's test results project that Fixed Effect is the most suitable model to be used in the analysis of panel data in this observation.

3. Hausman Test Results

Because the results of the Chow test projected that the Fixed Effect model was more appropriate than the Common Effect model, the next step was to perform this test to ensure the most suitable model between the Fixed Effect and Random Effect models. The Hausman test is carried out by distinguishing the random cross section probability value (p-value) obtained with a significance level of 0.05. If the p-value is greater than 0.05, then the chosen model is Random Effect. On the other hand, if the p-value is less than 0.05, then the model used is Fixed Effect.

The results of the Hausman test showed that the probability value of cross section random (p-value) obtained was 0.0267, so it projected that the probability value obtained in this test was smaller than the significance level of 0.05. This projects that those who are chosen to be the best model in this test result is the Fixed Effect Model. Because based on the results of the chow and Hausman tests, they have projected the equation of the results shown, namely the Fixed Effect Model, therefore, there is no need to test the advanced estimation model, namely the Langrange Multiplier test, in this observation.

Classical Assumption Test Results

Classical assumption testing was carried out to ensure that the panel data regression model useful in this observation was free of bias and met the BLUE (Best Linear Unbiased Estimator) criteria. The classical assumption test applied includes the normality test, the multicollinearity test, and the heteroscedasticity test.

1. Normality Test Results

The normality test was applied to assess whether the residual from the regression model was distributed normally. Residual normality is important to ensure the validity of the results of the estimation and conclusions of the regression model. In this observation, normality testing was carried out using the Histogram method and the Jarque-Bera test.

The test was proxied by differentiating the probability value (p-value) from the Jarque-Bera test at a significance level of 0.05. If the probability value is greater than 0.05 and the Jarque-Bera value is less than the critical value in the chi-square distribution (χ^2 table), then H_0 is accepted which projects that the residual is normally distributed. On the other hand, if the probability value is less than 0.05 and the Jarque-Bera value exceeds the χ^2 value of the table, then H_0 is minus, which means the residual does not follow the normal distribution.

The results of the normality test output are known that the probability value obtained in this regression model is 0.299 which projects a probability value > 0.05. Based on these data, it can be understood that the regression model used in this observation has met H0 which means that the residual data can be declared to have been normally distributed.

2. Multicollinearity Test Results

   Multicollinearity in regression models arises when there is a high or perfect correlation between independent variables, which leads to a violation of the BLUE (Best Linear Unbiased Estimator) assumption. This condition can increase the standard error value of the regression coefficient, thereby reduce the accuracy of the estimate and resulting in invalid t-test results. Therefore, the existence of multicollinearity needs to be tested and eliminated in the panel data regression model so that the estimation results remain reliable and interpretive.

   Efforts to detect multicollinearity in this observation were carried out using the Variance Inflation Factor (VIF) value. The decision-making criterion is that if the VIF score is ≤ 10, then it can be stated that there is no multicollinearity. On the other hand, if the VIF value is > 10, then the model is indicated to have multicollinearity. The output results of the Variance Inflation Factor (VIF) are known that the centered value of VIF obtained by each variable does not project more than 10. It can be stated that the regression model used in this observation has met the prerequisites of multicollinearity.

3. Heteroscedasticity Test Results

   The heteroscedasticity problem arises when the variance of the error term is not constant across all observations, which can cause the Ordinary Least Squares (OLS) estimation to be inefficient and the confidence interval to be invalid. To detect the presence of heteroscedasticity in the regression model, a test with the Chi-Square probability approach (Prob) was used.

   The decision-making criteria were based on a significance level (α) of 0.05. If the value of Prob (Chi-Square) > 0.05, then H_0 is accepted, which means that there are no symptoms of heteroscedasticity in the model. Conversely, if the Prob (Chi-Square) < 0.05, then H_0 is rejected and projects heteroscedasticity.

4. Autocorrelation Test Results

   The autocorrelation test was applied to analyze the correlation between errors (interference errors) in different observations, especially in data arranged in time series and panel data. Autocorrelation becomes a problem when the residual of the regression model is not independent, which causes the estimation results to be inefficient. Autocorrelation generally occurs in time series data or data panels, where the residual value in one period correlates with the residual value in the other. In this observation, autocorrelation testing was applied using the Durbin-Watson (DW) test. This test is used to detect the presence of serial autocorrelation, which is the correlation between residuals over adjacent time periods in a regression model.

   The results of the autocorrelation test using Durbin Watson above can be seen that the regression model in this observation projects a result of 2.125154 it can be concluded that the data does not experience autocorrelation symptoms. This is because the dU value obtained is 1.6409 and the 4-dU value is 2.3591, so it can be stated that the Durbin Watson value obtained in this model has met the prerequisites of the autocorrelation test.

Results of Panel Data Regression Analysis

In this observation, the regression analysis of the panel data was performed using the EViews 12 software. The analysis used includes testing the determination coefficient (R-squared) to assess the level of competence of independent variables in describing dependent

variables, as well as partial hypothesis testing through t-tests to evaluate the significance of each independent variable on the dependent variables individually.

1. Coefficient of Determination (R-Square)

   Based on the results of the regression model test in this observation, it can be seen through this table that the R-Squared value obtained is 0.698 or as much as 69.8%. This means that the variation in the change in the Effective Tax Rate (ETR) variable can be explained by the variables in this observation model used, which is as much as 69.8% and the rest. As many as 30.2% were represented by other variables that were not included in the observation. Meanwhile, the slightly lower Adjusted R-Squared value reflects an adjustment to the number of variables in the model, which projects that the effectiveness of the model is not very high after considering the complexity of the model.

2. Simultaneous F Testing

   The F test is useful to analyze whether all independent variables together (simultaneously) overlap the dependent variables. The F test was carried out with a significant level of 0.05. According to Ghozali the basis of decision-making is as follows:

   a. If the probability value < 0.05, then the independent variables together (simultaneously) represent the dependent variable.
   b. If the probability value > 0.05, then the independent variables together (simultaneously) do not represent the dependent variable.

   Based on the results of the F test, it is projected that the significance value in this regression model projects a result of 0.000000 <0.05. This finding means that at a significance level of 0.05 the company size variable, profitability, leverage, and capital intensity are able to predict the Effective Tax Rate (ETR) together (simultaneously). The results of the regression analysis can be found through the table below as follows:

Table 1. Panel Data Regression Analysis Results

Variabel	Coefficient	Significance	Statistics	Sig.F
Constants	0.457633	0.6545	0.449005	0,000000
Company Size	-0.014340	0.6792	-0.414907	
Profitability	0.653757	0.0069	2.764557	
Leverage	-0.041210	0.4079	-0.831469	
Capital Intensity	0.144368	0.0001	4.232647	

Source: Processed Data Eviews 12 Year 2025

So that based on the processing results that have been presented in the table, the following equation formula can be obtained:

ETRit = 0.457 − 0.0143Size it + 0.0654Profitability it
− 0,0412 $Leverage\ it$ + 0,1443Capital Intensity it + Ɛ it

3. Partial t testing

   The t-test is useful for analyzing the impact of independent variables on individual (partial) dependent variables. According to Priyatno, the basis for decision-making is as follows:

   a. If the probability value < 0.05, then the independent variable individually (partially)

overlaps the dependent variable.

b. If the probability value > 0.05, then the independent variable individually (partially) does not overlap the dependent variable.

Table 2. Hypothesis Testing

Hypothesis	Coefficient	Significance	Statistics	Information
Firm Size on ETR	-0.014340	0.6792	-0.414907	Rejected
Profitability on ETR	0.653757	0.0069	2.764557	Accepted
Leverage on ETR	-0.041210	0.4079	-0.831469	Rejected
Capital Intensity on ETR	0.144368	0.0001	4.232647	Accepted

Source: Processed Data Eviews 12 Year 2025

Based on the results of the t-test in this observation model, the decisions that have been presented in the table above can be taken as follows:

1. The Firm Size variable has a t-statistical value of -0.414907 with a probability value of 0.6792 > α = 0.05. This project shows that partially, the Firm Size variable has no impact on the Effective Tax Rate (ETR). Thus, it can be concluded that the size of the company cannot directly have an impact on the effective tax burden borne by the company. This is because large companies generally have greater resources to carry out more complex tax planning, including the implementation of tax avoidance strategies, such as transfer pricing, or the use of international tax structures. However, although large companies have greater potential to reduce their tax liabilities, this impact is not always seen in their ETRs. Other factors, such as the company's internal policies, stricter tax regulations, or higher oversight by tax authorities, can limit the competence of large companies to optimize their taxes significantly. In addition, large companies may also face pressure to maintain the company's reputation and avoid tax avoidance practices that can harm their image.
2. The Profitability variable has a t-statistical value of 2.764557 with a probability value of 0.0069 < α = 0.05. Thus, Profitability has a significant positive impact on the Effective Tax Rate (ETR). This projecting that the higher the company's profitability, the greater the burden that must be paid by the company. High profitability can reflect good performance, which leaves room for the company to pay a greater tax burden, in accordance with applicable tax regulations.
3. The Leverage variable has a t-statistical value of -0.831469 with a probability value of 0.4079 > α = 0.05. Thus, the Leverage variable does not have a significant impact on ETR. This means that the level of debt owned by the company does not directly affect the effective tax burden. This can be due to the reduction of loan interest tax, which is often limited by applicable tax regulations. In addition, the instability of profits and fluctuations in the company's finances can also have an impact on the effectiveness of the tax reduction.
4. The Capital Intensity variable has a t-statistical value of 4.232647 with a probability value of 0.0001 < α = 0.05. This project, partially the Capital Intensity variable, has a significant positive impact on the Effective Tax Rate (ETR). This projects that, the higher the capital intensity of a company, the greater the impact on the effective tax rate paid by the company. Capital Intensity assesses the proportion of investments in fixed assets relative to the

company's total assets. Companies with high capital intensity typically have greater depreciation costs, which can reduce the taxable profit that must be paid in order to be able to lower corporate tax liability.

The Influence of Size on Effective Tax Rate (ETR)

Based on the findings of this study, firm size was found to have no significant effect on the Effective Tax Rate (ETR) of food and beverage companies listed on the Indonesia Stock Exchange (IDX) during 2020–2023. This result contradicts the first hypothesis (H1), which predicted a positive and significant relationship between firm size and ETR. Regression analysis revealed a negative coefficient for firm size with a p-value greater than 0.05, indicating no significant contribution to changes in ETR. Although larger firms are typically subject to stricter public and regulatory oversight, they also possess greater resources to engage in tax planning, enabling them to take advantage of fiscal incentives and loopholes that reduce their tax burden. Conversely, smaller firms tend to operate with simpler, more stable business activities, resulting in ETR levels that do not differ greatly from those of larger firms. Within the Indonesian food and beverage subsector during 2020–2023, the relatively stable environment and uniform fiscal policies across companies further neutralized the effect of firm size on ETR. This aligns with Jensen and Meckling's (1976) agency theory, which explains that managers (agents) act to maximize shareholder (principal) wealth, including through tax management strategies, despite potential information asymmetry and divergent interests. Supporting evidence comes from prior studies, such as Sihombing and Mulyadi and Siregar, which also reported that firm size does not influence tax aggressiveness or tax avoidance, while Barli (2018) found similar results in the property and construction sectors. Nonetheless, these findings diverge from studies like Novianti, Setyorini and Nurhayati, and Anasta and Putranto, which reported a significant impact of firm size on ETR. Such discrepancies may stem from differences in industry characteristics, fiscal oversight, or sector-specific opportunities and challenges. Overall, these findings imply that firm size is not a crucial determinant of effective tax burdens in this subsector. For regulators, this suggests that tax monitoring should not rely solely on company scale but also consider industry characteristics, business complexity, and tax planning strategies. For companies, it highlights the importance of efficient resource management in tax planning, while for investors and stakeholders, it underscores the need to focus on tax management practices rather than firm size alone when evaluating financial transparency and potential fiscal risks.

The Influence of Profitability on Effective Tax Rate (ETR)

Based on the findings of this study, profitability was shown to have a positive and significant impact on the Effective Tax Rate (ETR) of food and beverage companies listed on the Indonesia Stock Exchange (IDX) during 2020–2023, thus supporting the second hypothesis (H2). Regression results indicated a positive coefficient and a p-value below 0.05, confirming that firms with higher profitability tend to pay higher effective taxes. This suggests that greater operational efficiency and financial performance, reflected in higher profitability, lead to increased tax contributions while reducing incentives for excessive tax avoidance. In line with agency theory (Jensen & Meckling), high profitability heightens shareholder expectations for optimal net income, prompting managers to balance value maximization with compliance to fiscal regulations to avoid penalties, thereby resulting in higher ETR as evidence of fiscal

responsibility. These results align with prior studies by Salaudeen and Eze and Adams and Balogun (2020), which reported that profitable firms typically face greater tax burdens, though they diverge from findings by Poli and Pristanti, who observed tendencies toward aggressive tax planning in highly profitable firms. The implication is that profitability serves as an important indicator for tax authorities to monitor potential aggressive tax strategies, highlighting the need for stronger oversight of high-performing firms. For companies, the findings emphasize the importance of balancing tax planning strategies with transparency, reputation, and regulatory compliance, consistent with good corporate governance principles. Thus, profitability not only enhances fiscal contributions but also reinforces the need for sustainable, compliant, and ethically grounded business practices in the food and beverage subsector.

The Influence of Leverage on Effective Tax Rate (ETR)

Based on the findings of this study, leverage was found to have no significant effect on the Effective Tax Rate (ETR) of food and beverage companies listed on the Indonesia Stock Exchange (IDX) during 2020–2023, contradicting the third hypothesis (H3), which posited a positive and significant relationship; regression analysis revealed a negative coefficient and a p-value above 0.05, indicating that leverage does not play a significant role in influencing ETR. This result is closely tied to the COVID-19 pandemic period, which pressured firms to prioritize liquidity and short-term operational survival rather than relying on debt financing for tax optimization, as many shifted toward internal funding and delayed expansion to avoid excessive interest burdens under uncertain economic conditions. In line with agency theory (Jensen & Meckling), managers acted cautiously in reducing leverage to protect long-term stability, minimizing financial risks, and aligning with shareholders' expectations for sustainable performance. These findings are consistent with previous studies, such as Damayanti and Gazali (2019), Aini and Ikhram (2025), and Syach and Witono, which highlight that in times of economic uncertainty, firms tend to reduce their debt and focus more on internal efficiency and operational control rather than using leverage as a tax-saving tool. The implication is that during the pandemic and recovery period, financial stability and operational efficiency became more crucial than leveraging debt to impact ETR, suggesting that tax authorities should broaden their oversight beyond highly leveraged firms to include profitability and corporate governance factors. For companies, these results emphasize the need for conservative financial strategies that prioritize transparency, accountability, and adaptability, ensuring business continuity while fulfilling tax obligations responsibly.

The Influence of Capital Intensity on the Effective Tax Rate (ETR)

Based on the findings in this observation, it is projected that capital intensity has a significant impact on the Effective Tax Rate (ETR) in food and beverage industry sub-sector companies listed on the IDX between 2020-2023. This result is in line with the fourth hypothesis (H4) which explains that capital intensity has a positive and significant impact on the Effective Tax Rate (ETR), so it can be stated that hypothesis 4 is accepted. This is evident from the value of the regression coefficient that projects positive results and a significance value (p-value) that is smaller than 0.05, which projects that there is a positive significant impact between capital intensity and the Effective Tax Rate (ETR).

This can occur because companies in the food and beverage industry subsector in

Indonesia tend to have a high level of capital intensity, which means they rely on fixed assets in their operational activities. Fixed assets, such as machinery and factories, play a big role in production, so the depreciation associated with these assets can reduce taxable profits and, in turn, impair the calculation of the ETR. In addition, companies with high capital intensity generally have a more stable capital structure and can take advantage of tax incentives related to the reduction of depreciation costs to reduce their tax burden. This projects that capital intensity, as one of the indicators of a company's capital structure, has a significant impact on ETR, because the higher the level of use of fixed assets, the greater the potential for tax reductions that the company can achieve. This factor also projects that companies with high capital intensity tend to have better compliance with tax regulations, by utilizing applicable tax provisions to optimize their fiscal obligations.

This condition is also in line with the agency theory initiated by Jensen and Meckling, which outlines the correlation between shareholders (principals) and management (agents), where managers are expected to act to maximize the value of the company. In the context of capital intensity, management that has incentives to increase long-term profitability through fixed asset optimization also tends to pay attention to managing tax liabilities more strategically. The manager, as an agent, will seek to take advantage of the potential tax deduction derived from the depreciation of fixed assets to improve fiscal efficiency and maximize profits for shareholders. In addition, a high capital intensity can create a more transparent and scalable structure, which allows managers to more easily meet established tax obligations, reducing the potential for conflicts between shareholders and management. In this case, Effective management in managing capital intensity will ensure that the company complies with tax obligations optimally, while maintaining a good correlation with stakeholders through efficient management of the company's resources.

The findings in this observation are in line with several previous observations that project that capital intensity has a significant impact on the level of tax burden paid by companies. Observations by Adams and Balogun (2020) support this result by projecting that companies with high levels of capital intensity tend to have a larger ETR, due to the significant impact of fixed asset depreciation on the reduction of taxable profits. On the other hand, observations by Sharif and Khan and Erawati and Jega (2019) provide a different perspective by projecting that companies with high capital intensity also have the potential to take advantage of various existing tax incentives, so that they can reduce their ETR. These findings confirm the importance of careful tax management strategies in optimizing fixed asset management, where companies must increase efficiency between reducing tax burdens through depreciation and obligations to fully comply with fiscal regulations.

The implications of this analysis project are that companies with a high level of capital intensity need to be more careful in managing their tax liabilities, given the significant impact of fixed asset depreciation on their ETR. The company must make optimal use of fixed assets to support operations and comply with fiscal obligations, while taking into account the potential tax reductions resulting from depreciation. For tax authorities, these findings underscore the importance of monitoring high-capital-intensive companies to ensure that tax deductions derived from depreciation are not abused to avoid excessive taxes. In addition, companies need to design a balanced tax policy, which not only prioritizes tax reductions but also maintains a

long-term reputation and correlation with stakeholders. Thus, careful management of capital intensity will be part of the company's strategy in achieving a balance between tax optimization and fiscal compliance.

The Influence of Size, Profitability, Leverage, Capital Intensity on Effective Tax Rate (ETR)

Based on the findings of this study, Firm Size, Profitability, Leverage, and Capital Intensity were shown to have a significant effect on the Effective Tax Rate (ETR) of food and beverage companies listed on the Indonesia Stock Exchange (IDX) during 2020–2023, thereby supporting the fifth hypothesis (H5), which posited that these four independent variables jointly have a positive and significant impact on ETR, as evidenced by the F-test results with a p-value below 0.05. Large firms (Firm Size) generally demonstrate greater capacity to comply with tax obligations and exploit economies of scale in tax management, while higher profitability reflects greater taxable income and thus a higher capacity to pay taxes. Leverage provides opportunities to utilize tax shields through interest expenses, although it may also increase the risk of aggressive tax avoidance, and Capital Intensity, reflecting investment in fixed assets, affects tax liabilities by enabling depreciation deductions. These findings highlight that fiscal policies and tax outcomes are not driven by a single determinant but rather by the interplay of firm size, profitability, capital structure, and asset intensity, which collectively shape the level of ETR. This is consistent with agency theory, which explains the contractual relationship between shareholders (principals) and managers (agents), where managers are tasked with maximizing firm value not only through profitability and risk management but also through optimal tax strategies. Larger firms provide managers with greater resources and incentives to ensure compliance and efficiency in tax planning; higher leverage allows managers to take advantage of interest tax shields while balancing risk; higher profitability motivates managers to align fiscal management with sustainable growth; and higher capital intensity enables the use of fixed assets as tools for reducing tax burdens through depreciation. These findings are reinforced by prior studies such as Adams & Balogun (2020) and Salaudeen & Eze, which similarly reported that internal firm factors jointly shape corporate tax policies, where firm size enhances tax compliance capacity, profitability determines taxable income, leverage offers tax-deductible financing benefits, and capital intensity reduces obligations through asset depreciation.

Managerial Implications

The implication of these findings is that the management of companies needs to comprehensively consider all aspects of their internal finances in formulating optimal tax policies. For tax authorities, these results signal that fiscal oversight is not enough to look at just one internal factor of a company, but must consider the interaction and combination of several key financial factors to more accurately assess a company's tax compliance. In addition, for investors and stakeholders, these findings can be a basis for consideration in analyzing potential corporate tax risks as part of investment decision-making.

1. Company Size

   Company size does not significantly affect ETR, so both large and small companies have the same opportunities in tax planning. ETR optimization should be based on smart strategies and compliance, not on company size.

2. Profitability and Tax Strategy

   High profitability increases ETR. Therefore, management needs to allocate profits strategically (reinvestment, dividends, retained earnings), implement efficient tax planning, and utilize tax incentives according to the level of profitability.
3. Leverage and Financial Stability

   Leverage does not have a significant effect on ETR, so management should not use debt solely for tax savings. The main focus should be on maintaining financial stability and liquidity, and prioritizing internal funding to reduce financial risk.
4. Capital Intensity and Tax Efficiency

   High capital intensity companies need to optimize the depreciation of fixed assets as a tax deduction. Asset investments must be evaluated from an operational and fiscal perspective, as well as considering reinvestment or asset renewal for greater tax benefits.
5. Tax Integration with Corporate Governance

   Tax decisions are influenced by many factors, requiring an internal tax team that is integrated with financial and operational functions, tax policy risk assessment, and alignment of tax strategy with ESG principles to maintain reputation and public trust.
6. Relationship with Tax Authorities

   Management must actively communicate with tax authorities to ensure compliance, take advantage of available incentives, and prepare transparent transfer pricing documentation for cross-border transactions.
7. Utilization of Technology and Data Analysis

   The use of ERP systems or integrated accounting software helps monitor ETR in real time, simulate the impact of financial decisions on tax burdens, and improve reporting accuracy and tax compliance.

CONCLUSION

The study found that firm size and leverage did not significantly influence the Effective Tax Rate (ETR), indicating that neither company scale nor debt levels directly affected corporate tax burdens within Indonesia's food and beverage industry. In contrast, profitability and capital intensity showed significant positive effects on ETR, suggesting that more profitable and capital-intensive firms tended to bear higher effective tax burdens. Although some variables were individually insignificant, the combined effect of firm size, profitability, leverage, and capital intensity showed a significant simultaneous impact on ETR, highlighting the importance of considering multiple financial characteristics collectively. Future research could expand the model by incorporating additional variables such as corporate governance, ownership structure, or industry-specific tax incentives to better explain variations in ETR across sectors and economic conditions.

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