

## **Tax Avoidance Behavior: The Contribution of Gender Diversity, Education Level, and Firm Size Moderation**

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### **Abstract**

*Taxes are the most significant source of state revenue. From a company's perspective, taxes can also be considered the largest expense. Therefore, top management strives to reduce the company's tax liability. This study aims to confirm the reliability of attribution theory as an approach to explain the impact of gender diversity and education levels on tax avoidance, as well as the role of company size in moderating the relationship model. In this quantitative study, energy and basic material companies listed on the Indonesia Stock Exchange from 2020 to 2023 were the population and sample of the study. The researcher used the Moderated Regression Analysis model to test time series data using SMART-PLS software. Time series data was used because it was considered capable of providing a more accurate view over time, thereby facilitating the researchers' analysis. Based on the first finding, gender diversity had a negative effect on tax avoidance; the second finding was that education level had a positive effect on tax avoidance; the third finding was that company size was able to moderate the relationship between the independent variables and the dependent variable. These findings support all hypotheses proposed by the researcher. The research results support attribution theory in explaining empirical evidence regarding the impact of gender diversity and education level on tax avoidance, as well as the role of company size.*

**Keywords:** Board education Diversity; Board Gender Diversity; Company Size; Tax Avoidance.

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### **INTRODUCTION**

Taxes are one of the state's major sources of revenue (Rahayu, 2020). In 2023, state revenue from taxes amounted to 1,869.2 trillion rupiah ([www.kemenkeu.go.id](http://www.kemenkeu.go.id)). This achievement represents an increase of 8.9% compared to revenue in 2022. However, this figure is still relatively low compared to other countries in Asia, particularly. According to the Tax Justice Network's report titled "State of Tax Justice 2023," Indonesia ranks 9th among Asian countries in terms of tax avoidance behavior, trailing India, Cambodia, the Maldives, Mongolia, the Philippines, Sri Lanka, Taiwan, and Vietnam. It is worth noting that tax avoidance behavior in Indonesia remains high. The losses incurred by the state due to tax avoidance in 2023 reached USD 2,736.5. Tax avoidance practices by companies continue to increase annually (Dayani & Suryandari, 2022). This argument is further supported by indications found by the Directorate General of Taxes (DJP) regarding companies in the energy sector in 2023

([www.CNBCIndonesia](http://www.CNBCIndonesia)). Various tax avoidance schemes are employed by companies, one of which is the establishment of shell companies.

In general, the Company considers taxes to be the most significant expense (Iazzi et al., 2023; Jarboui et al., 2020) . Therefore, the Company strives to reduce its tax liabilities in order to avoid high *compliance costs* (Rahayu, 2020). In recent times, the dynamics occurring within the board of directors have attracted global attention, as this is a key aspect of corporate governance (Ahmed & Hussain, 2024) . Good corporate governance minimizes the risks involved in achieving the company's objectives. In this study, the researcher focuses solely on management heterogeneity, specifically gender diversity and the educational level of the board of directors.

This study aims to investigate the influence of gender diversity and educational level of the board of directors on tax avoidance and to test how company size moderates this relationship. The researcher has not found previous studies that investigate the role of company size in moderating a relationship with tax avoidance . Therefore, the researchers considered including company size as a moderating variable to investigate whether it can influence changes in top management behavior toward engaging in tax avoidance practices. In a study conducted by Mailia and Apollo (2020), it was explained that company size can have an impact on changes in management behavior. Especially large companies tend to be monitored by the public and the government, thereby making company management more cautious in formulating and implementing decisions.

In some cases, previous researchers have used the agency theory (Hossain et al., 2024; Kalbuana et al., 2023) and the compliance theory (Dayani & Suryandari, 2022; Iazzi et al., 2023; Jarboui et al., 2020) as the grand theory to explain the relationship model toward tax avoidance. Although these theories are still relevant for investigating corporate tax avoidance behavior, the researcher aims to explore it from a different perspective through attribution theory. Attribution theory is a theory that explains human behavior (Willey, 2010) . This theory refers to how individuals explain the causes of their own behavior or the behavior of others, which can be determined by internal factors such as traits, character, attitudes, and so on, or external factors such as pressure, situations, or specific conditions that influence individual behavior (Heider, 1958).

The results of this study can provide empirical contributions in the future regarding the relationship between gender diversity and education level on tax avoidance through the perspective of attribution theory. This study can also provide insights into the role of company size in influencing changes in individual behavior. In addition, the results of this study can be used as a basis for management in formulating strategic plans for companies in implementing tax avoidance practices.

Gender diversity in a group can have a different impact compared to the absence of women (Khoirotunnisa, 2021) . Female directors have the potential to influence existing actions and strategic plans in a company. This is because women tend to be more cautious, honest, and conservative. However, the presence of women does not necessarily have a significant influence. According to Lefley & Janeček (2024) , women in the board of directors are a minority group; however, if the percentage of women exceeds a certain threshold, they can have a significant influence. Previous studies

have been conducted to examine the relationship between gender diversity and tax avoidance ( ). The results of these studies indicate that gender diversity has a negative impact on tax avoidance. This is consistent with the behavior of women, who tend to be cautious in their actions. Based on the above discussion, the researcher can draw the conclusion that

H1: Gender diversity has a negative impact on tax avoidance

Education level has a very important influence on company sustainability (Issa et al., 2024) . The presence of a board of directors with an exceptional education level can facilitate the integration of knowledge, experience, and networks toward a broader scope (Issa et al., 2024) . Board members with higher education can differentiate one company from another. Although there are many similarities in the education of board members across companies, knowledge capacity and experience serve as differentiators. (Issa et al., 2024; Khoirotunnisa, 2021) . With sufficient knowledge and experience, companies can reduce their tax liabilities. Attribution theory posits that certain factors can influence individual behavior, whether from internal or external sources. Based on the above discussion, the researcher formulates the following hypothesis:

H2: Education level has a positive effect on tax avoidance

Company size can generally be used to determine company activities, because large companies certainly have more resources for corporate tax planning (Ardyansyah, 2014). Large companies tend to be more cautious in reporting everything to the public (Patriandari and Fitriani, 2019). Therefore, management is required to be more careful in dealing with reputational risks. The presence of women in large companies can make it easier for companies to obtain a more optimal role. The role in question is to be cautious and honest in all matters. This includes women who are members of the board of directors. Thus, the objectives of the company and the principles of women will be aligned. Based on the above description, the following hypothesis can be formulated

H3: Company size moderates the influence of gender diversity on tax avoidance

In this context, company size is one of the external factors influencing top management behavior. Githaiga et al (2022) explain that there are several factors influencing the characteristics of the board of directors, one of which is company size, which includes organizational culture, organizational environment, and organizational governance. Board members with higher education levels have broader experience and knowledge, enabling the company to utilize this to reduce tax burdens. . Not only do they leverage the knowledge they possess, but they also consider other aspects such as reputational risks and risks associated with tax avoidance behavior. Attribution theory views that companies can act as external factors influencing changes in board behavior. Specifically, it measures the extent to which individual behavior is influenced by external factors specific to each individual. Based on the above discussion, the following conclusions can be drawn:

H4: Firm size moderates the influence of educational level on tax avoidance

## METHODOLOGY

This study uses explanatory quantitative research. Explanatory quantitative research is a research approach that tests causal relationships between variables by conducting treatments on research subjects (samples) (Sugeng, 2020:111). The term "treatment" refers to the researcher's actions that represent the independent variable, applied to the research subjects or sample. The population in this study consists of energy and basic material companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023. The population in this study consisted of 186 companies cumulatively. The sampling technique used purposive sampling, considering companies that consistently reported financial and annual reports from 2020 to 2023 and had female members on their board of directors.

The type of data used in this study is secondary data. The secondary data referred to are financial reports and annual reports of companies. The data were collected through the official website of the Indonesia Stock Exchange and the official websites of the companies, then the researcher conducted documentation techniques to collect the research data needed.

In this study, the researcher used research instruments that refer to previous studies.

Gender diversity refers to research conducted by Toukabri and Youssef (2023) with the following instruments

$$\text{Keberagaman Gender} = \frac{\text{jumlah direktur perempuan}}{\text{jumlah direktur keseluruhan}}$$

This instrument is considered more relevant because it is deemed capable of representing the role of women in the board of directors, which tends to be a minority.

The second independent variable in this study is the level of education. According to Issa et al (2024), boards with higher education are able to contribute to the company in the form of a range of skills, expertise, and intellectual capital that can improve the ability of the board of directors to understand complex issues. Other studies also explain that companies with a high educational background are more likely to analyze risks and opportunities that will be faced in the future (. In this study, the researcher adopted the median value of the educational level of the board of directors of each company. In measuring the educational level of the board of directors, this study uses a 5-point scale based on the highest degree obtained. 1 point for a diploma or lower, 2 points for a bachelor's degree, 3 points for professional qualifications, 4 points for a master's degree, and 5 points for a doctorate.

The dependent variable of this study is tax avoidance. Tax avoidance is an effort or attempt by a company to reduce its tax burden or obligations without disregarding tax regulations (Hossain et al., 2025). The tax avoidance variable is measured using the ETR (effective tax ratio), which is considered to help estimate the effectiveness of tax planning activities (Oussii and Klibi, 2023). Using ETR, researchers can investigate the extent to which companies are able to reduce their tax obligations by manipulating profits (Dayani & Suryandari, 2022; Hossain et al., 2024). Company size serves as a moderating variable in this study. To measure the role or impact of company size in the relationship model, researchers use the natural logarithm of total assets (Ln Total Assets) to simplify data with a very wide range of values. With larger values, research results may become biased. According to Kalbuana et al (2023), the natural logarithm is used to measure company size because it is considered to help simplify data with a very wide range of values, such as total assets, without altering the actual proportions.

This study employs the Moderated Regression Analysis (MRA) model to test the relationship model in the research. Before conducting the MRA test, the researchers also performed a series of tests, including descriptive statistics, normality tests, classical assumption tests, and coefficient of determination tests. The purpose of using the MRA test is to examine the extent to which independent variables influence dependent variables and to assess the role of moderating variables in influencing the relationship model.

## RESULTS AND DISCUSSION

This study used secondary data collected from the official websites of the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)) and the official websites of the sample companies. The sample in this study consists of companies in the energy and basic materials sectors that were filtered using purposive sampling, leaving only 35 companies. Data were collected using the documentation technique from annual reports and financial statements of companies during the period 2020-2023, resulting in a cumulative total of 140 data points.

Previous studies have only investigated the relationship between gender diversity and education level on tax avoidance (Hossain et al., 2025; Jarboui et al., 2020, 2020; Kalbuana et al., 2023; Riguen et al., 2020). There is no other empirical evidence regarding the moderating effect of firm size on the relationship model. Therefore, this study aims to provide new reliable knowledge regarding the impact of firm size on the relationship between gender diversity and education level on tax avoidance.

This study seeks to present the results of statistical analysis using the Smart-PLS 4.0 application to test the extent to which the data and results of the study can be interpreted. Therefore, the researcher attempts to present the statistical analysis evidence below.

### Descriptive Statistics

This study presents descriptive statistics aimed at providing an overview of the data used by the researcher. Analysis

Table 1. Descriptive Statistics

	Observations	Average	Minimum	Maximum	Standard Deviation
BGD	140	28.836	9.0	67.00	12,515
EBD	140	104,407	51.00	42.00	20,591
SIZE	140	2872.436	2,527.00	3,218.00	184.734
ETR	140	22,343	-54.00	288.00	38,742

The average BGD value of companies in this study sample reached 28.836. This differs from the study conducted by Ahmed and Husain (2024), which found an average value of 0.8661, and Riguen et al. (2019), which recorded 0.237. Although this study shows a higher value than previous studies, in practice, companies in the energy and basic materials sectors in Indonesia tend to employ fewer women in executive board positions.

The average value of the Education Level of the Board of Directors (EBD) variable is 104.407. This result indicates that energy and basic material companies in Indonesia with female board members tend to consider the education level of their directors. This result differs from the study by Tan et al (2019), which showed that the average education level of the board was 2.08.

The average company size in this study reached 2,872.44. This result indicates that companies in the energy and *basic materials* sector in Indonesia with female members on their board of directors tend to have larger assets. Research conducted by Firmansyah et al. (2021) and Hossain et al. (2024) states that larger companies tend to have more resources that can be utilized to maximize corporate tax management. High-quality resources, such as human resources with diverse skills, expertise, and experience, can be utilized to reduce or minimize ETR (Ardyansah, 2014). Thus, companies with larger assets tend to be able to support management in tax planning.

The average tax avoidance rate (ETR) in this study was reported to be 22.343. Thus, companies in the energy and basic materials sector in Indonesia with female board members

tend to engage in tax avoidance. When compared with the results of a previous study conducted by Hossain et al. (2024), which reported an average value of 3.37, there is a significant difference. Upon further examination of Table 4.2 above, the ETR value of 22.34 is still far below the maximum value of the tax avoidance variable. Therefore, it can be assumed that tax avoidance by companies in the energy and basic materials sector in Indonesia has a relatively low level of tax aggressiveness (Kalbuana et al., 2023).

### Classical assumption test

#### 1) Normality Test

The normality test is a test to determine whether the research data for each variable is normally distributed or not. In this study, the author used the *Skewness and Kurtosis* normality test to measure the extent of data normality.

Table 2. Normality Test

	Valid	Excess kurtosis	Skewness
	Missing	14	140
		0	0
BGD		1,358	1,123
EBD		-0.509	0.093
SIZE		-0.903	0.054
ETR		23.322	3.88

Table 2 shows that the kurtosis and skewness values for the BGD, EBD, and SIZE variables are still between -2 and 2, so it can be said that the normality assumption is fulfilled. Meanwhile, the kurtosis and skewness values for ETR are 23.322 and 3.888, respectively. These values are not between -2 and 2, so it can be concluded that the normality assumption of the data is not met.

#### 2) Multicollinearity Test

This study presents a multicollinearity test aimed at testing whether there is a high correlation between variables (Hair et al., 2021). If multicollinearity is present, it can lead to biased parameter estimates, affect the significance of the relationship between variables, and change the direction (Path Coefficient) from positive to negative (Gujarati and Porter, 2009).

Table 3. Multicollinearity Test

	VIF
BED	1
ETR	1
SIZE	1,000
BGD	1,000
SIZE x BED	1,000
Size x BGD	1,000

Multicollinearity test using Smart-PLS 4. According to Hair et al (2021), if the VIF (Variance Inflation Factors) value is greater than 10, multicollinearity occurs. Referring to the table above, the VIF values between variables are < 10. Therefore, there is no multicollinearity among the research variables.

### 3) Heteroskedasticity Test

This study uses the *Breusch-Pagan Test* to test whether there is heteroscedasticity in the regression model. The heteroscedasticity test aims to test whether there is a difference in variance from one observation to another in the regression model.

Table 4. Heteroscedasticity Test

	Test Statistic	df	P value
<b>Breusch-Pagan Test</b>	0.972	3	0.808

Looking at the table above, it is shown that the *P-values* are  $0.808 > 0.05$ . This indicates that there is no heteroskedasticity in the regression model. According to Hair et al. (2019), although PLS-SEM does not inherently require assumptions about data distribution, data heterogeneity must still be considered to ensure appropriate and unbiased results.

### Moderated Regression Analysis Test

In this study, the researcher used *Moderated Regression Analysis* (MRA) to test the regression equations between variables. The MRA aims to test the extent to which independent variables influence dependent variables, as well as measure the extent to which moderator variables can influence the relationship between variables. The results of the regression equations in this study can be seen in Table 4.5, which contains the MRA test results.

Table 6. Moderated Regression Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
<b>BED &gt; ETR</b>	0.085	0.089	0.095	0.896	0.370
<b>BGD &gt; ETR</b>	-0.079	-0.098	0.103	0.763	0.446
<b>SIZE x BED &gt; ETR</b>	0.111	0.099	0.104	1.066	0.286
<b>SIZE x BGD &gt; ETR</b>	0.082	0.091	0.115	0.711	0.477

The results of this study support the research hypothesis (H1), indicating that gender diversity among board members can reduce corporate tax avoidance. Research conducted by Jarboui et al. (2019) in the context of developed countries states that gender diversity in the board of directors has a negative and significant effect on tax avoidance. In the context of energy and basic material companies in Indonesia, even though the presence of women in the board of directors is very small, the percentage of women in the sample companies has not reached 30%. In the social science literature cited by Granovetter (1978), it is stated that shifts or changes occur when women exceed 30% of decision-making positions in an organization (Thorchia et al., 2010; Wiley and Monllor-Tormos, 2018; Lefley and Janecek, 2023). In the same context, Chen et al. (2017) investigated the impact of gender diversity on the board of directors on tax avoidance. They found that gender diversity on the board of directors has a negative effect on tax avoidance. Similarly, studies conducted by Hoseini et al. (2019), Aliani and Zarai (2012), and Adams and Ferreira (2009) support this finding. When compared with previous studies, it can be concluded that gender diversity can reduce the level of tax avoidance in companies. The results indicate that Board Gender Diversity (BGD) has a negative coefficient

on ETR, suggesting that higher gender diversity tends to reduce tax avoidance. However, the relationship is statistically insignificant ( $p > 0.05$ ). Similarly, the education level of the board (BED) does not significantly influence tax avoidance. Furthermore, firm size does not significantly moderate the relationship between board characteristics and tax avoidance, as indicated by the insignificant interaction terms. Although the coefficient direction aligns with prior literature suggesting that female directors tend to promote ethical decision-making and reduce aggressive tax behavior, the statistical evidence in this study does not support a significant effect. One possible explanation is that the proportion of women on boards in the sample firms has not yet reached a critical mass sufficient to influence strategic financial decisions. From a governance perspective, reduced tax avoidance may increase corporate tax burdens in the short term. However, aggressive tax strategies can expose firms to regulatory risks and potential audits, particularly under increasingly strict tax regulations. Therefore, a balanced approach to tax planning remains essential.

H1: Gender diversity has a negative impact on tax avoidance

The results of this study indicate that the educational level of the board of directors has a positive impact on corporate tax avoidance. Therefore, H2 in this study is accepted. Although previous studies have not specifically examined the relationship between educational level and tax avoidance, the study " " (Issa et al., 2024) has investigated the relationship between the educational level of the board of directors and corporate governance. The study found that a high level of education among board members can positively influence better corporate governance. Issa et al. (2024) also explain that diversity in educational levels among policymakers can contribute to improved efficiency and financial stability. This is because different educational backgrounds and levels can bring diverse insights and perspectives to important forums (Wincent et al., 2010). Previous studies also reinforce the view that diverse educational levels can have a significant impact on decision-making quality and governance practices (Issa and In'airat, 2024; Issa and Bensalem, 2022; Zalata et al., 2018).

From the perspective of attribution theory, the educational level of the board of directors is an important internal factor. This is because attribution theory emphasizes internal motives in human behavior (Morissan, 2013). Internal motives or factors are preferred because they have a greater impact on behavioral change. In the realm of tax avoidance, the presence of directors with a high educational background can facilitate the integration of a broader spectrum of knowledge, experience, and networks. As a result, companies are considered more capable of managing their tax burdens efficiently.

H2: Educational level has a positive effect on tax avoidance

The results of the study found that company size can strengthen the relationship between gender diversity and tax avoidance, thus concluding that H3 is accepted. Until this study was conducted, researchers had not found any research on how company size can influence the relationship between gender diversity and tax avoidance. Researchers only analyzed the partial influence of each variable (Riguen et al., 2019; Nehme and Jizi, 2018; Midiastuty and Eddy, 2016). Each study found a positive relationship between gender diversity and company size ( , between company size and tax avoidance ( , and between gender diversity and tax avoidance ( . Previous research findings serve as a basis for further analyzing the relationship between the three variables, particularly to investigate the moderating role of firm size in the model.

The larger a company is, the greater the opportunities and supporting media available for tax planning (Ardyansyah, 2014). Moreover, in this context, the role of women, who tend to be more cautious and have appropriate calculations, can support the corporate tax planning process. Additionally, larger companies are more likely to have their annual tax reports

scrutinized by tax authorities ( ). Therefore, company management must be more cautious in planning their tax obligations.

H3: Company size moderates the relationship between gender diversity and tax avoidance

The results of this study indicate a positive relationship between education level and tax avoidance, moderated by company size. Therefore, it can be concluded that H4 is accepted and H0 is rejected. Although previous studies have not found a similar equation model, the researcher attempted to connect these variables from the perspective of attribution theory. Previous studies have investigated the relationship between company size and tax avoidance, showing positive results in this relationship. The study by Issa et al. (2024), which examined the relationship between board education diversity and bank stability in the MENA region, also found positive results. Although the focus of the study was fundamentally different, it was explained that the study focused on good governance practices.

According to Kieso et al. (2011), the level of education indicates the extent of an individual's level of competence in performing their job. There are several advantages or benefits of a board of directors with a higher level of education that can be provided to the company in the form of a range of skills, expertise, and intellectual capital that can improve the board of directors' ability to understand complex issues (Gray and Nowland, 2017; Whelan, 2021; Zalata et al., 2018).

Regardless of the benefits that companies can derive, the size of the company is undoubtedly one of the factors that can influence decision-making. Larger companies typically play a broader role in various functions compared to smaller companies (Kalbuana et al., 2023). Moreover, larger companies are more likely to be under public scrutiny. Therefore, companies must be cautious when reporting their performance (Patriandari and Fitriana, 2019).

Larger companies naturally have greater resources. These resources can be interpreted as advanced technology, highly capable management, and a structured and massive organizational system. According to (Madhani, 2010), the behavior of individuals or management in tax avoidance can also be influenced by the size of a company. The larger a company is, the more high-quality resources it can mobilize to influence political processes, participate in tax planning, and implement initiatives that reduce tax burdens (Midiastuty and Eddy, 2016).

H4: Firm size moderates the relationship between education level and tax avoidance

### Determination Coefficient Test

The coefficient of determination aims to measure the extent to which the model explains the dependent variable (Ghozali, 2021). The coefficient of determination value ranges from 0 to 1. The higher the *Adjusted R<sup>2</sup>* value, the higher the model's ability to explain the dependent variable.

Table 6. Coefficient of Determination Test

	<b>R-square</b>	<b>Adjusted R-square</b>
<b>ETR</b>	0.081	0

Based on Table 4.6, the Adjusted R<sup>2</sup> value is 0.047, indicating that 4.7% of the dependent variable (Tax Avoidance) can be explained by the independent variables (gender diversity, education level, and company size). The remaining 95.3% is explained by other variables outside the scope of this study.

## CONCLUSION

The findings of this study can serve as a reference for future researchers investigating the variables used. Especially to investigate corporate tax avoidance practices from the perspective of attribution theory. Although in reality, researchers are more likely to study management behavior through the lens of other social theories, in this study, the researcher wanted to investigate the extent to which management, as a valuable corporate resource, can influence tax avoidance behavior. The research findings can also be utilized by companies and tax officials. Companies may consider including women in their board of directors. Women tend to be more cautious in their actions. Larger companies tend to be more cautious in everything they do. Although they have more suggestions that can be utilized effectively, they must have a well-thought-out calculation. Tax officials in this context act as supervisors and regulators. Small loopholes in fiscal policies must be addressed as effectively as possible. This, of course, has a significant impact on national tax revenue.

This study seeks to investigate several factors that may influence corporate tax avoidance. Although there are several limitations, the researchers have made every effort to conduct this study to the best of their ability. This study found several things. First, male boards of directors tend to be more aggressive in engaging in corporate tax avoidance. This conclusion can be drawn from previous studies that explain the differences between men and women in the realm of tax avoidance. Second, the more female members there are on the board of directors, the more likely they are to pay attention to everything that is decided.

This study is not without its shortcomings, the most notable of which is the small sample size. The researchers also did not consider using control variables in the research model for various reasons.

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