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The Moderating Role of Capital Intensity on Factors Influencing Tax Aggressiveness: A Case Study of Food and Beverage Companies Listed on the Indonesia Stock Exchange

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Abstract: Tax aggressiveness is an important issue to research because it relates to corporate taxation issues. Several factors, direct and indirect, with the moderating role of capital structure, are of interest to further research on their impact on tax aggressiveness. This study examines how profitability, liquidity, and capital intensity affect tax aggressiveness in food and beverage companies listed on the Indonesia Stock Exchange from 2018 to 2023. It also explores the moderating role of capital structure on the relationship. Using a quantitative approach, this study analyzes secondary data from financial statements using multiple linear regression and moderation regression analysis. The results show that profitability and liquidity significantly affect tax aggressiveness, while capital intensity and structure do not. In addition, capital structure moderates the effect of profitability and liquidity on tax aggressiveness but does not affect the relationship between capital intensity and tax aggressiveness. This study contributes to understanding the dynamics of tax strategies in Indonesia's food and beverage sector. It is concluded that profitability and liquidity significantly impact tax avoidance, while capital structure strengthens the role of profitability and liquidity in tax avoidance.

Keywords: profitability, liquidity, capital intensity, tax aggressiveness, capital structure, corporate taxation

1. Introduction

Taxes make a significant contribution to budget revenues. Taxes are one source of government income that helps the country's economy. Society is the beneficiary of welfare programs funded by taxes. The state's construction of public facilities is proof that tax revenues are allocated for community welfare. Considering the importance of utilizing tax revenues, citizens must fulfill their tax obligations, particularly by calculating, reporting, and paying taxes. According to Tazkiyannida and Hidayatulloh [1], taxes are defined as contributions from the people to the state that are based on law and are coercive in nature, and the benefits are not given directly and are used to finance public interests. In Indonesia, taxes are the main tool for generating income. Taxes are the responsibility of taxpayers and the business world. The higher the taxes a company pays, the greater the state's tax revenues. On the other hand, for companies, taxes are a burden that must be borne and can reduce the net profit received by the company. The difference in benefits causes taxpayers to tend to reduce the amount of tax they have to pay, and the business world tries to pay taxes at a low rate from net profits, while the government wants high taxes to burden public administration. Based on these differences in interests, companies carry out practical actions to regulate or design income or tax-aggressive actions.

According to Firmansyah et al. [2] and Apriliana [3], tax aggressiveness is an action taken by a company to reduce taxable income, which is carried out through tax planning either by legal means (tax avoidance) or by illegal means (tax evasion). This tax aggressiveness action is carried out to minimize the tax burden from the imagined tax costs or can be concluded by using efforts to reduce tax costs. There are examples of phenomena or cases of tax avoidance or tax aggressiveness in this case. Likewise, according to Hutauruk et al. [4], several significant internal company financial factors influence tax aggressiveness. According to research by Awaliyah et al. [5], corporate tax avoidance trends can be analyzed through the effective tax rate (ETR) value. The company's ETR value is calculated from the ratio between tax burden and profit before tax. Analysis of tax avoidance trends for companies listed on the Indonesia Stock Exchange (IDX) in Indonesia during the 2016–2020 period shows a significant increase in tax avoidance trends from 2018 to 2020. This trend is mainly dominated by property and real estate companies, as demonstrated by the statistical data on the minimum ETR value in the graph below. The peak of tax avoidance occurred in 2019 and 2020, triggered by the impact of the COVID-19 pandemic, which caused a significant decline in company revenues.

According to Awaliyah et al. [5], the sector with the greatest tax avoidance is the property and real estate sector, as evidenced by

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statistical data showing the minimum ETR value. For five consecutive years, this sector has had the lowest ETR value, which means the tax burden paid is the smallest. This indicates that this sector carried out the largest tax avoidance during the research period. Based on the trend in the ETR value above, we can see that in 2016, it was at 0.218, and in 2017, it was at 0.243, with an increase of 0.025. In 2018, it was at 0.223, which shows a decrease from the previous year, namely 2017, which was 0.243, with a difference of 0.020. In 2019, it was at 0.216, which indicates again a decrease from the previous year of 0.007. In 2020, it was at 0.212, which experienced another decline from the prior year, 0.004. According to Purwaningsih and Mardiana [6], in Indonesia, one of the phenomena of tax avoidance involves PT. Coca-Cola Indonesia, which is estimated to have evaded taxes, resulting in an underpayment of IDR 49.24 billion in taxes paid. PT. Coca-Cola Indonesia admitted that it had a large cost burden, which reduced taxable income, thereby decreasing the amount of tax payable that should be paid by the issuer. These costs are expenses for advertising Coca-Cola beverage products.

Several factors likely influence tax aggressiveness: profitability, liquidity, and capital intensity. According to Mustofa et al. [7], profitability is the company's ability to generate profits from income related to sales, assets, and equity. Companies with high profitability often receive attention from the public and government, resulting in a high tax burden. It is one of the reasons why companies will use accounting methods that can reduce profits, thereby reducing the tax burden that the company must pay. According to Apriliana [3], the company's ability to carry out tax-aggressive obligations can be seen from the liquidity ratio. If the liquidity ratio is high, the company is in a smooth cash flow condition. Companies experiencing liquidity difficulties are unlikely to comply with tax regulations and will reduce the company's tax expenditures. According to Panjaitan and Haq [8], the ratio of total fixed assets (buildings, equipment, supplies) to total assets, such as cash, trade receivables, fixed assets, and others, sacrificed to fund assets is the definition of capital intensity. The depreciation expenditure the company will incur will increase proportionally to its investment in fixed assets. In the future, this depreciation expense will increase the company's burden and reduce its income and tax burden.

This research is a modification of previous research by Apriliana [3] entitled "The Influence of Liquidity, Profitability and Leverage on Tax Aggressiveness." This research maintains the profitability variable on tax aggressiveness because it states that profitability influences tax aggressiveness. In contrast, research by Efilia et al. [9] states that profitability does not affect tax aggressiveness. This research also maintains the liquidity variable on tax aggressiveness because, based on research conducted by Apriliana [3], it states that liquidity does not affect tax aggressiveness. On the other hand, research by Kariimah and Septiowati [10] states that liquidity influences tax aggressiveness. Based on the existing gaps, researchers are interested in conducting further research. This research replaces the leverage variable with capital intensity. This change was made by selecting the capital intensity variable because this variable can describe the proportion of fixed assets in total assets, allowing for an influence on tax avoidance strategies through depreciation and tax incentives related to capital investment. In addition, capital structure as a moderating variable was added to test whether the composition of debt and equity in company financing influences the relationship between profitability, liquidity, and capital intensity on tax aggressiveness. This approach is expected to provide more comprehensive and relevant insight into the dynamics of tax avoidance in the context of companies with different capital structures."

2. Literature Review

2.1. Agency theory

Agency theory in economics and management discusses the relationship between principals (owners) and agents in decision-making and resource management. This theory focuses on problems that arise when there are differences in interests between the principal and agent, as well as information uncertainty that may cause the agent not to act in the principal's interests. Several experts have expressed their respective views on this agency theory. Discussions of agency theory and agency costs [11] provide a comprehensive analysis of the development of agency theory [12], dissect the consequences of the separation of ownership and control in companies [13], discuss the role of corporate governance in overcoming agency problems [14], and provide a philosophical perspective on the theories underlying corporate governance, including agency theory [15]. In the context of corporate governance, this theory helps explain how company owners (shareholders) and managers (agents) can have different objectives and how monitoring mechanisms can reduce agency problems. In investment, agency theory explains the differences between investors (principals) and investment managers (agents) who may have different objectives. By understanding agency theory, stakeholders can better manage their relationships and reduce potential conflicts of interest that can harm the organization.

2.2. Tax aggressivity

Tax aggressivity theory is a concept used in the field of taxation and accounting to explain the aggressive behavior of companies or individuals in an effort to minimize tax payments. *Tax aggressivity* reflects strategies or actions taken to reduce tax liabilities legally or, in some cases, close to legal limits, such as utilizing legal loopholes or conducting aggressive tax planning. This article examines the relationship between aggressiveness in tax reporting and aggressive financial reporting [16]. The theory of *tax aggressivity* continues to evolve due to changes in tax policy and globalization that allow companies to more easily take advantage of differences in tax rates in various countries. The Yulianti et al. [17] study discusses various tax-related studies, including aggressive behavior in tax planning. Furthermore, a study by Kalbuana et al. [18] discusses how managerial incentives affect corporate tax avoidance behavior. Research by Jiang et al. [19] examines differences in aggressive tax behavior between family and non-family companies, and then Jedlička [20] explains the various strategies used by companies to minimize tax payments, as well as their impact on the economy.

The ETR measure was chosen because ETR calculates all taxes owed using the company's financial statements, namely by calculating the income tax expense divided by pre-tax income [21]. These theories are often studied from an economic and legal perspective, especially in relation to how the tax system is designed and how taxpayers respond to the policy. *Tax aggressiveness* behavior can have negative impacts, such as reduced state revenue and economic injustice, where large corporations may pay less tax than they should, while small businesses and individuals have to pay a larger proportion of tax.

2.3. Profitability

Return on assets (ROA) is one of the financial ratios used to measure the level of profitability of a company based on its total

assets. ROA shows how efficient the company is at generating profits from each unit of assets it owns. This ratio is very important for investors and company management to assess how effectively the company uses its assets to create net income [22]. The higher the ROA value, the more efficient the company is at using its assets to generate profits. A low ROA value could indicate that the company has many assets that are not being used effectively or is having problems generating profits. ROA varies greatly between industries. For example, technology companies may have a higher ROA than manufacturing companies or capital-intensive companies such as the energy sector. Therefore, in assessing ROA, it is important to compare it with relevant industry standards [23].

ROA helps investors understand how a company uses its assets to generate profits. This is important because assets are the resources needed to run a business, and their efficient use can provide a clearer picture of the company's overall financial performance [24–26]. ROA is a very useful tool in profitability analysis, providing a clear picture of how well a company is utilizing its assets to generate profits. However, it needs to be used with caution, especially in comparing companies from different industries.

In his research, Birch Sørensen [27] discusses how profitability can influence corporate decisions regarding tax avoidance and tax strategies. Subsequently, Wang et al. [28] showed a relationship between profitability and tax avoidance, arguing that more profitable firms tend to be more aggressive in tax planning. In their literature review, these researchers identified various factors that influence tax aggressiveness, including profitability [29]. They found that more profitable firms are more likely to engage in tax avoidance [30].

2.4. Liquidity

CR is a financial ratio used to measure a company's liquidity, namely its ability to meet its short-term obligations. This ratio is calculated by dividing total current assets [22, 31]. The CR is a useful tool for assessing a company's liquidity. Still, it should be used with other financial ratios and more in-depth analysis to better understand a company's financial health [22, 31]. Research by Wang et al. [28] found that liquidity, as measured by the CR, can influence a company's decision to avoid taxes. Companies with high liquidity tend to be more aggressive in their tax strategies [32]. Companies with a higher CR tend to be more assertive in tax avoidance [33–34]. The Tampubolon [35] article examines the impact of the CR on tax aggressiveness and finds a positive relationship between the two. Liquidity has been proven to impact corporate tax avoidance significantly [36]. The CR plays an important role in determining a company's tax aggressiveness. Companies with higher CRs may be more inclined to take an aggressive approach to tax planning, while companies with lower CRs tend to be more cautious. However, this relationship is influenced by various factors, including industry, debt structure, and applicable tax policies. Further research could help in understanding these dynamics in more depth.

A study found that a company's liquidity can influence the tax strategy taken, where companies with higher liquidity may have more choices in tax planning [27]. Schwab et al. [37] explain how liquidity can affect a company's tax decisions and the tendency to undertake aggressive tax planning. Likewise, Ftouhi and Ghardallou [38] show that liquidity can influence tax avoidance, with higher liquidity allowing companies to be more flexible in their tax strategies. In this study, the authors examine the effect of liquidity on tax aggressiveness in Chinese companies, showing a positive relationship between the two.

2.5. Capital intensity

Capital intensity is a measure that describes how much capital is used in the production process compared to labor. This concept is generally used to assess what proportion of investment in the form of equipment, machinery, and infrastructure is required to produce certain goods or services. The higher the level of capital intensity, the more capital is required for each unit of output produced. Differences in productivity in various countries highlight the role of capital intensity in determining output levels [39].

The research results show that profitability has a significant effect on tax avoidance, but capital intensity does not have a substantial impact on tax avoidance [40]. In this research, the authors directly analyze the effect of capital intensity on tax avoidance, showing that companies with higher capital intensity tend to be more aggressive in their tax strategies. The research findings of Alfian and Ghozali [41] show the need to improve corporate governance and minimize risk related to tax avoidance and dividend policy. Capital intensity has an impact on tax aggressiveness. Tax aggressiveness refers to the manipulation of taxable profit or the reduction of tax liabilities owed by the corporation [42–44]. The relationship between capital intensity and tax aggressiveness, suggesting that firms with more fixed assets may be more likely to engage in aggressive tax avoidance [45]. The impact of capital intensity on tax aggressiveness is complex and influenced by various factors, including industry characteristics, regulatory environments, and the strategic choices of firms. Understanding this relationship can provide valuable insights for policymakers and corporate managers as they navigate the challenges of tax planning and compliance. Further empirical research is necessary to draw more definitive conclusions regarding this relationship across different contexts and periods.

2.6. Capital structure

Capital structure refers to the composition or proportion of various financing sources companies use to fund their assets and operations. These financing sources generally consist of two main categories: equity and debt. The optimal capital structure maximizes firm value and minimizes the cost of capital. The Modigliani-Miller theory states that in a perfect market, a firm's value is unaffected by its capital structure, provided there are no taxes. However, taxes and bankruptcy costs can affect capital structure decisions [46]. The trade-off theory describes the balance between the tax benefits of debt and bankruptcy costs. The firm will seek a capital structure that maximizes firm value by considering these two factors [47]. It also discusses the challenges firms face in determining the optimal capital structure and explains how trade-off theory explains firms' funding decisions. Pecking order theory states that firms prefer to fund investment through internal sources (retained earnings) first, then debt, and finally equity. This happens because the cost of equity expenditure is higher than debt and retained earnings [48]. This study tests the pecking order theory and touches on aspects of the trade-off theory, providing empirical evidence that the pecking order theory is not the only theory that can be used to test the trade-off theory.

This research explores the tax benefits of debt and shows how capital structure affects corporate tax avoidance decisions [49]. Research by Becker and Wilson [50] examined the relationship between the use of tax shelters and corporate debt structure, including the role of capital intensity. The results show that companies with high capital intensity are more likely to use tax protection strategies. The results of Aryatama and Raharja's [51] research show

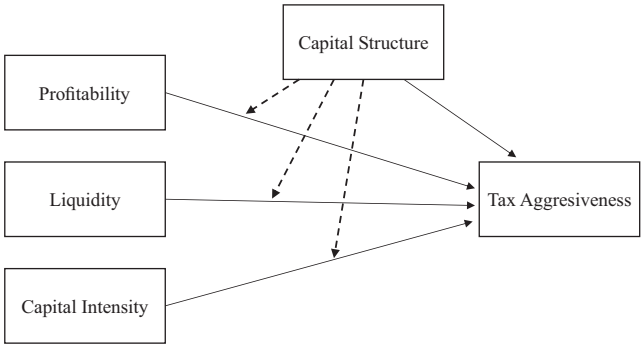
that several capital intensity variables positively affect tax avoidance. Corporate social responsibility hurts tax avoidance. Then, ROA as a proxy for measuring profitability has no significant effect on tax avoidance. This study examines the effect of capital structure on tax aggressiveness and finds that companies with higher debt ratios are more likely to engage in aggressive tax planning [52]. This study found that companies with higher debt levels often engage in tax aggressiveness due to tax deductions associated with interest expenses. In this study, the authors examined how multinational companies use capital structure to minimize tax burden, for example, by moving debt to jurisdictions with higher tax rates [53].

3. Theoretical Framework

This theoretical framework integrates agency theory with financial metrics and tax aggressiveness to explore corporate decision-making and its impact on financial performance. It establishes a foundation for examining the interplay between governance, profitability, liquidity, capital intensity, and capital structure in shaping tax-related behaviors. This approach not only contributes to the academic literature but also provides practical insights for policymakers and practitioners navigating the challenges of tax compliance and optimization.

Based on this description, this research model can be displayed as follows in Figure 1.

Figure 1
Research Model



The hypothesis put forward:

H1. Profitability positively affects tax aggressiveness
H2. Liquidity positively affects tax aggressiveness
H3. Capital intensity positively affects tax aggressiveness
H4. Capital structure positively affects tax aggressiveness
H5. Capital structure moderates the relationship between profitability and capital structure
H6. Capital structure moderates the relationship between liquidity and capital structure
H7. Capital structure moderates the relationship between capital intensity and capital structure

4. Methodology

The data for this research were deductive, specifically involving testing broad ideas and facts by examining the proposed hypotheses. This study discovered and incorporated the financial architecture variables concerning financial performance, influencing the valuation of nonfinancial sector companies listed on the IDX in 2018–2023. Nonprobability sampling methods were used to obtain the sample for this study. This study investigated 43 companies in IDX's food and beverage short term, minus companies that did not report financial reports and experienced losses in the research period. So, it produces 116-panel data. The analysis is carried out through three stages: descriptive statistics, evaluating classical assumptions in regression analysis, and hypothesis testing using regression analysis. All data analysis procedures employ SPSS version 26 software.

4.1. Research design

This study was performed on nonfinancial sector firms that were registered in the Indonesian capital market in 2018–2023. This research employed quantitative data. This research utilized secondary data sources, including the yearly financial statements of companies listed on the IDX. Secondary data were sourced from the Indonesia Stock Exchange (ICMD) and the official IDX website at https://www.idx.co.id.

The variables in this research comprised:

1) The independent factors included profitability, liquidity, and capital intensity.
2) The dependent variable was tax aggressiveness.
3) The moderating variable in this study was capital structure.

Operational definition of variables

1) Tax aggressiveness refers to strategies companies or individuals use to aggressively reduce their tax liabilities, often through legitimate methods or techniques that may fall within the bounds of legality. It covers a wide range of practices. Tax aggressiveness can be measured by the formula: Effective tax rate (ETR) = Income tax expense / profit before tax.
2) Profitability is a measure of how efficiently a company generates profits from its resources. One way to measure profitability is through ROA. ROA = (Net income before tax / total assets) × 100%.
3) Liquidity: the ability of a company to meet its financial obligations that are due in the short term, including debt and other obligations. One way to measure liquidity is through the CR. CR = Current assets / current liabilities.
4) Capital intensity: a measure that shows how much fixed capital a company needs to generate a certain revenue or output. It illustrates how much the company relies on fixed assets compared to other assets in its operations. One way to measure capital intensity is through the Capital Intensity Ratio (CIR). CIR = Total fixed assets / total revenue.
5) Capital structure: the composition of the financing sources used by the company to fund its assets and operations.

Analysis technique

The analytical technique employed to test and validate the hypothesis in this study is the multiple regression model, utilizing Statistical Product and Service Solutions 26. The research model of regression for this study can be articulated in the subsequent equation:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e \quad (1)$$

Information:
Y = Tax aggressiveness (ETR/Y)
α = Constant
$\beta 1$, $\beta 4$, $\beta 3$, $\beta 4$ = Regression coefficient of profitability, liquidity, capital intensity, and capital structure.

$X1$ = Profitability (ROA/X1)
$X2$ = Liquidity (CR/X2)
$X3$ = Capital intensity (CIR/X3)
Z = Capital structure (DER/Z)
e = Error

The research model of moderated regression analysis for this study can be articulated in the subsequent equation:

$$Y = \alpha + \beta 1X1^*Z + \beta 2X2^*Z + \beta 3X3^*Z + e \quad (2)$$

Information:
Y = Tax aggressiveness (ETR/Y)
α = Constant
$X1^*Z$ = interaction between profitability (ROA/$X1$) and capital structure (DER/Z)
$X2^*Z$ = interaction between liquidity (CR/$X2$) and capital structure (DER/Z)
$X3^*Z$ = interaction between capital intensity (CIR/$X3$) and capital structure (DER/Z)
e = error

5. Results

Subject and object research description

This research examines the impact of profitability, liquidity, and capital intensity on tax aggression in food and beverage companies listed on the IDX from 2018 to 2023. This study focuses on a food and beverage subsector company listed on the IDX throughout the 2018–2023 timeframe, as detailed on www.idx.co.id. The total number of sample companies that meet the requirements is 114 observations.

Descriptive statistical analysis

This study uses descriptive statistical analysis to elucidate the variables utilized, namely ROA, CR, CIR, DER, and ETR. The research findings indicate the minimum, maximum, and average values of each variable for the sampled company from 2018 to 2023, as presented in Table 1.

The amount of data (N) contained in this study is 114 samples obtained from 19 financial reports that have been published by each food and beverage subsector company listed on the IDX for the period 2018–2023 and using several variables, namely profitability, liquidity, capital intensity, tax aggressiveness, and capital structure. The minimum values for each variable in this study are profitability 0.00, liquidity 0.73, capital intensity 0.02, tax aggressiveness 0.03, and capital structure 0.11. The maximum value of each variable in this study is profitability 0.42, liquidity 13.31, capital intensity 3.21, tax aggressiveness 0.81, and capital structure 2.97. Each variable's average value (mean) in this study is profitability 0.10, liquidity 3.05, capital intensity 0.35, tax aggressiveness 0.24, and capital structure 0.76. The standard deviation (std deviation) of each variable in this study is profitability 0.07, liquidity 2.63, capital intensity 0.32, tax aggressiveness 0.09, and capital structure 0.57.

Regression model analysis

Regression analysis is employed to evaluate the influence of independent factors on a dependent variable. This study employs multiple regression analysis to assess the impact of profitability, liquidity, capital intensity, and capital structure on tax aggression. The subsequent outcome of the regression is presented. From the analysis of regression in Table 2, the regression equation can be articulated as follows.

Profitability

Profitability coefficients of −0.087 mean that if the profitability increased by one unit, tax aggressiveness would decrease by −0.087 and vice versa. The sign of a positive regression coefficient signifies a direct relationship.

Liquidity

The liquidity variable coefficient of 0.053 means that if liquidity is increased by one unit, then the tax aggressiveness of the company will increase by 0.053 and vice versa. The sign of a positive regression coefficient signifies a direct relationship.

Capital intensity

The coefficient for the capital intensity variable is −0.026. This negative value indicates that an increase of one unit in capital intensity will decrease −0.026 in tax aggressiveness.

Capital structure

A profitability coefficient of −0.014 indicates that an increase of one unit in the capital structure would result in a decrease of −0.014 in tax aggressiveness and conversely. A negative regression coefficient indicates an inverse association.

Determination coefficient and correlation coefficient

From the regression test results, the coefficient of correlation and determination can be seen as follows in Table 3.

Table 4 indicates that the correlation coefficient, R, is 0.403. This indicates that the link between independent and dependent variables is categorized as moderated. The mean whole, conversely, has a coefficient of determination R^2 with a value of 0.162. The variation in the Tax Aggressiveness variable (Y) attributable to profitability, liquidity, capital intensity, and capital structure is 0.162, or 16.2%, whereas the remaining 83.8% is impacted by factors external to these variables.

Hypothesis test

The classical assumption test results indicate that the data are normally distributed, exhibit no autocorrelation, lack multicollinearity, and show no signs of heteroscedasticity. Hypothesis testing is conducted to ascertain the significance of the impact of independent factors on the dependent variable. The t-test results are presented here.

Table 1
Descriptive statistics

Variable	*n*	Min	Max	Mean	*SD*
Profitability (X1)	114	0.00	0.42	0.10	0.07
Liquidity (X2)	114	0.73	13.31	3.05	2.63
Capital Intensity (X3)	114	0.02	3.21	0.35	0.32
Tax Aggressiveness (Y)	114	0.03	0.81	0.24	0.09
Capital Structure (Z)	114	0.11	2.97	0.76	0.57
Valid N (listwise)	114				

Table 2
Regression coefficient results

	Unstandardized coefficients		Standardized coefficient		Sig.
Model	*B*	*SE*	*β*	*t*	Sig.
(Constant)	0.262	0.021		12.334	0.000
Profitability	–0.087	0.034	–0.254	–2.539	0.013
Liquidity	0.053	0.021	0.454	2.504	0.014
Capital Intensity	–0.026	0.018	–0.159	–1.439	0.153
Capital Structure	–0.014	0.019	–0.134	0.754	0.452

Notes: Dependent Variable: Tax Aggressivity. *Significant at 5%

Table 3
Determination and correlation coefficient result

Model	*R*	R^2	Adjustment R^2	Std error or the estimate
1	0.403	0.162	0.130	0.03219

Notes: [a]Predictors: (Constant), Profitability, Liquidity, Capital Intensity, Capital Structure, [b]Dependent Variable: Tax Aggressiveness

Table 4
***T*-test result of moderation regression analysis**

	Standardized coefficients		Unstandardized coefficients		
Model	*B*	*SE*	*β*	*t*	Sig.
1 Constant	0.239	0.010		23.591	0.000
Profitability*Capital Structure	–0.075	0.036	–0.279	–2.107	0.037
Liquidity*Capital Structure	0.053	0.017	0.645	3.053	0.003
Profitability*Capital Intensity	–0.025	0.025	–0.167	–0.980	0.330

Notes: [a]Dependent Variable: Tax Aggressiveness. *Significant at 5%

Based on the results of direct effects and indirect effects with moderation, the two equations can be arranged as follows (Tables 2 and 4):

$$Y = 0.262 - 0.087 + 0.053X2 - 0.026X3 - 0.014X4 + e \quad (3)$$

$$Y = 0.239 - 0.075X1^{*} - 0.014 + 0.053X2^{*} - 0.014 - 0.025X3^{*} - 0.014 + e \quad (4)$$

The classical assumption test results indicate that the data are normally distributed, exhibit no autocorrelation, lack multicollinearity, and show no signs of heteroscedasticity. Hypothesis testing is conducted to ascertain the significance of the impact of independent factors on the dependent variable. The *t*-test results are presented here.

According to Tables 2 and 4, the influence of each independent variable can be elucidated as follows:

1) The profitability variable's coefficient in relation to tax aggressiveness is −2.539, with a significance level of 0.013. The significance level of this variable is below 5%, indicating that profitability exerts a substantial negative influence on tax aggression.
2) The liquidity variable's impact on tax aggressiveness is 2.504, with a significance level of 0.014. The significance level of this variable is below 5%, indicating that liquidity exerts a substantial positive influence on tax aggression.
3) The capital intensity variable has a coefficient of −1.439, with a significance level of 0.153, in relation to tax aggressiveness. The significance level of this variable is below 5%, indicating that capital intensity has a negative and insignificant effect on tax aggressiveness.
4) The capital structure variable's correlation with tax aggressiveness is 0.754, with a significance level of 0.452. The significance level of this variable is below 5%, indicating that capital structure has an insignificant effect on tax aggressiveness.
5) Profitability negatively influences tax aggression, with capital structure as a moderating variable, as indicated by the negative and significant coefficient of −2.107 at 0.037.
6) Liquidity positively influences tax aggression, with capital structure as a moderating variable, as indicated by a significant coefficient of 3.053 at a *p*-value of 0.003.
7) Capital intensity influences tax aggression as a moderated variable of capital structure, indicated by a coefficient of −0.980, which is both negative and statistically insignificant at 0.330.

6. Discussion

The effect of profitability on tax aggressiveness

The results of this study are in line with the agency theory put forward by [11, 13, 54]. In this case, the influence of profitability on tax aggressiveness is very closely related to agency theory. In this

context, agency theory explains the relationship between the company owner (principal) and management (agent) who manage the company on the owner's behalf. It is also in line with the empirical studies of Cubizol [55], Wang et al. [28], Bassey et al. [56], and Choi and Park [30], which found that more profitable companies are more likely to engage in tax avoidance.

There is a relationship between profitability and tax avoidance, with the argument that more profitable companies tend to be more aggressive in tax planning. In agency theory, managers as agents can have incentives to take actions that are not always in line with the interests of the company owner. For example, if a company produces high profitability, management may be encouraged to implement tax aggressiveness to increase net profit after tax. This can reduce the tax burden and increase the risk of future tax audits and penalties. Companies with high profitability tend to focus more on ways to maintain or increase net profit. One way is to reduce the tax that must be paid. When profitability rises, companies have more resources to carry out subsector strategies, such as tax avoidance or aggressive tax planning, to maintain their profits. However, profitability can also hurt tax aggressiveness in some contexts. Companies with high profitability are often in the spotlight of the public and tax authorities. They may be less likely to practice tax aggressiveness due to concerns about increased scrutiny from the government, media, and other stakeholders. The reputational risks resulting from aggressive tax avoidance strategies can harm large companies relying on a good public image.

The effect of liquidity on tax aggressiveness

In line with agency theory [14], companies with good liquidity may be more likely to take risks, including in terms of tax aggressiveness. They have more resources to support tax avoidance strategies, such as utilizing legal loopholes or using more complex tax structures. The study results also confirm the empirical studies of Kalbuana et al. [18], Amri et al. [32], Mariana et al. [57], Wahab et al. [34], Tampubolon [35], and Setyowatia et al. [36], where the CR can affect the company's decision to avoid taxes. Companies with high liquidity tend to be more aggressive in their tax strategies. Liquidity is proven to have a significant impact on corporate tax avoidance. In a situation where management feels that they have sufficient liquidity support, they may feel freer to take aggressive measures in tax avoidance, hoping to increase net profit. However, this may not be in line with the interests of principals, who may prefer conservative tax policies to avoid legal or reputational risks.

Overall, liquidity may influence tax aggressiveness through its ability to provide the flexibility and resources necessary for management to make riskier tax decisions. However, this relationship must be carefully managed to ensure that the actions taken by management do not lead to tax aggressiveness.

The effect of capital intensity on tax aggressiveness

These findings align with the tax aggressiveness theory proposed by Nguyen et al. [48], where companies with high levels of capital intensity are usually tied to high fixed costs to maintain and run assets. This reduces their financial flexibility to invest in more aggressive tax avoidance strategies. The results of this study confirm the empirical studies of Yahya et al. [42], Suryarini et al. [43], and Yosephine and Gunawan [44], where capital intensity affects tax aggressiveness, which also refers to the manipulation of taxable profit or the reduction of corporate tax liabilities. Companies with high capital intensity have greater risks associated with asset impairment or operating losses. This makes management more conservative in their tax approach and avoids aggressive strategies that may add further risk. Companies with high capital intensity are often under greater scrutiny from regulators and stakeholders due to the high value of their investments. They may feel the need to maintain a good reputation and operate within a stricter tax compliance framework, which reduces the incentive to engage in aggressive tax avoidance. Investors and stakeholders tend to value companies that are transparent and compliant with their tax obligations. It may encourage companies to be more transparent and compliant with their tax obligations.

The effect of capital structure on tax aggressiveness

This study's results align with the capital structure theory [46], where taxes and bankruptcy costs can affect capital structure decisions in the real world. Therefore, there should be a balance between the tax benefits of debt and bankruptcy costs. This result is in line with empirical studies [58] and [21] where capital structure can influence the policy toward tax avoidance. According to Aryatama and Raharja [51], capital structure significantly impacts tax avoidance. Companies with higher debt levels will attempt to carry out tax aggressiveness. Multinational companies use a capital structure to minimize their tax burden. Companies with a capital structure with a high proportion of debt often take advantage of tax deductions from debt interest. However, companies with excessive debt may be trapped in a situation where interest expense reduces profitability and cash flow, thus triggering more aggressive tax avoidance to maintain liquidity. Companies with an unbalanced capital structure may experience difficulties in complying with tax obligations. Uncertainty regarding debt repayment obligations may encourage firms to aggressively avoid taxes to meet other financial obligations. If firms prefer debt financing over equity.

The effect of profitability on tax aggressiveness moderated capital structure

These results align with agency theory, where the role of company managers is to manage the capital structure so that it can impact company profitability and tax aggressiveness [11, 54]. Confirming empirical studies of Richardson et al. [52], companies involved with high debt risk will manage their profitability to reduce the tax they must pay. This refers to the mix of debt and equity a company uses to fund its assets. This structure can influence company decisions, including tax strategies. More profitable companies tend to be more aggressive in their tax strategies to maximize tax-aggressive profits. They have an incentive to minimize taxes paid to retain more profits. A capital structure heavier on debt can provide tax benefits, as debt interest is often tax-deductible. Companies with more debt may be more incentivized to take risks in tax aggressiveness, taking advantage of available tax breaks. Companies with high debt may be more inclined to adopt aggressive tax strategies to maximize the benefits of tax reductions.

The effect of liquidity on tax aggressiveness moderated capital structure

The results of this study align with the agency theory put forward [15, 59], where several theories underlie agency theory. Company financial managers must be able to use a good capital structure to control company liquidity so that tax avoidance will be affected even more. Previous studies by Amri et al. [32] stated that the more liquid a company is, the more aggressive it will be in its tax strategy. Companies with high liquidity tend to avoid taxes more [34, 59]. Liquidity refers to a company's ability to meet its after-tax obligations.

Companies with high liquidity are better able to manage cash flow and fulfill obligations without taking on more debt. Tax aggressiveness refers to a company's efforts to minimize its tax

liabilities through legitimate tax strategies, including tax avoidance and aggressive tax planning. Capital structure is the composition of debt and equity in a company's funding. It reflects how a company finances its operations and investments. A capital structure that is high in debt can affect a company's liquidity. Companies with high debt may have to allocate more cash to interest payments and debt installments, which can reduce liquidity.

Conversely, a more balanced capital structure can provide greater cash flexibility. Companies with diverse capital structures may have more options in tax planning. For example, using debt can provide tax benefits through reduced interest on debt, encouraging companies to be more aggressive in their tax strategies.

The effect of capital intensity on tax aggressiveness moderated capital structure

These findings are different from the agency theory [11, 60, 13], where a good capital structure should be able to manage capital intensity to reduce tax avoidance. The results of this study do not confirm empirical studies [42–44], where there is always a strong relationship between the role of capital structure in managing capital intensity and being able to pay taxes. Companies with large amounts of fixed assets should avoid taxes aggressively [45]. A capital structure that does not moderate the relationship between capital intensity and tax aggressiveness shows that companies can carry out aggressive tax planning without considering the proportion of existing debt and equity. Therefore, this relationship can still run its course, influenced by other factors such as internal policies, compliance with tax regulations, and overall tax management strategy.

7. Conclusion and Policy Recommendations

Based on the results of the data analysis in the previous section, it can be seen that profitability hurts tax aggressiveness and is caused by the company's inability to generate the expected profits. On the other hand, liquidity has a positive effect on tax aggressiveness. This shows that the greater the level of liquidity, the more secure you tend to feel in carrying out your tax obligations. By having sufficient cash reserves, they may be better prepared to take aggressive steps in tax planning without fear of a negative impact on cash flow. Companies with high capital intensity have many fixed assets in their asset structure. While this provides an opportunity to take tax deductions through depreciation, a company may feel free to adopt a more aggressive tax strategy because it is already gaining tax benefits from the depreciation of those fixed assets. Capital structure, which has a negative and significant effect on tax aggressiveness, means that an increase in the proportion of a company's capital structure tends to reduce the level of tax aggressiveness carried out by the company. Capital structure can moderate or strengthen the relationship between profitability and liquidity and tax aggressiveness, except that capital structure cannot enhance the relationship between capital intensity and tax aggressiveness.

To reduce short-termness, policymakers should offer tax incentives for profitable companies to encourage compliance and provide relief for low-profit firms to discourage aggressive practices, promote liquidity management through tax benefits for companies maintaining stable reserves, limit excessive depreciation benefits for capital-intensive firms and enhance transparency in tax deductions, regulate debt-financed firms to curb interest-related tax avoidance while encouraging balanced capital structures, and mandate corporate tax strategy disclosures and strengthen governance to foster ethical practices and align tax compliance with ESG standards.

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Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Author Contribution Statement

Martinus Robert Hutauruk: Conceptualization, Methodology, Software, Formal analysis, Writing – original draft, Writing – review & editing, Visualization, Supervision. **Firmansyah:** Validation, Resources, Data curation, Writing – original draft, Project administration. **Agus Riyanto:** Investigation, Resources, Data curation, Project administration. **Yessy Arisa:** Investigation, Resources, Data curation, Writing – original draft.

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