

THE EFFECT OF LEVERAGE, FIRM SIZE, AND PROFITABILITY ON TAX AVOIDANCE IN IDX-LISTED COMPANIES WITH INSTITUTIONAL OWNERSHIP AS A MODERATING VARIABLE

Ika Pravita Wardani¹, Titik Mildawati²

¹Master's Program in Accounting, Faculty of Economics, Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA) Surabaya, Indonesia.

²Faculty of Economics, Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA) Surabaya, Indonesia.

E-mail: pravitaika@gmail.com¹, titikmildawati@stiesia.ac.id²

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Abstract

This study aims to examine the effect of *leverage*, company size, and profitability on tax avoidance *and* examine the role of institutional ownership as a moderating variable in manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2022–2024 period. Tax avoidance is proxied using *the Effective Tax Rate* (ETR), which is the ratio of income tax expense to profit before tax. ETR is inversely proportional to *tax avoidance*, so a lower ETR indicates a higher level of *tax avoidance*, while a higher ETR indicates a lower level of *tax avoidance*. This study uses a quantitative approach with an explanatory research method. The sample was determined through *purposive sampling* and resulted in 92 companies with a total of 276 *firm-year observations*. Hypothesis testing was carried out using multiple linear regression with a *Moderated Regression Analysis* (MRA) approach through the formation of interaction variables DAR×INST, SIZE×INST, and ROA×INST. The results showed that *leverage* (DAR) had no significant effect on *tax avoidance*. Firm size (SIZE) and profitability (ROA) significantly influence ETR with negative coefficients, indicating that increasing firm size and profitability tend to decrease ETR and, since ETR is inversely proportional to *tax avoidance*, indicate an increase in *tax avoidance*. Furthermore, institutional ownership does not moderate the effect of *leverage* on *tax avoidance*, but is shown to moderate the effect of firm size and profitability on *tax avoidance*. The positive interaction coefficient indicates that institutional ownership weakens the tendency of larger and more *profitable firms* to decrease ETR. This finding supports the agency theory perspective that institutional ownership acts as a *monitoring mechanism* that can suppress opportunistic behavior of management regarding tax strategies.

Keywords: Tax Avoidance, *Leverage*, Company Size, Profitability, Institutional Ownership.

INTRODUCTION

Taxes are compulsory levies without any direct reciprocity. Taxes play a crucial role in state revenue, which is used to finance state/government operations. According to data from the Indonesian Ministry of Finance (Kementerian Keuangan Republik Indonesia, 2025), tax revenue realization in 2024 reached IDR 1,932.4 trillion, or approximately 68% of total state revenue of IDR 2,842.5 trillion. Of this amount, Income Tax contributed IDR 1,062.7 trillion, or approximately 55% of total tax revenue. The Indonesian government set a 2025 tax revenue target of IDR 2,189.3 trillion, a 13.29% increase from the 2024 realization. This increase in the tax revenue target represents a significant challenge amidst the declining economic conditions. The 2024 tax ratio was recorded at 10.08% of GDP, derived from tax revenue of IDR 2,232.7 trillion to nominal GDP of IDR 22,139.0 trillion (Badan Pusat Statistik [BPS], 2025). This figure still lags behind that of middle-income and developed countries, limiting the government's fiscal space to maintain growth momentum and fund strategic national projects. This gap indicates potential lost state revenue, which could lead to tax avoidance. In modern economic architecture, taxes are a key foundation for supporting fiscal stability and financing a nation's development agenda. For Indonesia, the 2022-2024 period marks a crucial phase of economic normalization and consolidation. In this context, optimizing tax revenues becomes increasingly vital. Tax avoidance operates within the legal framework, where companies strategically exploit loopholes *and* ambiguities in tax regulations to minimize their tax liability (Widyasmoro et al., 2025). This practice

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is a highly relevant issue because it has the potential to erode the state revenue base and create distortions in healthy business competition. Tax avoidance is a legal and safe way for taxpayers to avoid paying taxes because it does not conflict with applicable tax regulations. The methods and techniques used tend to exploit weaknesses (*grey areas*) in tax laws and regulations themselves to minimize the amount of tax payable (Pohan, 2013, p. 23). Meanwhile, according to Hanafi & Harto (2014), tax avoidance by companies does not occur by chance, but is planned and regulated with a predetermined strategy. Tax avoidance, even within the legal framework, is an aggressive action that exploits loopholes in tax regulations to minimize the amount of tax payable. This practice differs from tax evasion, which is illegal. However, from a state perspective, both are equally detrimental because they reduce potential revenue (Pratama, 2022).

The manufacturing sector contributes significantly to tax revenue. According to the December 2024 edition of the *Our State Budget – Performance and Facts report from the Ministry of Finance (Kementerian Keuangan Republik Indonesia, 2024)*, as of November 2024, the manufacturing industry remains the largest contributor to national taxes, accounting for 25.4%, or approximately IDR 411.74 trillion. This study focuses on the manufacturing sector. The manufacturing sector has consistently been a key pillar of the Indonesian economy, contributing significantly to Gross Domestic Product (GDP). This selection was based on the sector's dominant contribution to national GDP (BPS, 2025).

This study examines several factors suspected of influencing tax avoidance practices. Classic factors include leverage, company size, and profitability. Leverage is a ratio used to measure the extent to which a company's assets can be financed by debt. In other words, this ratio measures the company's ability to pay all short-term and long-term liabilities (total debt/total assets) (Citra and Hidayat, 2021). Companies with high leverage tend to reduce taxable income through interest expenses (Chen et al., 2010). The higher the leverage ratio, the greater the amount of third-party debt financing used by the company and the higher the interest costs arising from that debt. Theoretically, debt creates a "tax shield" that encourages tax avoidance, a finding supported by Atthaila et al. (2025).

Company size also plays a role in determining tax avoidance strategies. Large companies tend to have greater resources to develop more complex tax strategies. (Lestari and Tjaraka, 2023) explain that large companies are more likely to engage in tax avoidance due to their access to tax consultants and more flexible tax policies. Similarly, findings (Saputra et al., 2022) indicate that company size has a positive effect on tax avoidance. Large companies often have international operations, allowing them to allocate revenue to countries with lower tax rates.

However, while large companies have more opportunities to engage in tax avoidance, they are also under greater scrutiny. The larger the company, the greater the reputational risks and the stricter regulations. Therefore, some large companies may be more cautious in implementing tax avoidance strategies to avoid sanctions or lose public trust. Large companies have superior resources for sophisticated tax planning, as Mayndarto (2022) points out. However, political cost theory suggests they are more compliant due to public scrutiny. This paradox is why research findings on company size are also divided.

Profitability measures how efficiently a company generates profits from its resources. Financial ratios such as *Return on Assets* (ROA) and *Return on Equity* (ROE) are often used as indicators of profitability (Brigham & Houston, 2019). In the context of tax avoidance, profitability has two potential opposing impacts. On the one hand, companies with high profitability tend to have a greater incentive to engage in tax avoidance to reduce their tax burden and increase their value. With high profits, companies can allocate more resources to develop effective tax strategies, such as *transfer pricing* or utilizing *tax havens* (Hanlon & Heitzman, 2010). This study uses a time period from 2022 to 2024. This period was selected based on considerations of high contextual relevance. This period marks the phase in which the domestic economy is moving towards normal conditions after a previous major disruption, so analysis within this timeframe can capture corporate strategies in a more stable business environment. The 2022-2024 period marks the full implementation of the policy reforms outlined in Law Number 7 of 2021 concerning the Harmonization of Tax Regulations (HPP Law). This law introduces significant changes, including changes to the Corporate Income Tax rate. Analyzing this period provides a unique opportunity to observe how companies adapt to the new tax regulatory landscape, a context also analyzed by Puspitasari & Purnamawati (2024).

Institutional ownership is seen as an important governance mechanism because institutional owners, such as pension funds, insurance companies, and investment managers, have stronger monitoring capabilities than individual investors, thus suppressing opportunistic management behavior in developing tax strategies. Hanlon and Heitzman (2010) and Minnick and Noga (2010) explain that governance characteristics, including ownership structure, influence how management manages the company's tax burden, while Dyreng et al. (2008) and Chen et al. (2010) show that pressure from certain shareholders can influence how aggressively a company engages in tax avoidance. Thus, institutional ownership not only directly influences the level of tax avoidance but also has the potential to alter

the tendency of companies with high *leverage*, large size, and high profitability to engage in aggressive tax avoidance through monitoring pressure and reputational risk considerations.

However, empirical evidence regarding the effectiveness of institutional ownership remains mixed. Darma and Putri (2023), Gintha Rahmadani et al. (2024), and Hermawan and Nurbaiti (2023) found that institutional ownership, in some cases, weakened the influence of certain financial factors on tax avoidance, while Kusnadi and Prasetyo (2023), Jao et al. (2024), and Widyasmoro et al. (2025) reported weak or insignificant effects. This variation in results indicates a *research gap* and serves as the basis for this study to position institutional ownership as a moderating variable. This allows for analysis of whether institutional ownership strengthens or weakens the influence of *leverage*, firm size, and profitability on tax avoidance. This also provides a novelty compared to research that generally only considers institutional ownership as an independent variable, as described by Nurjanah and Cahyonowati (2023) and Widodo and Puspitasari (2022). The inconsistency of research results suggests that the relationship between financial characteristics and tax avoidance is not *linear*. This study proposes the crucial role of institutional ownership as a moderating variable. Institutional investors are viewed as *sophisticated investors* with the capacity for effective monitoring. However, their role can be dual: as supervisors demanding transparency, as expressed by Darma & Putri (2023), or as aggressive efficiency drivers seeking high returns. By positioning institutional ownership as a moderator, this study seeks to answer the question: "Under what ownership structure conditions are the influence of these factors stronger or weaker?"

From an agency theory perspective, the relationship between owners (*principals*) and managers (*agents*) is contractual and prone to conflict due to differing interests and information asymmetry. Managers have incentives to maximize their personal utility, including through policies that reduce the tax burden, even though this potentially increases risks for owners and the government (Jensen & Meckling, 1976; Alkausar et al., 2020). Tax avoidance practices are seen as one consequence of agency conflicts, as management utilizes discretion in setting accounting policies and developing funding structures to minimize tax liabilities (Niswah & Nilam, 2024). In this context, *leverage*, company size, profitability, and institutional ownership can be understood as mechanisms that amplify or mitigate agency conflicts: leverage through creditor pressure, company size through public and regulatory scrutiny, profitability through managerial incentives for profit, and institutional ownership through its monitoring function of company tax policies. Meanwhile, the capital structure trade-off theory (Modigliani & Miller, 1963; Megawati et al., 2021) explains that *companies will balance the benefits of using debt in the form of interest tax shield savings* with the costs of bankruptcy and the risk of financial distress. Brigham and Houston (2019, pp. 497–498) explain that using debt provides tax benefits through reduced interest expenses, but increasing debt also increases the potential for financial distress and the risk of bankruptcy. Therefore, companies will balance the tax benefits of using debt with the costs arising from potential financial distress.

LITERATURE REVIEW

The Effect of Leverage on Tax Avoidance

Trade-off theory explains that companies are faced with a choice between the tax benefits of using debt (*tax shield*) and the risk of financial distress due to high interest expenses. Deductible loan interest from taxable profits encourages management to utilize debt to reduce the company's tax liabilities. Therefore, the greater the level of *leverage*, the greater the potential for companies to engage in tax avoidance in an effort to maintain net profit (Frank et al., 2009). Several studies provide empirical evidence regarding the influence of *leverage* on tax avoidance practices. Research by Gumelar et al. (2024) shows that *leverage* has a significant effect on tax avoidance in banking companies in Indonesia. Similar results were found by Hanifah & Aresteria (2025) who studied the mining sector, where *leverage* was shown to encourage increased tax avoidance. Meanwhile, a study by Sulistiana et al. (2025) in the consumer goods sector also confirms the finding that companies with high debt levels are more aggressive in reducing their tax burden. Furthermore, research by Ghasani et al. (2021) in manufacturing companies demonstrated a positive correlation between *leverage* and tax avoidance, demonstrating its relevance to the context of this study. Recent empirical research consistently supports this argument. A comprehensive study by Prasetya and Muid (2022) demonstrated that *leverage* has a positive and statistically significant effect on tax avoidance practices. Similar findings were reported by Laurentya and Ngadiman (2025), who found that companies with higher debt-to-asset ratios consistently exhibited higher levels of tax avoidance. Research by Hendayana et al. (2024) also confirmed that *leverage decisions* are an integral part of tax planning, which leads to tax avoidance. Based on the predominance of empirical evidence supporting the *tax shield argument*, the following hypothesis is formulated in this study:

H 1: Leverage has a positive effect on tax avoidance.

The Effect of Company Size on Tax Avoidance

In accounting and taxation literature, firm size *is* often cited as an important variable in explaining variations in tax avoidance rates. Firm size describes the size of a business entity, which can be measured using various indicators, such as total assets, total sales, and market capitalization (Risawati & Mulyani, 2021). Managerial incentive theory argues that management is motivated to optimize net income and firm value, one of which is through tax strategies. At the same time, resource theory explains that large firms generally possess more adequate financial resources, technology, and expertise than smaller firms. A larger operational scale also allows firms to establish professional internal tax departments, collaborate with reputable tax consultants, and design cross-entity corporate structures to maximize tax efficiency. Thus, firm size has the potential to influence tax avoidance rates because organizational complexity provides greater scope for aggressive tax planning.

From an Agency Theory perspective, large companies face potentially more complex conflicts of interest between managers (agents) and shareholders (principals). Agents who control the company's financial policies can leverage the company's substantial resources to reduce tax burdens and present better financial performance in the eyes of the principals. However, on the other hand, large companies are also subject to greater public and regulatory scrutiny, so any aggressive tax avoidance actions can pose reputational risks (Desai & Dharmapala, 2009; Novitasari & Cahyonowati, 2020). Therefore, the agency dilemma encourages large companies to be cautious in determining the extent of their tax avoidance strategies. Empirical evidence suggests that company size does influence tax avoidance practices. Hidayat & Rizky (2022) report that large companies are more likely to engage in tax avoidance due to transaction complexity and greater tax planning flexibility. Nurjanah & Cahyonowati (2023) add that large companies with access to external consultants can design more aggressive tax strategies, thereby reducing their effective tax burden. Based on theory and empirical evidence, this study develops the following hypotheses:

H 2: Company size has a positive effect on tax avoidance.

The Effect of Profitability on Tax Avoidance

Within the theoretical framework of this research, the most relevant *grand theory to explain the influence of profitability on tax avoidance is Agency Theory*. *Agency Theory* assumes a potential conflict between managers (agents) and owners (principals); managers who are given performance incentives/compensation based on net profit will be encouraged to pursue higher returns, including through tax avoidance strategies. Profitability can be measured as *Return on Assets* (ROA), *Return on Equity* (ROE), net profit margin, or other profit indicators compared to total assets or capital. When a company generates high profits, there are two sides: on the one hand, the company can choose to pay fair taxes and maintain its reputation; on the other hand, high profits invite managers to minimize taxes through tax planning, choosing accounting methods, or utilizing tax incentives, in order to increase the available net profit.

Chen et al. (2010) consistently show that more profitable companies tend to engage in higher levels of tax avoidance. This occurs because management strives to maintain high after-tax profits, which can subsequently affect performance bonuses, compensation, and investor perceptions of company value. Several recent empirical studies in Indonesia support these findings. Widodo & Puspitasari (2022) also report similar results, stating that a high *Return on Assets (ROA)* increases a company's propensity to engage in tax avoidance. Another study by Anggraeni & Yanto (2023) confirms that profitability significantly influences tax avoidance, especially in large companies with sufficient resources to design aggressive tax planning strategies. Based on managerial incentive theory, agency theory, and empirical evidence, this study proposes the following hypothesis:

H 3: Profitability has a positive effect on tax avoidance.

Institutional Ownership Moderates the Effect of Leverage on Tax Avoidance

In *agency theory*, the use of debt (*leverage*) can function as a mechanism to control managers' opportunistic behavior. High levels of leverage create fixed interest payment obligations, thereby disciplining the company's cash flow and limiting managers' opportunities for non-productive spending. However, on the other hand, debt structures can also create incentives for tax avoidance, as loan interest can be used as an expense that reduces taxable income (*interest tax shield*). This is where institutional ownership plays a role as a moderating variable. Institutional investors generally have long-term interests, better access to information, and the ability to *monitor* management. High debt, coupled with aggressive tax avoidance strategies, can exponentially increase a company's risk profile. This not only increases the risk of bankruptcy (*default risk*) but can also trigger stricter tax audits and potential sanctions that can harm the company's value. Institutional investors, generally more *risk-averse* and oriented towards long-term stability, will view this combination as a danger signal. Recent research by Kusnadi & Prasetyo (2023) found that *leverage* has a positive effect on tax avoidance in manufacturing companies, but this effect weakens when institutional

ownership is high because institutional investors increase tax policy transparency. Similar results were also found by Rahmawati & Lestari (2022) in the context of non-financial companies on the IDX. Based on this argument, the following hypothesis is formulated:

H 4: Institutional ownership moderates the effect of *leverage* on tax avoidance.

Institutional Ownership Moderates the Effect of Firm Size on Tax Avoidance

Large firms *generally* have greater resources and access to tax planning, including exploiting complex regulatory loopholes. The moderating role of institutional ownership is crucial to understanding this ambiguity. Institutional investors are typically more concerned with a company's long-term reputation and cash flow stability. As such, they tend to discourage overly aggressive tax avoidance practices in large firms. However, when institutional ownership is passive, large firms are more willing to exploit the complexity of cross-border transactions or financial instruments to reduce their tax burden.

Putra & Nugroho (2022) found that company size has a positive effect on tax avoidance, but this effect is significantly reduced in companies with high institutional ownership. This is in line with the findings of Khan et al. (2017), who emphasized that the presence of institutions as majority shareholders can restrain large companies from being too aggressive in tax avoidance. Therefore, institutional ownership tends to weaken the effect of company size on tax avoidance.

H 5: Institutional ownership moderates the effect of firm size on tax avoidance.

Institutional Ownership Moderates the Effect of Profitability on Tax Avoidance

High profitability indicates good company performance and substantial pre-tax profits. This situation often encourages management to seek ways to reduce tax burdens, one of which is through tax avoidance. In accordance with Agency Theory, one of the primary roles of institutional investors is to reduce information asymmetry and ensure that managers do not act opportunistically. When a company is highly profitable, management may be tempted to engage in aggressive tax avoidance practices to further inflate net income for bonuses or other personal incentives. However, institutional investors will view this as risky and unsustainable. They value high-quality earnings reported transparently over earnings manipulated through complex tax schemes. Transparent earnings provide a better signal about the company's fundamental health and long-term prospects. Therefore, the presence of significant institutional ownership will act as a counterbalance, suppressing managers' incentives to engage in tax avoidance driven by high profitability. They will demand better accountability and governance. Empirical findings from Jao et al. (2024) explicitly support this argument, finding that institutional ownership significantly weakens the positive relationship between profitability and tax avoidance. In other words, in companies with high institutional ownership, increases in profitability are not necessarily accompanied by a corresponding increase in tax avoidance. This finding aligns with research by Wulandari & Santoso (2024), which shows that in companies with high profitability, institutional ownership can suppress aggressive tax avoidance practices. Thus, institutional ownership serves as a factor that weakens the effect of profitability on tax avoidance.

H 6: Institutional ownership moderates the effect of profitability on tax avoidance.

Conceptual Framework

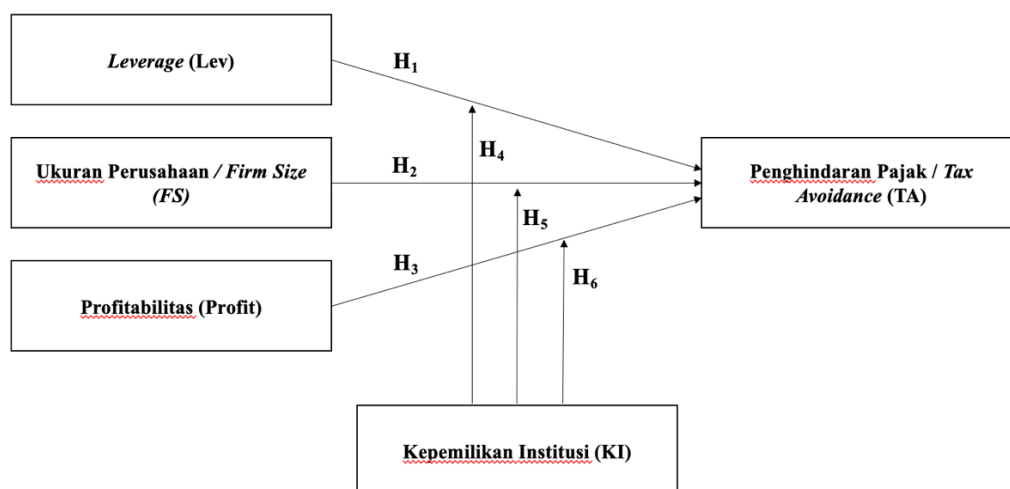


Figure 1. Conceptual Framework

METHODS

Types of Research and Description of Research Population (Object)

This research uses a quantitative approach with an explanatory research method. The quantitative approach was chosen because the research focuses on testing the influence between variables through statistical analysis based on systematically obtained numerical data. The *explanatory research method* allows researchers to test hypotheses about the influence of *Leverage*, Firm Size, and Profitability on Tax Avoidance, as well as the role of Institutional Ownership as a moderating variable. The quantitative research approach is a research method that is very dominantly used in the social sciences, especially in business, finance, and accounting studies (Sugiyono, 2023, p. 38). This approach focuses on testing the influence between variables that can be measured numerically using valid and reliable instruments. In other words, quantitative research emphasizes the collection of quantitative data and the application of inferential statistics to test hypotheses and explain the phenomena that occur.

The research object of this study is all manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2022 to 2024. This population selection was based on several essential strategic considerations. First, the manufacturing sector plays a vital role as a driving force of the national economy, contributing substantially to Gross Domestic Product (GDP) and, directly, to state tax revenues. Companies in this sector often have complex operations, diverse capital structures, and the potential for significant cross-border transactions, making it a rich arena for examining various tax strategies. This sector's large operational scale, high transaction intensity, and significant contribution to state revenues make it relevant for examining the issue of tax avoidance. Second, the companies' status as "listed on the IDX" guarantees the availability of publicly audited annual financial reports. This is crucial for collecting reliable and consistent secondary data for quantitative analysis. Third, the observation period from 2022 to 2024 is highly relevant because it encompasses changes in national and global tax policies, as well as current economic challenges. Fluctuations and policy changes that occurred during this period have the potential to influence companies' strategic decisions, including their behavior in the context of tax avoidance, thus providing current and valuable insights for research.

Research Population

The population in this study is all manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the period 2022 to 2024. The selection of the manufacturing sector is based on the significance of its contribution to the national economy and its operational complexity which often involves diverse financial transactions and corporate structures, making it a relevant arena for studying tax avoidance behavior.

Sampling Techniques

The sampling technique used in this study is *purposive sampling*. *Purposive sampling* is a non-probability sampling technique in which researchers determine specific criteria or characteristics that elements of the population must meet in order to be included in the sample. This study focuses on specific variables whose data must be publicly

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available from financial reports. Therefore, not all manufacturing companies in the population will have relevant or complete data. *Purposive sampling* allows researchers to select companies that specifically meet the criteria necessary to test the established hypotheses. Considering the use of secondary data from financial reports, purposive sampling is an efficient technique because it allows researchers to directly target companies that have complete data needed to measure variables. This technique also minimizes the problem of *missing data* that can interfere with statistical analysis. Based on the sample selection process, 92 manufacturing companies were obtained that met the criteria. With a 3-year observation period (2022–2024), the number of data analyzed was 276 observations (*firm-years*), i.e., 92 companies $\times$ 3 years.

Data Types and Data Sources

This study uses secondary data, that is, data obtained not directly from the research subjects but through published documents. The primary data consists of annual financial reports *and* audited financial reports of manufacturing companies listed on the IDX for the periods 2022 to 2024. The data source is the official database of the Indonesia Stock Exchange (www.idx.co.id).

Data collection technique

The specific technique applied in data collection for this research is documentation. Documentation is a non-reactive method that involves collecting data by reading, reviewing, recording, and analyzing various written documents and relevant archival records. The data collection technique is carried out through documentation, namely by downloading annual financial reports published by the IDX and related companies. From these reports, researchers collect numerical data regarding total assets, total liabilities, net income, tax burden, and the number of shares owned by the institution. This data is then processed to measure each research variable according to predetermined operational definitions.

Data Analysis Techniques

The data analysis technique in this study uses multiple linear regression with a *Moderated Regression Analysis* (MRA) approach. Multiple linear regression is used to test the effect of *Leverage*, Firm Size, and *Profitability* on Tax Avoidance. Furthermore, MRA is used to test the role of Institutional Ownership as a moderating variable by forming an interaction *term* between IP and each independent variable. In this study, IP is included as a *main effect* to form a complete MRA model, while the focus of the moderation test refers to the significance of the interaction coefficient. The research data are secondary data obtained from the financial statements of manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the period 2022–2024. All company-year observations are analyzed using the *Ordinary Least Squares* (OLS) approach. To control for differences in conditions between observation years, this study adds year dummy variables as control variables when necessary.

RESULTS AND DISCUSSION

Table 1 presents the descriptive statistics of the research variables, providing an initial picture of the distribution and central tendency of each variable over the observation period.

Table 1. Descriptive Statistics

Variable	Code	N	Minimum	Maximum	Mean	Std. Deviation
Leverage	DAR	276	0.0327	0.6831	0.332552	0.1589418
Firm Size	SIZE	276	25.1519	32.3124	28.501942	1.5550939
Profitability	ROA	276	0.0018	0.2881	0.099732	0.0729846
Institutional Ownership	INST	276	0.0117	0.9948	0.717953	0.2787749
Tax Avoidance	ETR	276	0.1638	0.3144	0.232866	0.0319834

Source: Processed secondary data, 2026

Classical Assumption Test Normality Test

**Table 2. Results of Normality Test on Residuals
One-Sample Kolmogorov-Smirnov Test**

			Unstandardize d Residual
N			276
Normal Parameters ^{a,b}	Mean		,0000000
	Standard Deviation		,02376668
Most Extreme Differences	Absolute		,047
	Positive		,047
	Negative		-,027
Test Statistics			,047
Asymp. Sig. (2-tailed) ^c			,200 ^d
Monte Carlo Sig. (2-tailed) ^e	Sig.		,159
	99% Confidence Interval Lower Bound		,149
	Upper Bound		,168

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 92208573.

Source: Processed SPSS test results, 2026

Normality testing was conducted using the One-Sample Kolmogorov-Smirnov test assisted by the Monte Carlo method to obtain more accurate results. Data are declared to meet the normality assumption if the significance value is greater than 0.05. Based on the test results on the residual model, the Monte Carlo Sig. (2-tailed) value shows a figure of 0.159, while the Asymp. Sig. (2-tailed) value is 0.200. Since both significance values are above the threshold of 0.05, it can be concluded that the residuals in this regression model are normally distributed.

Multicollinearity Testing

**Table 3. VIF values for each variable
Coefficients ^a**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	,446	,027		16,390	,000		
DAR	-,031	,009	-,152	-3,243	,001	,928	1,077
SIZE	-,006	,001	-,287	-5,895	,000	,859	1,165
ROA	-,157	,021	-,358	-7,604	,000	,917	1,090
INST	-,026	,006	-,228	-4,757	,000	,884	1,131

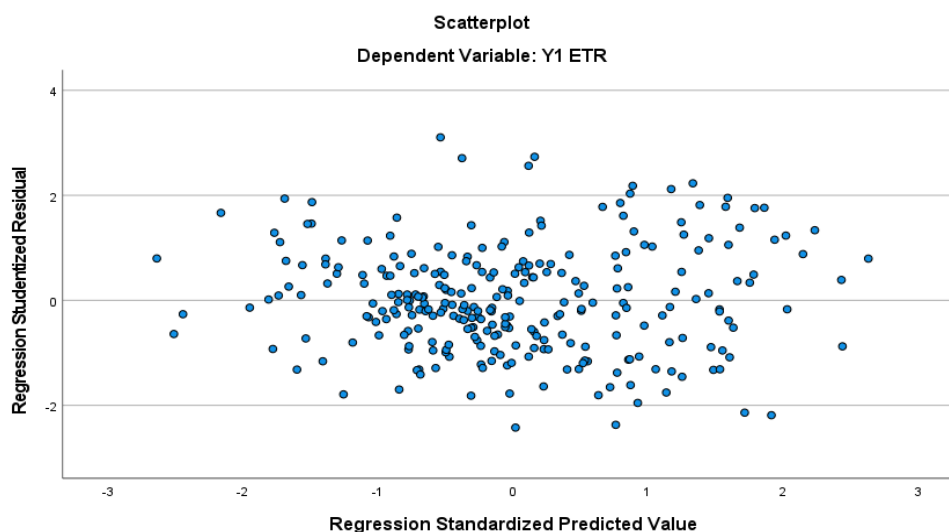
a. Dependent Variable: Y1 ETR

Source: Processed SPSS test results, 2026

Table 3 shows that there is no multicollinearity between the independent variables, as seen from the VIF values for *the Leverage*, *Firm Size*, and *Profitability* variables which are less than 10 and the *tolerance value* is more than 0.100. With VIF values all approaching 1, it can be concluded that the independent variables in this study do not experience multicollinearity, so that each variable can explain the variation of the dependent variable without excessive linear relationship interference between predictors.

Heteroscedasticity Testing

Figure 2. Scatter Plot Heteroscedasticity Test



Source: Processed SPSS test results, 2026

Heteroscedasticity was also examined using a scatterplot between *the Studentized Residual Regression* and *the Standardized Predicted Value Regression*. In the graph, the residual points are randomly distributed above and below zero and do not form a specific pattern such as a funnel or a wave pattern. This visually indicates that the residual variance tends to be relatively constant. This conclusion is confirmed by the Glejser test presented in Table 4. The significance values are 0.358 for DAR, 0.152 for SIZE, 0.166 for ROA, and 0.102 for INST, all above the 0.05 threshold, so the homoscedasticity assumption is met.

Table 4. Results of the Glejser Test

Model	B	Std. Error	Beta	t	Sig.
(Constant)	.050	.016		3.124	.002
DAR	-.005	.006	-.057	-.921	.358
SIZE	-.001	.001	-.092	-1.437	.152
ROA	-.017	.012	-.086	-1.390	.166
INST	-.005	.003	-.103	-1.641	.102

a. Dependent Variable: ABS_RES

Source: Processed SPSS test results, 2026

The Glejser test regresses the absolute value of the residuals on the independent variables. A model is considered free from heteroscedasticity if the significance value of each independent variable exceeds 0.05. As shown in Table 4, all significance values lie above that threshold, confirming that the homoscedasticity assumption is met.

Autocorrelation Testing

Table 5. Autocorrelation Test Results

Durbin-Watson

2,178

Source: Processed SPSS test results, 2026

The Durbin–Watson value is 2.178. In principle, a Durbin–Watson value close to 2 indicates the absence of autocorrelation. Therefore, the figure of 2.178 can be interpreted as meaning that the residuals do not show strong indications of autocorrelation (either positive or negative), thus the assumption of residual independence is considered to be sufficiently met.

Table 6. Test Runs

	Unstandardized Residual
Test Value ^a	-,00206
Cases < Test Value	138
Cases >= Test Value	138
Total Cases	276
Number of Runs	149
Z	1,206
Asymp. Sig. (2-tailed)	,228
a. Median	

Source: Processed SPSS test results, 2026

Autocorrelation testing uses the Runs Test to determine whether there is a correlation between observation members sorted by time or space. The requirement for this assumption to be met is that the Asymp. Sig. (2-tailed) value must be greater than 0.05. Based on the SPSS output, the resulting significance value is 0.228. Thus, this regression model is declared free from autocorrelation problems because its significance value exceeds the specified minimum limit.

Multiple Linear Regression Analysis with MRA

Table 7. Multiple Linear Regression Equation with MRA Coefficients ^a

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	,579	,071		8,200	,000
DAR	-,046	,028	-,230	-1,628	,105
SIZE	-,010	,003	-,487	-3,936	,000
ROA	-,326	,071	-,743	-4,578	,000
INST	-,247	,098	-2,154	-2,513	,013
DAR_INST	,020	,037	,100	,540	,590
SIZE_INST	,007	,003	1,783	1,982	,049
ROA_INST	,228	,089	,468	2,565	,011

a. Dependent Variable: Y1 ETR

Source: Processed SPSS test results, 2026

Based on table 7 above, the regression equation obtained is:

$$ETR = 0.579 - 0.046(DAR) - 0.010(SIZE) - 0.326(ROA) - 0.247(INST) + 0.020(DAR \times INST) + 0.007(SIZE \times INST) + 0.228(ROA \times INST) + e$$

This equation shows that the influence of DAR, SIZE, and ROA on ETR is not only assessed from their direct coefficients but also considering the interaction coefficient with INST as the core moderation factor. The regression equation above provides the following explanation:

1. α = Constant = 0.579 indicates the ETR value when all independent variables (DAR, SIZE, ROA, INST) and interaction variables (DAR×INST, SIZE×INST, ROA×INST) are equal to 0 (or considered constant). This means that if all these variables are equal to zero, the predicted ETR is 0.579.
2. β_1 = Regression coefficient for *Leverage* (DAR) = -0.046
3. β_2 = Regression coefficient for Firm Size (SIZE) = -0.010
4. β_3 = Regression coefficient for Profitability (ROA) = -0.326
5. β_4 = Regression coefficient for Institutional Ownership (INST) = - 0.247
6. β_5 = Regression coefficient for *Leverage* × Institutional Ownership (DAR×INST) = 0.020
7. β_6 = Regression coefficient for Firm Size×Institutional Ownership (SIZE×INST)= 0.007
8. β_7 = Regression coefficient for Profitability × Institutional Ownership (ROA×INST) = 0.228

t-test

Table 8. Results of Multiple Linear Regression t-Test with MRA

		Coefficients ^a			t	Sig.
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	,579	,071		8,200	,000
	DAR	-,046	,028	-,230	-1,628	,105
	SIZE	-,010	,003	-,487	-3,936	,000
	ROA	-,326	,071	-,743	-4,578	,000
	INST	-,247	,098	-,2154	-2,513	,013
	DAR_INST	,020	,037	,100	,540	,590
	SIZE_INST	,007	,003	1,783	1,982	,049
	ROA_INST	,228	,089	,468	2,565	,011

a. Dependent Variable: Y1 ETR

Source: Processed SPSS test results, 2026

Table 8 shows that the DAR variable in the moderation model yields a significance value of 0.105 with a negative coefficient of 0.046. Because this significance value is greater than 0.05, DAR has no partial significant effect on the *Effective Tax Rate* (ETR) in this model. This indicates that, in the context of the interaction of other variables, changes in debt levels do not directly impact fluctuations in a company's effective tax burden.

The SIZE variable shows a negative coefficient of 0.010 with a significance value of 0.000. This indicates that company size still has a negative and significant effect on ETR even in the moderation model. The larger the company, the lower its effective tax burden, leading to increased tax avoidance activities due to lower tax payments to the government.

The ROA variable has a negative coefficient of 0.326 with a significance level of 0.000. These results confirm that ROA has a negative and significant effect on ETR. Increasing a company's profit-generating capacity actually lowers its effective tax ratio, indicating that more profitable companies tend to pay less tax or engage in greater tax avoidance.

The DAR_INST interaction has a significance value of 0.590. Since this value exceeds 0.05, it can be concluded that institutional ownership is unable to moderate the effect of DAR on ETR. In other words, institutional oversight does not have a significant impact on strengthening or weakening the relationship between debt policy and corporate tax burden.

The SIZE_INST interaction yields a positive coefficient of 0.007 with a significance value of 0.049. This significance value, below 0.05, indicates that institutional ownership significantly moderates the effect of firm size on ETR. A positive coefficient indicates that this interaction can increase ETR, resulting in higher tax payments and minimizing tax avoidance.

The ROA_INST interaction has a positive coefficient of 0.228 with a significance value of 0.011. This proves that institutional ownership significantly moderates the relationship between profitability (ROA) and ETR. The positive direction of this interaction indicates that institutional ownership can encourage profitable companies to pay higher taxes, resulting in increased ETR and lower levels of tax avoidance.

Model Feasibility Test (F Test)

Table 9. Results of Multiple Linear Regression ANOVA with MRA

		ANOVA ^a				Sig.
Model		Sum of Squares	df	Mean Square	F	
1	Regression	,135	7	,019	35,101	.000 ^b
	Residual	,147	268	.001		
	Total	,281	275			

a. Dependent Variable: ETR

b. Predictors: (Constant), ROA_INST, DAR, SIZE, INST, ROA, DAR_INST, SIZE_INST

Source: Processed SPSS test results, 2026

Based on Table 9, the F value is 35.101 with a significance value of 0.000. Because the significance value of 0.000 is less than 0.05, the MRA regression model in this study is declared statistically feasible to be used in explaining ETR variations and as a basis for continuing partial hypothesis testing and testing the moderation effect.

Determination Test (R-Square)

Table 10. Results of the Multiple Linear Regression Summary Model with MRA
Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.692 ^a	.478	.465	.023400-

a. Predictors: (Constant), ROA_INST, DAR, SIZE, ROA, DAR_INST, SIZE_INST

Source: Processed SPSS test results, 2026

Table 10 shows that the resulting R² value is 0.478 and ^{Adjusted} R Square = 0.465. The Adjusted R² value is considered more appropriate to use because it takes into account the number of independent variables used in the model. These results indicate that approximately 46.5% of the variation in ETR can be explained by DAR, SIZE, ROA, and interaction variables (DAR×INST, SIZE×INST, ROA×INST). Meanwhile, approximately 53.5% of the variation in ETR is influenced by other factors outside the model, such as differences in accounting and fiscal policies of the company, more specific operational and industry characteristics, asset composition, fiscal loss carryforwards, the intensity of certain transactions, and other aspects of corporate governance. The *Adjusted* R² value of 0.465 indicates the model's explanatory power is moderate and adequate for research based on company data.

Discussion

The Effect of Leverage on Tax Avoidance

This study tested the hypothesis that *leverage* has a positive effect on tax avoidance. Based on the t-test results in the MRA model, the leverage coefficient (DAR) is -0.046 with a significance value of 0.105 (greater than 0.05). This indicates that *leverage* does not significantly influence the dependent variable, ETR. Because this study proxies *tax avoidance* using ETR (ETR is in the opposite direction to *tax avoidance*), empirically, *leverage* is not proven to affect *tax avoidance* in the sample of manufacturing companies for the 2022–2024 period. Thus, H1_{is} is rejected. From an agency theory perspective, *leverage* also implies increased supervision and control from creditors. The higher the debt, the greater the demands on companies to maintain repayment capacity, transparency, and compliance with *covenants*. The finding that *leverage* is insignificant in the MRA model also indicates that variations in ETR in the manufacturing sample for the 2022–2024 period are more strongly explained by other factors (e.g., company size and profitability, and governance mechanisms through institutional ownership) than by *leverage*. The results of this study align with previous research, which also found that *leverage* has no significant effect on *tax avoidance*. For example, research by Quthbi & Renfiana (2023) (companies listed on the Jakarta Islamic Index) showed that *leverage* was insignificant on *tax avoidance* (as indicated by a *leverage probability* > 0.05). Furthermore, research by Aini and Kartika (2022) also concluded that *leverage* has no significant effect on *tax avoidance*.

The Influence of Firm Size on Tax Avoidance

This study tested the hypothesis that *Firm Size* has a positive effect on *Tax Avoidance*. The t-test results show that the *Firm Size* (SIZE) coefficient is -0.010 with a significance level of 0.000 (less than 0.05). This means that *Firm Size* has a significant effect on the dependent variable, ETR. This study proxied *tax avoidance* using ETR, which is in the opposite direction to *tax avoidance*. A lower ETR indicates a higher level of *tax avoidance*, while a higher ETR indicates a lower level of *tax avoidance*. Thus, a negative SIZE coefficient indicates that increasing company size tends to decrease ETR, which substantively indicates increasing *tax avoidance*. Therefore, this empirical finding supports the hypothesis that *firm size* has a positive effect on tax avoidance. Thus, H2_{is} is accepted. The results of this study are supported by research by Hidayat & Rizky (2022) and Nurjanah & Cahyonowati (2023) which confirm that large companies have broader tax planning flexibility, including through the support of external consultants. From an agency theory perspective, larger companies also tend to have more complex agency relationships and higher information asymmetry, so management policies can have broader impacts. In this context,

changes in corporate tax policies are reflected in the effective tax rate, which in this study is reflected in the ETR (a TA proxy), with an *inverse interpretation*.

The Influence of Profitability on Tax Avoidance

In this study, the hypothesis that *Profitability* has a positive effect on *Tax Avoidance* was tested. The t-test results on the MRA model show that profitability, proxied by *Return on Assets* (ROA), has a coefficient of -0.326 with a significance value of 0.000 (less than 0.05). This means that ROA has a significant effect on the dependent variable ETR. This study uses ETR as a proxy for *tax avoidance*, where ETR is in the opposite direction to *tax avoidance* (lower ETR reflects higher *tax avoidance*). Thus, the negative ROA coefficient indicates that increasing profitability tends to decrease ETR, thus substantively indicating increasing *tax avoidance*. Therefore, these empirical results support the hypothesis H3. Thus, H3 is accepted.

The results of this study can be explained through agency theory. When a company generates high profits, owners' attention to performance (net profit and after-tax cash flow) tends to increase. Management has an incentive to maintain after-tax performance to maintain a favorable view of shareholders. Under these conditions, tax management can be a management tool to increase after-tax profit (or maintain its stability). The greater the profit generated, the greater the perceived economic benefits from tax efficiency, thus increasing the tendency for tax avoidance. These results are supported by research conducted by Widodo & Puspitasari (2022), which found that a high *Return on Assets* (ROA) increases a company's tendency to engage in tax avoidance. Another study by Anggraeni & Yanto (2023) confirmed that profitability significantly influences tax avoidance, especially in large companies that have sufficient resources to design aggressive tax planning strategies.

The Moderating Effect of Institutional Ownership on Leverage on Tax Avoidance

This study tests the hypothesis that institutional ownership moderates the effect of *leverage* on *tax avoidance*. The moderation test was conducted through the DAR×INST interaction variable in the MRA model. The t-test results show that the DAR×INST interaction coefficient is 0.020 with a significance level of 0.590 (greater than 0.05). This means that the interaction between *leverage* and institutional ownership is insignificant, so institutional ownership is not proven to moderate the effect of *leverage* on ETR. Therefore, it can be concluded that the level of institutional ownership does not change the strength of the relationship between *leverage* and *tax avoidance* in a sample of manufacturing companies for the period 2022–2024. Thus, H4 is rejected. Based on agency theory, institutional ownership is seen as an external monitoring mechanism capable of suppressing opportunistic management behavior, including excessively risky tax aggressiveness. Institutional investors generally have the resources and incentives to monitor company policies, so conceptually, institutional ownership is expected to "restrain" management strategies that have the potential to increase the risk of fiscal corrections, sanctions, and reputational risks. However, the results of this study indicate that this role does not appear statistically in the *leverage–tax avoidance relationship*.

The Moderating Effect of Institutional Ownership on Firm Size on Tax Avoidance

This study tests the hypothesis that institutional ownership moderates the effect of *Firm Size* on *Tax Avoidance*. The moderation test is conducted through the interaction variable SIZE×INST in the MRA model. The t-test results show a SIZE×INST interaction coefficient of 0.007 with a significance value of 0.049 (less than 0.05). This means that institutional ownership is proven to significantly moderate the relationship between firm size and ETR. In the results of this study, the main coefficient of SIZE on ETR is negative (-0.010), while the interaction coefficient of SIZE×INST is positive (0.007). This combination of signs indicates that as institutional ownership increases, the negative effect of SIZE on ETR becomes weaker. Substantively, this means that institutional ownership moderates the tendency of large companies to engage in *tax avoidance*. Thus, H5 is accepted.

From an agency theory perspective, larger companies are generally associated with more complex organizational structures, more agency relationships, and higher information asymmetry. These conditions increase management's opportunity to exercise discretion in various policies, including taxation. Large companies also have the resources to conduct tax planning, which can directly reduce ETR (increase *tax avoidance*). However, when institutional ownership is high, institutional investors serve as a more effective monitoring mechanism because they have the economic incentives and analytical capacity to oversee management.

The Moderating Effect of Institutional Ownership on Profitability on Tax Avoidance

This study tests the hypothesis that institutional ownership moderates the effect of *profitability* on *tax avoidance*. The moderation test is conducted through the ROA×INST interaction variable in the MRA model. The t-test results show that the ROA×INST interaction coefficient is 0.228 with a significance level of 0.011 (less than

0.05). This means that institutional ownership is proven to significantly moderate the effect of profitability on ETR. The regression results show that the main coefficient of profitability (ROA) on ETR is negative (-0.326), while the ROA×INST interaction coefficient is positive (0.228). This combination of signs indicates that as institutional ownership increases, the negative effect of ROA on ETR becomes weaker. In the context of *tax avoidance*, this finding means that institutional ownership moderates the tendency of more *profitable companies* to increase *tax avoidance*. Thus, H6 is accepted. In agency theory, high profitability often increases management's incentives to maintain after-tax performance (net profit) and cash flow, so that management has the potential to be encouraged to carry out tax management to lower the effective tax burden. From a *trade-off theory perspective*, companies weigh the benefits of tax savings against the associated costs/risks. More profitable companies do have a greater incentive to lower their tax burden (the benefits are greater due to a higher profit base). However, aggressive tax strategies also carry potential costs, such as the risk of fiscal corrections, tax disputes, sanctions, and reputational risk. In companies with high institutional ownership, the preference for long-term risk management is typically stronger, so the *trade-off* between "tax savings" and "risk" tends to lead to more prudent tax policies. Thus, the influence of profitability on driving *tax avoidance* becomes more manageable when institutional monitoring increases.

CONCLUSION

Based on the results of testing manufacturing company data for the 2022–2024 period (276 *firm-years*) with a multiple linear regression model using *Moderated Regression Analysis* (MRA) and the dependent variable ETR as a proxy for *tax avoidance*, the conclusions of this study are as follows:

1. *Leverage* (DAR) has no significant effect on *tax avoidance*. This is indicated by the DAR coefficient of -0.046 with a significance level of 0.105, so *leverage* is not proven to affect ETR (and, implicitly, *tax avoidance*) in this research model.
2. *Firm Size* (SIZE) has a positive effect on *tax avoidance*. SIZE has a significant negative effect on ETR ($\beta = -0.010$; Sig 0.000), which means that the larger the company, the lower the ETR and *tax avoidance* tends to increase.
3. *Profitability* (ROA) has a positive effect on *tax avoidance*. ROA has a significant negative effect on ETR ($\beta = -0.326$; Sig 0.000), so companies with higher profitability tend to have lower ETR and higher *tax avoidance*.
4. Institutional ownership does not moderate the effect of *leverage* on *tax avoidance*. The DAR×INST interaction is not significant ($\beta = 0.020$; Sig 0.590).
5. Institutional ownership moderates the effect of *Firm Size* on *tax avoidance*. The SIZE×INST interaction is significant ($\beta = 0.007$; Sig 0.049). This means that the higher the institutional ownership, the weaker the tendency of large companies to lower ETR (increase *tax avoidance*).
6. Institutional ownership moderates the effect of profitability on *tax avoidance*. The ROA×INST interaction is significant ($\beta = 0.228$; Sig 0.011). This means that the higher the institutional ownership, the more controllable the tendency of more profitable companies to lower their ETR (increase *tax avoidance*).

The research results support the agency theory framework, which suggests that monitoring mechanisms through institutional ownership play a role in suppressing opportunistic management behavior related to tax strategies, particularly in large and more profitable companies. Furthermore, the insignificant *leverage results* indicate that the role of *funding structure* in influencing *tax avoidance* in this study sample is not dominant after considering moderating mechanisms.

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