

The Influence of Liquidity, Leverage, and Firm Size on Tax Aggressiveness (An Empirical Study of Manufacturing Companies Listed on the Indonesia Stock Exchange in 2019–2023)

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Article Info	ABSTRACT
<p>Corresponding Author: Siti Akhiria Ramadinah Putri Email: putrioppo038@gmail.com</p>	<p>This study explores the influence of liquidity, leverage, and firm size on tax aggressiveness in manufacturing companies listed on the Indonesia Stock Exchange. Tax aggressiveness is often seen as a corporate strategy to reduce tax liabilities through both legal and potentially borderline approaches. The research uses secondary data derived from annual reports and applies a purposive sampling technique to select companies that meet specific criteria. The analysis is conducted using panel data regression with multiple linear regression models, processed through EViews software. The findings reveal that liquidity and leverage do not have a significant impact on tax aggressiveness, indicating that companies with high or low liquidity and debt levels may not necessarily engage in aggressive tax planning. However, firm size demonstrates a negative and significant effect, suggesting that larger firms tend to be more compliant with tax obligations. The study contributes to a deeper understanding of the determinants of corporate tax behavior in developing economies.</p> <p>Keywords: Liquidity, Leverage, Firm Size, Tax Aggressiveness.</p>

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INTRODUCTION

Indonesia is a large country with abundant natural resources and a geographically advantageous position, making it an important international trade route. As a result, many companies are interested in starting businesses here. With the presence of these companies, government revenue can increase, especially from the tax sector. This is highly beneficial for Indonesia. Companies are established with the goal of benefiting shareholders or investors, primarily by maximizing profit. Essentially, companies aim to make as much money as possible from their business while minimizing costs. To achieve this, there are several approaches. One approach is to increase revenue by finding opportunities to earn more money. Another is to reduce unnecessary costs. And in business, one cost that is almost always incurred is tax.

One of the most influential roles in society is taxation. Taxes are one of the state's sources of revenue, collected from individuals and businesses, which are obligated to pay

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them. The rules regarding taxes are regulated by law, such as in Article 23A of the 1945 Constitution Amendment III, which states that taxes and other mandatory levies, used for the country's interests, must be determined by law. The government collects taxes from both individuals and companies and uses this money to carry out its duties to improve the quality of life for the people, so that all Indonesians can experience prosperity. This includes costs for education, health, infrastructure, and other daily needs.

In order to be used for financing both at the central and regional levels, tax revenue must be maximized. However, the government's objectives related to tax revenue often conflict with those of corporations and individual taxpayers. Companies typically strive to streamline their budgets in order to achieve maximum profits, fulfilling their responsibility to shareholders, and ensuring the company remains operational.

One phenomenon is Starbucks, which has several smart strategies to reduce pre-tax profits. First, as a multinational company with franchises nearly everywhere, Starbucks has separated some of its operations. For example, they have a company called Starbucks Coffee EMEA BV that manages their intellectual property (such as the Starbucks trademark) and is located in the Netherlands. The UK branch and other units are required to pay royalties of 6% of their total sales. These royalty payments are then used by Starbucks as an expense, effectively reducing their pre-tax profits.

Second, not only does Starbucks manage intellectual property, but it also has its own independent company that produces and manages its raw materials. The coffee beans used by Starbucks come from Switzerland through Starbucks Trading Company and are roasted by Dutch Roasting Co. in the Netherlands. According to tax regulations in the Netherlands and Switzerland, the parent company must transfer profits to this subsidiary. This transfer is structured with specific pricing designed to reduce tax obligations. For Starbucks Coffee Trading in Switzerland, the proceeds from these profit transfers are taxed at a high rate of 5%. On the other hand, Dutch Roasting Co. is able to reduce costs related to purchasing coffee beans, roasting, electricity, and packaging, which also aims to reduce their taxable income.

Finally, in its financing, Starbucks applies an inter-company loan policy. Although large companies like Starbucks have debt, it does not mean they cannot pay their operational expenses with their own money. This strategy is used because debt can be a good tool to reduce pre-tax profits. Borrowing money forces companies to pay interest, which can also be used as a deduction, further reducing their taxable income.

From the above situation, it is clear that debt loans are an important factor that can influence corporate tax calculations. Although this indicator does not directly affect the company's tax liability significantly, it is an important indicator that can help companies reduce their pre-tax profit records, which forms the basis for income tax assessment. Currently, companies not only want to benefit their shareholders by earning profits; they also aim to minimize taxes. Although the risks involved are increasing, companies will try their best to save on taxes. Tax is one of the costs that can reduce a company's profits in accounting. How much tax is paid to the Department of Revenue depends on how the company operates throughout the year. Businesses seek to minimize tax payments because paying taxes as required directly contradicts the company's primary goal, which is to increase profits or income (Ardyansah, 2014).

To reduce profits from the taxation process, aggressive tax actions are carried out, which can be categorized or not categorized. Taxes are an important product in decision-

making (Lanis & Richardson, 2012). One of the results of company decisions is the reduction of tax value. Such aggressive actions are becoming more frequent among multinational and international companies.

Tax aggressiveness is a legal or illegal effort to reduce tax liabilities with the aim of increasing profits (Novitasari, 2017). Tax aggressiveness includes transactions aimed at reducing a company's tax value. In carrying out aggressive tax actions, there are gaps that may occur. As a gray area, companies attempt to reduce allowable or non-allowable tax burdens. Companies with good management and transparent financial reporting can reduce aggressive tax actions. The Effective Tax Rate (ETR) is a term used to describe how aggressively a company engages in tax practices. Liquidity, leverage, and company size are some of the elements that support tax aggressiveness.

One factor that potentially affects tax aggressiveness is liquidity. Liquidity describes how well a company can meet its short-term obligations. Companies with high liquidity generally show good financial strength because they have enough current assets to cover their short-term liabilities. Conversely, low liquidity reflects a company's limitations in meeting short-term debts, which can lead the company to take aggressive tax management steps to improve liquidity conditions.

Leverage is the second component that can affect tax aggressiveness. The ratio of debt used by companies to finance their operations is called leverage. The debt-to-equity ratio (DER) can be calculated by dividing the company's total debt by its total equity. Companies usually use both their own capital and debt to meet their funding needs. Debt incurs fixed costs, i.e., interest charged by creditors to the company. These interest payments must be made regardless of the profit. When a business has a high leverage ratio, it shows how well it can offset its debt with assets. If a company has a high level of debt, it may have an opportunity to engage in aggressive tax actions because the interest generated will reduce their tax burden. Research by Dwi & Supramono, (2012) revealed that companies tend to deliberately increase their debt levels as a strategy to suppress tax burdens. This finding shows that leverage has a significant relationship with corporate tax aggressiveness.

Company size is the third component that can influence tax aggressiveness. One measurement known as "company size" is based on how large or small a company is. Thus, larger companies make more efforts to attract public attention. To determine how large or small a business is, the "SIZE" proxy can be used by calculating the natural logarithm of total assets. Larger companies will engage in more activities, meaning more shares in circulation and higher profits. Large companies will have higher tax burdens due to their profits. This shows that the company may engage in aggressive tax actions. Company managers will be more aggressive when larger companies attract government attention.

Various parties with different variables have studied tax aggressiveness. For example, a study by Zulfa Ramdhanah & Wikan Kinasih, (2021) found that leverage increases tax aggressiveness, while company size and liquidity do not affect tax aggressiveness. Cahyadi et al. (2020) showed that liquidity does not negatively affect tax aggressiveness, while leverage has a positive effect. Company size itself does not directly affect tax aggressiveness but plays a moderating role in the relationship between liquidity and leverage on tax aggressiveness. Yuliana & Wahyudi, (2018) concluded that both company size and liquidity can affect tax aggressiveness, while leverage has no significant impact. Zulfa Ramdhanah & Wikan Kinasih, (2021) stated that both company size and liquidity actually encourage an increase in tax aggressiveness.

METHODS

This study adopts a quantitative research design to examine the relationship between liquidity, leverage, firm size, and tax aggressiveness among manufacturing companies listed on the Indonesia Stock Exchange. The quantitative approach is suitable for identifying statistical relationships between numerical data, which allows for an objective interpretation of the effects of independent variables on the dependent variable. It also enables the researcher to generalize findings across the targeted population, based on a representative sample drawn from the listed manufacturing sector.

The population of this research consists of all manufacturing companies listed on the Indonesia Stock Exchange during the observation period. The study focuses on the five most recent fiscal years, providing a comprehensive view of the firms' financial and tax-related behavior over time. To ensure that only companies with consistent data and financial reporting standards are selected, the sample is determined using a purposive sampling technique. This method allows the researcher to select companies that meet specific inclusion criteria, such as publishing audited annual reports and not experiencing delisting or significant structural changes.

The data used in this study are entirely secondary and obtained from publicly available sources, specifically the annual financial reports of the companies under study. These reports were retrieved from the official website of the Indonesia Stock Exchange and supplemented by company websites when necessary. Financial statements were chosen because they offer a credible and standardized source of information, including the variables needed to calculate liquidity ratios, leverage levels, firm size, and the effective tax rate, which serves as a proxy for tax aggressiveness.

To operationalize the variables, tax aggressiveness is measured using the Effective Tax Rate (ETR), calculated by dividing income tax expense by pre-tax income. Liquidity is proxied by the current ratio, which measures a firm's ability to meet short-term obligations. Leverage is assessed through the debt-to-equity ratio (DER), representing the extent to which the company relies on debt financing. Firm size is measured using the natural logarithm of total assets, a widely accepted proxy for gauging corporate scale and market presence.

The statistical analysis relies on panel data regression, which combines cross-sectional and time-series data. This method is particularly appropriate for this study as it captures both the dynamics within each firm over time and differences between firms. The panel data structure enables more robust estimations and controls for unobserved heterogeneity across companies. Before running the regression, the model selection tests—including Chow, Hausman, and Lagrange Multiplier tests—are conducted to determine the most appropriate estimation model among the common effect, fixed effect, or random effect approaches.

Prior to regression testing, the data undergo several preliminary analyses, including descriptive statistics and classical assumption tests. Descriptive statistics provide an overview of the distribution and central tendencies of the data, offering insights into the patterns and variability among the variables. Classical assumption tests, such as multicollinearity, heteroscedasticity, and autocorrelation, are applied to ensure that the regression model satisfies the standard assumptions required for unbiased and efficient estimation.

The data analysis is conducted using EViews version 12, a statistical software package widely used for econometric modeling. EViews is chosen for its capability to handle complex time-series and panel data structures and to produce clear, interpretable results. The software

also supports robust hypothesis testing and model validation, allowing for the presentation of well-supported conclusions regarding the significance and direction of relationships among the variables.

RESULTS AND DISCUSSION

Overview of the Research Object

The object of this study is the primary consumer sector companies listed on the Indonesia Stock Exchange (IDX) during the period from 2019 to 2023. These companies are part of the manufacturing industry that produce ready-to-consume goods, mainly focusing on food and beverages—considered essential human needs. As a sector that continues to grow amid intense business competition, the primary consumer sector plays a significant role in contributing to national economic growth. This potential for high profitability leads to substantial tax obligations. Consequently, companies in this sector may engage in tax aggressiveness to reduce their tax burden. The sample in this study was selected using a purposive sampling method based on specific criteria established by the researcher, in accordance with the nature of quantitative research.

Research Findings

The findings of this study were obtained through a series of analyses aimed at testing the influence of liquidity, leverage, and firm size on tax aggressiveness among primary consumer sector companies listed on the IDX during the 2019–2023 period. The analysis was conducted to determine the extent to which the independent variables affect tax aggressiveness practices.

Descriptive Statistical Analysis

Descriptive statistical analysis was conducted as an initial step to provide a clear overview of the characteristics of the data used. This analysis covers variables including liquidity, leverage, firm size, and tax aggressiveness for companies in the primary consumer sector listed on the IDX from 2019 to 2023. The results present information such as the number of observations, mean values, maximum and minimum values, and standard deviations for each variable. These descriptive insights serve as a foundation for further analysis and interpretation.

Table 1. Descriptive Statistical Analysis Results

	Y	X1	X2	X3
Mean	0.228165	3.511069	0.700573	29.50703
Median	0.221316	2.403355	0.465153	29.14966
Maximum	0.325356	13.30906	2.464993	32.85992
Minimum	0.165403	0.444407	0.102822	27.22503
Std. Dev.	0.031716	2.919788	0.608962	1.554927
Skewness	0.567219	1.730143	1.166960	0.557387
Kurtosis	3.497654	5.569364	3.658869	2.343727
Jarque-Bera	5.435074	65.78719	20.82958	5.926676
Probability	0.066037	0.000000	0.000030	0.051646
Sum	19.39399	298.4409	59.54868	2508.098
Sum Sq. Dev.	0.084494	716.1136	31.15009	203.0951

Observations	85	85	85	85
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Based on Table 1, the total number of observations in this study is eighty-five, derived from seventeen primary consumer sector companies over a five-year period (2019–2023). The descriptive statistics for each variable are summarized as follows:

The dependent variable, tax aggressiveness, recorded a minimum value of 0.165403 and a maximum value of 0.325356, with a mean of 0.228165 and a standard deviation of 0.031716. The independent variable liquidity had a minimum value of 0.0444407 and a maximum value of 13.30906. The average liquidity was 3.511069 with a standard deviation of 2.919788. The leverage variable showed a minimum of 0.102822 and a maximum of 2.464993, with an average of 0.700573 and a standard deviation of 0.608962. Finally, the firm size variable recorded a minimum value of 27.22503 and a maximum value of 32.85992, with a mean of 29.50703 and a standard deviation of 1.554927. These results provide an overview of the data distribution and variability, which forms the basis for further regression analysis.

Panel Data Regression Model Analysis Common Effect Model (CEM)

Table 2. Common Effect Model (CEM) Results

Dependent Variable: Y					
Method: Panel Least Squares					
Date: 07/14/25 Time: 21:51					
Sample: 2019 2023					
Periods included: 5					
Cross-sections included: 17					
Total panel (balanced) observations: 85					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	0.154234	0.065721	2.346797	0.0214	
X1	-0.002066	0.001329	-1.554993	0.1238	
X2	0.013215	0.006555	2.015925	0.0471	
X3	0.002438	0.002228	1.094014	0.2772	
Root MSE	0.028004	R-squared	0.211080		
Mean dependent var	0.228165	Adjusted R-squared	0.181861		
S.D. dependent var	0.031716	S.E. of regression	0.028687		
Akaike info criterion	-4.218823	Sum squared resid	0.066659		
Schwarz criterion	-4.103875	Log likelihood	183.3000		
Hannan-Quinn criter.	-4.172588	F-statistic	7.224005		
Durbin-Watson stat	1.242721	Prob(F-statistic)	0.000235		

The liquidity variable (X1) has a negative coefficient of -0.002066 , indicating that an increase in liquidity tends to reduce tax aggressiveness. However, this effect is not statistically significant at the 5% level, as the p-value is 0.1238. Despite the lack of strong significance, the value is close to the 10% threshold, suggesting that liquidity may have a marginal influence on tax aggressiveness.

The leverage variable (X2) shows a positive coefficient of 0.013215, implying that higher leverage is associated with increased tax aggressiveness. This relationship is statistically significant at the 5% level, supported by a p-value of 0.0471, which is below the standard significance threshold.

Meanwhile, the firm size variable (X3) also has a positive coefficient of 0.002438, suggesting that larger firms tend to exhibit higher tax aggressiveness. However, this result is not statistically significant, with a p-value of 0.2772, which exceeds the 5% significance level.

Fixed Effect Model (FEM)

Table 3. Fixed Effect Model (FEM) Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.659951	0.409436	4.054233	0.0001
X1	-0.003183	0.002259	-1.409198	0.1635
X2	-0.007071	0.019223	-0.367828	0.7142
X3	-0.047977	0.014086	-3.406096	0.0011
Effects Specification				
Cross-section fixed (dummy variables)				
Root MSE	0.019989	R-squared	0.598056	
Mean dependent var	0.228165	Adjusted R-squared	0.480564	
S.D. dependent var	0.031716	S.E. of regression	0.022858	
Akaike info criterion	-4.516703	Sum squared resid	0.033962	
Schwarz criterion	-3.941962	Log likelihood	211.9599	
Hannan-Quinn criter.	-4.285526	F-statistic	5.090204	
Durbin-Watson stat	2.306597	Prob(F-statistic)	0.000000	

Based on the regression output, the variable X3 (firm size) demonstrates a statistically significant influence on the dependent variable Y (tax aggressiveness), as indicated by a p-value of 0.0011, which is well below the 5% significance level. The coefficient of -0.047977 reflects a negative relationship, meaning that a one-unit increase in firm size reduces tax aggressiveness by approximately 0.04 units, assuming other variables remain constant.

Conversely, X1 (liquidity) and X2 (leverage) have p-values of 0.1635 and 0.7142 respectively, which are above the 0.05 threshold. Therefore, both variables are not statistically significant predictors of tax aggressiveness in this model. Simultaneously, the overall model is statistically significant, as shown by the F-statistic p-value of 0.000000, indicating that the combination of X1, X2, and X3 has a meaningful effect on the dependent variable. The R-squared value is 0.598056, which means that approximately 59.80% of the variation in tax aggressiveness can be explained by the independent variables. The adjusted R-squared is 0.480564, showing a relatively modest explanatory power after adjusting for the number of predictors.

From a diagnostic perspective, the Durbin-Watson statistic is 2.306597, indicating no signs of autocorrelation in the residuals. This supports the reliability of the model. In conclusion, the Fixed Effect Model is deemed appropriate for this study, with firm size (X3) being the only variable that significantly influences tax aggressiveness, while liquidity (X1) and leverage (X2) do not show significant effects.

Fixed Effect Model (FEM) Summary

Table 4. Fixed Effect Model (FEM) Summary Results

Dependent Variable: Y				
Method: Panel EGLS (Cross-section random effects)				
Date: 07/14/25 Time: 21:49				
Sample: 2019 2023				
Periods included: 5				
Cross-sections included: 17				
Total panel (balanced) observations: 85				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.214016	0.090114	2.374955	0.0199
X1	-0.003525	0.001520	-2.319863	0.0229
X2	0.007525	0.008482	0.887149	0.3776
X3	0.000720	0.003081	0.233778	0.8157

The regression results under the Random Effect Model indicate that X1 (liquidity) has a significant effect on Y (tax aggressiveness), as shown by a p-value of 0.0229, which is below the 5% significance level. In contrast, X2 (leverage) and X3 (firm size) do not show statistically significant effects, either at the 5% or 10% significance thresholds. This conclusion is based on the respective p-values of 0.3776 for X2 and 0.8157 for X3, which are considered conventionally non-significant.

Model Selection Test

Chow Test (Redundant Fixed Effect Test)

Table 5. Chow Test (Redundant Fixed Effect Test) Results

Redundant Fixed Effects Tests			
Equation: MODEL_FEM			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.911206	(16,65)	0.0000
Cross-section Chi-square	57.319821	16	0.0000

Based on Table 5, the Chow Test was conducted to determine the most appropriate model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). According to decision rules, if the probability value is greater than 0.05, the null hypothesis (H0) is accepted, and the Common Effect Model is considered more appropriate. Conversely, if the probability is less than 0.05, H0 is rejected and the alternative hypothesis (H1) is accepted, indicating that the Fixed Effect Model should be used.

The test results show a cross-section Chi-Square probability value of 0.0000, which is less than 0.05. This leads to the rejection of H0 and the acceptance of H1, meaning that the Fixed Effect Model is more suitable for this study based on the Chow Test outcome.

Hausman Test (Correlated Random Effect Test)

The Hausman Test is applied to determine the most appropriate model between the Fixed Effect Model and the Random Effect Model. This test assesses whether the unique errors (unobserved individual effects) are correlated with the regressors. A significant result suggests that the Fixed Effect Model is more appropriate, while a non-significant result supports the use of the Random Effect Model. The following section presents the results of the Hausman Test.

Table 6. Hausman Test Results

Correlated Random Effects - Hausman Test				
Equation: MODEL_REM				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	18.348634	3	0.0004	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
X1	-0.003183	-0.003525	0.000003	0.8375
X2	-0.007071	0.007525	0.000298	0.3975
X3	-0.047977	0.000720	0.000189	0.0004

Referring to Table 6, the Hausman Test produced a cross-section random probability value of 0.0006, which is less than the 0.05 significance level. This result leads to the rejection of the null hypothesis (H0), indicating that the Fixed Effect Model (FEM) is statistically more appropriate than the Random Effect Model (REM) for this study.

Lagrange Multiplier (LM) Test

The Lagrange Multiplier Test is used to determine whether the Random Effect Model (REM) is more suitable than the Fixed Effect Model (FEM) or the Common Effect Model (CEM). This test is based on the Breusch-Pagan statistic and evaluates the presence of significant differences across panel units. The following section presents the results of the Lagrange Multiplier Test to guide model selection.

Table 7. Lagrange Multiplier (LM) Test Results

Lagrange Multiplier Tests for Random Effects			
Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives			
	Cross-section	Test Hypothesis	
		Time	Both
Breusch-Pagan	5.199438 (0.0226)	37.03557 (0.0000)	42.23501 (0.0000)

The results of the Lagrange Multiplier test show that the Breusch-Pagan probability value is 0.0226, which is less than 0.05. This indicates that the Random Effect Model (REM) is more appropriate than the Common Effect Model (CEM) for the data used in this study.

Panel Data Regression Model Conclusion

Based on the results of the model selection tests, namely the Chow Test, the Hausman Test, and the Lagrange Multiplier Test it can be concluded that the most appropriate estimation method for panel data regression in this study is the Fixed Effect Model (FEM). This model was chosen due to its superior performance in capturing variations across companies over time and providing statistically robust results compared to the other alternatives.

Table 8. Panel Data Regression Model Conclusion Results

No	Model Test	Comparison Models	Selected Model
1	Chow Test	Common Effect Model vs Fixed Effect Model	Fixed Effect Model

2	Hausman Test	Fixed Effect Model vs Random Effect Model	Fixed Effect Model
3	Lagrange Multiplier (LM) Test	Common Effect Model vs Random Effect Model	Random Effect Model

Referring to Table 8, it can be concluded that the Fixed Effect Model (FEM) is the most appropriate panel data regression model. This model is therefore used for further estimation of the research variables.

Classical Assumption Test

Normality Test

The purpose of the normality test is to assess whether the residuals from the regression model are normally distributed. A good regression model should produce residuals that follow a normal distribution. The decision rule is based on comparing the Jarque-Bera (JB) probability value with a significance level of 0.05. If the JB probability is greater than 0.05, it can be concluded that the residuals are normally distributed. Conversely, if the value is smaller than 0.05, the residuals are not normally distributed.

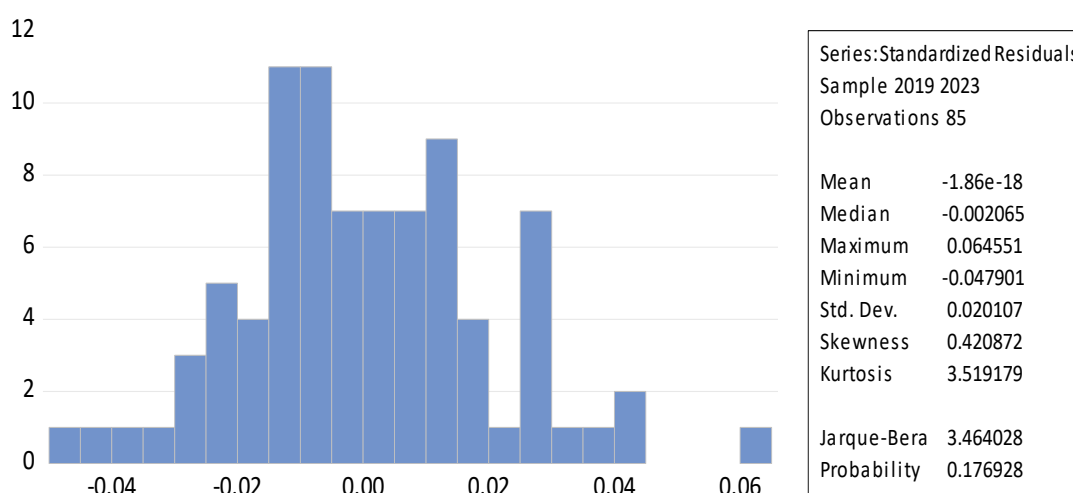


Figure 1. Normality Test Results

The Jarque-Bera (JB) test produced a value of 0.176928, which is greater than 0.05. This indicates that the residuals are normally distributed, and thus the regression model meets the assumption of normality.

Multicollinearity Test

The multicollinearity test is conducted to detect the presence of a linear relationship among independent variables within the regression model. In this study, the researcher applied a pairwise correlation approach to examine the partial correlation between the independent variables. The following section presents the results of the multicollinearity test.

Table 9. Multicollinearity Test

Variance Inflation Factors			
Date: 07/14/25 Time: 22:14			
Sample: 1 85			
Included observations: 85			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.004319	446.1251	NA
X1	1.77E-06	3.783466	1.535971
X2	4.30E-05	3.804824	1.626505
X3	4.96E-06	447.6736	1.225182

Based on the table above, none of the correlation values among the independent variables exceed the threshold of 10, indicating that no multicollinearity exists among the independent variables. Thus, the regression model is free from multicollinearity issues.

Heteroskedasticity Test

The purpose of the heteroskedasticity test is to determine whether the variance of residuals in the regression model is constant across observations. In this study, the White Test was employed to detect heteroskedasticity in the residuals. The results of the White Test are presented in the following section.

Table 10. Heteroskedasticity Test Results

Heteroskedasticity Test: White			
Null hypothesis: Homoskedasticity			
F-statistic	1.039716	Prob. F(9,75)	0.4171
Obs*R-squared	9.428720	Prob. Chi-Square(9)	0.3987
Scaled explained SS	10.60920	Prob. Chi-Square(9)	0.3035

Referring to Table 10, the White Test result shows a probability value of Obs*R-squared = 0.3987, which is greater than 0.05. This indicates that the assumption of homoskedasticity is fulfilled, meaning no heteroskedasticity is detected. Therefore, the null hypothesis (H0) is accepted.

Autocorrelation Test

The autocorrelation test is conducted to examine whether there is a correlation between the disturbance errors in the regression model across time periods, that is, between the error term at time t and the error term at time $t-1$. The presence of autocorrelation may affect the efficiency and reliability of the model's estimates. The following section presents the results of the autocorrelation test.

Table 11. Autocorrelation Test Results

Cross-section fixed (dummy variables)			
Root MSE	0.019989	R-squared	0.598056
Mean dependent var	0.228165	Adjusted R-squared	0.480564
S.D. dependent var	0.031716	S.E. of regression	0.022858
Akaike info criterion	-4.516703	Sum squared resid	0.033962
Schwarz criterion	-3.941962	Log likelihood	211.9599
Hannan-Quinn criter.	-4.285526	F-statistic	5.090204
Durbin-Watson stat	2.306597	Prob(F-statistic)	0.000000

Based on the autocorrelation test shown in Table 11, the Durbin-Watson (DW) value is 2.3606597, indicating that there is no autocorrelation present in the regression model. This supports the reliability of the estimated results.

Panel Data Regression

After selecting the Fixed Effect Model (FEM) as the most suitable model, panel regression analysis was conducted to examine the relationship between the variables under study. Panel data regression is used to evaluate the strength and direction of the relationship between the dependent variable and one or more independent variables across both time and individual entities. The regression results for the selected model are presented in Table 12 and discussed in the following section.

Table 12. Panel Data Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.659951	0.409436	4.054233	0.0001
X1	-0.003183	0.002259	-1.409198	0.1635
X2	-0.007071	0.019223	-0.367828	0.7142
X3	-0.047977	0.014086	-3.406096	0.0011

Based on the regression results presented in Table 12, the panel data regression model used in this study is as follows:

$$Y = a + \beta_1 CR + \beta_2 DER + \beta_3 SIZE + e$$

Where: Y = Tax Aggressiveness
a = Constant
 $\beta_1, \beta_2, \beta_3$ = Regression Coefficients
CR = Liquidity (Current Ratio)
DER = Leverage
SIZE = Firm Size
e = Error Term

The resulting regression equation is: $Y = 1.659951 - 0.003183(CR) - 0.007071(DER) - 0.047977(SIZE)$. Interpretation:

1. Constant (a):
The constant value of 1.659951 indicates that if all independent variables are held at one unit, the predicted level of tax aggressiveness would be 1.659951 units.
2. Liquidity (CR):
The regression coefficient for liquidity is -0.003183 , suggesting that for every one-unit increase in liquidity, tax aggressiveness is expected to decrease by 0.003183 units, assuming other variables are held constant.
3. Leverage (DER):
The regression coefficient for leverage is -0.007071 , meaning that a one-unit increase in leverage leads to a decrease in tax aggressiveness by 0.007071 units, all else being equal.
4. Firm Size (SIZE):
The coefficient for firm size is -0.047977 , indicating that an increase of one unit in firm size results in a reduction in tax aggressiveness by 0.047977 units, assuming other variables remain constant.

Hypothesis Testing

Hypothesis testing is a statistical procedure used to determine whether there is sufficient evidence in a sample to support or reject a specific claim about the population. It involves formulating a null hypothesis (H_0) and an alternative hypothesis (H_1) and then testing these hypotheses using the observed data and a chosen significance level.

Coefficient of Determination (Adjusted R-squared)

The coefficient of determination in panel data regression is used to assess the percentage of variation in the dependent variable that can be explained jointly by the independent variables. This statistic helps determine how well the model captures the relationship between the predictors and the outcome variable.

Table 13. Coefficient of Determination

R-squared	0.598056	Mean dependent var	0.228165
Adjusted R- squared	0.480564	S.D dependen var	0.031716
S.E of regression	0.228558	Sum squared resid	0.033962
F- statistic	1.87.891	Durbin Watson stat	2.306597
Prob (F- statistic	0.000000		

Based on the table, the Adjusted R-squared value is 0.480564. This indicates that the independent variables, liquidity, leverage, and firm size are able to explain approximately 48.0% of the variation in the dependent variable, tax aggressiveness. The remaining 52.0% is influenced by other factors outside the scope of this study.

F-Test (Simultaneous Test)

The F-test is used to determine the extent to which liquidity, leverage, and firm size simultaneously affect tax aggressiveness in primary consumer sector companies listed on the Indonesia Stock Exchange during the period 2019–2023.

Table 14. F-Test (Simultaneous Test) Results

R-squared	0.598056	Mean dependent var	0.228165
Adjusted R- squared	0.480564	S.D dependen var	0.031716
S.E of regression	0.228558	Sum squared resid	0.033962
F- statistic	1.87.891	Durbin Watson stat	2.306597
Prob (F- statistic	0.000000		

Referring to the table above, the F-test results can be observed from the Prob (F-statistic) value. The result shows a probability of 0.000000, which is less than 0.05, indicating that liquidity, leverage, and firm size have a simultaneous and statistically significant influence on tax aggressiveness in primary consumer sector companies listed on the Indonesia Stock Exchange for the period 2019–2023.

t-Test (Partial Significance Test)

The t-test is used to determine the extent to which each independent variable individually affects the dependent variable. The significance of each variable can be evaluated by examining the probability values (p-values) presented in the table below.

Table 15. t-Test (Partial Significance Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.659951	0.409436	4.054233	0.0001
X1	-0.003183	0.002259	-1.409198	0.1635

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X2	-0.007071	0.019223	-0.367828	0.7142
X3	-0.047977	0.014086	-3.406096	0.0011

Based on Table 15, the following conclusions can be drawn:

1. The first hypothesis tests the effect of liquidity on tax aggressiveness. With a p-value of 0.1635 (greater than 0.05), it is concluded that liquidity has no significant effect on tax aggressiveness.
2. The second hypothesis examines whether leverage influences tax aggressiveness. The p-value of 0.7142 (greater than 0.05) indicates that leverage does not significantly affect tax aggressiveness.
3. The third hypothesis tests the effect of firm size on tax aggressiveness. With a p-value of 0.0011 (less than 0.05), it can be concluded that firm size significantly affects tax aggressiveness.

Discussion of Research Findings

The Effect of Liquidity on Tax Aggressiveness

The results show that liquidity has no significant effect on tax aggressiveness, with a p-value of 0.1635 (> 0.05), leading to the rejection of H1. This suggests that firms with strong liquidity, measured by their ability to pay short-term obligations, are less likely to engage in aggressive tax practices. From an agency theory perspective, firms with healthy cash flows tend to report transparently and fulfill their tax obligations, reducing the need for tax avoidance. This result aligns with the study by Hidayat & Muliarsari (2020), but contrasts with Allo et al. (2021), who found a positive influence.

The Effect of Leverage on Tax Aggressiveness

Leverage also shows no significant impact on tax aggressiveness, with a p-value of 0.7142 (> 0.05), thus rejecting H2. Despite interest expenses being tax-deductible, high debt levels may lead managers to prioritize financial stability over tax savings. According to agency theory, managers may avoid aggressive tax strategies to prevent reputational and financial risks. This finding supports Soelistono & Adi (2022) and Ismanto & Abdurachman (2024), who observed that higher debt levels reduce the likelihood of aggressive tax practices.

The Effect of Firm Size on Tax Aggressiveness

Firm size significantly affects tax aggressiveness, with a p-value of 0.0011 (< 0.05), leading to acceptance of H3. Larger firms often have greater resources to plan taxes efficiently, potentially reducing effective tax rates. In line with agency theory, complex organizational structures in large firms may allow managers more autonomy in decision-making, which can influence tax strategies. These findings are consistent with Badjuri et al. (2021) and Sari & Rahayu (2020), though contrast with Shinta & Agus Sihono (2023), who found no significant effect.

The Simultaneous Effect of Liquidity, Leverage, and Firm Size on Tax Aggressiveness

The study confirms that liquidity, leverage, and firm size simultaneously influence tax aggressiveness, as supported by the F-test result (p-value = 0.000000 < 0.05), validating H4. These financial variables play a critical role in determining a firm's approach to tax obligations,

aiming to reduce tax burdens while complying with regulations. The adjusted R-squared value of 0.480 indicates that 48.0% of the variance in tax aggressiveness is explained by the three variables, while the remaining 52.0% is influenced by other factors not covered in this study. Their combined effect emphasizes the importance of financial structure in shaping tax behavior.

CONCLUSION

This study examined the influence of liquidity, leverage, and firm size on tax aggressiveness in companies within the primary consumer goods sector listed on the Indonesia Stock Exchange. Using panel data regression and selecting the fixed effect model as the most suitable estimation approach, the findings demonstrate that firm size significantly affects tax aggressiveness, while liquidity and leverage show no significant individual impact. However, when tested simultaneously, all three variables collectively influence the level of tax aggressiveness. The results support the idea that larger companies, which generally possess greater resources and more complex organizational structures, have a higher propensity to engage in tax planning strategies that can lead to aggressive tax practices. Conversely, liquidity and leverage, although theoretically linked to financial flexibility and tax shields, did not significantly contribute to the variation in tax aggressiveness in this context. This research highlights the relevance of firm size in predicting tax behavior, suggesting that policymakers and regulators should give particular attention to larger firms when addressing tax compliance and enforcement. Future studies are encouraged to include additional variables and industry-specific factors to provide a more comprehensive understanding of what drives tax aggressiveness in various corporate settings.

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