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# Uncovering the impact of ownership types on tax aggressiveness in Indonesia

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**Abstract**

The purpose of this research is to empirically test and analyze the influence of ownership structure, including family ownership, management ownership, institutional ownership, state ownership, public ownership, foreign ownership, and concentrated ownership, on tax aggressiveness (ETR and CFETR). The ETR indicates a company's behavior in reducing corporate taxes, while the CFETR denotes tax aggressiveness in terms of cash flow used to pay corporate taxes. These two measures can provide clues about whether a company is tax aggressive. This study is based on two theories—agency theory and socioemotional wealth theory. While agency theory is used to examine the impact of tax aggressiveness, socioemotional wealth theory examines the impact of family ownership on tax aggressiveness. This study employed a quantitative approach, using descriptive and inferential statistical analysis techniques to examine all companies listed on the Indonesia Stock Exchange (IDX) in 2023, yielding a total of 382 cross-sectional data units. The results of this study indicate that family ownership, management ownership, institutional ownership, state ownership, and foreign ownership have a significant effect, meaning that as the proportion of ownership increases, tax aggressiveness increases. In comparison, public ownership and concentrated ownership do not have a significant effect on tax aggressiveness. This study provides a new contribution to the capital market context in Indonesia, which comprehensively shows the types of ownership structures, namely family, managerial, institutional, state, public, foreign, and concentrated ownership, in relation to corporate aggressiveness. Future research should build on the results of this study to highlight the important role of shareholders in tax aggressiveness in Indonesia and other developing countries.

## Introduction

The difference in interests between the government, which seeks maximum tax revenue, and companies, which are oriented towards optimal profits, can encourage companies to engage in tax aggressiveness. Companies' decisions in implementing such policies generally take into account shareholders' interests, so that the proportion of share ownership can influence the direction of company policy, including tax-aggressiveness-related decision-making. In Indonesia, tax revenue in 2023 exceeded the target and even increased. Total revenue for that year reached around IDR 1869.2 trillion, up 8.9% from 2022. Although total tax revenue increased, there were indications of a slowdown in its growth rate in certain periods of 2023 (PasarDana, 2023). This condition suggests that the sustainability of tax revenue growth requires special attention, especially in maintaining the stability and effectiveness of tax collection.

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Numerous factors can cause tax revenue to be suboptimal, including differences in interests between tax collectors and taxpayers regarding tax obligations. These differences in interests between the government and companies create conflicting perceptions about taxes. The government naturally wants to raise tax revenues to finance state expenditures, so it makes various efforts to maximize them. Meanwhile, corporate taxpayers are reluctant to pay taxes because they view them as a burden (Jao and Holly, 2022). In general, companies want to save on tax expenses or avoid taxes in accordance with applicable principles. Consequently, companies will take various measures to minimize their expenses, including tax expenses, to maximize company profits (Viyani, 2024), such as aggressive tax behavior.

The phenomenon of tax aggressiveness in Indonesia has become a fundamental problem that could threaten state revenue in recent years. Various cases of tax avoidance and tax evasion uncovered show that companies are increasingly using sophisticated strategies to minimize their tax burden, both through lawful means (tax avoidance) and through unlawful means (tax evasion). The emergence of a case of gold import tax evasion by PT Aneka Tambang Tbk (ANTM) has attracted significant attention. The company is suspected of evading taxes worth IDR 4.71 trillion by falsifying import documents so that the import duty rate, which should have been 5%, was reduced to 0% or not charged at all (Tempo, 2024). This is not the first time such a practice has occurred. Previously, in 2017, PT Antam was also involved in a corruption and tax evasion case involving PT Loco Montrado in the metal anode processing industry, where the two companies were suspected of collaborating in the crime.

Aggressive tax behavior can be reduced through effective corporate governance. Akbari et al. (2019) demonstrate that tax avoidance behavior decreases with the implementation of good corporate governance. Good corporate governance reflects the existence of internal and external monitoring mechanisms within a company. One external monitoring mechanism is reflected in the company's ownership structure. In Indonesia, the ownership structure is increasingly concentrated, given the dominance of family, institutional, foreign, and government ownership. Concentrated ownership can reduce agency conflicts by increasing monitoring, but it can also increase tax aggressiveness if the majority owners have incentives to maximize after-tax wealth (Chen et al., 2010). Meanwhile, institutional ownership tends to suppress tax aggressiveness by demanding transparency and regulatory compliance (Khurana and Moser, 2013).

In the context of tax policy, differences in interests between owners and managers can encourage aggressive tax practices as a form of opportunistic behavior to increase after-tax profits. The level and type of ownership determine the extent to which management is supervised and the incentives owners have to encourage or restrain aggressive tax practices (Desai and Dharmapala, 2006). As stated in agency theory, ownership structure is a corporate governance mechanism that influences the intensity of agency conflicts and the effectiveness of management oversight (Jensen and Meckling, 1976b). On the other hand, foreign ownership has the potential to increase tax aggressiveness through cross-border tax planning and differences in tax regimes, a crucial issue in developing countries with relatively weaker oversight systems, such as Indonesia (Richardson et al., 2016). Conversely, companies with government ownership face greater political and reputational pressures, leading them to be more compliant with tax regulations (Chan et al., 2013).

The consideration of ownership structure in this study is based on previous research (Alkurdi and Mardini, 2020; Boussaidi and Hamed-Sidhom, 2021; Dakhli, 2022; Madah Marzuki and Muhammad Al-Amin, 2021). These studies examined patterns of tax aggressiveness across countries, yielding differing results. The inconsistent results regarding the influence of ownership structure prompted researchers to examine, in a comprehensive manner, the importance of ownership structure in reducing tax aggressiveness in Indonesian companies.

Additionally, considering Indonesia's institutional conditions, characterized by a prominent level of information asymmetry and the still-developing effectiveness of tax law enforcement, ownership structure plays a vital role as an internal control mechanism in influencing corporate tax aggressiveness. Hence, an analysis of the ownership structure is crucial for understanding variations in tax aggressiveness in Indonesia and their implications for corporate policy and governance. Finally, this study aims to provide empirical evidence on the influence of ownership structure on tax aggressiveness, as measured by the Effective Tax Rate (ETR) and the Cash Flow Effective Tax Rate (CFETR) for all companies listed on the Indonesia Stock Exchange (IDX).

## Literature review and hypotheses development

### Agency theory and tax aggressiveness

Agency theory was first proposed by Jensen and Meckling (1976), which explains the contractual relationship between the principal (owner or shareholder) and agent (management) within a company. In this context, the agent is entrusted with carrying out a series of activities on behalf of the principal, including certain decision-making authority. However, differences in interests between the two parties can lead to conflict. One such conflict that may arise is when the agent does not act solely in the owner's interests but instead makes decisions that benefit themselves, which can lead to agency costs. According to Jensen and Meckling (1976b), in practice, there is no guarantee that agents will always act in the principal's best interests if both parties in the relationship are utility maximizers.

The emergence of agency costs, along with the emergence of agency conflicts, arises because agents have a tendency to maximize their personal profits. This increases when information asymmetry exists, in which agents have more complete information about the company's conditions and policies than principals (Eisenhardt, 1989). A current issue of interest is corporate tax management, in which tax costs borne by companies increase with their ability to generate profits. This situation must be managed strategically by companies. However, there is a tendency for company management to reduce the tax burden through tax aggressiveness. Tax aggressiveness is a corporate strategy to reduce the tax burden through aggressive tax planning. Frank et al. (2009) define tax aggressiveness as all actions aimed at reducing tax liabilities, including those that comply with the law (tax avoidance) and those that violate tax regulations.

Aggressive tax practices often involve complex policies that are difficult for external parties to understand, making it hard to directly assess a company's tax aggressiveness from its financial statements. This complexity gives management considerable discretion in making tax decisions. Hanlon and Heitzman (2022) note that there is no universally accepted definition of tax avoidance, with many authors offering different interpretations of the term. In general, tax avoidance involves seeking to minimize taxes through actions that affect the amount of tax a business must pay (Purwantini et al., 2017). Choi and Park (2022) define tax avoidance as actions that involve legal and deductible measures, noting that it often exploits legal loopholes rather than directly violating the law. Tax planning activities can fall anywhere on this spectrum depending on how aggressively they reduce taxes (Al Amosh and Khatib, 2022).

Therefore, from an agency theory perspective, companies' tax planning to reduce their tax burden triggers increased agency costs. The expectation is that management, as agents, will have greater incentives to pursue aggressive tax strategies. Desai and Dharmapala (2006) state that tax aggressiveness does not solely reflect corporate tax efficiency but can also be a means for management to conceal other opportunistic behaviors. When shareholder oversight is weak, management has the discretion to take on high tax risks, while the long-term impacts, such as sanctions and reputational damage, are mostly borne by the company. Thus, the internal control mechanism that can be applied from an agency theory perspective is the company's share ownership structure, where variations in the company's share ownership are expected to encourage effective supervision, thereby reducing agency costs.

Prior research suggests that governance mechanisms operate differently across institutional settings, where enforcement strength conditions their effectiveness. For instance, foreign ownership does not uniformly constrain opportunistic behavior but may instead align with performance-driven incentives under certain governance environments (Saleh and Mansour, 2024). Similarly, evidence from developed markets such as the UK shows that board characteristics enhance transparency under strong regulatory enforcement, whereas governance effectiveness in emerging ASEAN markets tends to be more conditional and context-dependent (Alodat et al., 2023; Mansour et al., 2025). Incorporating these comparative insights, including the political economy of state ownership and conditional monitoring role of foreign investors, would help explain the positive coefficients observed in this study and provide a more institutionally grounded interpretation of governance–tax aggressiveness relationships.

## Socioemotional wealth theory and tax aggressiveness

The socioemotional wealth (SEW) theory was developed to explain the unique behavior of family businesses that are not only oriented towards economic goals but also oriented towards non-financial values inherent in family identity, reputation, and cross-generational business continuity (Gómez-Mejía et al., 2007). SEW emphasizes that family owners consider non-economic factors, such as family control, emotional ties to the company, and the preservation of family reputation, in making strategic decisions. In the context of taxation, SEW theory can explain why family businesses tend to be conservative in their tax practices and exhibit lower levels of tax aggressiveness than non-family businesses. High tax aggressiveness has the potential to lead to legal risks, financial penalties, and reputational damage, which can directly undermine the SEW values that family owners wish to preserve. In other words, the family owners' orientation towards preserving socioemotional wealth encourages management to adopt cautious tax strategies, even though there are opportunities to gain financial benefits through aggressive tax planning.

Previous empirical research by Berrone et al. (2012) shows that family businesses tend to reduce risks that could threaten their reputation and long-term relationships, including aggressive tax practices. Furthermore, Li et al. (2023) found that family orientation toward business continuity and family control moderates management decisions to implement high-risk tax strategies. Thus, SEW provides a strong theoretical framework for understanding the influence of family ownership on corporate tax aggressiveness behavior.

## Family ownership and tax aggressiveness

According to agency theory, family ownership has the potential to reduce Type I agency conflicts between shareholders and management, as family owners are typically directly involved in the control and decision-making of the company. A high level of ownership and control allows the controlling family to exercise more effective oversight of management, thereby limiting opportunistic behavior, including tax aggressiveness practices. In addition, family owners tend to have a long-term interest in the company's sustainability and the family's wealth, making them more cautious about implementing risky tax strategies. Excessive tax aggressiveness practices can result in legal sanctions, financial costs, and damage to the company's reputation, which directly impacts the interests of the family as owners. Therefore, family ownership is expected to be associated with lower levels of tax aggressiveness.

Family ownership refers to shares held by individuals or family groups that have significant influence over corporate decision-making (Kiswanto and Setiawan, 2022; Rahmawati et al., 2024; Tanujaya and Angelin, 2022; Villalonga and Amit, 2020). The direct involvement of family members in company management enables them to exert significant influence on policy direction and strategic decisions, including compliance with tax obligations (Belahouaoui and Attak, 2024; Clemente-Almendros and González-Cruz, 2023; Kartadjumena and Nuryaman, 2024). This is in line with the agency theory proposed by Jensen and Meckling (1976b), which holds that companies with family ownership exhibit a lower level of agency conflict due to the dual role of family members as owners and managers, or at least their active involvement in the managerial oversight process. The active role of the family in management enables more effective supervision and control of managerial behavior, including tax policy decision-making. Moreover, family businesses are generally long-term oriented and highly reputation-conscious. Hence, family ownership is negatively associated with tax aggressiveness.

**H1: Family ownership has a negative effect on tax aggressiveness**

## Managerial ownership and tax aggressiveness

The presence of managerial ownership is expected to serve as a mechanism for aligning managers' and shareholders' interests, in line with the agency theory framework. When managers own shares in the company, they act not only as agents but also as owners. Thus, the decisions they make will take into account their impact on the company's overall value. Managerial ownership increases managers' sensitivity to long-term risks, including those arising from aggressive tax practices, fiscal sanctions, regulatory uncertainty, and a decline in the company's reputation. With increased management share ownership, the incentive to pursue overly aggressive tax strategies tends to decrease because potential losses will directly affect managers' personal wealth. Therefore, managerial ownership is believed to negatively affect corporate tax aggressiveness.

Managerial ownership is the proportion of company shares owned by management, who are actively involved in company decision-making (Dixon et al., 2017; Ogbonna et al., 2022; Yusri et al., 2022). This form of ownership is considered one of the most effective internal mechanisms for aligning the interests of managers (agents) and shareholders (principals). Managerial ownership based on agency theory can reduce agency conflicts between company owners and managers because managers not only act as agents but also have interests as shareholders. When managers' share ownership is significant, there will certainly be an incentive to make decisions that are not only profitable in the short term. The higher the percentage of managerial ownership, the greater the incentive for managers not to take opportunistic actions such as manipulating profits or engaging in aggressive tax avoidance, as this will ultimately affect the value of their investment in the company (Lokuwaduge and Amstrong, 2015; Shafai et al., 2018). Based on this description, managerial ownership is negatively associated with tax aggressiveness.

**H2: Managerial ownership has a negative effect on tax aggressiveness**

## Institutional ownership and tax aggressiveness

Institutional ownership acts as an effective external monitoring mechanism, limiting management's opportunistic behavior, including in tax decision-making. Institutional investors generally have greater resources, expertise, and incentives to monitor company policy than individual investors. From an agency theory perspective, increased institutional ownership can reduce agency conflicts by enhancing oversight of management, thereby reducing managers' tendency to pursue aggressive tax strategies. In addition, institutional investors tend to be risk-averse to tax practices that could pose long-term legal and reputational risks; thus, the higher the institutional ownership, the lower the corporate tax aggressiveness.

According to Tarmizi and Perkasa (2022), institutional ownership refers to the ownership of company shares by external entities, such as banks, insurance companies, pension funds, and investment companies. As investors who generally have stronger resources, knowledge, and long-term interests, these institutions can act as an important supervisory mechanism within the corporate governance structure (Tarmizi and Perkasa, 2022). The presence of financial institutions such as mutual funds, pension funds, and investment companies as institutional shareholders has a significant influence on corporate governance, especially in developing countries where internal control systems are not yet optimal (Armstrong et al., 2015; Shafai et al., 2018; Ying et al., 2017). In accordance with the agency theory proposed by Jensen and Meckling (1976b), institutional entities act as external oversight mechanisms that can balance the power of controlling shareholders and limit potential management deviations from the interests of shareholders as a whole. Therefore, institutional ownership negatively affects tax aggressiveness.

**H3: Institutional ownership has a negative effect on tax aggressiveness**

## State ownership and tax aggressiveness

State ownership can influence corporate tax policy when the government or state is a shareholder in the company. Agency theory suggests that state ownership increases oversight of management because state-owned companies are under greater public scrutiny and political oversight. In addition, companies with state ownership tend to face greater political pressure to demonstrate compliance with regulations, including tax payments, as a form of public accountability. Aggressive tax practices in state-owned companies can incur high political costs, including public criticism, government intervention, and reputational risks for institutions. Therefore, state-owned companies are expected to adopt more conservative tax policies and exhibit lower levels of tax aggressiveness than non-state-owned companies.

State ownership, according to Andriyanto and Marfiana (2021), refers to a situation in which the government owns some or all of a company's shares, making it the majority or a significant shareholder. This state ownership structure influences corporate behavior, including tax compliance. The existence of state ownership in a company's structure is expected to function as an additional oversight mechanism that can strengthen managerial accountability (Akinsola, 2025; Arifin et al., 2023; Armour et al., 2017). From an agency theory perspective, state ownership can suppress aggressive tax practices because the state has a strong incentive to ensure companies comply with tax regulations. State ownership can serve as an effective oversight mechanism to reduce the potential for managers to engage in opportunistic behavior, including in tax strategies. Thus, state ownership has a negative effect on tax aggressiveness.

**H4: State ownership has a negative effect on tax aggressiveness**

## Public ownership and tax aggressiveness

Public ownership, comprising individual and non-family investors with relatively dispersed shareholdings, influences management behavior through indirect, relatively weak oversight mechanisms. From an agency theory perspective, fragmented ownership structures increase information asymmetry and the likelihood that management will make opportunistic decisions, including aggressive tax policies. Public investors generally have limited resources, access to information, and the ability to monitor managerial policies closely. This condition allows managers to exercise discretion to reduce the company's tax burden to increase short-term profits or performance-based compensation, even though this may result in sanctions or reputational risks. Therefore, companies with high public ownership tend to have greater tax aggressiveness than companies with centralized ownership.

According to Kurniawan and Amanah (2022), public ownership is generally categorized as minority shareholders because the proportion of share ownership is less than 5%, thereby limiting its influence on the company's strategic decision-making. However, Suhana and Kurnia (2021) argue that a high proportion of public ownership in a company reflects that the company has succeeded in attracting the interest and trust of the wider community. This condition can be interpreted as an indicator of the company's positive reputation in the eyes of investors and the public (Dewi et al., 2025; Esenyel, 2020). From an agency theory perspective, dispersed public ownership can increase the risk of conflicts of interest between management and external shareholders, as public owners generally lack the direct capacity to supervise management behavior. Jensen and Meckling (1976) explain that when managers do not fully bear the consequences of their decisions, they may engage in opportunistic behavior to maximize their personal interests. Accordingly, public ownership is positively associated with tax aggressiveness.

**H5: Public ownership has a positive effect on tax aggressiveness**

## Foreign ownership and tax aggressiveness

Foreign ownership can influence corporate tax policy by shaping managerial orientation towards efficiency and global returns on investment. From an agency theory perspective, foreign investors have the ability and incentive to monitor management more closely. This is because they have a greater interest in the company's financial performance and value. Foreign investors tend to emphasize transparency, regulatory compliance, and the mitigation of reputation risk to maintain the company's image in international markets. Furthermore, companies with foreign ownership face additional pressure to demonstrate fiscal compliance to remain acceptable to local authorities and international stakeholders. This limits managers' scope for aggressive tax planning, which risks sanctions or reputational damage. Thus, the higher the foreign ownership, the lower the company's tendency to engage in aggressive taxation.

Foreign ownership refers to the ownership of shares or parts of a company by individuals or entities who are not citizens of the country where the company operates (Efenana and Egbunike, 2023). According to Idzni and Purwanto (2017), the greater the proportion of shares owned by foreign investors in a company, the stronger their influence in the company's strategic decision-making process. In addition, foreign investors who allocate funds to business entities generally have expectations regarding the optimal rate of return on their investments. Consequently, companies with a high level of foreign ownership tend to face greater pressure to formulate policies that improve financial efficiency, including efforts to reduce their tax burden. Hasyim et al. (2022) say that this creates an agency conflict,

**Table 1** Distribution of research samples by industry sector.

| Industry by sector | Frequency | Percent |
|---|---|---|
| Healthcare | 19 | 5.0 |
| Basic materials | 32 | 8.4 |
| Financial | 59 | 15.4 |
| Transportation and logistics | 17 | 4.5 |
| Technology | 16 | 4.2 |
| Consumer and non-cyclicals | 69 | 18.1 |
| Industrials | 33 | 8.6 |
| Energy | 18 | 4.7 |
| Consumer cyclicals | 60 | 15.7 |
| Infrastructures | 33 | 8.6 |
| Property and Real Estate | 26 | 6.8 |
| Total | 382 | 100.0 |

where the principal, namely foreign investors, can influence managers as agents to carry out their wishes so that their personal interests are achieved (Grandis and Panggabean, 2018; Marheni and Setiawan, 2025). Therefore, foreign ownership is positively associated with tax aggressiveness.

**H6: Foreign ownership has a positive effect on tax aggressiveness**

## Concentrated ownership and tax aggressiveness

Concentrated ownership refers to company share ownership, where a small number of shareholders own the majority of the company's shares. This concentrated share ownership is believed to influence a company's tax policy. According to agency theory, concentrated ownership can reduce conflicts between principals and agents because major shareholders have the incentive and ability to closely monitor managerial decisions, including tax policy. Concentrated shareholders tend to prioritize long-term risk control and company reputation, thereby limiting opportunistic behavior by managers that can arise in aggressive tax practices. In addition, concentrated ownership allows majority shareholders to use their influence to balance the objectives of reducing tax burdens and complying with fiscal regulations. In other words, the higher the level of concentrated ownership, the lower the likelihood that a company will implement aggressive tax strategies.

Concentrated ownership refers to a condition in which most of a company's shares are controlled by a few shareholders who exercise dominant influence over the company's direction and decisions (Efenana and Egbunike, 2023). Concentrated ownership arises from differences in the amount of capital invested by each investor, leading to unequal ownership of the company (AChoi, 2018; Kamul and Riswandari, 2021). Highly concentrated ownership can encourage companies to pursue aggressive tax planning strategies, as majority shareholders often push management to focus on increasing net income by minimizing tax expenses. Concentrated ownership within the agency theory framework can create agency conflicts between majority and minority shareholders (Shleifer and Vishny, 1997). With their dominant power, majority shareholders can influence management in strategic decision-making that clearly benefits their own interests and ignores the rights of minority shareholders, including in taxation policy. Therefore, concentrated ownership can have a positive impact on tax aggressiveness.

**H7: Concentrated ownership has a positive effect on tax aggressiveness**

## Method

### Data collection and sources

This study used a quantitative approach with a hypothesis-testing research design. The data in this study were from secondary data sources, specifically annual reports officially published on the IDX website. The object of this study was all companies listed on the Indonesia Stock Exchange (IDX) in 2023, which is cross-sectoral data on companies in Indonesia. The reasons for conducting this research in Indonesia are: (1) the varying characteristics of company ownership; (2) the Indonesian capital market is classified as an emerging market; (3) Indonesia is restructuring its taxation regulations in 2020-2021, making this an important moment to observe companies' behavior in terms of tax aggressiveness. The sample selection criteria consisted of (1) Companies listed on the IDX; (2) Companies that did not publish their 2023 annual financial reports on the IDX in full; 3) Companies that suffered losses; (4) Companies whose financial reports used foreign currencies; and (5) Companies that did not present complete data related to the data required in the study. Based on the specified criteria, 382 companies were obtained as units of analysis in this study. Table 1 shows the distribution of the analysis sample.

This study employs a cross-sectional design to capture specific phenomena in 2023, a crucial period for taxation in Indonesia. The 2023 Average Effective Rate (AER) policy for Income Tax Article 21 is regulated by Government Regulation No. 58 of 2023 and Minister of Finance Regulation No. 168 of 2023. The year 2023 was deliberately chosen because the Indonesian government harmonized tax regulations in 2020–2021. A one-year analysis (2023) provides an immediate snapshot of how various ownership structures responded to these regulatory changes simultaneously across different sectors.

The sampling technique used was purposive sampling, with predetermined criteria to ensure the availability and completeness of data relevant to the study. Table 1 shows the final results for the 382 units of analysis in this study. Companies that did not present complete and relevant financial report data, such as the amount of tax paid, were excluded to maintain the consistency and accuracy of the analysis. The data used in this study were limited to 2023 only, because the researchers want to demonstrate the impact of the implementation of tax regulations currently being harmonized by the government. Therefore, this study applied ETR measurement for only one year and did not combine it with the year preceding the Indonesian government's harmonization of tax regulations. The researchers realize that using only one year of research data makes it very difficult to generalize the findings to panel data. However, the results of this study can provide an initial picture of the impact of ownership structure on the aggressive tax behavior of companies in Indonesia across existing industry sectors.

The independent variables in this study included seven types of ownership: family ownership, management ownership, institutional ownership, state ownership, public ownership, foreign ownership, and concentrated ownership. In contrast, the dependent variable was tax aggressiveness, which was measured using the Effective Tax Rate (ETR) and the Cash Flow Effective Tax Rate (CFETR). The use of ETR as a measure of tax aggressiveness in this study is intended to examine companies' annual tax avoidance behavior. ETR, which is measured using the standard formula of tax expense divided by income before tax, will produce a smaller number, which may even be negative. Statistically, the figures produced by the standard formula lack meaning. Therefore, this study multiplies the standard ETR calculation result by $-1$, so that low ETR values change to a positive direction, which can indicate the occurrence of tax aggressiveness and make regression interpretation more intuitive on an annual basis.

This study relies exclusively on secondary, publicly available, aggregated financial and corporate governance data from the official website of the Indonesia Stock Exchange (IDX). It did not involve any human participants, animal subjects, biological materials, or personally identifiable data. Consequently, ethical approval was exempted by the institutional review board, and informed consent was not required.

**Table 2** Operational definition of variables.

| Variable | Measurement |
| --- | --- |
| Dependent variable: Tax Aggressiveness (TA) | − ETR = Taxes expense are divided by pre-tax profit x (-1) (Shi et al., 2020)<br>− CFETR = Tax expense divided by operating cash flow (Qawqzeh, 2023) |
| Independent variable: | |
| Family Ownership (Famown) | Number of shares owned by the family divided by total outstanding shares (Chalevas et al., 2024) |
| Managerial Ownership (ManOWn) | Number of shares owned by management divided by total shares outstanding (Qawqzeh, 2023) |
| Institutional Ownership (InstOwn) | Number of shares owned by institutions divided by total outstanding shares (Jiang et al., 2021) |
| State Ownership (StateOwn) | Number of shares owned by the state divided by total outstanding shares (Hilling et al., 2021) |
| Public Ownership (PublicOwn) | Number of publicly held shares divided by total outstanding shares (Payamta et al., 2023) |
| Foreign Ownership (ForeignOwn) | Number of foreign-owned shares divided by total outstanding shares (Efenana and Egbunike, 2023) |
| Concentrated Ownership (ConstOwn) | The largest number of shares divided by the total number of outstanding shares (Boussaidi and Hamed-Sidhom, 2021) |
| Control variable: Total assets | Logarithm of natural total assets |
| Return on Assets | Net profit divided by total assets |
| Education | Educational background, where 0 is Elementary – Senior High School; 1 is Undergraduate (S1); 2 is Master's (S2); 3 is Doctoral (S3) |
| Gender | Gender diversity, where 0 is a woman, and 1 is a Man |

## Measurement of research variables

The research variables consist of independent variables, namely ownership characteristics (family ownership, managerial ownership, institutional ownership, state ownership, public ownership, foreign ownership, and concentrated ownership). The dependent variable is tax aggressiveness, and the control variables are total assets, ROA, education, and gender. The inclusion of education and gender variables in this study is intended to examine whether variations in education levels and the presence of women in management have a significant influence on the tax aggressiveness model.

By multiplying the values by −1, higher values will mathematically reflect a higher level of tax aggressiveness, thereby facilitating the interpretation of the regression coefficients in indicating the direction of the effect. This methodology also draws on previous research (Shi et al., 2020). The researchers designed a heteroscedasticity test, which showed that models 3 and 4 (using CFETR) did not indicate any issues with data heterogeneity, meaning the models remain valid for use. The measurement of each variable is presented in Table 2 as follows:

## Researching an econometric model

In accordance with the research objectives mentioned above, the main objective is to examine the effect of ownership characteristics on tax aggressiveness. This study divides the sample into two groups to obtain more accurate results in the analysis. The first test is intended to examine the effect of ownership characteristics on tax aggressiveness using ETR measurements, both with and without control variables. The second group of tests is intended to ensure the robustness of the research model, with the desired robustness assessed using the tax aggressiveness variable measured

**Table 3** Results of descriptive statistical analysis.

| Variable | *N* | Min | Max | Mean | Std. Deviation | VIF | 1/VIF |
|---|---|---|---|---|---|---|---|
| ETR | 382 | −0.977 | 0.033 | −0.289 | 0.177 | | |
| CFETR | 382 | −0.998 | −0.000 | −0.397 | 0.313 | | |
| FamOwn | 382 | 0 | 0.945 | 0.093 | 0.224 | 1.11 | 0.896 |
| ManOwn | 382 | 0 | 0.877 | 0.097 | 0.205 | 2.52 | 0.396 |
| InstOwn | 382 | 0 | 0.993 | 0.474 | 0.311 | 4.24 | 0.235 |
| StateOwn | 382 | 0 | 0.700 | 0.024 | 0.115 | 1.25 | 0.799 |
| PublicOwn | 382 | 0.000 | 0.874 | 0.156 | 0.155 | 1.84 | 0.543 |
| ForeignOwn | 382 | 0 | 0.996 | 0.202 | 0.277 | 3.54 | 0.282 |
| ConstOwn | 382 | 0.000 | 0.999 | 0.563 | 0.215 | 1.16 | 0.859 |
| LnAssets | 382 | 12.321 | 39.715 | 28.714 | 2.800 | 1.03 | 0.969 |
| ROA | 382 | 0 | 0.537 | 0.083 | 0.084 | 1.03 | 0.971 |
| Educ | 382 | 0 | 3 | 1.452 | 0.740 | 1.07 | 0.936 |
| Gender | 382 | 0 | 1 | 0.929 | 0.256 | 1.06 | 0.947 |

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership, *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership, *LnAsset* log natural total assets, *ROA* return on assets, *Educ* educational background, *Gender* gender diversity of directors.

by CFETR, both with and without control variables. Therefore, the following econometric models are constructed:

$$\mathrm{ETR} = \beta_0 + \beta_1\mathrm{FamOwn} + \beta_2\mathrm{ManOwn} + \beta_3\mathrm{InstOwn} + \beta_4\mathrm{StateOwn} + \beta_5\mathrm{PublicOwn} + \beta_6\mathrm{ForeignOwn} + \beta_7\mathrm{ConstOwn} + \varepsilon \quad (1)$$

$$\mathrm{ETR} = \beta_0 + \beta_1\mathrm{FamOwn} + \beta_2\mathrm{ManOwn} + \beta_3\mathrm{InstOwn} + \beta_4\mathrm{StateOwn} + \beta_5\mathrm{PublicOwn} + \beta_6\mathrm{ForeignOwn} + \beta_7\mathrm{ConstOwn} + \beta_8 \quad (2)$$

$$\mathrm{CFETR} = \beta_0 + \beta_1\mathrm{FamOwn} + \beta_2\mathrm{ManOwn} + \beta_3\mathrm{InstOwn} + \beta_4\mathrm{StateOwn} + \beta_5\mathrm{PublicOwn} + \beta_6\mathrm{ForeignOwn} + \beta_7\mathrm{ConstOwn} + \quad (3)$$

$$\mathrm{CFETR} = \beta_0 + \beta_1\mathrm{FamOwn} + \beta_2\mathrm{ManOwn} + \beta_3\mathrm{InstOwn} + \beta_4\mathrm{StateOwn} + \beta_5\mathrm{PublicOwn} + \beta_6\mathrm{ForeignOwn} + \beta_7\mathrm{ConstOwn} + \quad (4)$$

Where:ETR= Tax Aggressiveness measured using the effective tax rateETR= Tax Aggressiveness measured using the cash flow effective tax rateFamOwn= Family OwnershipManOwn= Managerial OwnershipInstOwn= Institutional OwnershipStateOwn= State OwnershipPublicOwn= Public OwnershipForeignOwn= Foreign OwnershipConstOwn= Concentrated OwnershipLnAsset= Log Natural Total AssetsROA= Return on AssetsEduc= Educational BackgroundGender= Gender Diversity of Directors

The researchers acknowledge the limitations of cross-sectional data when applying advanced endogeneity correction techniques. The primary focus of this study is the comprehensive assessment of the observational strength of seven distinct types of ownership, a task rarely undertaken simultaneously within a single model. Furthermore, control variables such as asset size (LnAsset), profitability (ROA), and board characteristics (Gender and Education) were used to mitigate omitted-variable bias, a common source of endogeneity.

**Table 4** The average value of each variable.

| Industry | FamOwn | ManOwn | InstOwn | StateOwn | PublicOwn | ForeignOwn | ConstOwn | ETR | CFETR |
|---|---|---|---|---|---|---|---|---|---|
| Healthcare | 0.1609 | 0.0032 | 0.3932 | 0.0000 | 0.0716 | 0.3233 | 0.5964 | −0.3173 | 0.0252 |
| Basic materials | 0.0901 | 0.1144 | 0.4871 | 0.0203 | 0.1452 | 0.1450 | 0.6301 | −0.2596 | 0.3580 |
| Financial | 0.0297 | 0.0194 | 0.4339 | 0.0481 | 0.1112 | 0.3370 | 0.6139 | −0.2308 | 1.5402 |
| Transportation and logistics | 0.0643 | 0.1357 | 0.5407 | 0.0000 | 0.2663 | 0.0314 | 0.5268 | −0.3341 | 0.2023 |
| Technology | 0.0695 | 0.1972 | 0.3665 | 0.0000 | 0.2695 | 0.1148 | 0.5043 | −0.2673 | 0.0777 |
| Consumer and Non−Cyclicals | 0.1617 | 0.1192 | 0.4595 | 0.0000 | 0.1733 | 0.2362 | 0.5592 | −0.3031 | 1.5600 |
| Industrials | 0.1371 | 0.1440 | 0.4667 | 0.0000 | 0.1392 | 0.2283 | 0.4771 | −0.2815 | 1.2602 |
| Energy | 0.0444 | 0.0997 | 0.5224 | 0.0373 | 0.2443 | 0.0697 | 0.5306 | −0.3155 | 4.8967 |
| Consumer Cyclicals | 0.1024 | 0.0941 | 0.5288 | 0.0000 | 0.2012 | 0.1555 | 0.5374 | −0.3293 | −0.2142 |
| Infrastructures | 0.0272 | 0.1078 | 0.4888 | 0.0749 | 0.1486 | 0.1670 | 0.6016 | −0.3320 | −3.5678 |
| Property and real estate | 0.0815 | 0.1031 | 0.5126 | 0.0000 | 0.1961 | 0.1643 | 0.5535 | −0.1993 | −0.6996 |

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership, *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership.

## Results

### Descriptive statistic

Descriptive statistical analysis of the variables of tax aggressiveness, institutional ownership, and concentrated ownership demonstrates that the mean values exceed the standard deviation, indicating consistency and even distribution. However, the variables of family ownership, management ownership, state ownership, and foreign ownership have lower mean values than their standard deviations, indicating significant variation. In contrast, the variable of public ownership has a mean value close to its standard deviation, indicating relatively small variation.

Table 3 shows the statistics for each research variable. The negative and low ETR value indicates a fairly high level of tax aggressiveness among the sample companies. An ETR value of −0.977 indicates fiscal losses or excessive tax benefits for companies in Indonesia. This result is almost the same as the research conducted (Alkurdi and Mardini, 2020; Gaaya et al., 2017). In characteristics of concentrated ownership, the ownership structure is highly concentrated, which is quite high compared to others, but family ownership and managerial ownership are relatively small, so their direct influence on tax policy may be limited. Institutional and foreign ownership are quite significant, suggesting that these variables may have a greater influence on tax policy due to their resources and oversight capacity. The high VIF values for the institutional and foreign ownership variables indicate multicollinearity. However, since the VIF value is still within the tolerable range of 5-10, this multicollinearity does not affect the regression coefficients in this study's model. Thus, even though the VIF values for these two variables are relatively high, they remain tolerable and do not significantly affect the accuracy of the model predictions built in this study.

Subsequently, Table 4 reveals that, by industrial sector, the corporate ownership structure in Indonesia is dominated by institutional and concentrated ownership, with the latter having the highest average shareholder shareholding across industries. This means that decision-making is dominated by institutional shareholders and concentrated among certain groups, particularly regarding tax aggressiveness. Tax aggressiveness, as measured by ETR values, is observed in the Transportation & Logistics and Infrastructure industries, with ETR values above 0.33 (Table 4). Meanwhile, tax aggressiveness, as measured by CFETR values, is dominated by Energy and Infrastructure companies. As a result, tax aggressiveness in Indonesia is dominated by Transportation and Logistics, Energy, and Infrastructure companies.

Table 5 presents the education level and gender of company directors. Directors in Indonesia are predominantly educated to a bachelor's or master's degree, although some have only an elementary or senior high school education. The director's gender is predominantly male. These two characteristics of company leaders influence decision-making styles, particularly regarding tax aggressiveness. Men are more likely to be risk-averse, suggesting a high

**Table 5** Frequency of education level and gender.

| | Educ | | | | Gender | |
|---|---|---|---|---|---|---|
| | Elementary School - Senior High School | Undergraduate S1) | Master (S2) | Doctoral (S3) | Women | Man |
| Healthcare | 2 | 6 | 8 | 3 | 4 | 15 |
| Basic materials | 1 | 10 | 16 | 5 | 2 | 30 |
| Financial | 11 | 31 | 14 | 3 | 2 | 57 |
| Transportation and logistics | 2 | 13 | 2 | 0 | 2 | 15 |
| Technology | 0 | 12 | 2 | 2 | 2 | 14 |
| Consumer and Non-Cyclicals | 2 | 33 | 34 | 0 | 1 | 68 |
| Industrials | 4 | 18 | 5 | 6 | 2 | 31 |
| Energy | 0 | 5 | 9 | 4 | 0 | 18 |
| Consumer cyclicals | 2 | 30 | 26 | 2 | 4 | 56 |
| Infrastructures | 2 | 16 | 15 | 0 | 4 | 29 |
| Property and real estate | 2 | 8 | 12 | 4 | 0 | 26 |

risk-taking ratio among directors in Indonesia. This is supported by the prevalence of educational backgrounds dominated by bachelor's and master's degrees.

## Matrix correlation

A good research model is one in which there are no relationships between the research variables. The significance level of the correlation between the research variables is presented in Table 6. The results exhibit that the correlation between all variables is low (<0.8), considering that the threshold for harmful multicollinearity is (<0.80) (Gujarati, 2021), and there is no high correlation between these variables, so there are no problems in this research model.

## Heteroscedasticity test

Table 7 presents heteroscedasticity tests (Breusch-Pagan) for the research model, both with and without control variables, using CETR as the independent variable. The results of the heteroscedasticity tests for models 1 and 2 indicate that the data are heteroscedastic. Model 1 has a chi2 (1) value of 14.18 with a probability of 0.0002 (below 0.05), and model 2 has a chi2 (1) value of 25.49 with a probability of 0.0000 (below 0.05). This is understandable because the research data is cross-sectional. This condition changed when the independent variable was changed using CFETR in models 3 and 4. Model 3 has a chi2 (1) value of 1.72 with a probability of 0.1902 (above 0.05), and model 4 has a chi2 (1) value of 0.45 with a probability of 0.4898 (above 0.05). Accordingly, it can be concluded that the data generally do not indicate heterogeneity in models 3 and 4.

Table 8 presents the estimation results using robust standard errors to correct for the heteroscedasticity detected in Model 1 and Model 2, based on a significant Breusch-Pagan test (Model 1: $Chi^2(1) = 14.18$, $p = 0.0002$; Model 2: $Chi^2(1) = 25.49$, $p = 0.0000$). This correction does not alter the coefficient values, but adjusts the standard errors to be larger, thereby making the resulting t-tests and $p$-values more valid for statistical inference. The significance of the main variables-such as FamOwn, ManOwn, InstOwn, StateOwn and ForeignOwn-remained consistent following the correction; consequently, the results of Model 1 and Model 2 remain suitable for use as the basis of the analysis.

**Table 6** Matrix correlation.

| Variable | ManOwn | ManOwn | InstOwn | StateOwn | PublicOwn | ForeignOwn | ConstOwn | CETR | CFETR | LnAsset | ROA | Educ | Gender |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FamOwn | 1.000 | | | | | | | | | | | | |
| ManOwn | 0.1614*** | 1.000 | | | | | | | | | | | |
| InstOwn | −0.0413 | −0.4359*** | 1.000 | | | | | | | | | | |
| StateOwn | −0.0861* | −0.0804 | −0.1987*** | 1.000 | | | | | | | | | |
| PublicOwn | −0.0223 | 0.1634*** | −0.2505*** | −0.0356 | 1.000 | | | | | | | | |
| ForeignOwn | −0.1555*** | −0.2537*** | −0.4985*** | 0.0539 | −0.2760*** | 1.000 | | | | | | | |
| ConstOwn | −0.0288 | −0.1612*** | 0.1207** | 0.0262 | −0.3501*** | 0.1139** | 1.000 | | | | | | |
| CETR | 0.0803 | 0.0848* | −0.0383 | 0.0878* | −0.0434 | 0.0418 | 0.0380 | 1.000 | | | | | |
| CFETR | 0.0958* | 0.0472 | −0.0040 | 0.0668 | −0.0317 | 0.0340 | −0.0786 | 0.0464 | 1.000 | | | | |
| LnAsset | 0.0318 | −0.0277 | −0.0682 | 0.0543 | −0.0053 | 0.0698 | −0.0365 | 0.1342*** | 0.1828*** | 1.000 | | | |
| ROA | 0.0505 | −0.0653 | −0.0013 | 0.0054 | −0.0221 | 0.0720 | −0.0379 | 0.1209** | 0.0170 | 0.0397 | 1.000 | | |
| Educ | 0.0941* | −0.0003 | 0.0546 | 0.1182 | −0.0042 | −0.1024** | 0.0197 | −0.0760 | −0.0303 | 0.0368 | −0.1049** | 1.000 | |
| Gender | −0.0532 | 0.1054** | −0.0333 | −0.0542 | 0.0112 | 0.0087 | −0.0535 | 0.1587*** | 0.0478 | 0.1087 | 0.0257 | −0.1351*** | 1.000 |

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership; *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership, *LnAsset* log natural total assets, *ROA* return on assets, *Educ* educational background, *Gender* gender diversity of directors.

**Table 7** Heteroscedasticity test of the ETR variable.

| Variable | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef. | Std. Err | *t* (*p*−value) | Coef. | Std.Err | *t* (*p*−value) | Coef. | Std. Err | *t* (*p*−value) | Coef. | Std. Err | t (*p*−value) |
| (Constant) | | 0.062 | −7.06*** | | 0.114 | −6.43*** | | 0.110 | −5.09*** | | 0.203 | −5.55*** |
| FamOwn | 0.082 | 0.042 | 1.95** | 0.084 | 0.041 | 2.04** | 0.172 | 0.073 | 2.33** | 0.171 | 0.073 | 2.32** |
| ManOwn | 0.201 | 0.069 | 2.92*** | 0.193 | 0.067 | 2.84*** | 0.283 | 0.121 | 2.33** | 0.297 | 0.120 | 2.45** |
| InstOwn | 0.127 | 0.059 | 2.14** | 0.125 | 0.058 | 2.15** | 0.251 | 0.104 | 2.40** | 0.267 | 0.103 | 2.58** |
| StateOwn | 0.229 | 0.086 | 2.64*** | 0.242 | 0.085 | 2.84*** | 0.361 | 0.152 | 2.37** | 0.365 | 0.151 | 2.41** |
| PublicOwn | 0.069 | 0.078 | 0.88 | 0.070 | 0.076 | 0.91 | 0.085 | 0.138 | 0.61 | 0.094 | 0.136 | 0.69 |
| ForeignOwn | 0.149 | 0.060 | 2.44** | 0.129 | 0.059 | 2.16** | 0.270 | 0.107 | 2.52** | 0.263 | 0.106 | 2.47** |
| ConstOwn | 0.035 | 0.449 | 0.78 | 0.051 | 0.044 | 1.15 | −0.133 | 0.079 | −1.68 | −0.118 | 0.078 | −1.51 |
| LnAsset | | | | 0.007 | 0.003 | 2.31** | | | | 0.020 | 0.005 | 3.48*** |
| ROA | | | | 0.216 | 0.105 | 2.05** | | | | −0.031 | 0.187 | −0.17 |
| Educ | | | | −0.017 | 0.012 | −1.42 | | | | −0.022 | 0.021 | −1.00 |
| Gender | | | | 0.092 | 0.035 | 2.61*** | | | | 0.021 | 0.062 | 0.33 |
| Breusch−Pagan | Chi2 (1) = 14.18<br>Prob = 0.0002 | | | Chi2 (1) = 25.49<br>Prob = 0.0000 | | | Chi2 (1) = 1.72<br>Prob = 0.1902 | | | Chi2 (1) = 0.48<br>Prob = 0.4898 | | |

*, **, *** (significant level at 10%, 5%, and 1% two-tailed

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership, *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership, *LnAsset* log natural total assets, *ROA* return on assets, *Educ* educational background, *Gender* gender diversity of directors.

### Multicollinearity Test

Table 9 shows the VIF values for each research model. The VIF values for models 1, 2, 3, and 4 are below 10, ranging from 1.03 to 4.24, with an average of 1.81 and 2.22. This means that all research models are free of multicollinearity, ensuring reliable regression predictions.

### Hypothesis testing

In accordance with the objective of this study, which is to examine the effect of company ownership characteristics in Indonesia on tax avoidance. The testing of family, managerial, institutional, state, public, foreign, and concentrated ownership on tax avoidance practices is shown in Table 10. Hypothesis testing was conducted by first testing the research hypothesis without control variables, then with them.

Table 10 presents the results of hypothesis testing, both with and without control variables. Hypothesis testing without control variables indicates that family ownership, managerial ownership, institutional ownership, state ownership, and foreign ownership affect tax aggressiveness (Boussaidi and Hamed, 2015; Frank et al., 2009; Gaaya et al., 2017; Rego and Wilson, 2012). This means that ownership variables from the family, managerial, institutional, state, and foreign sides influence corporate tax avoidance practices in Indonesia. However, public ownership and concentrated ownership do not influence corporate tax avoidance practices in Indonesia.

Furthermore, hypothesis testing was conducted by adding control variables: total assets, ROA, education, and gender. The results of the study, with the addition of control variables, statistically improved the quality of the estimates of the influence of family ownership, managerial ownership, institutional ownership, state ownership, and foreign ownership on tax aggressiveness. The statistical results reveal that the calculated F value is 3.55, with a *p*-value of 0.000 and an Adj R-square value of 0.0686. This represents an increase from the test without control variables, which yielded a calculated F value of 2.29, a *p*-value of 0.026, and an Adj R-square value of 0.0232.

**Table 8** Robust standard error estimation.

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | Coef. | Robust Std. Err | *t* (*p*-value) | Coef. | Robust Std. Err | *t* (*p*-value) |
| FamOwn | 0.082 | 0.030 | 1.95** | 0.084 | 0.031 | 2.04** |
| ManOwn | 0.201 | 0.067 | 2.92*** | 0.193 | 0.068 | 2.84*** |
| InstOwn | 0.127 | 0.060 | 2.14** | 0.125 | 0.061 | 2.15** |
| StateOwn | 0.229 | 0.052 | 2.64*** | 0.242 | 0.058 | 2.84*** |
| PublicOwn | 0.069 | 0.078 | 0.88 | 0.070 | 0.077 | 0.91 |
| ForeignOwn | 0.149 | 0.061 | 2.44** | 0.129 | 0.061 | 2.16** |
| ConstOwn | 0.035 | 0.046 | 0.78 | 0.051 | 0.045 | 1.15 |
| LnAsset | | | | 0.007 | 0.004 | 2.31** |
| ROA | | | | 0.216 | 0.091 | 2.05** |
| Educ | | | | −0.017 | 0 .012 | −1.42 |
| Gender | | | | 0.092 | 0.046 | 2.61*** |
| Breusch-Pagan | Chi2 (1) = 14.18 Prob = 0.0002 | | | Chi2 (1) = 25.49 Prob = 0.0000 | | |

*, **, *** (significant level at 10%, 5%, and 1% two-tailed.

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership, *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership, *LnAsset* log natural total assets, *ROA* return on assets, *Educ* educational background, *Gender* gender diversity of directors.

## Discussion

The ownership structure of companies in Indonesia has been shown to significantly affect tax aggressiveness. Family ownership, managerial ownership, institutional ownership, state ownership, and foreign ownership have a significant effect on companies' tax aggressiveness in Indonesia. The findings of this study are generally in line with the agency theory proposed by Jensen and Meckling (1976b), which states that agency conflicts in companies with corporate ownership tend to be lower because ownership variation plays a role in management supervision, whether from the aspect of family, managerial, institutional, state, or foreign ownership, thereby minimizing the separation of ownership and control that can trigger agency costs. Empirically, this condition can be explained by the fact that family shareholders who own a large portion of the company tend to have the power to influence company policy, including tax strategy, to maximize after-tax profits for the family. A strong majority position allows families to prioritize their personal interests over those of minority shareholders, even if this involves aggressive tax strategies. Family businesses have a long-term orientation and are very concerned about reputation (Surbakti et al., 2024). The results of this study are in line with research conducted by previous studies (A. Hasan et al., 2024; I. Hasan et al., 2025; Kovermann and Wendt, 2019; Suhartonoputri and Mahmudi, 2022), stating that family ownership has a positive effect, meaning that the greater the proportion of family ownership, the greater the tax aggressiveness. The benefits of tax avoidance are felt more strongly by family businesses because their ownership structure allows the family that owns the company to directly control company decisions (Kovermann and Wendt, 2019).

Wongsinhirun et al. (2024) state that tax avoidance usually occurs due to conflicts of interest between owners and managers and decreases when their interests are more aligned. The analysis shows that managerial ownership is positively associated with tax aggressiveness. This indicates that in the context of the companies studied, managerial share ownership does not function as a mechanism to control behavior but rather has the potential to encourage managers to pursue more aggressive tax avoidance strategies to maximize personal profits, especially when external oversight is weak, or the company's orientation emphasizes short-term profit growth. The results of this study are consistent with prior research (Alkurdi & Mardini, 2020; Cabello et al., 2019; Qawqzeh, 2023), which indicates that managerial ownership has a positive effect on tax aggressiveness. When managers hold significant shares in a company, they have an incentive to make decisions focused on increasing after-tax profits, including through tax aggressiveness practices, because the direct benefits of tax savings will be enjoyed personally. External supervision

**Table 9** Multicollinearity test.

| Variable | Value of VIF | | | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| InstOwn | 4.22 | 4.24 | 4.22 | 4.24 |
| ForeignOwn | 3.52 | 3.54 | 3.52 | 3.54 |
| ManOwn | 2.48 | 2.52 | 2.48 | 2.52 |
| PublicOwn | 1.84 | 1.84 | 1.84 | 1.84 |
| StateOwn | 1.23 | 1.25 | 1.23 | 1.25 |
| ConstOwn | 1.16 | 1.16 | 1.16 | 1.16 |
| FamOwn | 1.09 | 1.11 | 1.09 | 1.11 |
| Educ | | 1.07 | | 1.07 |
| Gender | | 1.06 | | 1.06 |
| LnAsset | | 1.03 | | 1.03 |
| ROA | | 1.03 | | 1.03 |
| Mean VIF | 2.22 | 1.81 | 2.22 | 1.81 |

can balance the power of controlling shareholders and limit potential misconduct by management. Empirically, it shows that the greater the institutional ownership, the higher the level of corporate tax aggressiveness in Indonesia. This indicates that institutional owners are more inclined to increase after-tax profits in the short term, thereby tending to support aggressive tax-saving strategies, even though these may conflict with the principles of good governance. This is consistent with research (Jiang et al., 2021; Qawqzeh, 2023; Suhartonoputri & Mahmudi, 2022), which demonstrates that institutional ownership has a positive effect on tax avoidance; in other words, the higher the proportion of institutional ownership, the higher the level of tax avoidance.

State ownership, which is expected to serve as an effective supervisory mechanism to suppress aggressive tax behavior, may actually encourage companies to engage in tax aggressiveness. The findings of this study are consistent with those of Ying et al. (2017) in China, who found that state ownership is positively associated with tax aggressiveness. This is because state-owned companies have access to political privileges and government facilities, which reduces the likelihood of being sanctioned if they are found to be involved in aggressive tax avoidance (Ying et al., 2017). The greater the ownership stake, the more foreign investors can influence managers as agents to carry out their wishes and achieve their personal interests (Hasyim et al., 2022). The findings of this study align with research showing that foreign ownership is positively associated with tax aggressiveness. The higher the proportion of foreign ownership in a company, the greater the likelihood that the company will engage in tax aggressiveness.

The results also indicate that public ownership and concentrated ownership do not affect tax aggressiveness in Indonesia. This result is not in line with agency theory, which suggests that public ownership can encourage tax aggressiveness due to its dispersed ownership and lack of direct involvement in the company's operational supervision. Even though shares are publicly owned, they are often widely held, meaning public ownership lacks the collective voice to realistically promote their interests. This is further exacerbated by the fact that the majority of public investors are not actively engaged in daily supervision and incur high monitoring costs. This situation gives company management the discretion to make aggressive tax avoidance decisions. The results of this study are consistent with the findings of previous studies (Kurniawan and Amanah, 2022; B. Kurniawan and Adrison, 2025; Pratiwi et al., 2019), which found that public ownership does not have a significant effect on tax aggressiveness. Public shareholders, especially minority shareholders, generally lack sufficient control to influence the company's tax strategy (Kurniawan and Adrison, 2025). In the existing ownership structure, public investors are typically non-dominant, limiting their ability to exert pressure on managerial decision-making, including on taxation policy.

A concentrated ownership structure can trigger agency conflicts. This is because the interests of controlling shareholders may conflict with those of other shareholders, mainly due to information asymmetry among stakeholders (Kinanti et al., 2023). Although the majority owners have the capacity to supervise management, not all of them share the same objectives regarding tax compliance. Some large owners may encourage compliance to maintain the company's reputation and continuity, while others may take advantage of their dominant position to approve tax

**Table 10** Research hypothesis test results.

| Variable | Non-control variable | | With the control variable | |
|---|---|---|---|---|
| | Coef. | *p*-value | Coef. | *p*-value |
| (Constant) | −0.443 | −7.06*** | −0.737 | −6.43*** |
| FamOwn | 0.082 | 1.95** | 0.084 | 2.04** |
| ManOwn | 0.201 | 2.92*** | 0.192 | 2.84*** |
| InstOwn | 0.127 | 2.14** | 0.125 | 2.15** |
| StateOwn | 0.228 | 2.64*** | 0.242 | 2.84*** |
| PublicOwn | 0.069 | 0.88 | 0.070 | 0.91 |
| ForeignOwn | 0.148 | 2.44*** | 0.129 | 2.16** |
| ConstOwn | 0.035 | 0.78 | 0.050 | 1.15 |
| LnAsset | | | 0.007 | 2.31** |
| ROA | | | 0.216 | 2.05** |
| Educ | | | −0.017 | −1.42 |
| Gender | | | 0.091 | 2.61*** |
| | $N = 382$<br>$F = 2.29$<br>Prob = 0.026<br>Adj R−squared = 0.0232 | | $N = 382$<br>$F = 3.55$<br>Prob = 0.000<br>Adj R−squared = 0.0686 | |

*, **, *** (significant level at 10%, 5%, and 1% two-tailed.

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership, *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership, *LnAsset* log natural total assets, *ROA* return on assets, *Educ* educational background, *Gender* gender diversity of directors.

avoidance strategies to maximize personal profits (Lim and Suparman, 2022). Hence, the effects of concentrated ownership are highly dependent on the motivations and values of the major shareholders, as well as the overall character of the company's governance. The results of this study reinforce previous findings (Efenana and Egbunike, 2023; Kamul and Riswandari, 2021) that concentrated ownership does not affect tax aggressiveness. Concentrated ownership does not automatically increase or decrease the effectiveness of oversight or conservative decision-making. The influence of majority shareholders on company policy depends heavily on the owners' orientation, values, and objectives.

Overall, the study exhibits an interesting finding, whereby all ownership variables have a positive effect, even though public ownership and concentrated ownership are not statistically significant. Contextually, this implies that good corporate governance mechanisms in Indonesia do not function as well as assumed in agency theory. The dominance of institutional and concentrated ownership does not reduce agents' opportunistic behavior in maximizing their personal profits. These results provide evidence that, in Indonesia, the expected oversight mechanism arising from the ownership structure cannot function properly. From another perspective, the external oversight mechanism through company share ownership cannot function. This is because Indonesia operates a two-tier system, with supervisory oversight carried out by the board of commissioners. As a result, shareholders are not particularly concerned about the company's supervisory function. Controlling shareholders tend to prioritize maximizing after-tax profits, thereby tolerating or encouraging aggressive tax practices as long as they provide direct economic benefits.

Additionally, Indonesia in the 2020s is undergoing comprehensive harmonization of tax regulations, so the results of this study cannot yet reflect the state's efforts to regulate and prevent tax aggressiveness. However, in general, weak protection of minority investors and enforcement of tax laws reinforce the ineffectiveness of ownership structures as a control mechanism. Agency conflicts have shifted from manager-owner relationships to conflicts between majority and minority shareholders, where tax aggressiveness can be used to expropriate minority shareholders. A short-term orientation towards financial performance and low ethical awareness of tax compliance mean that shareholders, including institutional investors, lack a strong incentive to suppress aggressive tax practices, so that share ownership structures do not play a significant role in reducing corporate tax aggressiveness in Indonesia.

**Table 11** Robustness test results.

| Variable | Non-control variable | | With the control variable | |
|---|---|---|---|---|
| | Coef. | *p*-value | Coef. | *p*-value |
| (Constant) | −0.562 | −5.09*** | −1.130 | −5.55*** |
| FamOwn | 0.171 | 2.33** | 0.170 | 2.32** |
| ManOwn | 0.283 | 2.33** | 0.296 | 2.45*** |
| InstOwn | 0.251 | 2.40*** | 0.267 | 2.58*** |
| StateOwn | 0.361 | 2.37*** | 0.365 | 2.41*** |
| PublicOwn | 0.084 | 0.61 | 0.093 | 0.69 |
| ForeignOwn | 0.270 | 2.52*** | 0.262 | 2.47*** |
| ConstOwn | −0.132 | −1.68* | −0.118 | −1.51 |
| LnAsset | | | 0.019 | 3.48*** |
| ROA | | | −0.031 | −0.17 |
| Educ | | | −0.021 | −1.00 |
| Gender | | | 0.020 | 2.61 |
| | $N = 382$<br>$F = 2.37$<br>Prob = 0.022<br>Adj R-squared = 0.0245 | | $N = 382$<br>$F = 2.77$<br>Prob = 0.001<br>Adj R-squared = 0.0487 | |

*, **, *** (significant level at 10%, 5%, and 1% two-tailed.

*FamOwn* family ownership, *ManOwn* managerial ownership, *InstOwn* institutional ownership, *StateOwn* state ownership, *PublicOwn* public ownership, *ForeignOwn* foreign ownership, *ConstOwn* concentrated ownership, *LnAsset* log natural total assets, *ROA* return on assets, *Educ* educational background, *Gender* gender diversity of directors.

### Robustness test

To ensure this research model has the same predictive ability for corporate tax avoidance behavior in Indonesia, this study presents a robust test. The robust test was conducted by replacing the tax aggressiveness variable with the cash flow effective tax rate (CFETR) (Qawqzeh, 2023). The robustness test results for this research model are consistent.

Table 11 displays the results of a robust test that replaces the measurement of tax aggressiveness using CFETR. The Cash Effective Tax Rate is a measure of how closely the cash tax burden paid by companies, as reflected in cash outflows for taxes, matches pre-tax profits. This means the measure looks at the portion of a company's profits or income actually paid in taxes in the current period. The change in the measurement of tax aggressiveness variables using CFETR shows evidence that corporate tax aggressiveness in Indonesia is consistently influenced by ownership structure. These include family ownership, managerial ownership, institutional ownership, state ownership, and foreign ownership. Therefore, the research model to test the influence of corporate ownership characteristics in Indonesia on tax aggressiveness behavior is robust and sound.

## Conclusion

Tax aggressiveness in Indonesia is significantly influenced by corporate ownership structures. The empirical evidence demonstrates that family, managerial, institutional, state, and foreign ownership have a significant positive relationship with corporate tax aggressiveness. In the context of an emerging market, these ownership structures appear to amplify profit-maximization incentives rather than serving as effective monitoring mechanisms to curb aggressive tax planning. Conversely, public ownership and concentrated ownership do not exert a statistically significant effect on tax aggressiveness.

These findings suggest that traditional agency theory, which assumes that higher internal ownership alignment reduces opportunistic behavior, may operate differently in emerging markets characterized by a two-tier board system and evolving governance frameworks. Instead, the observed patterns reflect principal-principal dynamics, where controlling interest groups may leverage tax planning to enhance short-term cash flows or after-tax corporate valuation. Consequently, regulators and tax authorities should not rely solely on ownership profiles as automatic indicators of tax compliance, but should instead implement context-sensitive, risk-based monitoring frameworks.

## Practical and research implications

The findings provide important implications for policymakers and future research in Indonesia's evolving tax enforcement environment. The positive relationship between ownership structures and tax aggressiveness suggests that ownership concentration does not necessarily ensure effective governance, highlighting the need for stronger minority shareholder protection and transparency. Regulators may incorporate ownership profiles into risk-based tax monitoring, particularly where dominant shareholders influence tax decisions. The results also indicate that governance–tax relationships are institutionally conditioned and may be moderated by enforcement strength, investor protection, and audit quality. Moreover, the positive effect of state ownership suggests political embeddedness, where government-linked firms may experience softer enforcement. Future research should therefore examine institutional moderators and political connections in shaping corporate tax aggressiveness (Mansour and Alomair, 2026).

## Limitations and future research directions

First, this research design relies entirely on cross-sectional data from a single fiscal year (2023). As a result, the empirical model cannot capture multi-year dynamic trends, lag effects stemming from shifts in structural ownership, or unobserved firm-level heterogeneity across macroeconomic cycles. This single-period limitation also restricts the application of advanced dynamic panel estimators to fully address potential endogeneity and reverse causality between corporate ownership decisions and tax strategies. Furthermore, ownership structure explains only a small portion of the total variance in tax aggressiveness. The remaining variation is most likely driven by unobserved operational, regulatory, and institutional variables that are not included in the main regression framework. Finally, since the sample is limited to companies listed on the Indonesia Stock Exchange, the generalizability of these conclusions to unlisted private companies, small and medium-sized enterprises, or developed countries with stronger investor protection mechanisms remains limited.

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### Declarations

**Competing interests** The authors declare no competing interests.

**Ethical approval** This article does not contain any studies with human participants performed by any of the authors.

**Informed consent** This article does not contain any studies with human participants performed by any of the authors.

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