

Audit, Gender, and Taxes: The Interplay Between Female CEOs and Big Four Auditors

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ABSTRACT

This research examines the relationship between CEOs' gender and the presence of top-tier external auditors, specifically those from the Big Four, with corporate tax avoidance practices in Indonesia. Based on agency theory and considering Indonesia's unique institutional landscape, where women remain underrepresented in executive leadership, the study explores how gender and audit quality influence corporate financial behavior. Using 1,001 firm-year observations from publicly listed Indonesian companies between 2021 and 2023, regression analysis tested the effects of female leadership and Big Four auditors on tax strategies. Findings reveal that companies led by female CEOs tend to engage in higher levels of tax avoidance. However, when Big Four auditors are involved, this relationship weakens, demonstrating the role of high-quality audits in curbing managerial discretion and enhancing accountability. The study offers fresh insights into corporate governance in emerging markets.

Keywords: Female CEO; big four; tax avoidance; agency theory; gender diversity theory Indonesia; corporate governance.

INTRODUCTION

Tax avoidance continues to cause serious problems for modern tax systems, especially as corporations grow more adept at crafting complex strategies to reduce their tax burdens [12]. While earlier research often focused on structural or regulatory factors, more recent studies have started to consider how leadership traits—particularly gender diversity in top management—may shape corporate tax behavior [32][38][9][24]. It is widely suggested that female leaders may approach tax decisions differently, influenced by their distinct risk profiles and ethical considerations [19]. However, how these tendencies interact with external checks and controls—such as auditing—remains insufficiently examined, especially within the context of developing economies.

In Indonesia, the institutional landscape presents unique complexities. Transparency and corporate accountability remain limited [27], and the presence of women in executive roles is still far from equitable [21]. At the same time, the country faces substantial fiscal challenges, with annual tax avoidance losses estimated at 1.8% of GDP [2]. These conditions underscore the pressing need for stronger oversight. In this regard, external auditors—particularly those from the Big Four—play a pivotal role by enforcing global standards and exerting reputational pressure that can restrain aggressive tax practices.

While female CEOs are attracting increasing scholarly and public interest, their influence on corporate fiscal behavior remains a topic that is not yet fully understood. Prior studies suggest that women in top executive roles often exhibit lower tolerance for risk, which can lead to either conservative or, under certain institutional pressures, aggressive tax strategies [35][20]. On the other hand, Big Four audit firms—renowned for their rigorous adherence to compliance and governance standards—have consistently demonstrated their ability to limit excessive tax avoidance [15]. Still, the question of how female leadership and audit quality interact in influencing corporate tax decisions remains underexplored, especially in complex and evolving institutional settings like Indonesia.

This study seeks to fill that gap by examining how the combination of female CEO leadership and the involvement of external auditors affects a firm's tax avoidance behavior. The analysis employs regression techniques to test the proposed hypotheses, drawing on data from 1,001 firm-year observations of publicly listed companies on the Indonesia Stock Exchange (IDX) between 2021 and 2023. The results reveal a notable trend: firms led by female CEOs tend to exhibit higher levels of tax avoidance. However, when these firms are audited by Big Four accounting firms, the tendency toward tax avoidance is significantly reduced. These patterns remain consistent even when using Coarsened Exact Matching (CEM) regression, underscoring the robustness of the findings.

Although the presence of female CEOs has gained increasing attention in management and finance literature, their actual impact on corporate fiscal behavior remains a subject of debate. [14][40] suggest that female participation in board positions is positively correlated with tax avoidance practices. Conversely, research by [17][22][10] finds that the presence of women on corporate boards can reduce the likelihood of firms engaging in tax avoidance activities. These contrasting findings show the need for a deeper understanding of contextual factors, such as leadership style and institutional environment. Emphasizes that female CEOs tend to have lower risk tolerance, which may lead to more conservative tax strategies or, alternatively, the opposite, depending on the strength of institutional governance surrounding the firm [20][35].

In this context, the presence of Big Four auditors, known for their high compliance standards, can function as a control mechanism. Studies by [7][28] demonstrate the Big Four's ability to curb excessive tax avoidance practices. However, the interaction between female leadership and audit quality in shaping corporate tax strategies remains underexplored, particularly in countries with complex and dynamic institutional environments such as Indonesia.

This study aims to offer meaningful contributions on both theoretical and practical fronts. On the theoretical side, it advances agency theory by integrating gender considerations and acknowledging the unique institutional realities of developing countries. While earlier research often casts female CEOs as inherently more ethical and compliant [24][6], the findings here suggest that leadership behavior is shaped not only by individual traits but also by the broader institutional context. In environments with weak governance or intense performance pressures, systemic demands may constrain or override the personal prudence and ethical inclinations of a female CEO.

From a practical standpoint, the results demonstrate the value of reinforcing oversight mechanisms—particularly in companies led by women at the executive level. Engaging Big Four auditors appears to enhance corporate discipline and promote fiscal accountability. Given the government's ongoing efforts to boost tax revenue and tighten corporate governance standards, these findings highlight the need for alignment between internal reforms and the assurance provided by high-quality external audits.

This paper unfolds across four main parts. The subsequent section lays out the conceptual groundwork and introduces the study's proposed hypotheses. Following this, there's an explanation of where the data came from and the methods used for

analysis. The fourth part then presents the findings from the analysis, accompanied by a thorough discussion of what they mean. The final part wraps things up by summarizing the most important takeaways, acknowledging any shortcomings of the study, and suggesting potential avenues for future investigation.

Grand Theory and the Institutional Context in Indonesia

Agency theory, first introduced by [23], points out the potential for conflict when shareholders (as principals) entrust managers (as agents) with decision-making authority. These agents may pursue their interests, which don't always align with those of the owners. Tax avoidance is a prime example of where such conflicts can surface, as it involves complex, strategic choices that affect both a firm's regulatory standing and long-term reputation. The problem is further amplified by information asymmetry; managers typically have far greater insight into the firm's actual tax position than shareholders do, giving them room to make decisions that may not serve the broader interests of the company [37].

Gender diversity theory, which emerges from various disciplines such as sociology, psychology, and management, highlights how differences in gender composition within a group can influence social dynamics, decision-making processes, and organizational effectiveness. Gender is a social status shaped through social, cultural, and psychological processes, rather than merely a personal trait or characteristic [25]. Traditionally, women are associated with qualities such as interpersonal orientation, empathy, and concern for the well-being of others. Organizational settings expect gender diversity, which includes the representation of women in managerial positions, to enhance perspectives, foster creativity, and improve decision-making processes [3]. However, despite women's inclination toward social responsibility and ethical values, their participation in top executive positions such as CEO remains limited, and they often constitute a minority within male-dominated corporate environments [8].

The minority status of female CEOs reflects the persistent influence of social norms and structural barriers that hinder women's access to top managerial positions [36]. Women who successfully attain these roles typically exhibit high levels of competence, a strong performance orientation, and a motivation to prove themselves in the face of heightened expectations and stereotypes demanding exceptional performance. Under such pressure, adopting aggressive strategies such as tax avoidance can serve as a means for female CEOs to maintain their legitimacy and credibility among stakeholders.

Thus, while gender diversity is generally associated with enhanced corporate social responsibility [46], within the context of minority status and intense social pressure, female CEOs may adopt alternative approaches to corporate fiscal strategies. This phenomenon can be analyzed through the lens of social position theory and gender diversity theory, both of which highlight how social and cultural dynamics shape individuals' strategic behavior within organizations, including decisions related to tax avoidance.

In Indonesia, these agency-related concerns are magnified by institutional weaknesses. Oversight mechanisms are often ineffective, corporate governance practices are not uniformly applied, and transparency remains a persistent challenge [27]. These structural shortcomings make it easier for managers to engage in aggressive tax strategies without facing meaningful consequences. Compounding the issue, Indonesia continues to struggle with tax collection efficiency, losing an estimated 1.8% of GDP annually to tax avoidance [2]. This situation makes the issue not only a matter of corporate governance but also a pressing concern for fiscal policy and national development.

Hypothesis Development

Agency theory suggests that the connection between company owners (principals) and the management team (agents) often involves differing interests, arising from their distinct objectives and levels of information access [38]. Given that executives—especially the CEO—typically possess more comprehensive knowledge of internal company affairs, their actions may not always prioritize the shareholders' best interests. Tax avoidance, while within legal boundaries, serves as one illustration of such self-serving behaviour. It carries potential hazards, notably concerning regulatory adherence and public image [5].

The level of taxpayer compliance in Indonesia is less than it should be, which is 15%, as stated by the Minister of Finance of the Republic of Indonesia, Sri Mulyani. From 2017 to 2021, the highest tax ratio was in 2018, which was 10.24%. Based on the data in the table above, it shows that the level of taxpayer compliance is still very low. This means that many taxpayers who have large incomes do not participate in being part of the people who comply with the growth of national development [37]. Generally, studies indicate that female CEOs tend to display greater prudence, a stronger leaning towards compliance, and increased awareness of reputational risks [19]. These characteristics might suggest a reduced probability of pursuing aggressive tax strategies. [24] observed that firms with female

representation on their boards demonstrated significantly less involvement in tax avoidance within the U.S. context.

However, the institutional and cultural realities in Indonesia complicate this narrative. The number of women in top executive roles remains limited, a reflection of deeply rooted societal norms and structural obstacles. As a result, women who do break through and ascend to CEO roles often represent a particularly high-achieving and driven group—individuals with strong performance orientation and a need to demonstrate their capabilities under heightened scrutiny [41]. In such environments, delivering strong short-term financial results can become a top priority, which may include the use of tax avoidance strategies that are legally permissible but ethically ambiguous as a way to boost firm value and win the confidence of shareholders and board members. The presence of women in organizations is crucial in resource dependency theory to build relationships with external networks. Female board directors show a large company resource that transcend traditional male characteristics. Companies now have access to resources with various specializations, including legal counsel, credibility, and communication channels [43].

Viewed through the lens of agency theory, this evidence indicates that while female CEOs may possess ethical dispositions, these personal values can be overridden by external pressures—especially when operating in a context where they are a minority and where internal controls remain weak. In Indonesia, the often insufficient corporate oversight mechanisms may unintentionally encourage even ethically inclined leaders to engage in opportunistic actions. As such, the gender imbalance in leadership combined with underdeveloped governance structures reinforces the explanatory power of agency theory in understanding why female CEOs might also participate in tax avoidance strategies.

H₁: Female CEOs are likely to engage in higher levels of tax avoidance.

According to agency theory, outside auditors act as an unbiased review of company management, which can help lessen the potential for disagreements between the owners (shareholders) and the top executives [31]. Specifically, auditors from the well-known 'Big Four' firms have a lot riding on their reputation and must follow strict professional guidelines. Such an approach makes the financial reports more believable and makes it harder for managers to get away with self-serving actions like trying to avoid taxes [30].

The way oversight works becomes a bit more complex when a woman is leading the company as

CEO. While some earlier studies suggest that female leaders often show stronger ethical principles and a greater tendency to follow regulations [24][6], these personal qualities might be challenged by the circumstances they're in. In corporate settings where men are typically in charge, female CEOs often have to both prove they're capable and meet really high expectations for how well the company performs [41]. This kind of pressure can push them to use strategies, including tax avoidance, to show strong financial results and earn respect from those who have a stake in the company.

The greater the moral awareness of taxpayers, the greater the tendency not to commit tax evasion. This study indicates that the taxpayer morality level among the respondents has evolved due to intrinsic motivation. The intrinsic motivation underlying tax payments by taxpayers can control taxpayer fraudulent behavior. Taxpayer moral awareness can deter taxpayers who are not afraid of coercive power, such as sanctions and the likelihood of audits, from committing tax evasion. As rational individuals with economic considerations, taxpayers view taxes as a burden [45].

In such contexts, the role of Big Four auditors becomes even more critical. These firms are known for enforcing strict audit protocols, including detailed scrutiny of tax-related decisions and thorough documentation of complex transactions. Their global reputation also makes them more averse to being associated with aggressive tax planning schemes. As a result, their presence can significantly reduce the space for discretionary behavior by management, narrowing the information gap between executives and shareholders. In doing so, Big Four auditors not only strengthen financial transparency but also serve as a moderating force that curbs potentially risky tax strategies—particularly in firms where institutional pressures may otherwise influence decision-making [44].

H₂: Big Four auditors can reduce the tendency of female CEOs to engage in tax avoidance.

RESEARCH METHOD

Figure and Tables

The data for this research originates from non-financial companies listed on the Indonesia Stock Exchange (IDX) spanning the years 2021 to 2023. These non-financial entities hold a significant position in propelling the national economy and adhere to financial reporting standards distinct from those governing financial institutions, which function under specific regulatory and operational structures [26]. The initial dataset comprised 2,424 firm-year observations. To maintain the analysis's

rigor, companies reporting net losses, those with incomplete data, and statistical outliers were removed. Following this refinement process, the final dataset encompasses 1,001 firm-year observations. Specifics regarding the sample selection criteria and filtering process are detailed in Table 1.

Table 1. Sample Selection Procedure

Descriptions	Firm-years
Number of firm-years with available information	2,424
(-) Firms with net loss	559
(-) Missing data: GAAP_ETR	98
(-) Missing data: Female CEO	672
(-) Missing data: BIG 4	13
(-) Firms with GAAP < 0 or > 1	81
Total sample observations	1,001

Source: Authors' own creation

As shown in Table 2, most of the companies in the research sample are from the manufacturing sector, particularly those involved in processing raw materials or assembling components (SIC 2). In contrast, the fewest observations come from the service industry (SIC 8), which includes sectors such as healthcare, legal services, education, and consulting. This distribution aligns with the findings of [34], who noted that manufacturing continues to play a dominant role in Indonesia's economic structure, while growth in the professional services sector has remained relatively modest in comparison.

Table 2. Industry Distribution

SIC	Frequency	Percent	Cumulative
0 (Agriculture, Forestry, and Fishing)	66	6.590%	6.590%
1 (Mining and Construction)	128	12.790%	19.380%
2 (Manufacturing 1)	265	26.470%	45.850%
3 (Manufacturing 2)	151	15.080%	60.940%
4 (Transportation, Communications, and Utilities)	180	17.980%	78.920%
5 (Wholesale and Retail Trade)	104	10.390%	89.310%
7 (Service 1)	72	7.190%	96.500%
8 (Service 2)	35	3.500%	100%
Total	1,001	100%	

Source: Authors' own creation

Operational Definition and Measurement

This study examined financial data from company financial statements. We gathered information regarding CEO characteristics, external auditors, and board composition from annual reports. The main focus of the analysis is corporate tax avoidance (TA). As noted by [11], a company's tax liability generally includes both current and deferred taxes. Current tax denotes the amount due based on

taxable income for the current year, while deferred tax stems from differences in timing—specifically, the gap between the accounting value of assets or liabilities and their tax value [33]. Aligning with previous investigations [33][29][7][1], tax avoidance is indicated by GAAP_ETR, a measure that reflects various methods used to decrease tax obligations, such as tax planning or the use of tax havens. We determine GAAP_ETR by dividing total tax expense by pre-tax income, which yields values between 0 and 1, excluding loss-reporting firms. A lower GAAP_ETR signifies a stronger association with tax avoidance.

The primary independent variable is the existence of a female CEO (FEMALECEO), represented as a binary variable that assigns a value of one if the CEO is female in a particular year and zero otherwise [18]. Concurrently, the moderating variable is BIG4, which signifies whether the company’s external auditor is one of the Big Four accounting firms: PwC, Deloitte, KPMG, or Ernst & Young (EY). We also quantified this condition using a binary variable, where one indicates the engagement of a Big Four auditor, and zero otherwise [35].

To strengthen the analysis, several control variables are included based on established literature [1][4][39]. At the firm level, controls include company size (FSIZE), measured using the natural logarithm of total assets; profitability (ROA), calculated as net income divided by total assets; and leverage (DAR), defined as the ratio of total liabilities to total assets. At the board level, the study accounts for board size (BSIZE), representing the total number of directors and commissioners, as well as the proportion of independent commissioners (INDCOM) serving on the board. In addition, the model incorporates industry and year dummy variables to account for sectoral differences and time-related effects that could exhibit a relationship with tax avoidance trends [42].

Research Design

This study employs a regression model composed of three equations. Equation [12] investigates the relationship between a female CEO and tax avoidance, without considering the presence of external auditors. Equation [32] explores the relationship between a female CEO and tax avoidance while incorporating external auditors into the analysis. Lastly, Equation [38] analyses the interaction between a female CEO and external auditors in relation to tax avoidance. Prior to analysis, the data in this study underwent a process of winsorization at the 1st and 99th percentiles to mitigate the effect of extreme outliers.

$$TA_{i,t} = \beta_0 + \beta_1 FEMALECEO_{i,t} + \beta_2 BSIZE_{i,t} + \beta_3 INDCOM_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 DAR_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Year FE_{i,t} + \beta_8 Industry FE_{i,t} + \epsilon_{i,t} \dots \dots \dots (1)$$

$$TA_{i,t} = \beta_0 + \beta_1 FEMALECEO_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 BSIZE_{i,t} + \beta_4 INDCOM_{i,t} + \beta_5 FSIZE_{i,t} + \beta_6 DAR_{i,t} + \beta_7 ROA_{i,t} + \beta_8 Year FE_{i,t} + \beta_9 Industry FE_{i,t} + \epsilon_{i,t} \dots \dots \dots (2)$$

$$TA_{i,t} = \beta_0 + \beta_1 FEMALE_BIG4_{i,t} + \beta_2 FEMALECEO_{i,t} + \beta_3 BIG4_{i,t} + \beta_4 BSIZE_{i,t} + \beta_5 INDCOM_{i,t} + \beta_6 FSIZE_{i,t} + \beta_7 DAR_{i,t} + \beta_8 ROA_{i,t} + \beta_9 Year FE_{i,t} + \beta_{10} Industry FE_{i,t} + \epsilon_{i,t} \dots \dots \dots (3)$$

RESULTS AND DISCUSSION

Descriptive Statistics

Table 3 presents a summary of the descriptive statistics for the variables in this study. These statistics include the mean, median, minimum, maximum, and data dispersion (standard deviation). For the tax avoidance (TA) variable, the average is 0.237 with a standard deviation of 0.144. This figure indicates that the level of tax avoidance among companies in the sample varies considerably, ranging from 0.000 to 0.822. The median value of 0.221 suggests that half of the companies in the sample exhibit tax avoidance levels below this point.

The numbers 0 and 1 represent the Female CEO (FEMALECEO) and Big Four auditor (BIG4) variables. The mean for FEMALECEO is 0.084, and the median is 0.000. This suggests that male CEOs led the majority of companies in the sample. Conversely, one of the Big Four accounting firms audited approximately 31% of the companies in the sample.

Table 3. Descriptive Statistics

	Mean	Median	Minimum	Maximum	SD
TA	0.237	0.221	0.000	0.822	0.144
FEMALECEO	0.084	0.000	0.000	1.000	0.277
BIG4	0.310	0.000	0.000	1.000	0.463
BSIZE	8.008	7.000	4.000	19.000	3.260
INDCOM	1.568	1.000	1.000	4.000	0.769
FSIZE	28.440	28.439	23.539	32.574	1.903
DAR	0.399	0.391	0.024	1.246	0.220
ROA	0.072	0.053	0.001	0.481	0.073

Source: Authors’ own creation

Correlation Matrix

Table 4 presents the outcomes of the correlation matrix analysis. The study identifies a negative correlation between female CEO presence (FEMALECEO) and tax avoidance (TA) at the 5% significance level. This finding supports the notion that companies with female CEOs may exhibit a

tendency towards higher levels of tax avoidance. The analysis also examines the potential for multicollinearity among the independent variables. The highest correlation coefficient identified is between board size (BSIZE) and independent board composition (INDCOM), registering at 0.754. Given that this correlation remains below the established threshold for multicollinearity (0.800), as noted in [4], it does not pose a substantial concern.

Table 4. Correlation Matrix

	[1]	[2]	[3]	[4]
[1] TA	1.000			
[2] FEMALECEO	-0.073** (0.021)	1.000		
[3] BIG4	0.026 (0.417)	0.047 (0.140)	1.000	
[4] BSIZE	0.017 (0.589)	-0.012 (0.703)	0.457*** (0.000)	1.000
[5] INDCOM	0.045 (0.156)	-0.037 (0.247)	0.448*** (0.000)	0.754*** (0.000)
[6] FSIZE	-0.055* (0.085)	-0.023 (0.472)	0.536*** (0.000)	0.694*** (0.000)
[7] DAR	0.156*** (0.000)	-0.060* (0.058)	0.091*** (0.004)	0.164*** (0.000)
[8] ROA	-0.325*** (0.000)	0.157*** (0.000)	0.233*** (0.000)	0.129*** (0.000)
[5] INDCOM	1.000			
[6] FSIZE	0.641*** (0.000)	1.000		
[7] DAR	0.132*** (0.000)	0.294*** (0.000)	1.000	
[8] ROA	0.042 (0.186)	0.102*** (0.001)	-0.218*** (0.000)	1.000

Source: Authors' own creation

Independent T-Test

Table 5. Independent T-test

	FEMALE CEO	MALE CEO	Coef	t-value
TA	0.198	0.241	-0.043***	-2.631
BIG4	0.381	0.303	0.078	1.476
BSIZE	7.762	8.031	-0.269	-0.723
INDCO	1.512	1.574	-0.062	-0.704
M				
FSIZE	28.342	28.449	-0.107	-0.492
DAR	0.354	0.403	-0.049**	-1.964
ROA	0.099	0.070	0.029***	3.447

Source: Authors' own creation

Table 5 presents the findings from the independent t-test analysis, highlighting a notable distinction between companies with female CEOs and those with male CEOs, particularly concerning tax avoidance practices. The analysis reveals that the average tax avoidance (TA) figure for firms headed by female CEOs is lower than that of firms

headed by male CEOs. This difference amounts to -0.043 and is statistically significant at the 1% level. Given the inverse interpretation of the TA value (where a higher value signifies less tax avoidance), this outcome suggests that companies under female leadership tend to exhibit higher levels of tax avoidance.

Regression Analysis

Table 6 presents the regression analysis outcomes for each proposed hypothesis. Model 1 demonstrates a statistically significant negative coefficient for female CEOs ($\beta = -0.021$, $t = -2.14$, $p < 0.05$), providing evidence for Hypothesis 1, which posits that female CEOs exhibit a greater likelihood of involvement in tax avoidance practices. Model 2 indicates that the coefficient for female CEOs maintains its negative and statistically significant status even with the inclusion of the BIG4 variable in the model. Furthermore, Model 2 reveals a statistically significant positive effect for the BIG4 variable ($\beta = 0.034$, $t = 3.36$, $p < 0.01$), suggesting a tendency for companies audited by Big Four accounting firms to engage in lower levels of tax avoidance. Model 3 explores the interplay between female CEOs and external auditors regarding tax avoidance. The interaction coefficient for FEMALE_BIG4 is statistically significant and positive ($\beta = 0.034$, $t = 2.00$, $p < 0.05$), supporting Hypothesis 2, which suggests that Big Four auditors can mitigate the propensity of female CEOs to participate in tax avoidance activities.

Table 6. Main Regression

	(1) TA	(2) TA	(3) TA
FEMALE_BIG4			0.034** (2.000)
FEMALECEO	-0.021** (-2.140)	-0.024** (-2.510)	-0.036*** (-2.810)
BIG4		0.034*** (3.360)	0.031*** (2.840)
DAR	0.096*** (3.860)	0.099*** (3.990)	0.098*** (3.980)
BSIZE	-0.001 (-0.640)	-0.002 (-0.810)	-0.002 (-0.770)
INDCOM	0.021** (2.470)	0.019** (2.190)	0.018** (2.080)
ROA	-0.478*** (-7.370)	-0.512*** (-7.740)	-0.515*** (-7.740)
FSIZE	-0.009** (-2.550)	-0.012*** (-3.380)	-0.012*** (-3.300)
_cons	0.483*** (5.200)	0.572*** (5.980)	0.566*** (5.920)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
R ²	0.124	0.132	0.133
R ² Adjusted	0.110	0.118	0.118
N	1,001	1,001	1,001

Source: Authors' own creation

Endogeneity Tests

One perspective on endogeneity posits that sample data may only allow for partial comparison, introducing the potential for bias if the characteristics across observations lack sufficient representativeness of one another. This gives rise to sample selection bias [16]. Within business and management research, matching techniques, such as Coarsened Exact Matching (CEM), are frequently employed to mitigate this issue (Nasih et al., 2022).

This study applied CEM by categorizing the sample into two primary groups—treatment and control—based on the independent variable, namely the presence of a female CEO. The researcher matched observations within both groups using all control variables across three strata to establish equivalent pairs. Table 7 presents the regression outcomes derived from the CEM method.

Table 7. Coarsened Exact Matching Regression

	0	1	
All	917	84	
Matched	834	80	
Unmatched	83	4	
	(1)	(2)	(3)
	TA	TA	TA
FEMALE_BIG4			0.043** (2.46)
FEMALECEO	-0.017* (-1.66)	-0.020** (-1.97)	-0.034*** (-2.69)
BIG4		0.030*** (2.86)	0.025** (2.24)
DAR	0.084*** (3.01)	0.086*** (3.08)	0.086*** (3.09)
BSIZE	-0.001 (-0.38)	-0.001 (-0.52)	-0.001 (-0.46)
INDCOM	0.015 (1.52)	0.013 (1.30)	0.012 (1.21)
ROA	- 0.617*** (-7.05)	-0.652*** (-7.42)	-0.655*** (-7.41)
FSIZE	-0.009** (-2.38)	-0.012*** (-3.00)	-0.012*** (-2.93)
_cons	0.504*** (5.03)	0.578*** (5.63)	0.571*** (5.58)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
R ²	0.136	0.142	0.143
R ² _Adjusted	0.122	0.127	0.127
N	914	914	914

Source: Authors' own creation

This table presents the results based on 914 firm-year observations. The reduction in the number of observations is attributable to the matching criteria applied during the CEM process. The results of CEM regression demonstrate consistency with the main regression analysis. These outcomes suggest that, even when considering only highly similar

observations, the presence of a female CEO maintains a strong association with tax avoidance behaviour. Furthermore, the findings emphasize that the presence of a Big Four auditor helps reduce the likelihood of a female CEO engaging in tax avoidance practices. Therefore, the researcher infers that endogeneity concerns do not significantly influence the results of this study.

Discussion

The data presented reveals a significant association between the presence of a female CEO and higher levels of tax avoidance, as indicated by the negative and significant coefficient in. This outcome suggests that, within the Indonesian setting, female CEOs do not necessarily demonstrate a stronger preference for tax compliance, a notion often assumed in studies conducted in developed nations [24][13]. This supports the idea that the individual characteristics of female CEOs may be shaped by systemic pressures and high expectations for performance, particularly within institutional environments that do not fully support gender equality.

These findings align with the argument that minority positions within power structures often create added pressure for female CEOs to demonstrate their competence through robust financial results [41]. Under such circumstances, individuals may view tax avoidance strategies as logical tools to demonstrate efficiency and short-term success, as long as they stay within legal boundaries. Therefore, these results highlight that tax avoidance practices by female CEOs are intertwined with the institutional conditions that shape organisational behaviour, rather than being solely attributed to inherent gender-based traits. The results challenge the common assumption that female CEOs inherently exhibit stronger tax compliance behaviors. Institutional pressures, rather than intrinsic gender-based preferences, appear to shape their tax strategies.

Furthermore, the data indicate that the presence of Big Four auditors plays a crucial role in reducing the level of tax avoidance, both directly and through interaction effects that weaken the relationship between female CEOs and tax avoidance. The positive and significant interaction coefficient of FEMALE_BIG4 suggests that companies led by female CEOs and audited by Big Four accounting firms exhibit lower levels of tax avoidance compared to those led by female CEOs but not audited by the Big Four. Female CEOs, as minority actors in leadership positions, may face heightened performance pressure. Within the agency framework, this pressure can incentivize tax avoidance as a means to demonstrate short-term financial success while maintaining their leadership credibility.

This outcome confirms that the presence of globally reputable external auditors can strengthen monitoring and control functions in vulnerable agency situations, particularly in complex managerial contexts where companies are led by minority actors. With their professional resources, stricter auditing systems, and high reputational risk, Big Four auditors can limit managerial flexibility in implementing aggressive tax strategies. These findings are consistent with agency theory, which positions auditors as external governance mechanisms that help balance information asymmetry between principals and agents [30].

Within the Indonesian context, where governance challenges persist, Big Four auditors play a strategic role as substitutes for weak internal oversight. Therefore, the success of the Big Four in curbing tax avoidance by female CEOs not only reflects the effectiveness of auditor professionalism but also highlights the importance of strengthening external oversight systems in less developed institutional environments.

CONCLUSION

This study explores the dynamics among CEO gender characteristics, external monitoring mechanisms, and corporate tax avoidance practices within the Indonesian setting. The analysis reveals that the presence of a female CEO shows an association with a higher level of tax avoidance, yet oversight by Big Four auditors serves to lessen this tendency. These findings underscore the importance of considering institutional pressures and social contexts when evaluating managerial behaviour in developing nations.

This study has significant implications for various stakeholders, including corporate executives, auditors, and policymakers. By examining the interaction between female leadership and the audit by the Big Four, the findings of this study can provide practical insights that can help in strategic decision-making. First, implications for audit firms: the presence of female CEOs in an organization can affect the audit approach, especially in assessing tax avoidance and corporate governance. Audit firms need to consider that female CEOs tend to be more cautious in their company's fiscal strategy. Therefore, auditors can tailor their recommendations by considering how female leadership can contribute to stricter tax compliance or, in some cases, defensive tax avoidance strategies. Second, implications for corporate boards: boards of directors can use the results of this study to design governance policies that are more adaptive to the leadership characteristics of female CEOs. For example, understanding women's tendencies in decision-

making can help boards evaluate tax policies as well as interactions with audit firms. By considering gender factors in fiscal strategy, corporate boards can ensure a balance between tax optimization and regulatory compliance.

Third, implications for regulators and policymakers: policymakers can use the findings of this study to design regulations that are more responsive to gender diversity in corporate leadership. If female CEOs tend to be more conservative in tax policy, regulators can evaluate whether there is a need to adjust compliance or control mechanisms to be more effective in ensuring a balance between tax incentives and fiscal transparency. In addition, this study can contribute to policies that promote gender equality in the business world, especially in executive roles. Strengthening this aspect of practical implications will bridge the gap between academic research and its real-world application, thereby providing added value to academics and practitioners involved in auditing, corporate governance, and fiscal regulation.

While this study contributes to the body of knowledge on agency theory, gender diversity theory, and corporate governance, certain limitations warrant acknowledgement. Firstly, this research assessed tax avoidance solely through a quantitative method relying on financial reports, which may not fully capture more intricate or concealed tax strategies. Future research could gain from a more encompassing approach that integrates both quantitative and qualitative data, such as detailed interviews with senior managers or auditors, to gain deeper insight into the motivations and institutional pressures underlying tax avoidance decisions. Secondly, this research only examined CEO characteristics in terms of gender, without considering other individual factors such as professional experience, personal values, or educational background, which may also bear a relationship with strategic decisions. Future studies should incorporate these psychological, social, educational, and experiential factors to enrich the analytical model.

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