*AKRUAL: Jurnal Akuntansi* *Vol 18, issue 1, October 2026*
p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

# Leverage and Firm Size as Determinants of Tax Aggressiveness: The Mediating Role of Return on Assets in the Top 10 Indonesian Banks

**Ervina Rosarina Hasibuan [1*], Poppy Wulandari [1], Aboubaker Khoualed [2]**

[1] Business Administration Department, Politeknik Negeri Medan, Indonesia
[2] Department of Economic Sciences, Badji Mokhtar-Annaba University, Algeria
e-mail: [1*] ervinarosarina@polmed.ac.id
* Corresponding Author

**Abstract**

**Research Background/ Problem:** The decline in Indonesia's tax ratio has raised concerns about tax behavior of large corporations, including those in the banking sector, given their significant role in the national economy and tax contribution. **Main Objective:** Against this background, this study examines the effects of leverage and firm size on tax aggressiveness and the mediating role of return on assets (ROA). **Research Method:** The study uses panel data from the ten largest listed Indonesian banks from 2021 to 2024 and analyzes the data using the Random Effect Model (REM) in EViews 13. **Results/ Findings:** The results show that leverage and firm size have no significant direct effect on tax aggressiveness. ROA has a negative and significant effect on tax aggressiveness (p=0.0118); leverage has no significant effect on ROA, whereas firm size has a positive and significant effect (p =0.0000). The mediation analysis shows that leverage has no significant indirect effect on tax aggressiveness through ROA (Sobel t = -1,5903), whereas firm size has a significant negative indirect effect on tax aggressiveness through ROA (Sobel t = −2.432). **Conclusion:** These findings highlight the role of return non asset in explaining tax behavior among large Indonesian banks and provide implications for tax authorities and bank management in strengthening tax compliance and governance.

**Keywords:** Firm Size; Leverage; Return On Asets; Tax Aggressiveness

**JEL Classification:**

**Article History:** Received: September, 24th 2025 Revised: September, 30th 2026 Accepted: September, 30th 2026 Published: October, 1st 2026
**How to cite:** Hasibuan et al. (2026). Leverage and Firm Size as Determinants of Tax Aggressiveness: The Mediating Role of Return on Assets in the Top 10 Indonesian Banks. *AKRUAL: Jurnal Akuntansi*, *18*(1). DOI: 10.26740/jaj.v18n1.p.64-81
**Conflict of Interest Statement: here is no conflict of interest in the articles resulting from this research**

## INTRODUCTION

Tax constitutes the largest source of revenue in the State Budget (APBN) of the Republic of Indonesia. In the Draft State Budget (APBN Bill) for 2025, which was approved by the House of Representatives on September 19, 2024, state revenues are projected to reach IDR 3,005.1 trillion. Of this amount, tax revenues contribute IDR 2,490.9 trillion, or approximately 82.89 percent, while non-tax state revenues (PNBP) account for IDR 513.6 trillion, or 17.09 percent (Kementerian Keuangan Republik Indonesia, 2024). Based on data from the Ministry of Finance, in the 2024 State Budget, state revenues were projected at IDR 2,802.3 trillion. Of this, tax revenues contributed IDR 2,309.9 trillion (82.43 percent), while non-tax revenues amounted to IDR 492 trillion (17.55 percent). These figures clearly

indicate that taxation serves as the backbone of state revenues. This dominant contribution has positioned taxation as a primary focus receiving substantial attention from the government in terms of fiscal planning and management.

According to Law on General Provisions and Tax Procedures (Republik Indonesia, 2021), Article 1 paragraph (1), "Tax is a mandatory contribution to the state owed by individuals or entities, coercive in nature under the law, without direct compensation, and utilized for state purposes for the greatest prosperity of the people." To facilitate taxpayers in fulfilling their tax obligations, the government has implemented regulations concerning taxation systems and procedures that remain in force, namely the self-assessment system. Under this system, taxpayers are responsible for calculating, paying, and reporting their taxes independently through the government-provided application currently known as Coretax. Through the self-assessment system, the government expects taxpayers to fulfill their tax obligations accurately and in compliance with tax laws. However, data from the Ministry of Finance shows that Indonesia's tax ratio has declined over the past three years. In 2022, it stood at 10.39 percent, decreased to 10.31 percent in 2023, and further dropped to 10.08 percent in 2024. This relatively low tax ratio raises concerns regarding the government's capacity to optimize tax revenue and highlights the importance of strengthening taxpayer compliance and tax administration (Ministry of Finance of the Republic of Indonesia, 2025)

For the state, taxation represents revenue that must be collected optimally to finance national expenditures. However, many corporations perceive taxes as a burden on their finances, since paying taxes reduces company earnings or profits. As a result, some companies attempt to minimize their tax payments through various means. The self-assessment system provides opportunities for taxpayers to engage in aggressive tax practices, referred to as tax aggressiveness. Tax aggressiveness involves tax avoidance, whether legally (tax avoidance) or illegally (tax evasion), through tax planning activities (Hidayat & Fitria, 2018).

The amount of tax payable by taxpayers is determined based on taxable income reported in fiscal financial statements. The greater the income or profit earned by a company, the higher the tax liability. Consequently, higher ROA increases the likelihood of companies engaging in tax efficiency and avoidance practices (Santini & Indrayani, 2020). The company's ability to generate profits is referred to as ROA. High ROA leads to higher tax burdens, as corporate income tax is levied on taxable earnings. This situation often motivates firms to pursue tax aggressiveness strategies in order to reduce the erosion of net profits (Sulistiowati et al., 2024). Previous research by (Nadhifah, 2023), found that ROA has a positive and significant effect on tax aggressiveness, suggesting that greater corporate earnings tend to encourage tax aggressiveness.The banking sector presents a distinctive context for examining tax aggressiveness because banks operate under extensive prudential regulation and supervision. In Indonesia, commercial banks are subject to regulatory oversight by Otoritas Jasa Keuangan (OJK) and are required to comply with capital and risk management requirements based on the Basel framework. Indonesia has adopted Basel III, which establishes minimum capital requirements and additional capital buffers based on banks' risk profiles and risk-weighted assets. Unlike non-financial companies, banks also have a distinctive liability structure in which customer deposits constitute a major source of



Open Access
**©author(s)**
**Creative Commons**
**Attribution Non Commercial 4.0 International License**

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

funding. Consequently, leverage in banking does not simply represent the use of conventional corporate debt to finance assets, but is closely related to deposit-taking, asset growth, liquidity, and regulatory capital requirements. This regulatory and financial structure may influence the way leverage affects ROA and, subsequently, corporate tax behavior. Therefore, the relationship between leverage, ROA, and tax aggressiveness in banks may differ from that observed in non-financial corporations.

The distinctive characteristics of the banking sector suggest that tax behavior is closely related to managerial decisions concerning financing, profitability, and risk. Banks must balance shareholder interests with regulatory requirements and financial stability (Otoritas Jasa Keuangan, 2022). These conditions make managerial incentives important in understanding tax-related decisions. Therefore, Agency Theory provides a relevant perspective for explaining the relationships among leverage, profitability, and tax aggressiveness (Jensen & Meckling, 1976).

Agency Theory provides a relevant theoretical foundation for understanding these managerial decisions. (Jensen & Meckling, 1976) explain that the separation of ownership and control may create conflicts of interest between principals and agents because managers may pursue objectives that do not always fully align with shareholders' interests. In this context, managers are expected to make financing, ROA, and tax-related decisions while balancing the interests of shareholders with the costs and risks associated with those decisions. Leverage, for example, reflects an important financing decision that may influence the resources and costs available to managers, while ROA reflects the outcome of managerial decisions in utilizing the firm's assets. Tax planning may subsequently become part of managerial decision-making because taxes represent a cost that can affect the returns generated for shareholders. Thus, Agency Theory provides a basis for examining whether leverage and ROA are associated with tax aggressiveness.

Political Cost Theory provides another explanation for the role of firm size in corporate tax behavior. (Watts & Zimmerman, 1986) argue that larger and more politically visible firms may face greater political costs because their activities attract greater attention from governments, regulators, investors, and the public. This consideration is particularly relevant to large Indonesian banks, which operate in a highly regulated financial sector and have substantial public visibility. Although larger banks may possess greater resources and organizational capacity to engage in tax planning, their visibility may also increase the reputational and regulatory costs associated with aggressive tax practices. Firm size may therefore influence tax aggressiveness through competing incentives, making its relationship with tax behavior an empirical question.

Taken together, agency theory and political cost theory provide a framework for understanding the relationships examined in this study. Agency considerations may shape managerial decisions regarding financing and ROA, while political visibility may influence how firm size relates to tax-related decisions.

Return on assets (ROA) may serve as an intervening mechanism because differences in leverage and firm size can affect a bank's ability to generate earnings from its assets, which in turn may influence its tax burden and managerial tax decisions. This framework suggests that the effects of leverage and firm size on tax aggressiveness may occur not only directly but also indirectly through ROA. Accordingly, this study examines ROA as a mediating variable in the relationship between leverage, firm size, and tax aggressiveness. These distinctive characteristics of the banking sector also need to be considered within the broader

economic and regulatory developments during the study period. The 2021–2024 period is relevant because it captures the recovery of the banking sector following the COVID-19 pandemic and the implementation of Law No. 7 of 2021 on the Harmonization of Tax Regulations (UU HPP). It also represents the transition toward the implementation of the Coretax DJP system in January 2025. Thus, this study provides timely pre-Coretax evidence on tax aggressiveness among large Indonesian banks and establishes a baseline for understanding corporate tax behavior before the new tax administration system was implemented.

Within this regulatory and economic context, managerial decision-making becomes an important consideration in understanding the tax behavior of banks. Agency Theory provides a basis for understanding how managerial incentives may influence financing and tax-related decisions. From this perspective, leverage represents one of the financial decisions through which managers balance the interests of shareholders with the costs and risks associated with external financing. Leverage may also affect tax-related decisions because financing arrangements can influence the financial costs borne by the company. In non-financial companies, leverage is commonly associated with debt financing and the tax deductibility of interest expenses. However, the interpretation of leverage in banking is more complex because banks rely heavily on customer deposits and operate under regulatory requirements concerning capital adequacy, liquidity, and risk.

Research by (Lestari et al., 2023) shows that leverage has a positive and significant effect on tax aggressiveness, implying that leverage levels influence a company's tax aggressiveness. However, a study by (Andalenta & Ismawati, 2022) concludes that leverage has a negative and significant effect on tax avoidance. Specifically, leverage measured by the Debt-to-Equity Ratio (DER) negatively and significantly affects tax avoidance, suggesting that higher corporate solvency reduces the tendency for tax avoidance. These inconsistent findings indicate that the effect of leverage on tax behavior may depend on the characteristics of the firms examined and provide a basis for further investigation in the banking sector.

Firm size is another variable frequently examined in corporate taxation studies. The scale of a company can influence ROA, as greater profits affect both assets and liabilities, thereby influencing tax payments. Larger asset holdings are expected to enhance productivity, which in turn generates higher profits and, consequently, greater tax liabilities. Firm size has been shown to positively affect tax aggressiveness, meaning that larger companies tend to exhibit higher levels of tax aggressiveness (Adnyani & Astika, 2019).

In this study, ROA serves as an intervening variable mediating the relationship between leverage, firm size, and tax aggressiveness. Tax aggressiveness is not exclusive to companies with large fixed assets. This research specifically examines tax aggressiveness among the largest banking companies in Indonesia. The aim is to determine whether leverage and firm size influence the tendency of banks to engage in tax avoidance. Accordingly, this study investigates the effect of leverage and firm size on tax aggressiveness with return on assets as an intervening variable in banking companies listed on the Indonesia Stock Exchange during 2021–2024.



Open Access
**©author(s)**
**Creative Commons**
**Attribution Non Commercial 4.0 International License**

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

Leverage describes a company's level of risk, measured by comparing total liabilities with total assets (Siregar & Widyawati, 2016). High levels of debt automatically result in high interest expenses. According to Article 6 paragraph (1) point 3 of Law No. 36 of 2008 on Income Tax, interest is considered a deductible expense for taxable income, thereby reducing the tax burden. Companies often take advantage of this condition to lower their taxable income. Reduced tax liabilities lessen the incentive to engage in tax avoidance. This study refers to (Kusuma & Maryono, 2022), who found that leverage has a negative and significant effect on tax aggressiveness, meaning that higher leverage reduces tax aggressiveness.

Leverage may affect tax aggressiveness because interest expenses can reduce taxable income when they meet applicable tax requirements. In the banking industry, interest expenses are a major component of operational activities because banks raise funds from the public through deposits, savings accounts, and other funding sources. Therefore, interest expenses at banks do not arise solely from strategies to reduce taxes but are a consequence of the company's core business activities (Putri & Saepuloh, 2026). Based on this mechanism, the first hypothesis is: $H_1$: Leverage has a negative and significant effect on tax aggressiveness.

The larger the total assets, the greater the size of the firm. (Waluyo, 2017) states that larger companies tend to be more aggressive in taxation matters, as they face greater economic and political pressures than smaller firms, which are generally less inclined toward tax planning or aggressive tax strategies. (Rodriguez & Arias, 2012) also argue that tax aggressiveness may occur because larger firms have more opportunities for tax planning aimed at lowering their effective tax rate.

This study refers to (Adnyani & Astika, 2019) who found that firm size positively influences tax aggressiveness, indicating that larger firms exhibit higher levels of tax aggressiveness. The second hypothesis is: H2: Firm size has a positive and significant effect on tax aggressiveness.

ROA reflects a company's ability to generate profits. In this study, Return on Assets (ROA) is used as an indicator to measure ROA. ROA assesses the efficiency of overall asset utilization in generating income. Higher profits encourage firms to comply with tax obligations, thereby reducing tax aggressiveness. Conversely, lower profits increase the likelihood of tax noncompliance, leading to greater tax aggressiveness.

This study follows (Lestari et al., 2023), who concluded that ROA has a negative and significant effect on tax aggressiveness. Theoretically, these results can be explained by Agency Theory. Companies with high profitability tend to have larger tax liabilities. This situation may encourage management to engage in tax planning and efficiency measures to maintain after-tax profits and meet shareholders' demands for higher returns. High profitability also provides companies with greater financial capacity to develop legal and structured tax strategies. However, aggressive tax avoidance can still pose legal, reputational, and governance risks to the company. (Putri & Saepuloh, 2026). H3: Return on Assets has a negative and significant effect on tax aggressiveness

According to (Brigham & Houston, 2016), debt financing generally increases the expected return on investment but also raises investment risk for shareholders. In practice, leverage influences corporate ROA, as shown by the returns received by owners.

This study refers to (Jelatu et al., 2024), who indicates that leverage contributes significantly to enhancing corporate profitability. In other words, fluctuations in profitability

depend on leverage; effective use of leverage can drive profit growth. Consequently, leverage exerts a significant influence on profitability. H4: Leverage has a positive and significant effect on Return on Assets.

According to (Dewi et al., 2018), larger firms possess substantial resources and fixed assets, which facilitate higher ROA due to stronger financial capacity, broader sales areas, and better profit opportunities compared to smaller firms. Larger companies also demonstrate greater resilience in facing business challenges and higher profit-generating capacity supported by significant assets.

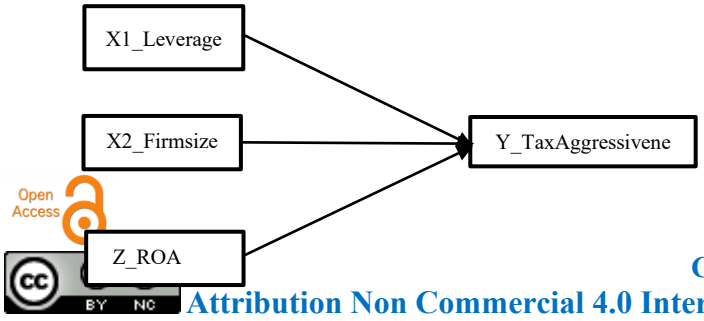
This study builds on (Luckieta et al., 2021), who found that firm size has a positive partial effect on ROA, as large firms tend to operate under more stable conditions. H5: Firm size has a positive and significant effect on Return on Assets.

Based on simple linear regression results in the study by (Gisela R et al., 2015), leverage negatively affects ROA. High leverage ratios impose significant interest expenses on firms, which in turn reduce ROA. Leverage can affect profitability through funding costs, interest margins, and the efficiency of asset utilization, which are reflected in Return on Assets (ROA).

Empirical evidence from the banking sector shows that financial leverage is associated with ROA (Rustendi & Ilyas, 2023), while changes in leverage and interest costs may also affect banks' ability to generate returns from their assets (Rizal et al., 2025). Furthermore, ROA has been found to be associated with tax aggressiveness, indicating that profitability can influence tax-related outcomes (Nastiti et al., 2022). Therefore, ROA may serve as a mechanism linking leverage to tax aggressiveness. $H_6$: Leverage influences tax aggressiveness through Return on Assets.

Firm size may influence tax aggressiveness indirectly through profitability. Larger banks generally have greater asset bases and broader business activities, which may affect their ability to generate income and utilize assets efficiently. This profitability is reflected in Return on Assets (ROA).

Empirical studies have found that profitability is associated with tax aggressiveness, while firm size may also influence tax-related behavior (Legowo et al., 2021). In addition, recent evidence from financial sector companies in Indonesia shows that ROA is significantly related to tax avoidance (Zumariz & Putri, 2026). Therefore, ROA may function as an intervening mechanism through which firm size is related to tax aggressiveness. Accordingly, differences in firm size may lead to differences in tax aggressiveness partly through differences in profitability. Based on this theoretical mechanism, the following hypothesis is proposed: $H_7$: Firm size affects tax aggressiveness through Return on Assets.






Open Access
©author(s)
Creative Commons
Attribution Non Commercial 4.0 International License

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

**Figure 1.** Framework of Thinking for Sub-structural 1

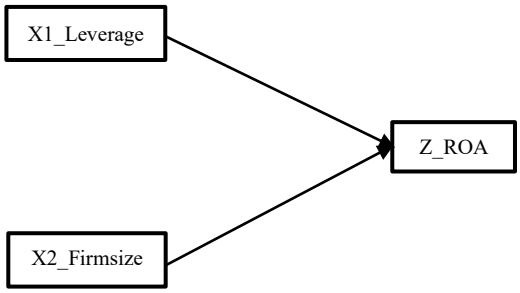



**Figure 2.** Framework of Thinking for Sub-structural 2

## RESEARCH METHOD

This study employs a quantitative research approach. According to (Sugiyono, 2017) quantitative research is based on the philosophy of positivism a philosophy grounded in certainty, factual reality, and empirical data. It is used to examine specific populations or samples, with data collected through research instruments and analyzed using quantitative/statistical methods, with the aim of testing established hypotheses. The research strategy applied in this study is causal associative. (Sugiyono, 2017) defines causal associative research as a problem formulation that examines the relationship between two or more variables. In this study, the causal associative method is used to investigate the causal relationship between leverage and firm size as independent variables, tax aggressiveness as the dependent variable, and return on assets as the intervening variable.

The data used in this study are secondary data, consisting of annual finansial reports of banking sector companies listed on the Indonesia Stock Exchange (IDX). Other secondary data relevant to this study were obtained from literature, articles, journals, and previous research. The observational data were derived from annual financial statements for the period 2021–2024, published on the IDX website (www.idx.co.id)

**Table 1.** Operational Definition and Measurement of Variables

| Variable | Operational Definition | Measurement / Formula |
|---|---|---|
| Leverage (X1) | Leverage represents the extent to which a company's assets are financed by liabilities. | Leverage = Total Liabilities/Total Assets |
| Firm Size (X2) | Firm size represents the scale of the company based on its total assets. | Firm Size = ln (Total Assets) |

| | | |
|---|---|---|
| Return on Assets (Z) | ROA measures the company's ability to generate net income from its total assets. | ROA = Net Income/Total Assets |
| Tax Aggressiveness (Y) | Tax aggressiveness represents the extent to which a company reduces its tax burden relative to its accounting income. | ETR = Beban Pajak Penghasilan/Laba Sebelum Pajak |

The population of this study consists of 48 banking companies listed on the Indonesia Stock Exchange during 2021–2024. The sample was selected using purposive sampling, in which the research is not conducted on the entire population but focused on specific targets based on the following criteria:

1) Banking companies that were consistently listed on the IDX during 2021–2024;
2) Companies that published complete financial statements for 2021–2024;
3) Companies with the highest total assets as of 2024.

Based on these criteria, a sample of 10 banking companies was selected as follows:

**Table 2.** Ten Largest Banks Based on Total Assets in 2024

| Rank | Code | Name | Assets 2024 (Rp Trillion) |
|---|---|---|---|
| 1 | BMRI | Bank Mandiri (Persero) Tbk. | 2,427.22 |
| 2 | BBRI | Bank Rakyat Indonesia (Persero) Tbk. | 1,992.98 |
| 3 | BBCA | Bank Central Asia Tbk. | 1,449.00 |
| 4 | BBNI | Bank Negara Indonesia (Persero) Tbk. | 1,129.81 |
| 5 | BBTN | Bank Tabungan Negara (Persero) Tbk. | 469.61 |
| 6 | BRIS | Bank Syariah Indonesia Tbk. | 408.61 |
| 7 | BNGA | Bank CIMB Niaga Tbk. | 360.22 |
| 8 | NISP | Bank OCBC NISP Tbk. | 281.01 |
| 9 | BNLI | Bank Permata Tbk. | 259.07 |
| 10 | BDMN | Bank Danamon Indonesia Tbk. | 242.33 |

The data employed in this study are panel data. The statistical software used for data analysis is EViews 13. According to (Gujarati & Porter, 2010), panel data (also referred to as pooled data or longitudinal data) represent a combination of cross-sectional and time-series data. Cross-sectional data are collected at a single point in time from multiple individuals, whereas time-series data are collected over a period of time from a single individual. Panel data regression differs from linear regression in that it does not require strict adherence to the classical assumption tests. The use of time-series data in this study is justified by the four-year observation period (2021–2024). Meanwhile, the use of cross-sectional data arises from the inclusion of 10 banking sector companies during the four-year period as the research sample.

## RESULTS AND DISCUSSION

In accordance with the objectives of this study, panel data regression analysis was employed to determine the most appropriate estimation model and to examine the influence of leverage



Open Access
©author(s)
Creative Commons
Attribution Non Commercial 4.0 International License

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

and firm size on return on assets, as well as the effect of leverage, firm size, and return on assets on tax aggressiveness. Panel data regression provides three estimation approaches, namely the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). From these three alternatives, the most suitable model will be selected for further analysis.

Several tests were conducted to determine the most appropriate panel data regression model, namely whether the Common Effect Model (CEM), the Fixed Effect Model (FEM), or the Random Effect Model (REM) should be applied. The following model specification tests were performed:

**Table 3.** Chow Test

| | | | |
|---|---|---|---|
| Redundant Fixed Effects Tests | | | |
| Equation: FEM | | | |
| Test cross-section fixed effects | | | |
| Effects Test | Statistic | d.f. | Prob. |
| Cross-section F | 3.002743 | (9,27) | 0.0129 |
| Cross-section Chi-square | 27.744168 | 9 | 0.0011 |

Source: Data Processed by Eviews13, 2025

Based on the results of the Chow Test presented in the table above, the probability value of the cross-section Chi-square is 0.0011, which is smaller than the significance level of 0.05 (0.0011 < 0.05). This finding indicates that the null hypothesis ($H_0$), which assumes that the Common Effect Model (CEM) is appropriate, is rejected. Consequently, the Fixed Effect Model (FEM) is considered the most suitable model at this stage. Since the FEM has been selected, it is necessary to proceed with the Hausman Test in order to determine whether the FEM or the Random Effect Model (REM) provides the better estimation for this study.

Since the Chow Test indicated that the Fixed Effect Model (FEM) was more appropriate than the Common Effect Model (CEM), it was necessary to conduct the Hausman Test to determine whether the FEM or the Random Effect Model (REM) would serve as the better estimation method. The results of the Hausman Test are presented in the following table:

**Table 4.** Hausman Test

| | | | |
|---|---|---|---|
| Correlated Random Effects – Hausman Test | | | |
| Equation: REM | | | |
| Test cross-section random effects | | | |
| Test Summary | Chi-sq. Statistic | Chi-sq. d.f. | Prob. |
| Cross-section random | 2.940058 | 3 | 0.4010 |

Source: Data Processed by Eviews13, 2025

Based on the results of the Hausman Test presented in the table above, the probability value of the cross-section random effect is 0.4010, which is greater than the significance level of 0.05 (0.4010 > 0.05). This indicates that the null hypothesis ($H_0$), which assumes that the Random Effect Model (REM) is appropriate, cannot be rejected. Therefore, the Random Effect Model (REM) is considered the most suitable estimation model for use in this study.

The Lagrange Multiplier (LM) Test is employed to determine the more appropriate model between the Common Effect Model (CEM) and the Random Effect Model (REM). This test is particularly useful when the Hausman Test indicates that the REM is preferable, as it provides additional confirmation regarding the suitability of using the REM over the simpler CEM.

**Table 5.** Lagrange Multiplier Test

| Lagrange Multiplier Tests for Random Effects<br>Null hypotheses: No. effects<br>Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives | | | |
|---|---|---|---|
| | Cross-section | Test Hypothesis Time | Both |
| Breusch-Pagan | 4.061175<br>(0.0439) | 1.371601<br>(0.2415) | 5.432776<br>0.0198) |

Source: Data Processed by Eviews13, 2025

In the data processing results table above, it is shown that the probability value of the Breusch-Pagan cross-section test is 0.0439, which is smaller than 0.05 (0.04 < 0.05). Therefore, the selected model is the Random Effect Model (REM).

The classical assumption test can be conducted through normality testing, heteroscedasticity testing, multicollinearity testing, and autocorrelation testing. However, in this study, only the multicollinearity test will be performed. Multicollinearity is detected using a correlation matrix, with the results presented as follows:

**Table 6.** Multicollinearity Test

| Correlation | | | |
|---|---|---|---|
| | X1_LEVERAGE | X2_FIRMSIZE | Z_ROA |
| X1_LEVERAGE | 1.000000 | 0.058741 | 0.166679 |
| X2_FIRMSIZE | 0.058741 | 1.000000 | 0.729100 |
| Z_ROA | 0.166679 | 0.729100 | 1.000000 |

Source: Data Processed by Eviews13, 2025

When the coefficient value is below 0.9, multicollinearity does not occur; however, if the value exceeds 0.9, multicollinearity is present. Based on the data analysis results above, it can be explained that all coefficient values are below 0.9; therefore, it can be concluded that there is no multicollinearity.

The t-test sub-structural 1 was conducted to determine the extent to which the variables leverage, firm size, and return on assets can explain the variable tax aggressiveness. The following table presents the t-test results for sub-structural 1:

**Table 7.** t-Test Sub-Structural 1

| Dependent Variable: Y_TAXAGGRESSIVENESS<br>Method: Panel EGLS (Cross-section random effects)<br>Sample: 2021 2024 |
|---|



Open Access
©author(s)
Creative Commons
Attribution Non Commercial 4.0 International License

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

| | | | | |
|---|---|---|---|---|
| Periods Included: 4 | | | | |
| Cross-sections included: 10 | | | | |
| Total Panel (balanced) observations: 40 | | | | |
| Swarmy and Arora estimator of component variances | | | | |
| Variable | Coefficient | Std.Error | t-Statistic | Prob. |
| C | 0.605925 | 0.136811 | 4.428924 | 0.0001 |
| X1_LEVERAGE | -0.034555 | 0.026611 | -1.298527 | 0.2024 |
| X2_FIRMSIZE | 0.909471 | 0.632003 | 1.439029 | 0.1588 |
| Z_ROA | -0.019236 | 0.007252 | -2.652383 | 0.0118 |

Source: Data Processed by Eviews13, 2025

Based on the table above, the variable X1_Leverage has a negative coefficient of -0.00346, which is not statistically significant ($p$=0.2024). This indicates that X1_Leverage does not affect the variable Y_Taxaggressive, meaning that H1: Leverage has a significant negative effect on tax aggressiveness is rejected. This result suggests that differences in leverage among the sampled banks are insufficient to explain differences in their tax aggressiveness. In the banking industry, liabilities, particularly customer deposits, are an essential component of the intermediation function rather than merely a discretionary financing instrument for tax planning. In addition, banking activities are subject to prudential capital and risk-management requirements, which limit the flexibility of banks to adjust their financing structure solely for tax benefits. Thus, tax aggressiveness in the sampled banks may be influenced more by ROA and other firm-specific factors than by leverage.

Firm size has a positive coefficient of 0.9095 ($p$=0.1588), indicating that firm size does not have a statistically significant direct effect on tax aggressiveness. This finding suggests that larger banks are not necessarily more tax aggressive than smaller banks. Although large banks may have greater resources and operational capacity, they also face greater regulatory and stakeholder scrutiny, which may encourage greater attention to transparency and compliance. Therefore, firm size alone does not appear to determine tax aggressiveness in the sampled banks. This implies that X2_Firmsize does not influence Y_Taxaggressive, and thus H2: Firm size has a significant positive effect on tax aggressiveness is rejected.

Meanwhile, the variable Z_ROA has a negative coefficient of −0.0192 ($p$=0.0118), indicating a significant negative effect on tax aggressiveness. Thus, higher ROA is associated with lower tax aggressiveness. From the perspective of Legitimacy Theory, highly profitable banks may have stronger incentives to maintain legitimacy and stakeholder confidence because their financial performance attracts greater attention from regulators, investors, and other stakeholders. Aggressive tax practices may create reputational and regulatory risks that outweigh potential tax savings. Therefore, stronger ROA may encourage banks to maintain more transparent and compliant tax practices.

The coefficient of determination, commonly denoted as $R^2$, is used to measure the extent to which the independent variables are able to explain the dependent variable.

**Table 8.** Coefficient of Determination Sub-Structural 1

| | | | |
|---|---|---|---|
| R-squared | 0.227255 | Mean dependent var | 0.103766 |
| Adjusted R-squared | 0.162860 | S.D. dependent var | 0.016158 |
| S.E. of regression | 0.014784 | Sum squared resid | 0.007868 |

| | | | |
|---|---|---|---|
| F-statistic | 3.529061 | Durbin-Watson stat | 1.412587 |
| Prob(F-statistic) | 0.024356 | | |

Source: Data Processed by Eviews13, 2025

Based on the table above, the R-squared value in the panel data regression model using the random effect model with individual (cross-section) effects is 0.22. This indicates that the variable Return on Assets is able to explain 22% of tax aggressiveness, while the remaining 78% is influenced by other factors. Thus, the equation can be expressed as follows:

$Y_TaxAggressiveness$ =C(1) + C(2)*$X_1$_leverage + C(3)*$X_2$_Firmsize + C(4)*Z_ROA + [CX=R]

$Y_TaxAggressiveness$ =0.6059–0.0345*$X_1$_Leverage+0.9094*$X_2$_Firmsize–0.0192*Z_ROA+ [CX=R]

The t-test sub-structural 2 was conducted to determine the extent to which the variables leverage and firm size explain the variable return on assets. The following presents the t-test results for sub-structural 2:

**Table 9.** t-Test Sub-Structural 2

| | | | | |
|---|---|---|---|---|
| Dependent Variable: Z_ROA | | | | |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Sample: 2021 2024 | | | | |
| Periods Included: 4 | | | | |
| Cross-sections included: 10 | | | | |
| Total Panel (balanced) observations: 40 | | | | |
| Swarmy and Arora estimator of component variances | | | | |
| Variable | Coefficient | Std.Error | t-Statistic | Prob. |
| C | 18.32421 | 0.771479 | 23.75205 | 0.0000 |
| X1_LEVERAGE | 1.892550 | 0.955496 | 1.980698 | 0.0551 |
| X2_FIRMSIZE | 20.56823 | 3.469944 | 5.927540 | 0.0000 |

Source: Data Processed by Eviews13, 2025

Based on the table above, the variable X1_Leverage has a positive coefficient of 1.892550 ($p$=0.0551), which is greater than the significance level (α = 0.05). This indicates that X1_Leverage does not influence the variable Z_ROA, This finding indicates that higher leverage does not automatically lead to higher ROA. In banking, additional funding can increase lending capacity, but its contribution to ROA also depends on funding costs, asset quality, credit risk, and operational efficiency. Therefore, ROA is not determined by leverage alone. Meaning that H4: Leverage has a significant positive effect on Return on Assets is rejected.

The variable X2_Firmsize has a positive coefficient of 20.568 ($p$=0.0000), which is smaller than the significance level (α = 0.05). This demonstrates that X2_Firmsize significantly affects Z_ROA. The coefficient of X2_Firmsize is 20.568, meaning that for every increase in firm size by 20.568, the Return on Assets increases by 20.568%, and vice versa. This indicates that firm size has a significant positive effect on Return on Assets.



Open Access
©author(s)
Creative Commons
Attribution Non Commercial 4.0 International License

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

Larger banks tend to have stronger ROA, which may be associated with broader asset bases, greater operational capacity, and potential economies of scale. These advantages can allow banks to spread operational and technological costs across a larger scale of activities and support stronger financial performance. Thereby supporting H5: Firm size has a significant positive effect on Return on Assets.

**Table 10.** Coefficient of Determination Sub-Structural 2

| | | | |
|---|---|---|---|
| R-squared | 0.458066 | Mean dependent var | 1.146444 |
| Adjusted R-squared | 0.428772 | S.D. dependent var | 0.105583 |
| S.E. of regression | 0.079799 | Sum squared resid | 0.235613 |
| F-statistic | 15.63697 | Durbin-Watson stat | 0.905530 |
| Prob(F-statistic) | 0.000012 | | |

Source: Data Processed by Eviews13, 2025

Based on the table above, the R-squared value in the panel data regression model using the random effect model with individual (cross-section) effects is 0.45. This indicates that the firm size variable is able to explain 45% of the variation in return on assets, while the remaining 55% is influenced by other factors. Thus, the equation can be expressed as follows:

Z_ROA = C(1) + C(2)*$X_1$_Leverage + C(3)$X_2$_Firmsize + [CX=R]

Z_ROA =18.3242 + 1.8925*$X_1$_Leverage + 20.5682*$X_2$_Firmsize + [CX=R]

**Sobel Test**

The Sobel test will be conducted through the following calculation:

$$t = \frac{a.b}{\sqrt{(b^2\mathrm{SE}a^2) + (a^2\mathrm{SE}b^2)}} \quad (2)$$

Based on the t-test results for Sub-Structural 1 and Sub-Structural 2, the Sobel test will be carried out as follows:

$$t = \frac{(1.892)(-0.019)}{\sqrt{(-0.019)^2(0.955)^2) + ((1.892)^2(0.0072)^2)}}$$

$$t = \frac{(-0.0363)}{\sqrt{(0.000369)(0.9120) + (3.579)(0.0000518)}}$$

$$t = \frac{(-0.0363)}{\sqrt{(0.000336) + (0.000185)}}$$

$$t = \frac{(-0.0363)}{\sqrt{(0.000522)}}$$

$$t = \frac{(-0.0363)}{(0.02284)}$$

$$t = -1.5903$$

From the calculation results, the obtained t-$_{calculated}$ (1.5903) < t-$t_{able}$ (2.026). This result indicates that X1 does not have a significant effect on Y through Z.

$$t = \frac{(20.568)(-0.019)}{\sqrt{(-0.019)^2(3.469)^2) + ((20.568)^2(0.0072)^2)}}$$

$$t = \frac{(-0.3949)}{\sqrt{(0.000369)(12.033) + (423.042)(0.0000518)}}$$

$$t = \frac{(-0.3949)}{\sqrt{(0.004436) + (0.00219)}}$$

$$t = \frac{(-0.3949)}{\sqrt{(0.02636)}}$$

$$t = \frac{(-0.0363)}{(0.1623)}$$

$$t = -2.4320$$

From the Sobel test calculation above, the obtained t-statistic (-2.4320) > t-table (2.028). Thus, it can be concluded that $X_2$ has a significant negative effect on Y through Z as the intervening variable. The Sobel test shows that ROA does not significantly mediate the relationship between leverage and tax aggressiveness (t = −1.5903). This result is consistent with the insignificant effects of leverage on both ROA and tax aggressiveness, indicating that leverage is not a significant mechanism linking ROA to tax-related behavior in the sampled banks.

In contrast, ROA significantly mediates the relationship between firm size and tax aggressiveness (t = −2.4320). Larger banks tend to have higher ROA, while higher ROA is associated with lower tax aggressiveness. Thus, the effect of firm size on tax aggressiveness operates indirectly through ROA rather than through a significant direct effect. This relationship may reflect economies of scale and greater operational capacity among larger banks, which support ROA and, in turn, may strengthen incentives to maintain transparent and compliant tax practices.

From the perspective of Legitimacy Theory, highly profitable and more visible banks may face greater stakeholder and regulatory scrutiny, increasing the importance of



Open Access
©author(s)
Creative Commons
Attribution Non Commercial 4.0 International License

p-ISSN: 2085-9643 DOI:10.26740/jaj.v18n1.p.64-81
e-ISSN: 2502-6380 https://journal.unesa.ac.id/index.php/aj

maintaining legitimacy and stakeholder confidence. Therefore, the findings suggest that ROA, rather than firm size or leverage itself, is the more direct factor associated with lower tax aggressiveness. ROA thus serves as an important mechanism linking firm size to tax-related behavior in the sampled Indonesian banks.

## CONCLUSION

This study finds that leverage and firm size do not have significant direct effects on tax aggressiveness, while ROA has a significant negative effect. ROA also significantly mediates the relationship between firm size and tax aggressiveness. These findings indicate that ROA is a more relevant factor in explaining tax aggressiveness than leverage or firm size alone.

For the Directorate General of Taxes (DGT), tax compliance monitoring in the banking sector should consider a risk-based approach rather than relying solely on bank size or leverage. ROA may be incorporated as one of the financial indicators in identifying institutions that require further compliance monitoring. For bank management and boards, tax compliance should be integrated into governance, risk management, and compliance frameworks. The negative relationship between ROA and tax aggressiveness highlights the importance of treating tax compliance as part of broader financial, regulatory, and reputational risk management.

Future research should extend the sample and observation period and incorporate other determinants of tax aggressiveness, including corporate governance, tax planning, ownership structure, audit quality, and regulatory factors. Qualitative or mixed-method research may also provide deeper insights into the managerial and institutional mechanisms underlying tax-related decisions in the banking sector.

This study has several limitations. First, the sample is limited to the ten largest banks in Indonesia observed during 2021–2024, resulting in 40 observations. This relatively narrow sample limits the generalizability of the findings to other types of banking institutions. Second, the analysis focuses on leverage, firm size, and ROA, while tax aggressiveness may also be influenced by corporate governance and broader economic conditions.

Future research could extend the sample to include Regional Development Banks (BPD) and Islamic banks, allowing comparisons across different banking structures and business characteristics. Further studies could incorporate corporate governance variables, such as Board of Commissioners independence and Audit Committee expertise, as well as macroeconomic conditions or economic shocks. These extensions would provide a broader perspective on the determinants of tax aggressiveness and improve understanding of how institutional and economic factors shape tax-related behavior in the Indonesian banking sector.

## REFERENCES

Adnyani, N. K. A., & Astika, I. B. P. (2019). Pengaruh Profitabilitas, Capital Intensity, dan Ukuran Perusahaan Pada Tax Aggressive. *E-Jurnal Ekonomi Dan Bisnis Universitas Udayana*, *6*(8), 594–621. https://doi.org/10.24843/eeb.2019.v08.i06.p04

Andalenta, I., & Ismawati, K. (2022). Tax Avoidance Perusahaan Perbankan. *Owner: Riset & Jurnal Akuntansi*, *6*(1), 225–233. https://doi.org/10.33395/owner.v6i1.627

Basuki, A. T. dan N. P. (2016). *Analisis Regresi dalam Penelitian Ekonomi dan Bisnis*. Rajawali Grafindo Persada.

Brigham, E. F., & Houston, J. F. (2016). *Dasar-dasar Manajemen Keuangan (Terjemahan oleh Ali akbar Yulianto)* (10th ed.). Salemba Empat Jakarta.

Dewi, S. A., Surya, F., & Zahara. (2018). Analisis Pengaruh Kebijakan Hutang dan Ukuran Perusahaan terhadap Nilai Perusahaan dengan Agency Cost sebagai Variabel Intervening ( Studi pada Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia ( BEI ) Periode 2014-2017 ). *Jurnal Akuntansi & Manajemen*, *13*(1), 34–58.

Ghozali, I. (2018). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 25* (9th ed.). Badan Penerbit Universitas Diponegoro.

Gisela R, E., Siahaan, Y., Purba, R., & Jubi, J. (2015). Pengaruh Leverage Terhadap Profitabilitas Pada Perusahaan Yang Termasuk Kategori Indeks Lq 45 Di Bursa Efek Indonesia. *Sultanist: Jurnal Manajemen Dan Keuangan*, *3*(1). https://doi.org/10.37403/sultanist.v3i1.46

Gujarati, D. N., & Porter, D. C. (2010). *Dasar-Dasar Ekonometrika*. Salemba Empat Jakarta.

Hidayat, A. T., & Fitria, E. F. (2018). Pengaruh Capital Intensity, Inventory Intensity, Profitabilitas dan Leverage Terhadap Agresivitas Pajak. *Eksis: Jurnal Riset Ekonomi Dan Bisnis*, *13*(2), 157–168. https://doi.org/10.26533/eksis.v13i2.289

Jelatu, H., Intan, M. L. K., & Nceong, A. (2024). Pengaruh Leverage, Likuiditas dan Ukuran Perusahaan Terhadap Profitabilitas Pada Perusahaan Makanan dan Minuman Yang Terdaftar di Bursa Efek Indonesia. *Jurnal Ekonomi, Pendidikan Dan Perencanaan Pembangunan Daerah*, *2*(2), 6–13.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.

Kementerian Keuangan Republik Indonesia. (2024). *APBN KiTa September 2024*.

Kusuma, A. S., & Maryono, M. (2022). Faktor – faktor yang berpengaruh terhadap agresivitas pajak. *Owner: Riset & Jurnal Akuntansi*, *6*(2), 1888–1898. https://doi.org/10.33395/owner.v6i2.743

Legowo, W. W., Florentina, S., & Firmansyah, A. (2021). Agresivitas Pajak Pada Perusahaan Perdagangan Di Indonesia: Profitabilitas, Capital Intensity, Leverage, Dan Ukuran Perusahaan. *Jurnal Bina Akuntansi*, *8*(1), 84–108.

Lestari, P. E., Chamalinda, K. N. L., & Faisol, I. A. (2023). Pengaruh Capital Intensity, Leverage, Profitabilitas Dan Ukuran Perusahaan Terhadap Agresivitas Pajak. *Simposium Nasional Perpajakan*, *2*(1), 46–63. http://doi.org/10.22441/tekun.v11i2.21641

Luckieta, M., Amran, A., & Alamsyah, D. P. (2021). Pengaruh DAR dan Ukuran Perusahaan Terhadap ROA Perusahaan yang Terdaftar Di LQ45 Pada BEI. *Jurnal Ekonomi &*



Open Access

**©author(s)**
**Creative Commons**
**Attribution Non Commercial 4.0 International License**

*Manajemen Universitas Bina Sarana Informatika*, *19*(1), 17–23. https://doi.org/10.31294/jp.v19i1.9235

Ministry of Finance of the Republic of Indonesia. (2025). *Recent Macroeconomic and Fiscal Development: June 2025*.

Nadhifah, I. F. (2023). Pengaruh Capital Intensity, Profitabilitas, Dan Inventory Intensity Terhadap Agresivitas Pajak. *Jurnal Ilmiah Akuntansi Dan Keuangan (JIAKu)*, *2*(2), 178–191. https://doi.org/10.24034/jiaku.v2i2.5951

Nastiti, P. R., Karim, A., & Prabasari, B. (2022). Likuiditas, Pengembalian Aset, Leverage Terhadap Agresivitas Pajak Liquidity, Return on Assets, Leverage Against Tax Aggressiveness. *Jurnal RAK (Riset Akuntansi Keuangan)*, *7*(2), 197–214.

Otoritas Jasa Keuangan. (2022). *Laporan Profil Industri Perbankan Tahun 2022*.

Putri, N. S., & Saepuloh, C. (2026). The Effect Of Profitability, Leverage, And Liquidity On Tax Avoidance Among Banking Companies. *Educoretax*, *6*(10), 741–757.

Republik Indonesia. (2021). *Undang-Undang Republik Indonesia Nomor 7 Tahun 2021 tentang Harmonisasi Peraturan Perpajakan*. Pemerintah Republik Indonesia. https://www.pajak.go.id/

Rizal, D. S., Jamaludin, A., Hadi, Y., Fitri, Sinaga, V. E. H., Sukmawati, M., Nusannas, I. S., & Aprillia, S. C. (2025). Leverage Multiplier , Interest Expense Ratio , Banking Ratio : Dampaknya Terhadap Return On Asset. *Jurnal Ekonomi Dan Bisnis*, *14*(4), 1237–1245.

Rodriguez, E. F., & Arias, A. M. (2012). Do Business Characteristics Determine an Effective Tax Rate? Evidence for Listed Companies in China and the United States. *The Chinese Economy*, *45*(6), 60–83. https://doi.org/https://doi.org/10.2753/CES1097-1475450604

Rustendi, T., & Ilyas, F. A. (2023). Analysis of Return on Assets based on Leverage and Efficiency at Commercial Banks in Indonesia. *Saudi Journal of Business and Management Studies*, *8*(7), 150–157. https://doi.org/10.36348/sjbms.2023.v08i07.002

Santini, A. L., & Indrayani, E. (2020). The Effect Of Profitability, Liquidity, Leverage, Capital Intensity And Firm Size On Tax Aggressiveness With Market Performance As An Intervening Variable (Banking Companies Listed On The Indonesia Stock Exchange In 2014 - 2018). *Jurnal Ilmiah Ekonomi Bisnis*, *25*(3), 290–303.

Siregar, R., & Widyawati, D. (2016). Pengaruh Karakteristik Perusahaan Terhadap Penghindaran Pajak Pada Perusahaan Manufaktur Di BEI. *Jurnal Ilmu Dan Riset Akuntansi*, *5*(2).

Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.

Sulistiowati, R., Mas'adah, M., Nataliawati, R., Hakim, M. B., & Qosim, Q. (2024). A Liquidity, Capital Intensity and Tax Aggressiveness: Profitability as a Mediating Role. *Jurnal Ekonomi & Ekonomi Syariah*, *7*(1), 135–145. https://doi.org/10.36778/jesya.v7i1.1360

Waluyo, W. (2017). The Effect of Good Corporate Governance on Tax Avoidance:

Empirical Study of the Indonesian Banking Company. *The Accounting Journal of Binaniaga*, *2*(02), 1–10. https://doi.org/10.33062/ajb.v2i02.92

Watts, R. L., & Zimmerman, J. L. (1986). *Positive Accounting Theory*. Prentice-Hall.

Zumariz, I., & Putri, S. Y. (2026). The Determinants Of Tax Avoidance: The Role Of Return On Assets And Company Size In The Financial Sector In Indonesia. *RISTANSI: Riset Akuntansi*, *7*(1), 27–38. https://doi.org/10.32815/ristansi.v7i1.2780



Open Access

**©author(s)**
**Creative Commons**
**Attribution Non Commercial 4.0 International License**