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Environmental Uncertainty, Capital Intensity, And Tax Avoidance With Managerial Ability As A Moderator

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ABSTRACT

This research aims to examine the influence of environmental uncertainty and capital intensity on tax avoidance practices and analyze the role of managerial ability as a moderating variable in this relationship. The research was conducted on 24 property and real estate sector companies listed on the Indonesia Stock Exchange (BEI) during 2019–2023. The method used is quantitative, with panel data regression analysis and moderate regression analysis (MRA). The research results show that environmental uncertainty and capital intensity do not significantly affect tax avoidance. On the other hand, managerial ability has a positive and significant effect, which indicates that the higher the organizational ability, the higher the level of company tax compliance. However, managerial ability is not proven to moderate the relationship between environmental uncertainty and capital intensity on tax avoidance. These findings emphasize the importance of management's direct role in shaping corporate tax policy and the need to strengthen managerial capacity to improve fiscal compliance amidst the dynamics of a complex business environment.

INTRODUCTION

Taxes are state levies on individuals or bodies that are mandatory and coercive and used for the people's prosperity. By Law Number 28 of 2007 concerning general provisions and procedures for taxation, tax is a compulsory contribution to the state by an individual or entity that is coercive according to law, without direct compensation, and is used for state needs in a certain amount. Taxes are a burden for companies that can reduce their net profit, so many companies try to minimize the taxes they have to pay. One of the tax management that companies can carry out is tax avoidance (Yuniarti et al., 2020).

Table 1. Target and Realization of Tax Revenue (In trillions of rupiah)

Year	Target	Realization	Achievement
2019	1.577,6	1.332,1	84,4%
2020	1.642,6	1.070,0	65,1%
2021	1.229,6	1.277,5	104,0%
2022	1.485,0	1.716,8	115,06%
2023	1.718,0	1.739,8	95,7%

Source: Central Government Financial Report (bpk.go.id)

Based on data from the Central Government Financial Report (see Table 1), tax realization in 2019 only reached 84,4% of the target, decreasing drastically in 2020 to 65,1% due to the impact of the COVID-19 pandemic, which caused a significant economic contraction. However, in 2021, tax revenues exceeded the target by 104,0% as economic activity began to recover. This positive trend continues in 2022 when the realization of tax revenues reaches 115,06% of the target, driven by economic recovery and tax reform. Even though in 2023, there will be a slight decline with an achievement of 95,7%, this data generally reflects the dynamics of an unstable fiscal environment. This uncertainty in achieving tax targets shows significant challenges in managing state revenues. It opens up space for tax avoidance practices carried out by companies in responding to the pressures and opportunities from changing economic and regulatory conditions.

Taxes are vital in national development, functioning as the main source of state revenue to finance public expenditures. However, in practice, companies as tax subjects, often try to minimize their tax burden through various legal strategies known as tax avoidance. Although not unlawful, this practice raises ethical and policy dilemmas because it can reduce potential state revenues.

The phenomenon of tax avoidance in Indonesia is becoming increasingly complex due to high environmental uncertainty and variations in company capital structures. Changes in regulations, market dynamics, and global economic fluctuations require companies to continue to adapt their operational and financial strategies, including tax planning. Several cases from big companies in Indonesia shows how the combination of environmental uncertainty and complex capital strategies can open up gaps for tax avoidance practices. In this case, managerial ability plays a vital role as a determining factor in responding to environmental dynamics and in managing company strategy, including tax decisions. Skilled managers can identify opportunities and risks and then design financial structures that are fiscally efficient but remain within legal limits.

Previous research relevant to this study shows a significant relationship between environmental uncertainty, capital intensity, and tax avoidance practices. Huang et al. (2017) found that companies tend to increase tax avoidance activities when facing an uncertain environment as a cost-saving strategy. Similar findings were also stated by Sharendra and Kristanto (2022), who noted that external uncertainty encourages companies to be more aggressive in tax planning. On the other hand, research by Darsono (2018) and Widyastuti et al. (2022) shows that high capital intensity, through ownership of fixed assets, allows companies to utilize depreciation expenses to reduce tax liabilities. In addition, a study conducted by Francis et al. (2022) emphasizes that managerial ability plays a vital role in moderating the relationship between these factors and tax avoidance, where competent managers can make strategic decisions that are more efficient and comply with tax regulations.

Several previous studies had examined the influence of environmental uncertainty or capital intensity on tax avoidance. Still, not many have considered the role of managerial ability as a moderating variable in this relationship. Studies that integrate these three variables in Indonesia are still minimal, especially in the property and real estate sectors. Thus, this research aims to fill this gap in the literature.

This research aims to empirically test the influence of environmental uncertainty and capital intensity on tax avoidance practices in property and real estate sector companies in Indonesia and analyze the role of managerial ability as a moderating variable in this relationship. This research aims to provide a more comprehensive understanding of how the company's external conditions and internal structure influence tax strategies and how manager competence can strengthen or weaken the company's tendency to carry out tax avoidance. Thus, the results of this research can provide a theoretical contribution to the financial accounting and tax literature and become a practical reference for company management and policymakers in developing more transparent and accountable tax management strategies amidst the dynamics of an ever-changing business environment.

LITERATURE REVIEW

The Effect of Environmental Uncertainty on Tax Avoidance

Continuously developing technological innovation, globalization, and increasingly fierce competition have brought companies to greater environmental uncertainty (Lin et al., 2014). When the perception of environmental uncertainty is high, managers believe that external conditions and activities change rapidly, making it difficult to get an accurate picture of what is happening in the market and where the company is (Yu et al., 2016). Pressure from environmental uncertainty results in high operational costs that need to be incurred by companies to minimize the impact of the uncertainty that occurs (Sudaryati & Aprisma, 2020). Tax avoidance is one of the company's actions to cover the high risks that can arise from environmental uncertainty (Ratu & Siregar, 2019).

According to (Huang et al., 2017), environmental uncertainty causes a higher desire for companies to carry out tax avoidance activities. Tax avoidance becomes a more desirable alternative to tax savings because as the external environment becomes more uncertain, tax savings will be more challenging to achieve. Laksono & Firmansyah (2020) proves that companies will try to minimize their tax payments more in uncertain environmental conditions than in normal environmental and mental conditions. Research by Syarendra & Kristanto (2022) identified a positive influence between environmental uncertainty and tax avoidance, which means that the higher the environmental uncertainty, the higher the practice of tax avoidance companies. This conclusion aligns with the study by Ratu & Siregar (2019), proving that environmental uncertainty positively affects tax avoidance, where an uncertain environment will increase risks that lead to tax avoidance. Based on this argument, we built the following hypothesis.

H1: Environmental uncertainty has a positive effect on tax avoidance

The Effect of Capital Intensity on Tax avoidance

Capital intensity of tax avoidance explains that business managers are more likely to use accounting methods that reduce profits as corporate political costs increase. Because when profits are high, government will immediately take action, such as raising income taxes and so on. Managers can reduce the tax burden by investing the company's idle funds in fixed assets (Merkusiwati & Damayanthi, 2019). The capital intensity ratio shows the total amount of company wealth invested in fixed assets. The proportion of a company's fixed assets can reduce the tax payable due to the depreciation of its fixed assets. To reduce their profits, companies can increase fixed asset depreciation costs. Fixed asset depreciation charges vary depending on the classification of the fixed asset.

Capital intensity refers to the financial decisions a management company takes to determine the extent to which the company invests in fixed assets, such as property, plant, machinery, and equipment. These fixed assets are an integral part of the company's wealth, functioning as a resource to support company operations and growth in the long term. Decisions regarding capital intensity are critical in planning corporate finances and influence tax decisions.

Fixed assets often account for a large portion of a company's total assets, so their management can have a significant impact on a company's financial structure and tax policies (Sulistyawati & Rahmawati, 2024). Based on this argument, we built the following hypothesis.
H2: Capital intensity has an effect positive on tax avoidance

Managerial Ability Moderates the Effect of Environmental Uncertainty on Tax Avoidance

Managers with high ability will lower tax avoidance when faced with high environmental uncertainty than managers with low ability (Huang et al., 2017). However, Ratu & Siregar (2018) found different results. Managers with high skills will have greater tax avoidance in situations with environmental uncertainty that do not have the potential to perform tax avoidance**.**

In this research, managerial ability has a moderating influence on tax avoidance. Companies can progress if they are managed by managers who have good skills. Therefore, companies need good managers even though they do not have sufficient information to predict things accurately in the future or there is environmental uncertainty. Research from Tehupiring (2017) stated that capable managers are expected to overcome this occurrence of tax avoidance. Meanwhile, the influence of managerial ability on tax avoidance, namely, managers with good skills are usually less involved in tax avoidance activities (Francis et al., 2022). Aggressive tax reporting carries a considerable risk if aggressive actions are taken too far in tax evasion, leading to sanctions. This means that a good manager should be able to manage existing resources efficiently without doing tax avoidance**.** Based on this argument, we built the following hypothesis.
H3: Managerial ability weakens the effect of environmental uncertainty on tax avoidance

Managerial Ability Moderates the Effect of Capital Intensity on Tax Avoidance

The proportion of managerial ability can influence company performance. Management is concerned with reporting the company's tax burden fairly, which means that supervision carried out by the Independent Commissioner is running well. Tax avoidance carried out by company by taking advantage of the depreciation inherent in using fixed assets can be minimized (Asri & Suardana, 2016). Companies that invest in fixed assets can use depreciation costs as a deduction from income. Companies can use fixed asset investment schemes to avoid tax and reduce the tax burden by utilizing depreciation expenses. The depreciation expense can be a proportion of carrying out tax avoidance, which requires managerial skills whose role is to supervise agents in managing the company according to applicable regulations and laws. Managerial abilities are expected to reduce tax avoidance activities and burdens (Amiah, 2022). This is by agency theory, where the better the ability of managerial activities, the more influence it will have on every management decision. Based on this argument, we built the following hypothesis
H4: Managerial ability weakens the effect of capital intensity on tax avoidance

METHOD

This research uses quantitative methods with descriptive and verification approaches to examine the relationship between environmental uncertainty, capital intensity, and tax avoidance, as well as the role of managerial ability as a moderating variable (Sugiyono, 2022); (Swarjana, 2022). The data used is secondary data obtained from the annual financial reports of property and real estate sector companies listed on the Indonesia Stock Exchange (BEI) during the 2019–2023 period. The sampling technique is carried out using purposive sampling. The criteria involved are as follows:

1) Property & real estate companies which is listed on the Indonesia Stock Exchange (BEI) for the 2019-2023 period
2) Property & real estate companies that are not carry out delisting and relisting during the 2019-2023 period
3) Property & real estate companies with positive pre-tax profits during the 2019-2023 period

4) Property & real estate companies which presents consecutive financial reports for the 2019-2023 period

The samples obtained based on these criteria were 24 companies with total of 120 observations. Managerial ability is measured using data envelope analysis (DEA) approach, which was then analyzed further using Tobit regression. Meanwhile, environmental uncertainty is measured through the sales variation coefficient, capital intensity is calculated by the ratio of fixed assets to total assets, and tax avoidance is measured using the Current Tax to Turnover Ratio (CTTOR). The regression model used has undergone classical assumption tests such as normality, multicollinearity, heteroscedasticity, and autocorrelation tests to ensure the validity of the estimation results. Data analysis was conducted using panel data regression to test the direct influence between variables and Moderated Regression Analysis (MRA) to test the moderating effect of managerial ability.

RESULTS

The factor analysis feasibility test results shown in Table 2 show that the Kaiser-Meyer-Olkin (KMO) value is above the minimum threshold of 0.5, which means the data is suitable for factor analysis.

Table 2. Factor Analysis Feasibility Test Results (KMO and Bartlett's Test)

Statistical Test	Value	Information
Kaiser-Meyer-Olkin (KMO)	> 0.5	Suitable for factor analysis
Bartlett's Test of Sphericity	$\chi^2(10) = 504.26$	p-value = 0.0000 (significant) → data is valid

Source: Processed Data (2025)

Apart from that, Bartlett's Test of Sphericity results produced a chi-square value of 504.26 with a p-value of 0.0000, which is statistically significant ($p < 0.05$). This indicates that there is a reasonably strong correlation between the variables analyzed so that factor analysis can be carried out to reduce the dimensions of the variables and identify the underlying factor structure.

Table 3. Uniqueness of Variables in Factor Analysis

Variables	KMO	Uniqueness	Interpretation
GPM	0.3970	0.4694	About 47% of the variation is not explained by common factors
OPM	0.3507	0.2822	About 28% of the variation is unique
PPM	0.4392	0.0204	Almost all of the variation is explained by common factors
CTTOR	0.5725	0.7843	About 78% of the variation is not accounted for by common factors
NPM	0.4567	0.0164	Very little variation is unique

Source: Processed Data (2025)

In Table 3, not all variables contribute equally to the general factor. Variables such as CTTOR have the highest KMO value of 0.5725, but they have a uniqueness high of 0.7843, indicating that most of the variation is not combined into a common factor. In contrast, variables such as PPM and NPM have uniqueness very low, 0.0204 and 0.0164, respectively, indicating that almost all of the variation is explained by common factors. Based on this, CTTOR was selected as the single representative variable for tax avoidance, because it can stand alone statistically

without causing duplication of information or multicollinearity with other variables in the regression model.

Table 4. Chow Test Results

Test Type	Test Statistics	Probability	Decision
Cross-section F	16.748883	0.0000	Reject H0
Cross-section Chi-square	198.603536	0.0000	Reject H0

Source: Processed Data (2025)

The test results in Table 4 show that the value of Cross-section F amounting to 16.748883 and Cross-section Chi-square of 198.603536, with a p-value of 0.0000. Because the p-value < 0.05, the decision is to reject H0, which means the Fixed Effect Model is more appropriate than the Common Effect Model. From Table 5, we concluded that Random Effect Model is more appropriate than the Common Effect Model.

Table 5. Lagrange Multiplier Test Results

Test Type	Cross-section (p-value)	Time (p-value)	Both (p-value)	Decision
Breusch-Pagan	0.0000	0.2733	0.0000	Reject H0 → Random Effect is more appropriate
Honda	0.0000	0.8633	0.0000	Reject H0 → Random Effect is more appropriate
King-Wu	0.0000	0.8633	0.0013	Reject H0 → Random Effect is more appropriate
Standardized Honda	0.0000	0.8099	0.0001	Reject H0 → Random Effect is more appropriate
Standardized King-Wu	0.0000	0.8099	0.2957	Reject H0 in Cross-section
Gourieroux et al.	–	–	0.0000	Reject H0 → Random Effect is more appropriate
Breusch-Pagan	0.0000	0.2733	0.0000	Reject H0 → Random Effect is more appropriate
Honda	0.0000	0.8633	0.0000	Reject H0 → Random Effect is more appropriate

Source: Processed Data (2025)

The Hausman Test results in Table 6 show that the p-value is <0.05, which means the null hypothesis (H0) is rejected. Thus, the Fixed Effect Model (FEM) is stated more precisely than Random Effect Model (REM) for use in this research.

Table 6. Hausman Test Results

P-value	Decision
< 0.05	Choose FEM

Source: Processed Data (2025)

In the next stage, after selecting the Fixed Effect Model (FEM) as the best model, classical assumption testing is carried out to ensure that the model used meets basic statistical requirements and is suitable for further interpretation.

Table 7. Normality Test Results

Statistical Test	p-value	Description
Jarque-Bera Test	0.243463	Free from non-normality (p > 0.05)

Source: Processed Data (2025)

Table 7 shows the results of the normality test. The p-value of the Jarque-Bera Test is 0.243463, which is greater than the significance limit of 0.05. This shows that the residual data in the regression model is normally distributed. Thus, the normality assumption is met, which means the regression model is suitable for further analysis.

Table 8. Multicollinearity Test Results

Variables	CI	CV	NILAI_Z _	X1Z	X2Z
CI	1.000	-0.0517	-0.1239	0.0574	-0.5086
CV	-0.0517	1.000	-0.1486	-0.9645	-0.0129
Z _VALUE	-0.1239	-0.1486	1.000	0.2024	0.5633
X1Z	0.0574	-0.9645	0.2024	1.000	0.0474
X2Z	-0.5086	-0.0129	0.5633	0.0474	1.000

Source: Processed Data (2025)

Based on Table 8 regarding the results of the multicollinearity test, it can be concluded that there is no multicollinearity problem between the independent variables in the model. This is indicated by the correlation values between variables, which are all below the threshold of 0.85, which is generally used as an indicator of multicollinearity.

Table 9. Heteroskedasticity Test Results

Variables	p-value	Description
C	0.0771	Free from heteroscedasticity (p > 0.05)
CI	0.8840	Free from heteroscedasticity (p > 0.05)
CV	0.6235	Free from heteroscedasticity (p > 0.05)
Z _VALUE	0.0033	Not free from heteroscedasticity (p < 0.05)
X2Z	0.1012	Free from heteroscedasticity (p > 0.05)

Source: Processed Data (2025)

Based on the results of the Heteroscedasticity Test shown in Table 9, most of the variables in the model show values *p-value* above 0.05, such as variables C (0.0771), CI (0.8840), CV (0.6235), and X2Z (0.1012). This shows that the residuals of these variables are homogeneous (homoscedastic), so it can be concluded that the regression model is free from heteroscedasticity problems in these variables.

Table 10. Autocorrelation Test Results

Statistics	Value	Description
Durbin-Watson	1.998855	Free from autocorrelation (≈ 2)

Source: Processed Data (2025)

Based on the Autocorrelation Test results in Table 10, the Durbin-Watson (DW) statistical value is 1.998855. This value is very close to number 2, the ideal threshold value to indicate no autocorrelation in the regression model.

From Table 11, the linear regression model used in this research can be written as follows:

CTTOR = 0,026558 - 0,038940 CI + 0.007942 CV + 0,017171 Z_VALUE + 0.054401 X1Z - 0.078955 X2Z

Information:
CTTOR: Current Tax to Turnover Ratio (Tax Avoidance)
CI: Capital Intensity
CV: Environmental Uncertainty
Z_VALUE: Managerial Ability
X1Z: Interaction between Environmental Uncertainty and Managerial Ability (CV × Z_VALUE)
X2Z: Interaction between Capital Intensity and Managerial Ability (CI × Z_VALUE)

Table 11. t-Test Results

Variables	Coefficient	t-Statistic	p-Value	t Tabel (df=118)	Description
C (Intercept)	0.026558	5.852.534	0.0000	1.9803	Positive and significant effect on tax avoidance
CI	- 0.038940	0.752486	0.4537	1.9803	No effect and not significant on tax avoidance
CV	0.007942	1.351.352	0.1799	1.9803	No effect and not significant on tax avoidance
Z _VALUE	0.017171	2.214.000	0.0293	1.9803	Positive and significant effect on tax avoidance
X1Z	0.054401	1.553.258	0.1238	1.9803	No effect and not significant on tax avoidance
X2Z	- 0.078955	1.440.901	0.1530	1.9803	No effect and not significant on tax avoidance

Source: Processed Data (2025)

Based on Table 11, the t-test results are used to determine the partial influence of each independent variable on the tax avoidance. The t-test is carried out by comparing the t-statistic value of each variable against the t-table with degrees of freedom (df) = 118, namely 1.9803, and taking into account the p-value.

The results of the analysis show only variables Z_VALUE (managerial ability), which has a significant effect on CTTOR, with a coefficient of 0.017171, t-statistic of 2.214, and p-value 0.0293 (< 0.05). This shows that increasing managerial ability will increase CTTOR. Because CTTOR is measured by dividing corporate income tax payable with revenue, it means that companies are more tax compliant or tend to avoid the practice of tax avoidance.

Meanwhile, the CI (capital intensity) and CV (environmental uncertainty) have p-values of 0.4537 and 0.1799, which are greater than 0.05. This shows that both of them partially have no significant effect on CTTOR. Likewise, the p-value of interaction variables X1Z (interaction of environmental uncertainty and managerial ability) and X2Z (interaction of capital intensity and managerial ability) are still above the 0.05 limit. This indicate that managerial ability does not significantly moderate the effect of environmental uncertainty and capital intensity on tax avoidance.

Table 12. F Test Results

Information	Value
R-squared	0,8827
Adjusted R-squared	0,8466
Standard Error of Regression	0,008531

Sum Squared Residuals	0,006623
F-statistic	2,445646
Prob(F-statistic)	0,0000
F-table	2.293911158

Source: Processed Data (2025)

Based on the results of the F test (see Table 12), an F-statistic of 2,445,646 was obtained with a very small p-value, namely 0.000000. Since the p-value is smaller than 0.05, the overall regression model is significant, and we can reject the null hypothesis (H0). In other words, the independent variables used in this model jointly influence the dependent variable (CTTOR). In addition, the F-table value used for this test is 2.293911158. Because the F-count (2,445,646) is greater than the F-table (2.293911158), we can conclude that this model can explain variations in the dependent variable (CTTOR) well. This strengthens the conclusion that the independent variables have a significant influence on the dependent variable in the model tested. The coefficient of determination (R-squared) show that this regression model can explain 88.27% of the variation in the dependent variable, which indicates that the model is a perfect fit for the data. The small standard error of the regression, amounting to 0.008531, indicates that the model predictions are pretty accurate.

DISCUSSION

Environmental Uncertainty and Tax Avoidance

Environmental uncertainty is a condition where a company faces external changes that are difficult to predict, such as economic fluctuations, changes in regulations, fiscal policy, market dynamics, and competition. Theoretically, in uncertain environmental conditions, companies tend to carry out cost-efficiency strategies, including aggressive tax planning, which can lead to the practice of tax avoidance. This is supported by previous research by Huang et al. (2017) and Sharendra & Kristanto (2022), who stated that environmental uncertainty encourages companies to reduce tax burdens to maintain profit stability.

However, in this study, the results of statistical tests show that the environmental uncertainty variable (CV) does not have a significant influence on tax avoidance (measured by CTTOR), with a p-value of 0.1799 (> 0.05). This means that the uncertainty that property and real estate companies face during the study period does not directly encourage companies to avoid taxes. Several possible causes for this result include the characteristics of the property industry, which is relatively accustomed to long-term dynamics and regulatory cycles, so uncertainty is considered a risk that can be anticipated. Additionally, companies in this sector may be more focused on long-term project management and financial stability rather than undertaking aggressive fiscal maneuvers. Thus, although, in theory, environmental uncertainty can encourage tax avoidance, in the context of this research, no empirical evidence was found to support this hypothesis. This shows that the uncertainty factor is not strong enough to be the primary determinant in the tax strategy of property sector companies in Indonesia during the 2019–2023 period.

Capital Intensity and Tax Avoidance

Capital intensity reflects the extent to which a company invests its funds in fixed assets, such as buildings, machinery, and equipment. In the tax context, fixed assets have characteristics that allow depreciation, which can be use legally to reduce company's tax. Therefore, theoretically, companies with a high level of capital intensity have greater potential to perform tax avoidance because depreciation costs on fixed assets can reduce taxable profit.

However, the results of this study show that the capital intensity (CI) does not have a significant effect on tax avoidance, with a p-value of 0.4537 (> 0.05). This insignificant positive coefficient indicates that although there is a tendency to increase investment in fixed assets that can reduce the tax burden, in practice, this relationship is not statistically strong enough for the property and real estate sector companies in this study.

Several factors can explain this condition. First, in the property industry, investment in fixed assets is part of the main operational activities, so depreciation has become a routine component in financial reports and is no longer a flexible strategic tool to avoid taxes. Second, companies may consider the stability of profits and the credibility of financial statements to attract investors or maintain access to external financing rather than being aggressive in tax planning. Third, high capital intensity is not necessarily in line with efficient asset management, so the fiscal benefits from depreciation are not optimal if appropriate managerial strategies do not support them.

Thus, although theoretically, capital intensity can be a means of tax avoidance, in the context of this research, no significant evidence was found to support this relationship. This indicates that other factors, such as company policy, management ethics, or managerial ability, are more dominant in influencing company tax decisions.

Managerial Ability, Environmental Uncertainty, Capital Intensity, and Tax Avoidance

Managerial ability refers to a manager's competency in managing company resources efficiently, including designing and implementing financial and tax strategies. In the context of tax avoidance, managers with high capabilities are believed to be able to make careful and strategic decisions, including determining the extent to which a company needs to carry out aggressive tax planning or be conservative to maintain its reputation and legal compliance.

The results of this study indicate that managerial ability (Z_VALUE) has a positive and significant effect on Current Turnover Ratio (CTTOR) with a p-value of 0.0293 (< 0.05). This positive coefficient indicates that the higher a company's managerial ability, the higher its CTTOR value, which means companies tend to pay more taxes and reduce tax practices. This finding aligns with agency theory, which states that competent professional managers will be more oriented toward the company's and stakeholders' long-term interests and avoid risks arising from aggressive tax policies. In practical terms, capable managers can utilize financial information, understand regulatory changes, and better identify fiscal risks so they choose safe and legally compliant tax strategies. This also reflects that competent manager balance tax efficiency and regulatory compliance even in uncertain situations. Therefore, managerial ability can be considered an essential factor in controlling a company's tendency to commit tax avoidance.

Based on the analysis's results, the interaction variable between environmental uncertainty and managerial ability shows a significance value greater than 0.05. This means managerial ability does not significantly moderate the relationship between environmental uncertainty and tax avoidance. The insignificance effect of the moderating role of managerial ability can be explained by several possibilities, namely that the company's response to environmental uncertainty is more influenced by external pressures and corporate policies rather than managers' initiatives. Furthermore, managerial capacity is not large enough to change the direction or intensity of corporate tax strategies, especially in the property and real estate sectors, which tend to have centralized fiscal policies. Apart from that, in some cases, even managers with high abilities cannot wholly avoid the pressure to carry out tax avoidance because owners or stakeholders push to maintain profitability.

These findings are not entirely in line with previous studies such as Huang et al. (2017) or Francis et al. (2022), which state that managers with high competence can suppress the company's tendency to avoid taxes in conditions of uncertainty. These results could be caused by differences in an industrial context, governance structure, or company size, which in this

research is focused on the property and real estate sectors. Thus, companies need to emphasize strengthening external risk management systems and procedures more than relying solely on individual managers' capabilities in dealing with environmental uncertainty.

The analysis results show that the interaction between capital intensity and managerial ability shows a significance value above 0.05, which means it is not statistically significant. Thus, managerial ability does not moderate the relationship between capital intensity and tax avoidance. These results indicate that the influence of capital intensity on tax avoidance operates independently, without depending on the level of the company's managerial ability. Companies with a high proportion of fixed assets tend to have greater potential for tax avoidance through asset depreciation mechanisms. However, this strategy is structural and can be carried out automatically without significant intervention from top-level management.

Capital intensity-based tax avoidance practices are likely more determined by accounting policies or the company's asset structure than managerial skills or qualities. This can happen because the depreciation of fixed assets as a tax deduction component has been technically regulated in accounting and taxation standards. Hence, the manager's policy space in this aspect is limited.This finding contradicts several previous studies stating that capable managers can direct investment and tax strategies more efficiently (Amiah, 2022; Asri & Suardana, 2016). However, these results also provide a new understanding that in specific contexts, such as the property and real estate sectors, asset-intensive capital structures are controlled more by long-term corporate decisions rather than day-to-day managerial tactical decisions. Thus, companies are advised to focus on structural and accounting policies in managing capital intensity.

CONCLUSIONS

Based on the results of the research that has been conducted, it can be concluded that managerial ability has a significant influence on tax avoidance. The higher the managerial capability of a company, the higher the likelihood that the company will demonstrate a higher level of tax compliance and avoid aggressive tax avoidance practices. However, environmental uncertainty and capital intensity, although in theory can encourage tax avoidance practices, are not empirically proven to have a significant influence on tax avoidance in property and real estate sector companies in Indonesia. The results also show that managerial capability cannot moderate the relationship between environmental uncertainty and capital intensity on tax avoidance, which indicates that although competent managers can encourage tax compliance, this capability is not sufficient to change external influences on corporate tax strategies. This study emphasizes the importance of strengthening managerial capacity as a key strategy to improve tax compliance amid complex business dynamics.

LIMITATION

This study has several limitations that need to be acknowledged. First, the scope of the research is limited to property and real estate sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period, so the findings cannot necessarily be generalized to other industrial sectors with different operational and fiscal characteristics. Second, measuring managerial ability using Data Envelopment Analysis (DEA) approach, which is quantitative and does not fully capture qualitative aspects such as experience, leadership style, or managerial ethics. Third, the indicator of environmental uncertainty used, namely the sales variation coefficient, may not be representative enough to describe the complexity of external dynamics the company faces. These limitations can influence the depth of analysis and accuracy of interpretation of results, so they need to be considered in the development of further studies.

Suggestions for further research are to expand the object of study to other industrial sectors, such as manufacturing, services, or mining, to obtain a more comprehensive picture of the relationship between environmental uncertainty, capital intensity, managerial ability, and tax avoidance. In addition, it is recommended to use a more holistic approach to measuring

managerial abilities by considering qualitative aspects such as educational background, work experience, and manager leadership style to capture dimensions that cannot be explained only by a quantitative approach. Future research could also use more diverse environmental uncertainty indicators, such as economic policy uncertainty indices or management perceptions of external risks, to make the analysis more accurate and relevant. Furthermore, using primary data through interviews or surveys can complement secondary data and deepen understanding of managerial strategies in dealing with fiscal pressures and the dynamics of the business environment.

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