



## The Effect of Environmental Uncertainty and Executive Characteristics on Tax Avoidance

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**Abstract:** The objectives of this study include: (1) To empirically test the effect of environmental uncertainty on tax avoidance; (2) To empirically test the effect of executive characteristics on tax avoidance; (3) To empirically test the role of company size moderating the effect of environmental uncertainty on tax avoidance; and (4) To empirically test the role of company size moderating the effect of executive characteristics on tax avoidance. The research uses an explanatory research design. The population of this study is public manufacturing in the food and beverage industry sector publishing its financial statements on the IDX in the 2018-2023 period. This research sampling method uses purposive sampling. This research data analysis technique uses Model Regression Analysis (MRA). From the results of data analysis it is concluded: (1) Environmental Uncertainty has an influence on tax avoidance. (2) Executive Characteristics affect tax avoidance. (3) Company size has no effect on tax avoidance. (4) Environmental uncertainty affects tax avoidance moderated by company size. (5) Executive characteristics have no effect on tax avoidance moderated by company size.

**Keyword:** Environmental uncertainty, executive characteristics, tax avoidance

### INTRODUCTION

National development requires significant financial support, with taxes being one of the main sources of revenue for the country. Taxes play an important role in supporting the wheels of government and providing essential public services to the community. As a mandatory contribution under Law No. 28 Year 2007 Article 1, taxes do not provide direct rewards, but are used to promote the welfare of the people. Tax revenue contributes around 8% to the 2022 State Budget (APBN), illustrating the crucial role of taxes in the national economy (Pajak.go.id). However, tax avoidance is a major challenge faced by the government in maximizing tax revenue. The view that taxes are a burden without direct benefits often encourages companies to reduce their tax obligations through various means, which sometimes violate the rules or take advantage of regulatory loopholes (Darmayasa & Hardika, 2011).

The phenomenon of tax avoidance can be explained through agency theory, which states that the relationship between shareholders (principal) and managers (agent) often creates a conflict of interest. Managers tend to do tax avoidance to reduce the company's tax burden, so as to increase profits and provide benefits to shareholders (Stawati, 2020). This practice not

only harms state revenue, but also creates reputational risks for the company. Based on the Tax Justice Network report, Indonesia loses up to US\$4.86 billion per year due to tax avoidance, while globally, losses due to this practice reach US\$427 billion per year (CNN Indonesia, 2020). The relationship between environmental uncertainty and tax avoidance is complex and influenced by various factors, including debt policy and firm size. Although environmental uncertainty affects tax avoidance positively, other factors can also play a role, and firm size moderates the effect of profitability on tax avoidance (Yu et al., 2021; Annida & Firmansyah, 2022; Sumaryati & Prawitasari, 2022).

Various studies show that tax avoidance is influenced by a number of factors, including environmental uncertainty, executive characteristics, and other internal factors. Environmental uncertainty, as occurred during the Covid-19 pandemic, has been shown to increase the tendency of companies to engage in tax avoidance (Putri & Syafruddin, 2021). In addition, executive characteristics, such as managerial competence and institutional ownership, also affect corporate tax policy. From the research of Rahmawati & Nani (2021) and Aulia & Mahpudin (2020), it was found that the company size factor has a significant positive impact on tax reduction. According to Stawati (2020), company size affects tax avoidance. But, this finding contradicts Sulaeman (2021), company size has a negative effect on tax avoidance efforts. Executives with certain characteristics can reduce tax avoidance practices through more effective resource management (Rizki et al., 2021).

Referring to the background, this study aims to analyze the factors that influence tax avoidance in manufacturing companies listed on the Indonesia Stock Exchange, focusing on the effect of environmental uncertainty, executive characteristics, and other factors on tax policy. This research is expected to contribute to the literature on tax avoidance strategies and provide practical recommendations for policy makers to minimize this practice in Indonesia.

## **METHOD**

This study uses an explanatory research design to describe the causal relationship between the independent and dependent variables. This approach is suitable for use when knowledge of the research problem is sufficient, with the support of certain theories and empirical research that can test hypotheses to strengthen the causal relationship (Bougie & Sekaran, 2019). The research population includes all manufacturing companies in the food and beverage industry that publish complete financial reports on the Indonesia Stock Exchange (IDX) in the 2018-2023 period. The sample selection was carried out using purposive sampling method, using the following criteria: (1) companies listed on the IDX during the research period, (2) have complete and audited financial reports as of December 31, and (3) present data relevant to the research variables. This research was conducted on the company's financial statements, focusing on the contribution of the food and beverage industry to the Indonesian economy during the study period. Data collection was carried out through documentation studies using the company's annual reports obtained from the IDX. The research lasted for Six months, from June - December 2024.

Data analysis techniques include descriptive statistical analysis to provide an overview of the data through average, minimum, maximum, and standard deviation values (Ghozali, 2016). Classical assumption tests were conducted to ensure the validity of the regression model, including: normality test (using Kolmogorov-Smirnov), multicollinearity test (using VIF and tolerance values), autocorrelation test (using Run Test), and heteroscedasticity test (using Glejser test). Further analysis includes the Adjusted R Square test to evaluate the contribution of independent variables to the dependent variable, as well as the F test to test the feasibility of the model as a whole. Hypothesis testing was conducted using the t-test to measure the significance of the influence of the independent variables individually on the dependent variable. In addition, this study uses Moderated Regression Analysis (MRA) to identify the

role of moderating variables in strengthening or weakening the relationship between the independent and dependent variables (Sugiyono, 2017). The regression model used follows a special equation formula that considers the interaction between independent variables, moderation, and company size.

## RESULTS AND DISCUSSION

### Result

First, in this analysis, the descriptive statistics table is used to provide an overview of the research variables. This table shows the mean, minimum, and maximum values, as well as the standard deviation.

**Table 1. Descriptive Statistics Results**

	Tax Avoidance	Environmental Uncertainty	Executive Characteristics
Mean	0.249696	0.120813	0.045277
Median	0.248910	0.084316	0.034589
Maximum	0.395684	0.558946	0.133741
Minimum	0.167640	0.023954	0.013915
Std. Dev.	0.051242	0.104155	0.033085
Observations	54	54	54

The results of descriptive statistical analysis in Table 1 show the characteristics of each variable studied. The Tax Avoidance variable has a minimum value of 0.167640 and a maximum of 0.395684, with an average of 0.249696 and a standard deviation of 0.051242. The Environmental, Social, and Governance (ESG) Uncertainty variable shows a minimum value of 0.023954 and a maximum of 0.558946, with an average of 0.119887 and a standard deviation of 0.103444. Furthermore, the Executive Characteristics variable has a minimum value of 0.013915 and a maximum of 0.133741, with an average of 0.045277 and a standard deviation of 0.033085. Finally, the Company Size variable shows a minimum value of 27.33972 and a maximum of 32.87059, with an average of 29.55642 and a standard deviation of 1.754140. These results provide an overview of the data distribution that forms the basis for further analysis.

Second, the chow test for the best model comparison in the Common Effect Model (CEM) with the Fixed Effect Model (FEM). The following table shows the results of the comparison of the two models and the results of the chow test:

**Table 2. Chow test results**

Redundant Fixed Effects Tests  
Equation: Untitled  
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.225165	(8,41)	0.0451
Cross-section Chi-square	19.471980	8	0.0125

The Chow test results show a probability value of 0.0125, which is smaller than the significance level of 0.05. Based on the Chow test decision-making basis, if the probability value of F and Chi-Square is greater than 0.05, then the model used is the Common Effect Model (CEM). Conversely, if the probability value of F and Chi-Square is smaller than 0.05, then the model chosen is the Random Effect Model (REM). Therefore, with the probability results being below 0.05, the model used in this panel data regression analysis is the Random Effect Model (REM). This shows that REM is more appropriate to describe the relationship between variables in this study.

In this study, FEM and REM were compared to determine the most suitable model. The Hausman test results for each model are in this table:

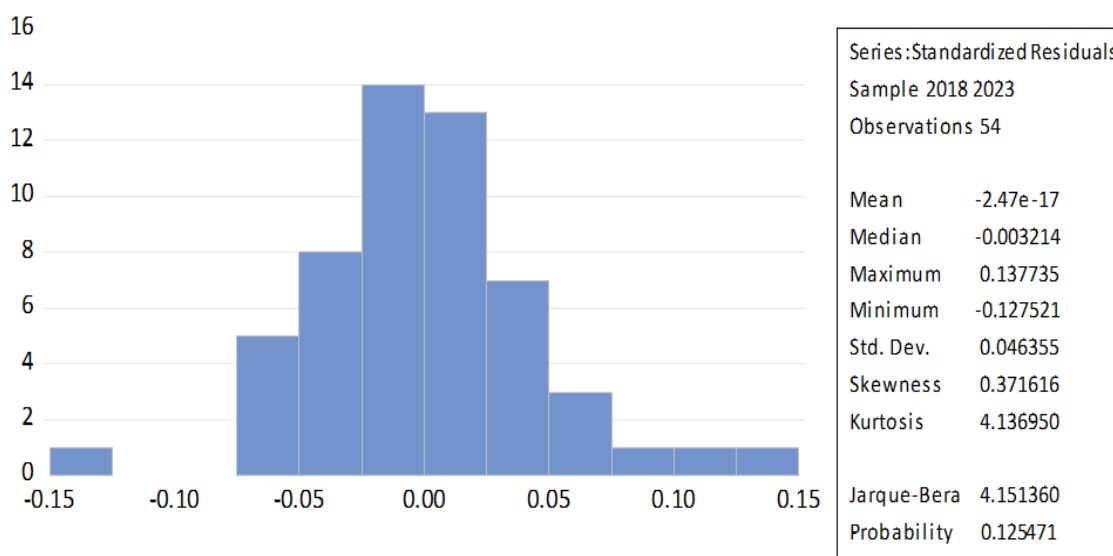
**Table 3. Hausman Test**

Correlated Random Effects - Hausman Test  
Equation: Untitled  
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.473573	4	0.1129

The Hausman test results show a probability value of 0.1129, which is greater than 0.05. Based on the basis of decision making, if the probability of F and Chi-Square is greater than 0.05, the model used is the Random Effect Model (REM), while if it is smaller than 0.05, the Fixed Effect Model (FEM) is used. For model selection, two tests are sufficient, namely the Chow test and the Hausman test. In this study, the Hausman test results supported the Chow test results, so the Fixed Effect Model (FEM) was chosen as the regression model, and the Lagrange Multiplier test was not required.

Third, the classical assumption test is a collection of tests to ensure that the regression equation is consistent, so that the regression analysis results are reliable. Researchers conducted four types of classical assumption tests, namely normality, multicollinearity, heteroscedasticity, and autocorrelation, in the regression model chosen by researchers for this study.



**Figure 1. Normality Test Results Using the Jarque-Bera Test**

From Figure 1 the Jarque-Bera value is 4.151360 and the probability value is 0.125471 > 0.05, meaning that the data is declared normally distributed because the resulting probability value is > 0.05.

**Table 4. Multicollinearity Test Results Variance Inflation Factor**

Variance Inflation Factors  
 Date: 11/20/24 Time: 02:30  
 Sample: 1 54  
 Included observations: 54

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
KETIDAKPASTIAN_LIN	0.942350	552.6738	233.1139
GKUNGAN			
KARAKTERISTIK_EKSE	14.89199	1080.998	371.7098
KUTIF			
MODERATE1	0.000950	526.3062	236.7401
MODERATE2	0.017565	1097.071	368.4706
C	0.000246	5.709620	NA

There is no multicollinearity in this regression model, or no correlation between the independent variables; the results of table 2 show that all correlations between the independent variables have no value greater than 0.8.

**Table 5. Heteroscedasticity Test Results Using the Glesjer Test**

Heteroskedasticity Test: Glejser  
 Null hypothesis: Homoskedasticity

F-statistic	1.458707	Prob. F(4,49)	0.2291
Obs*R-squared	5.745995	Prob. Chi-Square(4)	0.2189
Scaled explained SS	6.388050	Prob. Chi-Square(4)	0.1720

From the table above, the prob number is  $0.2189 > 0.05$ . This shows that the data in this study does not have heteroscedasticity.

**Table 6. Autocorrelation Test Results**

Breusch-Godfrey Serial Correlation LM Test:  
 Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.178572	Prob. F(2,47)	0.8370
Obs*R-squared	0.407240	Prob. Chi-Square(2)	0.8158

From table 6, it can be seen that the probability chi-square value is  $0.8158 > 0.05$ . This means that the regression model used has no autocorrelation.

**Table 7 T-test of Equation I**

Dependent Variable: TAX\_AVOIDANCE  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 11/20/24 Time: 02:27  
 Sample: 2018 2023  
 Periods included: 6  
 Cross-sections included: 9  
 Total panel (balanced) observations: 54  
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.217214	0.018431	11.78522	0.0000
KETIDAKPASTIAN_LINGKUNGAN	1.720536	1.008220	1.706508	0.0942
KARAKTERISTIK_EKSEKUTIF	-12.02701	4.186228	-2.872994	0.0060
MODERATE1	-0.054386	0.031866	-1.706698	0.0942
MODERATE2	0.420909	0.143199	2.939331	0.0050

Test table is compiled to interpret the results of this research hypothesis test

1. Effect of Environmental Uncertainty on Tax Avoidance  
The test results show a significant value of 0.0942, which is a value <0.05. Shows that environmental uncertainty affects tax avoidance efforts. Therefore, it can be concluded H1: accepted
2. Effect of Executive Characteristics on Tax Avoidance  
The test result of a significant value of 0.0060 means <0.05. Shows Executive Characteristics influence tax avoidance. Until it can be concluded H2: accepted
3. Company size strengthens the influence of environmental uncertainty on tax avoidance.  
The test result of a significant value of 0.0942 means > 0.05. This shows that company size is not proven to strengthen the influence of environmental uncertainty on tax avoidance. Concluded H3: rejected
4. Company size strengthens the influence of executive characteristics on tax avoidance  
The test result of a significant value of 0.0050 means <0.05. Shows that company size strengthens the influence of executive characteristics on tax avoidance. Then it is concluded H4: accepted.

**Table 8. Multiple Linear Regression**

Dependent Variable: TAX\_AVOIDANCE  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 11/20/24 Time: 02:27  
 Sample: 2018 2023  
 Periods included: 6  
 Cross-sections included: 9  
 Total panel (balanced) observations: 54  
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.217214	0.018431	11.78522	0.0000
KETIDAKPASTIAN_LINGKUNGAN	1.720536	1.008220	1.706508	0.0942
KARAKTERISTIK_EKSEKUTIF	-12.02701	4.186228	-2.872994	0.0060
MODERATE1	-0.054386	0.031866	-1.706698	0.0942
MODERATE2	0.420909	0.143199	2.939331	0.0050

From the table, a regression equation was constructed:

$$Y=0.217214+1.720536X1-12.02701X2-0.054386Moderate_+0.420909Moderate_2+ e$$

The above equation can be interpreted

1. The constant value of 0.217214, with a positive sign, shows that if all independent variables are considered constant and zero, tax prevention increases by an average of 0.217214,
2. Environmental Uncertainty 1.720536 shows that each unit increase in environmental uncertainty increases tax avoidance efforts 1.720536, each unit increase in environmental uncertainty reduces tax avoidance efforts 1.720536.
3. Executive Characteristics -12.02701 means that a decrease of one unit of Executive Characteristics increases tax avoidance, each decrease of one unit of Executive Characteristics, reduces tax avoidance --12.02701.

**Table 9. Coefficient of Determination**

Root MSE	0.043383	R-squared	0.158199
Mean dependent var	0.177276	Adjusted R-squared	0.089481
S.D. dependent var	0.047728	S.E. of regression	0.045542
Sum squared resid	0.101631	F-statistic	2.302135
Durbin-Watson stat	2.061002	Prob(F-statistic)	0.071727

From the R2 test results, the adjusted R-squared is 0.089481, or 8.9%. Shows that environmental uncertainty, executive characteristics, company size strengthen the influence of environmental uncertainty, and executive characteristics contribute to tax avoidance. Other variables not discussed in this study amounted to 91.1% affecting the remaining part.

## **Discussion**

### **Effect of Environmental Uncertainty on Tax Avoidance**

The test result of a significant value of 0.0942 means less than 0.05. Shows Environmental Uncertainty has an influence on tax avoidance. Investors will prefer to continue investing in a business if its cash flow is stable. This means that companies are more likely to choose to avoid taxes as the environment becomes more uncertain. In agency theory, there are differences in the interests of agents and principals. The former is known as the agent, the latter is known as the principal. As per the agreed employment contract, the principal gives decision-making authority to the agent (Ghosh & Olsen, 2009). There is information asymmetry, which causes problems for the agency. Investors, who are agents, have more company information than management. To emphasize the company's expenses while dealing with environmental uncertainty, management will take tax avoidance measures based on their decision-making responsibilities and the information they have. Given that tax is a burden that reduces the company's net profit, tax avoidance by management results in higher after-tax profits. Higher profits make investors rethink withdrawing their investment (C. Yu et al., 2016).

### **Effect of Executive Characteristics on Tax Avoidance**

The test result of a significant value of 0.0060 means  $<0.05$ . Shows Executive Characteristics have an influence on tax avoidance. Positive accounting theory is used by executives to support their decisions. Balance theory, or benefit-sacrifice theory, is the basis for balancing benefits (tax protection) and sacrifices (interest). Executive decisions depend on the nature of the company's executives. One of the traits of executives is to take risks or take risks. To maximize their profits, businesses that engage in tax avoidance take advantage of loopholes in the tax code to reduce their tax burden. Company executives decide themselves to take tax precautions (Butje & Tjondro, 2014). As a result, the value of corporate risk can be used to determine the nature of executives and the level of corporate courage to take risks (Paligorova, 2011). Deviant behavior is described as business risk. If given the opportunity to choose investments, risk-averse managers tend to choose investments far below the risk that the company can tolerate (Low, 2009).

### **Company size strengthens the effect of environmental uncertainty on tax avoidance.**

The results show there is a significant value of 0.0942,  $> 0.05$ . This shows that company size does not increase the effect of environmental uncertainty on tax avoidance efforts. The company's ability to manage risk, maintain compliance, and maintain reputation is influenced by company size, functioning as a moderating variable in the relationship between environmental uncertainty and tax exemptions (Pratiwi, 2024). This role is important to understand how organizational dynamics and the external environment interact when making tax decisions (Pujiastuti & Subkhan, 2023). A study found that environmental uncertainty - measured by sales and technology uncertainty - has a positive and significant effect on tax avoidance, but only companies with a certain level of leverage (Ratu & Siregar, 2019). Another study found that environmental uncertainty has a positive influence on tax avoidance, but the effect is moderated by company size, where larger companies tend to avoid taxes (Huang et al., 2017).

### Company size strengthens the influence of executive characteristics on tax avoidance

The test results show a significant value of 0.0050, which is a value  $<0.05$ . This shows that organizational size increases the influence of executive attributes on tax avoidance. So far, firm size has shown that executive attributes have a moderate impact on tax avoidance. Larger companies usually have more complex tax structures and may be more likely to engage in tax avoidance activities to minimize their tax burden (Pratiwi, 2024). Studies have found that larger companies have greater resources and are better able to manage their tax burden (Pujiastuti & Subkhan, 2023).

### CONCLUSION

This study reveals several important findings related to the factors that influence tax avoidance. First, environmental uncertainty is proven to have a positive effect on tax avoidance. When facing an unstable environment, companies tend to increase tax avoidance activities to maintain profit stability and attract investor interest. Second, executive characteristics have a significant influence on tax avoidance, where the risk-taking nature of executives plays an important role in the decision to take advantage of tax law loopholes to minimize the tax burden. Third, firm size does not strengthen the influence of environmental uncertainty on tax avoidance, but strengthens the influence of executive characteristics on tax avoidance. Large companies tend to be better able to manage their complex tax structure and utilize their resources to minimize the tax burden. The results of this study provide implications for policy makers and company managers. For policymakers, these results indicate the importance of stricter supervision of tax avoidance practices, especially in large companies with unstable business environments. For corporate management, this study highlights the need for a balanced approach in tax decision-making to manage risk without sacrificing compliance and corporate reputation.

This study has several limitations. First, the data used is limited to certain variables so that it does not cover all factors that can affect tax avoidance. Second, this study only uses a sample of companies in a particular context, so the results may not be fully generalizable to companies in other sectors or regions. Third, this study did not explore in depth the influence of non-financial aspects such as organizational culture and ethical policies on tax avoidance decisions. Future research could expand the scope by adding other variables, such as the influence of international tax regulations or the impact of digital technology in corporate tax management. Future studies may also consider a qualitative approach to better understand executive motivations and strategies in the face of environmental uncertainty. In addition, cross-country research can be conducted to compare the effect of executive characteristics and firm size on tax avoidance across different tax systems and economic environments.

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