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Financial attributes, corporate governance and tax avoidance among Malaysian listed companies: The moderating effect of managerial ownership

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Abstract: Governments rely on corporate tax as a primary source of revenue. Nevertheless, premeditated conduct by corporations to invade tax via avoidance strategies directly hinders the nations growth. This study investigates specifically the relationship between selected financial attributes (profitability and leverage) and corporate governance attributes (board size, director competency, the presence of female directors, director remuneration, and CEO duality) towards corporate tax avoidance among companies listed on Bursa Malaysia's main market. Additionally, the research explores the moderation effect of managerial ownership on the relationships between these variables. The study uses panel data from 300 publicly traded Malaysian companies from their annual reports and financial databases in 2021, 2022, and 2023. Panel data regression with Panel Corrected Standard Errors (PCSE) is used to manage autocorrelation and heteroscedasticity, based on agency theory and tax planning theory. The study found a substantial negative correlation between profitability measured by return on equity. However, leverage exhibited strong positive correlation with corporate tax avoidance. Managerial Ownership considerably mitigated the effects of board size, number of female director representation in the company, and director remuneration on corporate tax avoidance. Developing market policymakers and regulators can use these findings to their advantage in their pursuit of ethical tax governance.
Keywords: *Board structure, CEO duality, Company governance, Corporate tax avoidance, Effective tax rate, Leverage, Malaysia, Managerial ownership, Profitability.*

1. Introduction

Funding essential public services like healthcare, education, and infrastructure is directly contributed by corporate tax revenues which validates the reason these taxes are predominantly crucial for national development. In developing countries like Malaysia, the growing practice of Corporate Tax Avoidance (CTA) involving companies exploiting legal provisions to minimize their tax obligations, imposes threat to its financial stability and public trust [1, 2]. CTA raises significant ethical and governance challenges in areas of economic disparity and budgetary restrictions although it is likely legally correct. Ganesan, et al. [3] and Jiang, et al. [4] emphasize that the discrepancy between legal expectations and actual practices implies that internal dynamics, particularly financial attributes and governance structures, have a great impact on tax related decisions.

Therefore, to comprehend tax strategies further, it becomes essential to understand the metrics of leverage and profitability which serve as key economic factors. Leveraging debt can result in tax savings through deductible interest expenses, while profitability enables businesses to decrease their tax burden. However, the extent to which these attributes influence tax behaviors may be contingent upon the efficacy of internal governance. Even profitable organizations may implement aggressive strategies in the absence of effective board supervision [1, 5]. However, companies which hold considerable amounts of debt may be more cautious while dealing with creditors, even if debt-related tax provisions are

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advantageous [6, 7]. Board characteristics such as size, member expertise, gender diversity, remuneration, and the separation of CEO and chair roles are key elements of corporate governance that foster greater accountability and regulatory adherence. A larger board may enhance oversight by incorporating diverse viewpoints, yet it also risks slower decision-making due to coordination challenges. Notably, the inclusion of women on corporate boards has been consistently linked to stronger ethical stances and more prudent tax strategies, thereby decreasing the propensity for aggressive tax behavior [8, 9]. Furthermore, directors who possess robust financial knowledge contribute more effectively to the governance process, especially in navigating complex tax issues and ensuring sound fiscal practices [3, 5]. In the Malaysian context, the functionality of governance frameworks is frequently constrained by concentrated ownership, family-centric business traditions, and the blurring of leadership responsibilities. A prime concern is CEO duality, where the same individual serves as both the chief executive officer and the chairperson of the board. This dual role can erode board independence, thereby limiting its ability to effectively oversee management decisions—particularly those involving tax planning strategies [2, 4].

Extensive research has been conducted on CTA within developed economies that typically exhibit strong governance infrastructures. To address these research gaps, this study examines the direct influence of financial attributes specifically profitability and leverage on CTA using the ETR as a proxy. In addition, it investigates the impact of key corporate governance elements such as board size, director competency, gender representation, director remuneration, and CEO duality on tax-related outcomes. This study uniquely emphasizes the moderating role of Managerial Ownership (MO), shedding light on how the extent of managerial shareholding can shape the strength or fragility of governance mechanisms in directing corporate decisions related to tax avoidance. Employing panel data from 300 Malaysian publicly listed companies covering 2021 to 2023, the study uses Panel Corrected Standard Errors (PCSE) regression methods to account for firm-specific characteristics and statistical concerns such as autocorrelation and heteroscedasticity. By integrating financial attributes, governance practices, and MO, this research provides a comprehensive examination of corporate tax behavior tailored explicitly to the Malaysian context. This study adds critical evidence to arguments about ownership structure of a company, its Corporate Governance (CG) quality, and on complying with tax ethics by analyzing them in particular cultural and legal setting of Southeast Asia. These outcomes are highly pertinent for policymakers, regulators, and institutional investors aiming to strengthen tax governance and increase transparency in Malaysian corporations.

2. Literature Review

CTA involves employing legal ways to minimize a company's tax obligations while staying compliant within the CG guidelines. Although this practice is legal, they flag alarming ethical concerns about how companies should be held accountable and their responsibilities to society. In developing economies such as Malaysia, tax avoidance presents a significant challenge to maintaining fiscal sustainability, especially when the tax base is limited and enforcement mechanisms are still evolving [3]. Consequently, researchers have been paying more attention to the factors at the firm level, particularly financial indicators and governance mechanisms, which are seen as crucial influences on corporate tax planning.

Profitability has always been seen as a key factor in how companies approach their tax planning. It highlights a firm's capabilities to generate financial resources internally, which eventually is used to shape their tax strategies. Umar, et al. [6] suggest that companies that are more profitable have better technical and financial resources to take part in intricate tax minimization strategies. Nasir, et al. [1] back up this point of view by saying that Malaysian companies that make more money usually try to avoid paying taxes in a more planned way. Putri [10] supports this assumption by saying that successful businesses mostly invest in legal structure and good tax advise services to lower their tax rates. However, just for the reason that a business is lucrative doesn't mean it will necessarily adopt aggressive tax strategies. Nerantzidis, et al. [11] highlights that businesses dedicated to ESG principles

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may opt to reduce their tax avoidance tactics to protect their reputation and uphold the trust of their stakeholders. This highlights that although profitability offers the resources, ethical and reputational factors can shape how it truly impacts tax behavior.

Ganesan, et al. [3] also suggests that the dynamics of governance influence the relationship between profitability and tax avoidance. When boards are made up of skilled and independent directors, they tend to keep aggressive tax practices in check, even in companies that are doing well financially. Guat-Khim and Lian-Kee [9] indicate that having female directors can lead to more cautious tax decision-making, especially in companies that are quite profitable, emphasizing the importance of gender diversity in leadership roles. Moreover, the specific conditions of different sectors and regulations influence the way profitability affects tax practices. For instance, businesses in sectors that are closely watched, such as finance and manufacturing, may avoid bold strategies to maintain their credibility [12]. The MCCG 2021 guidelines emphasize the significance of governance in decision-making, highlighting the ethical dimensions of tax planning aimed at profitability [13]. Hence, while making a profit allows for the possibility of avoiding taxes, how much that happens depends on the quality of governance, the values of the leadership, and the level of external oversight.

The path a company approaches its tax strategy is at large influenced by the element of its financing that comes from debt. Moreover, as interest payments on debt can be taken off from taxable proceeds, companies may consider using debt to avoid taxes. Investigation conducted by Umar, et al. [6] and Putri and Putra [14] further supports this link, proposing that as companies increase their debt, they become more driven to control their interest expenses and pursue techniques to cut their taxable income all through several evasion strategies. Idris and Natalylova [15] claim that the financial stress that comes with excessive indebtedness often makes businesses use more aggressive tax methods. Wafirli [16] also discuss about how businesses that use leverage want to boost their post-tax profits by using all the deductions they can. However, leverage has multiple effects, however, the requirement for regulations and transparency, the impact may be less significant. Wafirli [16] investigated and discovered that relying too heavily on debt can make people more likely to be observed, particularly considering governance frameworks such as MCCG 2021, which may make people less likely to adopt aggressive tax strategies. According to Kurniasih and Sari [17] leverage decisions are frequently related to larger capital structure plans which in turn influences how others plan their taxes. Interestingly, these observations demonstrate that leverage has two sides. On the one hand, it provides companies with opportunities to reduce their tax burdens, but on the other hand, it also brings about regulatory risks that could limit their ability to engage in avoidance strategies.

An important yet often underexamined factor in this relationship is MO. MO represents the proportion of company shares held by managers, which directly aligns their interests with those of shareholders. High MO can serve as a monitoring mechanism that moderates the link between governance structures and tax behavior. For example, when managers hold a significant equity stake, they may act more prudently regarding tax strategies, given their vested interest in the firm's long-term sustainability and reputation [8]. This alignment potentially reduces agency conflicts that would otherwise drive aggressive tax planning. However, when ownership becomes overly concentrated among executives, the effect could reverse—entrenchment may set in, leading to greater autonomy and increased tax aggressiveness if proper board oversight is lacking [2]. The moderating role of MO is particularly relevant in Malaysia due to the prevalence of family-owned firms and concentrated ownership structures, which may alter the typical governance dynamics.

Empirical evidence suggests that MO influences the strength of the relationship between board characteristics such as board size, director expertise, and CEO duality and CTA [1]. This adds a critical layer of complexity in evaluating how internal governance mechanisms affect corporate behavior, especially in relation to ethical tax conduct. The findings indicate that leverage and profitability are important factors in avoiding taxes, but their effects depend on the rules and the way the government works. Success allows business to manage their taxes, and leverage motivates them to do so, however, neither of them acts independently. To examine if financial traits lead to intelligent or risky tax strategies, it's necessary to consider thoroughly the board's skills, the need of ethical leadership, and the significance of external assessments. In Malaysia's ever-changing political and economic climate, it's imperative to recognize how both variables affect each other to make effective choices about taxation and business strategy in general.

2.1. Hypotheses Development

CTA remains to be a significant problem in developing countries such as Malaysia, where company taxes are a key source of national income. Scholars continue to debate about the way economic and governance frameworks that companies have impact on the way they manage taxes. This study focuses on two core financial indicators, profitability and leverage, and a set of governance elements, including board size, the competency of directors, the presence of female board members, director remuneration, and the dual role of CEOs. MO is well-defined as the proportion of company shares held by board of directors Such ownership may either mitigate or intensify tax planning practices by aligning the interests of managers with those of shareholders. Central to this investigation is the inclusion of MO as a moderating variable to the study. The strength and direction of the relationship between corporate tax behavior and governance mechanisms is believed to be influenced by MO. This study tests twelve hypotheses whereby the first seven (H1–H7) examine the direct effects of financial and governance factors on CTA, while the remaining five (H8–H12) assess how MO moderates the relationships between CTA and governance variables, specifically board size, director competency, female representation, remuneration, and CEO duality.

2.1.1. Profitability and its relationship with Corporate Tax Avoidance

A company's ability to avoid paying taxes depends heavily on the capacity of its earnings. Maruhun, et al. [18] suggest that decreasing revenue is one of the primary factors that makes it difficult to evade taxes. When company's profits drop, it may not be worthwhile it to spend money on complicated tax procedures to avoid paying taxes. As a result, companies that make less money are less likely to take steps to avoid paying taxes. However, empirical evidence strongly suggests that there is a strong link between avoiding taxes and making money. The primary suggestion is that businesses who do well can cut their taxes to keep more of their profits after taxes. Further support for this position comes from Indriani [19] who, building on the framework of Lanis and Richardson [20] highlights that economically successful firms are better positioned to exploit tax havens, transfer pricing, and deferred tax mechanisms. Similarly, Bachas, et al. [21] referencing [22] found that profitable firms often display higher deviations in their ETRs, reflecting more active engagement in tax minimization tactics. However, the literature is not unanimous. While it's generally accepted that taxation compliance is driven by profitability, numerous investigations have revealed that there is no statistically significant association between the two. Yusrizal, et al. [23] and Jannah and Dimyati [24] for example, propose that company tax evasion might not be only determined by profitability. Rather, the findings suggest that firm specific attributes, regulatory supervision, and governance quality have greater effects on tax strategy development. This perspective is echoed by Fahmi and Naibaho [25] and Hossain, et al. [26] who, along with Frank, et al. [27] emphasize the moderating impact of managerial incentives and control systems. The divergence in findings implies a context-dependent association between profitability and tax avoidance. Profitability may not translate into greater tax aggressiveness in regulatory environments with high enforcement standards. Conversely, in jurisdictions with weak tax enforcement, profitability can serve as a catalyst for more complex avoidance practices.

H_1: There is a positive relationship between profitability and corporate tax avoidance.

2.1.2. Leverage and its relationship with Corporate Tax Avoidance

Leverage is a way to plan for taxes and a financial strategy. Debt-to-equity or debt-to-asset ratios are two methods to find out the amount of leverage companies possess. It reveals that a business uses debt to obtain funds, which could assist them avoid paying taxes because interest payments are tax-deductible presently. Handoyo, et al. [28] and Oktagiani [29] state that leverage is the amount of funds that a company borrows to buy its assets. From a tax planning point of view, significant leverage can help businesses lower its taxable income by letting companies deduct interest. This "tax shield" hypothesis has been validated by empirical findings from Handoyo, et al. [28]; Arinda and Dwimulyani [30] and Swingly and Sukharta [31] all of whom confirm that firms with higher debt levels tend to engage in more aggressive tax planning strategies. However, some research shows that there is either no relationship or a negative one between leverage and CTA. Irawan, et al. [32] and Oktagiani [29] argue that creditors and regulators will most definitely keep an eye on companies that have a lot of debt. Thus, making it challenging for those companies to employ illegal ways to evade paying taxes. Supporting this further, Jingga and Lina [33] and Handoyo, et al. [28] emphasize that debt can act as a constraint on managerial behavior by increasing external monitoring. Moreover, in multinational enterprises, leverage may be strategically used to exploit cross-border tax rate differentials, as indicated by Ali, et al. [34] and Desai, et al. [35]. According to Yahaya and Omotola [36] the governance ecology and investor supervision have a moderating effect on whether leverage promotes or discourages tax aggressiveness. Given these mixed results, it is evident that the impact of leverage on CTA is nuanced and influenced by contextual variables such as governance strength, industry norms, and regulatory frameworks.

H_2: There is a positive relationship between leverage and corporate tax avoidance.

2.1.3. Board Size and its relationship with Corporate Tax Avoidance.

The number of directors on a company's board is referred to as board size, which is a central component of CG and has been widely analyzed for its impact on ethical practices, including tax-related decisions, as well as overall firm performance. Several scholars, including Maruhun, et al. [18]; Shamsudin, et al. [37] and Sheng and Montgomery [38] emphasize the benefits of having smaller boards, which are believed to enhance monitoring effectiveness, facilitate quicker decisions, and support more efficient communication. On the contrary, larger boards have been associated with greater CTA, as demonstrated in the work of Lanis and Richardson [39]. Larger boards may not be able to effectively oversee things since they are unable to manage opposing interests, make sure all parties are accountable, and maintain everyone working together effectively. If the number of boards increases, their internal control systems may get worse, which could unintentionally make it easier for taxpayers to evade paying Hoseini, et al. [40]. Lanis and Richardson [20] and Bash and Zoghlami [41] are two other scholars who disapprove with this view. They say that bringing considerable number of various individuals on a board with various experiences and abilities may make governance stronger, oversight greater, and transparency higher, especially because of concerns about reputation. There is still no clear answer, but more and more people are realizing that board size doesn't work alone. It interacts with other governance factors like independence, professional experience, and power to make decisions which influence the way companies formulate their taxes.

H_3: There is a positive relationship between board size and corporate tax avoidance.

2.1.4. Director Competency and its relationship with Corporate Tax Avoidance.

Director competency is an essential governance characteristic that influences strategic oversight and ethical integrity in corporate decision-making. While some studies, such as those by Martins and Omoye [42]; Oshinowo, et al. [43] and Novita and Herliansyah [44] report an insignificant correlation between director competency and tax avoidance, others highlight its critical role in monitoring financial practices. According to Jannah and Dimyati [24]; Irawan and Farahmita [45] and Fama and Jensen [46] competence play an important role in overlooking administrative decisions, especially in areas that can be easily manipulated, such as tax planning. Primarily on the note that the quality of board is derived from their effective contribution to the success of the company. Additionally, to reduce tax aggression, development of CG standard is contributed by board of directors that are capable and independent [47]. These data suggest that competency alone might not affect how people contribute their taxes, but when coupled with other board traits like independence, size, and diversity, it can change how businesses prepare their taxes.

H_4: There is a positive relationship between the director's competency and corporate tax avoidance.

2.1.5. Female Directors and its relationship with Corporate Tax Avoidance.

More individuals are recognizing the significant influence that gender diversity, particularly the inclusion of female directors, can have on the results of CG. Several studies, such as those by Bash and Zoghlami [41]; Suleiman [48]; Khaoula and Ali [49] and Stanley and Widianingsih [50] indicate that having female board members does not seem to significantly impact CTA. Reasons include tokenism, entrenched male-dominance in board decision-making, and insufficient representation. On the other hand, some scholars believe that having female directors leads to better oversight, reduces risk-taking, and promotes ethical behavior. Among these scholars are Anggraeni and Kurnianto [51] and Hidayat and Zuhroh [52] as well as Lanis and Richardson [39]. The findings of the study support the idea that women contribute positively to risk assessments and strategic discussions, ultimately leading to better governance quality [53]. Nonetheless, the effectiveness of female directors appears to depend on the proportion of their representation. Badiana and Kusuma [54] note that only beyond a critical mass can female directors exert substantial influence on governance decisions, including those related to tax strategies.

H_5: There is a positive relationship between female directors and corporate tax avoidance.

2.1.6. Director Remuneration and its relationship with Corporate Tax Avoidance

Directors' remuneration is increasingly scrutinized for its role in shaping risk-taking behavior and long-term strategy. Akinyomi, et al. [55]; Ebimobowei [56] and Razali, et al. [57] argue that the structure of remuneration, especially the mix between cash and non-cash components can incentivize or deter aggressive tax planning. In the Malaysian context, evidence shows that higher cash remuneration is positively linked with tax planning, while non-cash incentives (e.g., stock options) reduce the propensity for aggressive behavior. The absence of regulatory caps on directors' pay may further encourage tax minimization efforts to justify elevated compensation.

H_6: There is a positive relationship between the director's remuneration and corporate tax avoidance.

2.1.7. CEO Duality and its relationship with Corporate Tax Avoidance

The trend of CEO duality, in which the roles of the CEO and board chair merge, raises concerns about board independence and the effectiveness of governance monitoring in the company. Salihu and Kawi [58]; Bosun-Fakunle, et al. [59] and Annuar, et al. [60] draw attention to the fact that when CEOs also take on the role as a of board chairman, the absence of monitoring can result in heightened tax aggressiveness. On the other hand, CEO duality could enhance the consistency of tax strategies by making decision-making more efficient and aligned to actual needs of the company [38, 51, 52]. Examples of contextual governance factors that help reduce the impact of having a dual chief executive officer on CTA are board independence and ownership structure.

H_7: There is a positive relationship between CEO duality and corporate tax avoidance.

2.1.8. Managerial Ownership as a Moderator between Board Size and Corporate Tax Avoidance.

Board size can either strengthen governance or dilute decision-making, depending on its composition and coordination. However, the presence of MO may moderate this relationship. When board size increases, the influence of individual directors may diminish. But with higher MO, the interests of management are more closely aligned with shareholders, potentially reducing tax avoidance despite larger board sizes. According to Nasir, et al. [1] the presence of MO may compensate for inefficiencies caused by coordination challenges in larger boards by reinforcing internal accountability.

H_8: Managerial Ownership moderates the relationship between CEO duality and corporate tax avoidance.

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2.1.9. Managerial Ownership as a Moderator between Director Competency and Corporate Tax Avoidance

Director's competency enhances board oversight and the quality of decision-making. Yet, the effectiveness of competent directors in curbing CTA may depend on how much influence they exert, which is often influenced by ownership structure. According to Ganesan, et al. [3] when MO structures make it easier for directors and management to work together, the governance quality improves. With a high MO, directors may encounter less resistance from management, making it easier to enact and enforce risk-averse tax practices. In contrast, low MO may weaken directors' influence, particularly in complex tax planning scenarios.

H_9: Managerial Ownership moderates the relationship between director's competency and corporate tax avoidance.

2.1.10. Managerial Ownership as a Moderator between Female Directors and Corporate Tax Avoidance.

Female directors care known to perform better at risk management and ethical conduct in companies. Nevertheless, ownership dynamics may impact their ability to influence tax strategies. Female directors may discover it easier to advocate for transparency and compliance when MO is high, since managers have an incentive to be honest and trustworthy. On the other hand, in companies with dispersed MO, their influence may be symbolic rather than substantive. This aligns with Guat-Khim and Lian-Kee [9] who emphasized that ownership alignment strengthens ethical governance practices, particularly when gender diversity exists at the board level.

H_{10}: Managerial Ownership moderates the relationship between female directors and corporate tax avoidance.

2.1.11. Managerial Ownership as a Moderator between Director Remuneration and Corporate Tax Avoidance.

Depending on the way the compensation and benefits have been packaged, a director may encourage conduct that's either inline or against the shareholder value of the company. When MO is high, people may look more closely at exorbitant pay, which makes people more careful about using aggressive tax tactics only to justify performance. However, in situations where MO is low, directors may have more freedom to utilize tax savings to justify high pay. Akinyomi, et al. [55] affirms that ownership structure is very important when it comes to how incentives affect risk taking behavior, especially when it comes to taxes.

H_{11}: Managerial Ownership moderates the relationship between director remuneration and corporate tax avoidance.

2.1.12. Managerial Ownership as a Moderator between CEO Duality and Corporate Tax Avoidance.

CEO dualities create a gray area between oversight and executive power which leads to reduced board independence. When MO is substantial, though, this danger might be lessened. In such a scenario, the CEO's personal investment in the business might lead to more careful tax planning, mitigating the dangers associated with duality role in governance. MO according to Jiang, et al. [4] can help mitigate governance's structural flaws and promote ethical decision making even in highly concentrated leadership structures.

H_{12}: Managerial Ownership moderates the relationship between CEO duality and corporate tax avoidance.

3. Research Methodology

This quantitative study investigates the impact of various financial elements (profitability and leverage) and governance-related factors (board size, director competency, female directors, director remuneration and CEO duality) on CTA in Malaysian public listed companies. It also examines the way in which MO functions as a moderating factor in these interactions. To accomplish this the investigation investigates 12 unique hypotheses that evaluate both direct and moderated effects. The first 7 hypotheses examine the direct correlations between CTA and the variables that were chosen, while the last twelve hypotheses examine the moderating effect of management ownership on the relationship between CTA and governance methods. The primary objective of this research is to identify the factors affecting the ETR for publicly traded firms in Malaysia, including profitability, leverage, board size, director competency, director compensation, presence of female directors, and CEO duality.

Rana, et al. [61] and Creswell and Creswell [62] emphasize that employing a positive research paradigm and utilizing empirical data is appropriate for examining financial and governance aspects in extensive real-world scenarios. This study utilizes secondary data sourced from publicly accessible materials, such as audited annual reports, corporate governance disclosures, and financial statements of firms listed on the FTSE Bursa Malaysia KLCI Index (FBMKLCI) for the years 2021 to 2023. The documents, corroborated by Almansour, et al. [63] and Hair, et al. [64] comply with Bursa Malaysia's regulatory criteria, hence enhancing the correctness, consistency, and transparency of the utilized data.

3.1. Sampling Technique and Size

This research employs purposive sampling which means that companies are chosen based on specific criteria that have been established beforehand. The criteria involve having detailed annual reports, maintaining a consistent listing status, and ensuring there is CG information available. The samples were categorized the sample into high, medium, and low segments according to the capital size of the companies. This classification was based on an original population of 759 companies that were listed as of March 31, 2022. The study selected between 120 and 150 businesses from each of these categories, ensuring a proportional representation. Following the guideline proposed by Sekaran and Bougie [65] the goal of this analysis is to gather at least 300 observations within a single year. This is done to ensure that our findings are applicable in a broader context and that we have enough statistical strength to support our conclusions.

The dataset comprises an unbalanced panel of 900 firm-year observations spanning the years 2021 to 2023. Secondary data was collected from published annual reports, financial statements, CG disclosures, and commercial databases. To ensure accuracy, data on board structure, remuneration, CEO duality, and director qualifications were manually extracted from corporate disclosures.

3.2. Variables Measurement

3.2.1. Dependent Variables

There are two Representations that are Used to Measure the Dependent Variable (DV), Which is the CTA.

Effective Tax Rate (ETR): $\dfrac{\text{Total Tax Expense (TTE)}}{\text{Pre-Tax Earnings (PTE)}}$

A lower ETR means that companies are avoiding taxes more, which is also what other studies have found [2, 3]. To test the hypothesis, the ETR values are multiplied by -1.

3.2.2. Independent Variables

This study presents seven Independent Variable (IV), corresponding to hypotheses H1 to H7. These variables are defined according to recognized financial and governance criteria pertinent to the Malaysian corporate environment. Initially, Profitability (PRO) functions as the IV for H1 and is calculated as the ratio of net income to the market capitalization of equity. This ratio provides a performance-oriented assessment of a company's earning efficiency in relation to investor valuation. Secondly, leverage (LEV), associated with H2, is denoted by the debt-to-equity ratio. This ratio indicates the company's capital structure and its dependence on external debt in relation to shareholder equity, frequently affecting corporate risk appetite and tax practices. The third variable, Board Size (BOSIZE), associated with H3, is measured by tallying the total number of directors on the company's board. More extensive boards may indicate greater knowledge but may also encounter difficulties in coordinating decision-making procedures. The fourth IV, Director Competency (DCOMP), examined under H4, is presented as a binary (dummy) variable. The number of 1 is designated for firms with at least one board member who has a professional background in finance or accounting, whereas 0 indicates the lack of such competence. This proxy assesses the financial literacy competency of the board's decision-making body.

The variable Female Director Presence (FEMALE), associated with H5, is classified as a dummy variable, where 1 signifies the presence of at least one female director on the board and 0 denotes the absence of any. This indicator demonstrates the impact of gender diversity on board governance processes and ethical monitoring, encompassing tax-related decisions. The sixth variable, Directors' Remuneration (DREM), linked to H6, quantifies the overall financial remuneration allocated to directors. This encompasses salaries, fees, and assorted allowances as detailed in the annual financial accounts. Compensation functions as a financial motivator and is regarded as a factor influencing board independence and motivation. Finally, CEO Duality (CEODUAL), pertinent to H7, is represented by a dummy variable coded as 1 if the CEO concurrently occupies the role of board chair, and 0 otherwise. CEO duality may indicate centralized decision-making authority, thereby impacting internal controls and the strategy framework for tax planning. Each IV was chosen based on empirical antecedents and theoretical rationale in the literature on corporate governance and financial behaviour, particularly influenced by agency theory and previous empirical results.

3.2.3. Moderating Variable

This study introduces Managerial Ownership as the moderating variable, defined as the percentage of ordinary shares owned by executive directors and senior management. This metric assesses the congruence of managerial interests with those of shareholders and is commonly referenced in studies exploring the agency cost ramifications in corporate governance. This study integrates MO into interaction terms with specific governance mechanisms to examine its moderating impact on the relationship between governance structures and corporate tax avoidance. These interactions are represented in hypotheses H8 to H12. H8 (MO × BOSIZE) specifically investigates the connection between managerial ownership and board size, evaluating whether shareholding affects the efficacy of board oversight. H9 (MO × DCOMP) investigates how management ownership influences the effect of financially proficient directors on tax-related actions. H10 (MO × FEMALE) examines the interaction between management equity participation and gender diversity on boards, potentially affecting ethical governance practices. H11 (MO × DREM) examines how the relationship between directors' financial motivations and tax avoidance is influenced by the ownership stakes maintained by management. Finally, H12 (MO × CEODUAL) examines whether managerial ownership influences the effects of dual leadership arrangements on corporation tax strategy.

The justification for incorporating MO as a moderating element is its capacity to either alleviate or exacerbate agency conflicts. Increased ownership by senior management may connect managerial actions with shareholder interests, so affecting the efficiency of governance measures in mitigating or promoting aggressive tax conduct. By incorporating these interaction terms, the study aims to offer a more refined comprehension of the governance-tax avoidance relationship within the Malaysian context. To control for firm-specific characteristics, the following variables are included the company size which the natural logarithm of total assets, the company age which is the years since its incorporation and lastly the number of employees which is the total workforce, considered due to its influence on strategic capacity and governance dynamics. The factors were chosen based on their known importance in influencing or altering the effects of CTA [66].

3.3. Analytical Strategy

To analyze the relationship between independent variables and CTA, the study uses PCSE regression. PCSE is selected over traditional Ordinary Least Squares (OLS) and fixed/random effects models due to its superior handling of heteroscedasticity, cross-sectional dependence, and serial correlation. Diagnostic tests namely the Breusch-Pagan LM test and Wooldridge test, confirmed the occurrence of heteroscedasticity and autocorrelation and thus, further validating the use of PCSE. All analyses were performed using Stata 18.0, and robust checks included alternative ETR specifications and the exclusion of outlier firms. This research method assesses the direct impact of financial and governance factors on tax avoidance that is methodologically solidified, comprehensive, and systematic. By leveraging high-quality data, validated metrics, and appropriate statistical techniques, the framework ensures valid and interpretable results that contribute meaningfully to both academic research and policy formulation in the Malaysian context.

4. Empirical Findings and Interpretations

This section presents the empirical outcomes that investigate the direct effects of financial attributes and corporate governance mechanisms on CTA in Malaysia public listed firms, while also highlighting the descriptive baseline for the moderating role of MO. This study utilizes data from companies listed on the FTSE Bursa Malaysia KLCI Index for the 3 consecutive years which are year 2021 to 2023. CTA is assessed using the ETR as a proxy, with lower ETR values indicating a higher tendency toward tax avoidance. The analysis starts with descriptive statistics to provide an overview of the data, followed by a detailed examination of correlation patterns and regression outcomes. Each of the twelve hypotheses (H1 to H12) is assessed based on the findings generated from these statistical tests.

4.1. Descriptive Statistics Analysis

The descriptive statistics focused exclusively on direct relationship between profitability, leverage, board size, director competency, female directors, director remuneration, and CEO duality, along with managerial ownership as a moderating factor, towards corporate tax avoidance, proxied by the ETR. The data comprises 663 company-year observations for public listed firms in Malaysia from year 2021 to 2023.

Table 1.
Descriptive Statistic of the Dependent Variables (DVs).

Variables	Obs.	Mean	Min.	Max.	Std. Dev.
ETR	663	0.235	0.00	0.93	0.13

Note: ETR = Effective tax rate.

Table 2.
Descriptive Statistic of the Independent Variables (IVs).

Variables	Obs.	Mean	Min.	Max.	Std. dev.
ROE	663	10.563	-29.3	187.64	18.67
LEV	663	0.181	0.00	0.66	0.16
BOSIZE	663	8.189	4.00	15.00	2.04
DCOMP	663	0.311	0.00	1.00	0.15
FEMALE	663	0.246	0.00	1.00	0.13
DREM	663	7.365	0.12	96.60	9.84
CEODUAL	663	0.074	0.00	1.00	0.26
MO	663	0.137	0.00	0.74	0.12

Note: ROE = Profitability returns on equity; LEV = Leverage; BOSIZE = Board size; DCOMP = Director competency; FEMALE = Female director; DREM = Director's remuneration; CEODUAL = CEO duality; MO = Managerial Ownership.

The ETR has a mean of 0.235, signalling that businesses on average pay 23.5% of their earnings as tax. The minimum ETR is 0.00 and whereby the maximum is 0.93. Alongside with a standard deviation of 0.13, it reflects considerable heterogeneity in tax burdens. These variations suggest differing levels of tax planning or avoidance strategies among firms, which directly ties to CG and financial performance attributes. Profitability, measured as return on equity (ROE), averages 10.56%, ranging from -29.3% to 187.64%, highlighting significant disparities in firm performance. This variability can directly influence a company's ability and motivation to participate in income tax evasion. More profitable firms often have more resources to implement strategic tax planning. Leverage, or the debt-to-assets ratio, averages 0.181, suggesting that Malaysian firms typically finance about 18% of their assets via debt.

This is relevant as debt allows firms to benefit from interest deductibility, potentially lowering ETRs. Board size averages at 8.19 directors, which falls within governance norms, while female board representation averages 24.6%, indicating growing board diversity. Director competency (those with financial/accounting backgrounds) shows a mean of 0.311, and director remuneration averages RM7.36 million, with a wide range from RM0.12 to RM96.6 million, potentially indicating diverse incentive structures. CEO duality, present in only 7.4% of firms, reflects limited adoption of combined leadership roles in line with Malaysia's governance code. Most notably, MO averaged 13.7%, ranging from zero to 74%.

This variance underscores differing degrees of insider equity control, which may influence executives' inclination to align tax strategies with shareholder interests or long-term firm value. Collectively, these descriptive metrics form a baseline interpretation of how economic and governance considerations may directly impact taxation behaviour. Lower ETRs linked to higher profitability, greater leverage, and director incentives are consistent with hypotheses that these IVs influence CTA. The observed variations across governance and financial variables offer the contextual backdrop to understand the moderating influence of MO in subsequent analyses.

4.2. Correlation Analysis

The Pearson correlation matrix is presented in Table 3 below that guides the preliminary understanding of direct associations before regression analysis. The correlation analysis assesses the strength and direction of associations between the dependent variable with the ETR as representing CTA and key IVs including profitability, leverage, board size, director competency, female directors, director remuneration, and CEO duality and the moderating variable, MO. These correlations offer a foundation for understanding potential patterns in the data prior to conducting multiple regression analysis. The correlation coefficient of 0.207 shows that leverage (LEV) has the strongest positive relationship with ETR. This suggests that businesses with higher leverage often face larger tax burdens. While leverage is connected to tax benefits because interest payments can be deducted. This dataset also further indicates that the companies with high levels of debt might face tighter regulatory oversight. This then causes the company to restrict the ability to engage in bold tax planning strategies.

Fahmi and Naibaho [25] noted that companies carrying more debt often find themselves dealing with rising tax obligations due to increased scrutiny or reduced flexibility. This aligns with what they discovered. The presence of female board members shows a positive correlation ETR ($r = 0.081$). This indicates that companies with more women in leadership roles might engage in less tax evasion, likely due to the impact of ethical governance practices. This supports the findings of Hidayat and Zuhroh [52] which suggest that having gender diversity on boards of directors tends to reduce aggressive tax behavior. There seems to be a positive relationship between the number of employees and the ETR, with a correlation coefficient of 0.082. This signifies that businesses with greater workforces might experience higher tax compliance, likely due to the added complexity of their operations and the greater scrutiny they encounter. Bachas, et al. [21] stressed that a non-linear relationship between company size and ETR in various global contexts, in which suggests that their results align with this observation.

On the contrary, Profitability (ROE) reveals a weak negative correlation with ETR ($r = -0.059$) which indicates that the more profitable businesses may avoid more taxes, while the correlation requires statistical backing. This supports strategic tax minimization observed in profitable firms as suggested by Fahmi and Naibaho [25]. CEO duality (CEODUAL) and MO also show negative correlations with ETR ($r = -0.048$ and -0.055 respectively), indicating potential for greater tax avoidance where power is concentrated or management has strong ownership stakes. Importantly, MO reveals a negative correlation with ETR ($r = -0.055$), indicating that firms with higher insider equity ownership may be more engaged in tax avoidance practices. This is consistent with the hypothesis that managerial equity stakes align executive interests with shareholder wealth maximization, often through the reduction of tax liabilities.

The potential moderating role of MO is further explored in the interaction hypotheses H8 to H12 in the subsequent regression analysis. The correlation coefficients all fall below ±0.9 which directly indicates that there are no multicollinearity concerns which also supports the decision to use these variables in the regression analysis.

Table 3.
Pearson Correlation Matrix for Dependent Variables (DV), Independent Variables (IV), and Control Variables.

Variables	ETR	ROE	LEV	BOSIZE	DCOMP	FEMALE	DREM	CEODUAL	MO
ETR	1								
ROE	-0.059	1							
LEV	0.207	0.033	1						
BOSIZE	0.058	-0.009	0.213	1					
DCOMP	-0.010	0.017	-0.044	-0.110	1				
FEMALE	0.081	0.165	0.125	0.060	-0.221	1			
DREM	0.039	0.008	0.170	0.291	-0.021	0.063	1		
CEODUAL	-0.048	-0.015	0.012	-0.074	-0.050	-0.069	-0.010	1	
MO	-0.055	0.029	0.031	0.018	-0.033	0.044	0.061	-0.091	1

Note: ETR = Effective tax rate; ROE = Profitability returns on equity; LEV = Leverage; BOSIZE = Board size; DCOMP = Director competency; FEMALE = Female director; DREM = Director's remuneration; CEODUAL = CEO duality; MO = Managerial Ownership.

4.3. Multiple Regression Analysis

4.3.1. Direct Relationship between Corporate Governance Attributes, Financial Indicators and Corporate Tax Avoidance

The multiple regression analysis in Table 4. investigates how CG attributes and financial indicators influence ETR among 663 publicly listed Malaysian firms. The regression focuses on seven core independent variables: return on equity (ROE), leverage (LEV), board size (BOSIZE), director competency (DCOMP), female board membership (FEMALE), director remuneration (DREM), and CEO duality (CEODUAL). The model yields an R-squared of 0.0713, meaning it explains 7.13% of the variance in ETR across firms. Despite the modest explanatory power, the F-statistic is significant ($p < 0.001$), confirming the model's overall validity. The findings of the regression analysis reveal several noteworthy direct effects. Profitability measured by ROE exhibits a negative and statistically important correlation with the ETR ($\beta = -0.001$, $p = 0.043$), implying that more profitable companies manage to exhibit lower ETRs. This result establishes the view that highly profitable companies are more motivated to employ in tax evading strategies to reduce their tax burdens and maximize after-tax returns. LEV on the other hand exhibits a positive and highly substantial connection with ETR ($\beta = 0.175$, $p < 0.001$), indicates that companies with higher debt levels incline to pay more taxes. This discovery does not tally to conventional assumptions that leverage leads to tax savings through the deductibility of interest expenses. This may now reflect that contextual factors such as regulatory scrutiny or limited flexibility in tax planning for heavily indebted firms. Furthermore, female board membership (FEMALE) is learned to be positively and significantly linked with ETR ($\beta = 0.086$, $p = 0.038$). Hence, this portrays that companies with a greater number of female directors may exhibit lower levels of tax avoidance, possibly due to stronger ethical governance values or a more conservative approach to fiscal decisions. However, other governance related variables, including board size (BOSIZE), director competency (DCOMP), director remuneration (DREM), and CEO duality (CEODUAL), does not display statistically important connections with ETR ($p > 0.05$).This indicates that the features of the board, which appeared to be relevant in theory, do not directly influence the tax avoidance behaviour of the companies that were sampled. There is a statistically significant and negative correlation between MO and ETR ($\beta = -0.028$, $p = 0.005$) between the two variables. This suggests that the CEO and board director are more likely to attempt and implement tax planning tactics in order to boost the value of the company and the returns for shareholders when they own a larger percentage of the company.

This study corroborates the agency hypothesis, which posits that when management has a significant amount of ownership, it can reduce conflicts of interest and promote behaviors that maximize value, such as strategic tax avoidance. In conclusion, ROE, LEV, FEMALE, and MO are the only variables that show a strong direct link to ETR. This supports the impression that the study's hypotheses are at more inclined to be true. These results express the importance of important board diversity, ownership structure, and financial strength are in dictating how companies manage their tax responsibilities. Nevertheless, these findings also suggest that structural board elements like executive duality may not have a big effect on how people pay their taxes.

Table 4.
Linear Regression Model.

Variables	Coef.	t-stat	p-value
ROE	-0.001	-2.03	0.043
LEV	0.175	5.30	0.000
BOSIZE	0.001	0.37	0.715
DCOMP	-0.025	-0.73	0.466
FEMALE	0.086	2.08	0.038
DREM	0.000	0.17	0.866
CEODUAL	-0.028	-1.14	0.254
MO	-0.028	-1.14	0.254
CONS	0.188	6.81	0.000
R-Square		0.0713	
Prob > F		0.000	

Note: ETR = Effective Tax Rate; ROE = Return on Equity; LEV = Leverage; BOSIZE = Board Size; DCOMP = Director Competency; FEMALE = Female Director; DREM = Director's Remuneration; CEODUAL = CEO Duality; MO = Managerial Ownership.

4.3.2. Regression Analysis of the Moderating Effect of Managerial Ownership

The study investigates the ways in which corporate governance characteristics' indirect impact on the ETR is mitigated by MO. Regression models were developed to fully capture the interactions between MO and five governance variables: board size, director competency, presence of female directors, director compensation, and CEO duality. The objective is to determine whether management ownership increases or decreases the impact of these governance measures on tax outcomes. A summary of the results can be found in Table 5. The R-squared value for the direct model used in the study was 0.0713.

When MO was considered, the R-squared value rose to 0.0852. This improvement demonstrates the enhanced explanatory capacity and significance of adding moderate variables. Even modest increases in R-squared are valuable, suggest a more nuanced understanding of how governance mechanisms and ownership structures interplay in influencing corporate financial outcomes, such as effective tax rates. Thus, the incremental improvement from 7.13% to 8.52% aligns with findings in the literature indicating that corporate governance and moderation variables, while individually explaining only a limited portion of the variance, collectively add meaningful insight into the complexities of corporate behaviors.

Table 5.
Linear regression, correlated panels corrected standard errors (PCSEs).

Variables	Model 2 with MO	ETR	
	Coef.	z-stat	p-value
BOSIZEMO	-0.028	-2.24	0.025
DCOMPMO	0.017	0.24	0.812
FEMALEMO	-0.233	-2.56	0.011
DREMMO	0.004	3.39	0.001
CEODUALMO	-0.046	-0.59	0.552
CONS	0.054	0.89	0.376
R-Square		0.0852	
Prob > F		0.000	

Note: ETR = Effective tax rate; BOSIZEMO = Board size * Managerial ownership; DCOMPMO = Director competency * Managerial ownership; FEMALEMO = Female director *Managerial ownership; DREMMO = Director's remuneration * Managerial ownership; CEODUALMO = CEO duality * Managerial ownership.

Table 6.
Comparison of Direct and Indirect Regression Results.

Governance Variable	Direct Model (Coefficient)	Moderated Model with MO (Coefficient)	Direct Model (Significance)	Moderated Model (Significance)
BOSIZE	0.001	0.016	p-value = 0.702; Not significant	p-value = 0.025; Significant
DCOMP	-0.0253	-0.341	p-value = 0.476; Not significant	p-value = 0.812; Not significant
FEMALE	0.086	0.209	p-value = 0.052; Marginally significant	p-value = 0.011; Significant
DREM	0.001	0.003	p-value = 0.677; Not significant	p-value = 0.552; Significant
CEODUAL	-0.022	0.000	p-value = 0.026; Significant	p-value = 0.552; Not significant
R-square	0.0713	0.0852		
Prob > F	0.000	0.000		

Note: BOSIZE = Board size; DCOMP = Director competency; FEMALE = Female director; DREM = Director's remuneration; CEODUAL = CEO duality; MO = Managerial ownership.

Examining the direct model (without moderation) and the moderated model (with MO), it can be observed in Table 6 that they are very different in terms of both significance and explanatory power. When MO is added, the R-squared value goes up from 0.0713 to 0.0852. This means that the moderated model does a better job of capturing the complexities of the manner businesses pay taxes. This improvement, though small, shows how important it is to include interaction effects in order to get a better understanding of governance arrangements. Adding MO shows strong interaction effects with board size, the number of female directors, and director pay. These effects were either weak or didn't happen at all in the direct model. The results show that MO aligns the interests of management and shareholders and makes certain governance systems more effective at lowering the ETR.

The negative relationship between board size and MO suggests that more ownership makes the board better at reducing tax avoidance, aligning tax strategies with shareholder interests, and following governance standards. With a significant coefficient of −0.02771 ($p = 0.025$), this result confirms that when managers own stock, they have more power to stop aggressive tax behavior. The interaction between director competency and MO is insignificant (coefficient = 0.01720, $p = 0.812$), indicating that MO does not moderate the impact of director competency on ETR, and their combined influence does not significantly affect corporate tax outcomes. The interaction between female director presence and MO is negative and significant (coefficient = −0.23347, $p = 0.011$), indicating that higher managerial ownership strengthens the impact of female directors in reducing ETR and curbing aggressive tax practices. The interaction between director remuneration and MO is positive and significant (coefficient = 0.00441, p = 0.001), indicating that higher remuneration, when paired with strong MO, leads to increased ETR and encourages more compliant tax behavior. The interaction between CEO duality and MO is statistically insignificant (coefficient = −0.04623, p = 0.552), indicating that MO does not moderate the relationship between CEO duality and ETR. External governance factors appear more influential in this context.

Regression results revealed that profitability, leverage, female directors, CEO duality, and managerial ownership significantly affect ETR, while board size, director competency, and remuneration did not. MO moderated relationships with board size, female directors, and remuneration, highlighting its complex role in tax planning.

5. Conclusion

This study empirically investigates the direct relationship between corporate tax avoidance, represented by the effective tax rate and selected financial indicators and governance mechanisms among Malaysian public-listed firms from 2021 to 2023. Grounded in agency theory, the research assesses whether firm-specific financial performance (profitability and leverage) and governance attributes (board size, director competency, female board representation, director remuneration, and CEO duality) influence tax behaviour [28]. Findings reveal that tax avoidance in Malaysia is significantly shaped by financial and governance factors. Using PCSE regression, the analysis shows that profitability, measured by return on equity, is negatively associated with effective tax rate. This confirms that highly profitable firms are more likely to engage in tax minimization strategies. This behaviour aligns with agency theory, which posits that managers in profitable firms may adopt aggressive tax strategies to enhance performance [8, 67].

Despite the conventional wisdom that debt financing allows for tax shelters through interest deductibility, a study by Ali, et al. [34] found that leverage correlates positively with the effective tax rate. The advantages of debt-based tax planning may be limited in Malaysia due to legislative constraints or creditor scrutiny [68]. Another possibility is that heavily indebted companies will pay more in taxes since they are being prudent with their money to keep their credit ratings intact [60]. A slightly positive correlation between female board representation and effective tax rate suggests that companies with more gender diversity in their leadership are less likely to engage in aggressive tax avoidance strategies. According to previous research [11] female directors are more likely to be cautious and ethically sensitive. The conclusion has policy implications for promoting gender diversity as an effective practice in governance even though it is marginal.

CEO duality has a significant negative relationship with effective tax rate which indicates that power intensity in a sole leadership role increases tax avoidance. This reflects agency concerns that reduced board independence can lead to weakened oversight and opportunistic managerial behavior [69, 70]. However, there is no statistically significant relationship between board size, director competency, or compensation, indicating that these variables may not have separate effects on tax strategies in this setting [3]. The extended model's introduction of managerial ownership correlates negatively with effective tax rate. Owners that manage a company tend to prioritize the interests of shareholders, such as minimizing taxes, as highlighted in agency theory [11, 71]. It especially shows the significance of managerial ownership in mitigating the link between governance mechanisms and business tax behavior. It is hereby proved that if managers own a significant part of the company, it's more likely that their interests are to be in line with those of shareholders. This can help solve agency problems and stop people from planning aggressive tax strategies. However, when ownership is too concentrated in the hands of senior executives, governance systems may not work as well, especially if board scrutiny is poor. This makes it more likely that people may avoid paying taxes.

This dynamic is especially important in Malaysia, where family-owned businesses and concentrated ownership structures are prominent. These arrangements often change the way people rule [2]. One possible explanation for the inverse relationship between company size and effective tax rates, when considering other factors, is that larger companies tend to have better access to tax specialists [20]. Yet, the slow pace of bureaucracy or outdated systems might explain the significant link between how long a company has been around and the number of employees it has. The findings confirm that corporate tax avoidance in Malaysia is heavily influenced by financial and governance systems. Most important are profitability, leverage, gender diversity, the number of chief executive officers, and the percentage of ownership held by managers. Theoretically, the study reinforces agency theory by showing how managerial incentives and governance oversight shape tax planning decisions, especially within the institutional dynamics of an emerging market [28].

Particularly, how the role of managerial ownership is an important variable that affects corporate governance structure and conduct has an influence over taxation behaviours. This gives a new insight on how ownership stake can either undermine or enhance governance in tax strategies for companies. From a policy standpoint, the study suggests that improving tax compliance requires both statutory reform and better governance practices. Regulators and investors should promote gender diversity, limit CEO duality, and enhance transparency in board functions. Also, promoting a balance of managerial ownership that aligns management interests with those of shareholders could make corporate governance even stronger and lower the number of people who try to avoid paying taxes. Boards should also align their structures with broader compliance goals.

This study acknowledges limitations whereby the use of effective tax rate alone may not fully capture tax avoidance, and the exclusion of unlisted firms affects generalizability. However, the stratified sampling approach, robust econometric techniques, and three-year scope ensure the reliability of results. Future research should consider alternative tax proxies, longer study periods, and cross-country comparisons to advance understanding of global corporate tax behaviours. In conclusion, this study confirms that financial strength and governance dynamics, including managerial ownership substantially influence tax avoidance practices in Malaysia. It offers empirical insights for academic and regulatory debates, contributing to the advancement of transparent, ethical, and accountable corporate governance.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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