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# Tax Risk, Tax Avoidance, and Corporate Risk: The Moderating Role of Board Gender in Indonesian Firms

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## Abstract

Tax risk and tax avoidance have attracted increasing academic attention due to their implications for corporate risk and governance. This study aims to examine the effect of tax risk and tax avoidance on corporate risk, with gender composition on the board of directors as a moderating variable. Focusing on industrial goods companies listed on the Indonesia Stock Exchange during the 2021–2023 period, this study analyzes 45 observations from 16 companies using panel data regression. Corporate risk is measured by stock return volatility, tax risk is proxied by tax liability uncertainty, and tax avoidance is calculated as the ratio of pre-tax profit to total assets. Gender is measured by the proportion of female directors. The results show that tax risk has a significant negative effect on corporate risk, indicating more prudent management under fiscal uncertainty. Conversely, tax avoidance has a significant positive effect, increasing cash flow volatility and reputation exposure. However, gender does not significantly moderate the relationship between tax avoidance and corporate risk, likely due to low female representation. These findings underscore the importance of fiscally conservative strategies and increasing gender diversity in corporate governance.

## Keywords

*Corporate Risk, Gender, Governance, Panel Regression, Tax Avoidance, Tax Risk.*

## 1. Introduction

The primary goal of every business entity is to maximize profits to enhance stakeholder prosperity (Hermuningsih, 2012). This prosperity is often reflected in rising share prices, which in turn reflect market perceptions of the company's internal and external performance. As explained by Firmansyah and Muliana (2018), share valuation is a function of internal company factors, including investment policies, capital structure composition, operational performance, and prevailing macroeconomic conditions. In achieving these goals, companies must consider various risks, one of which is corporate risk, which can directly impact cash flow stability and shareholder prosperity.

According to Hutchens et al. (2015), corporate risk is the uncertainty surrounding future net cash flows. Rising interest expenses or prolonged debt maturities can be early indicators that a company is in a less favorable situation. Sambiring (2022) added that this risk is measured through deviations from anticipated results, while Damayanti and Susanto (2015) emphasized that earnings volatility, calculated through standard deviation, is the primary measure for assessing the extent of risk. Drake et al. (2019) revealed that fluctuations in stock returns, a reflection of corporate risk, can also be influenced by less predictable factors such as tax risk.

Tax risk itself refers to uncertainty regarding future tax obligations (Guenther et al., 2017). When a company is uncertain about its tax position, management cannot accurately estimate the amount of tax payments to be incurred, ultimately creating cash flow uncertainty. Zuzanto et al. (2024) emphasized that this uncertainty can pose a serious long-term threat to companies. However, research on the effect of tax risk on corporate risk has yielded mixed results. On the one hand, Firmansyah and Muliana (2018) and Belananda M. R. (2024) found the effect to be insignificant, while on the other hand Carolina et al. (2021) found a positive and significant relationship.

In addition to tax risk, tax avoidance practices have also been a major focus in discussions regarding corporate risk. Tax avoidance is defined as a company's attempt to minimize its tax burden through regulatory loopholes without violating the law (Hanlon & Heitzman, 2010; Rahayu, 2010). However, this practice continues to draw criticism as it is considered unethical and threatens state revenues. As is known, in 2020, Indonesia's realized tax revenue reached more than IDR 1,400 trillion (pajak.go.id), and potential revenue could increase by up to 5.5% if tax avoidance practices could be minimized (kontan.co.id). According to Hasan ab et al. (2014), tax avoidance practices have the potential to increase the volatility and unpredictability of a company's cash flow, given that this strategy relies heavily on the stability of tax regulations and the consistent interpretation of applicable tax laws.

Again, previous research on the impact of tax avoidance on corporate risk has also shown inconsistencies. For example, Firmansyah and Muliana (2018) stated no significant effect, while Zef Arfiansyah (2020) showed that tax avoidance had a positive effect on firm value, a finding supported by Cao et al. (2021) and Carolina et al. (2021). This opens up room for further research to verify these diverse results.

Interestingly, moderating variables such as gender in leadership are believed to influence more cautious managerial decision-making (Bogan et al., 2013). Faccio et al. (2016) and Muhammad et al. (2022) found that the presence of women in strategic positions such as board of directors or CEOs contributes to reduced corporate risk due to more conservative and less speculative decision-making.

Against this backdrop, this study aims to empirically examine the effect of tax risk and tax avoidance practices on corporate risk, using gender as a moderating variable. This research also addresses inconsistencies in previous studies and enriches the literature on corporate governance and risk management in an era of increasingly complex fiscal uncertainty.

## 2. Literature Review

### *2.1. Agency Theory*

Jensen and Meckling (1976) explain the concept of an agency relationship formed between the principal, in this case the shareholders, and the agent, namely the company's management. In this agency relationship, the principal delegates authority to the agent to carry out the company's operational and managerial functions. However, in practice, the agent does not always act in line with the principal's interests. This authority often creates information asymmetry, which provides opportunities for agents to act opportunistically. Desai et al. (2004) highlight that one form of opportunistic action by managers is through a tax avoidance strategy, which aims to reduce the company's tax burden, but at the same time can be used to fulfill the agent's personal interests. Furthermore, Damayanti and Susanto (2015) emphasize that the effectiveness of a tax avoidance strategy is highly dependent on the quality of corporate governance. In conditions of weak governance, the potential for value creation through tax efficiency is not achieved. Garg et al. (2022) also showed that investors tend to avoid allocating investment to companies implementing tax avoidance strategies, due to concerns about the potential deterioration of the company's stock value. Therefore, while tax avoidance can provide short-term financial benefits, it also carries the potential for significant losses. Therefore, opportunistic management behavior must carefully weigh the economic benefits against the potential costs, both in terms of reputation and market risk.

### *2.2. Firm Risk and Tax Risk*

Firm risk reflects the level of uncertainty regarding a company's future earnings or cash flow. This risk is closely related to management's ability to manage financial fluctuations arising from internal and external factors. Hutchens et al. (2015) explain that firm risk can be indicated by inconsistent cash flow and earnings fluctuations. Damayanti and Susanto (2015) add that earnings volatility can be measured using standard deviation, a quantitative indicator for measuring this uncertainty. Drake et al. (2019) also emphasize that firm risk can be reflected in the volatility of stock returns in the capital market. Sambiring (2022) define this risk as a deviation from expected results, where the greater the deviation from predicted earnings, the higher the risk faced by the company.

Tax risk is a form of uncertainty regarding the amount of a company's future tax liabilities. This uncertainty arises from the complexity of tax regulations, varying interpretations, and the potential for audits by tax authorities. Guenther et al. (2017) defines tax risk as the probability of a discrepancy between the amount of tax reported and the amount ultimately paid. Tax risk can impact a company's financial planning, particularly in terms of cash flow estimation, net income, and risk management. Zuzanto et al. (2024) emphasize that tax risk not only disrupts financial stability but also reflects the low quality of a company's financial reporting. When tax risk increases, this can mean that managers are reluctant to engage in transparent tax planning, which can negatively impact perceptions from investors and regulators.

### 2.3. Tax Avoidance and Gender

Tax avoidance is a strategy employed by companies to minimize tax liabilities through legitimate and legal means, but it is sometimes ethically questionable. According to Rahayu (2010), tax avoidance does not explicitly violate the law, but rather exploits loopholes in tax regulations. Frank et al. (2009) distinguishes between legitimate tax avoidance and tax aggressiveness, which is more closely related to tax evasion. From an economic and social perspective, the practice of tax avoidance can be controversial. Hanlon and Heitzman (2010) state that, although legitimate, aggressive tax avoidance can create information asymmetry, reduce the transparency of financial reports, and trigger negative reactions from the public and tax authorities. In Indonesia, given that taxes are the backbone of the state budget funding, this practice clearly impacts state revenues, as noted by Siregar (2016). Gender within top management or the board of directors is believed to influence decision-making behavior, including risk management and corporate ethics. Faccio et al. (2016) stated that female CEOs tend to be more risk-averse than male CEOs and avoid high-risk decisions. A similar finding was also noted by Muhammad et al. (2022), who found that companies with a majority of female directors exhibited more conservative investment patterns and were more cautious in responding to market fluctuations. In the context of tax risk and tax avoidance, gender can act as an internal control mechanism that suppresses aggressive and unethical practices. Darmawan and Roba'in (2022) noted that the presence of female leaders can increase corporate transparency and accountability, particularly in strategic decision-making such as tax planning.

### 2.4. Corporate Risk, Governance, and Their Influence on Tax Strategies

Firmansyah and Muliana (2018) found no significant relationship between tax avoidance or tax risk and overall corporate risk. They argue that tax risk reflects external, uncontrollable factors like regulatory changes, fiscal policies, and macroeconomic conditions, and thus does not represent the internal operational risks of a company. Hutchens et al. (2015) added that while aggressive tax avoidance reduces tax liabilities, it can negatively affect public perception and increase corporate risk.

Sambiring (2022), analyzing chemical subsector companies listed on the Indonesia Stock Exchange from 2016 to 2020, identified three key findings: (1) corporate risk has a negative but insignificant effect on tax aggressiveness, suggesting that internal risk levels do not materially drive tax avoidance strategies; (2) leverage has a significant negative effect, indicating that firms with high debt levels are less aggressive in avoiding taxes, likely due to tax shields from interest expenses; and (3) liquidity significantly and negatively affects tax aggressiveness, meaning companies with strong liquidity fulfill tax obligations more readily.

Damayanti and Susanto (2015) further found that corporate risk and return on assets significantly influence tax avoidance practices, highlighting the role of profitability and operational risks in shaping tax behavior. However, they noted that corporate governance indicators such as audit quality, audit committees, and institutional ownership did not significantly affect tax avoidance decisions. This suggests weak governance oversight, a permissive approach toward tax minimization to boost after-tax profits, or suboptimal implementation of corporate governance frameworks in practice.

Overall, these studies show that internal financial metrics such as leverage, liquidity, and profitability play more consistent roles in influencing tax avoidance than tax risk or governance structures in certain organizational contexts.

### *2.5. Empirical Evidence on Tax Aggressiveness and Its Impact on Risk and Value*

Drake et al. (2019) found that investors generally view tax avoidance positively, but perceive tax risk negatively, with high tax risk weakening the favorable view of tax avoidance. Guenther et al. (2017) support this by showing that while tax avoidance strategies do not increase corporate risk, there is a positive correlation between cash tax rate volatility and future stock volatility, linking tax rate fluctuations to corporate risk. Zuzanto et al. (2024) confirmed that although tax risk does not significantly affect corporate risk, both tax avoidance and tax reporting aggressiveness do, with the audit committee moderating this relationship—though not effectively for tax risk alone. Similarly, Carolina et al. (2021) concluded that all three factors—tax avoidance, tax aggressiveness, and tax risk—affect corporate risk.

Desai et al. (2005) found the average effect of tax avoidance on firm value to be statistically insignificant, but firms with strong governance experience significant benefits from tax-saving strategies, aligning with projected long-term value gains. Frank et al. (2009) highlighted mismatches between financial and tax reporting systems, enabling companies to boost book earnings while lowering taxable income, especially among firms with aggressive financial reporting. Hanlon and Heitzman (2010) reinforced that aggressive tax avoidance can reduce liabilities but may harm corporate reputation and elevate risk. Muhammad et al. (2022) observed that female directors promote risk-averse decisions, reducing exposure to tax-related risks.

Cao et al. (2021) found that the relationship between tax avoidance and corporate risk varies across countries, time periods, and measurement proxies, underscoring the need to address endogeneity in future studies. Dhaliwal et al. (2017) added that differences between book income and taxable income influence how investors assess firm risk. Faccio et al. (2016) concluded that risk-averse behavior, particularly in firm-CEO matches, may distort capital allocation, with implications for long-term economic growth.

### 2.6. The Impact of Tax Risk and Tax Avoidance on Corporate Risk

Tax risk represents the level of uncertainty regarding the tax burden a company will bear in the future. This uncertainty arises from ambiguous interpretations of tax regulations, potential tax audits, and changes in fiscal policy (Guenther et al., 2017). When company management lacks certainty regarding its tax position, this can disrupt the company's future cash flow projections and increase earnings volatility (Drake et al., 2019). In this context, tax risk can act as a trigger for increased corporate risk due to its high exposure to unexpected fiscal consequences. Therefore, the first hypothesis proposed is that the higher the tax risk, the greater the company's risk.

Tax avoidance refers to legal corporate activities undertaken to reduce the tax burden owed by exploiting inconsistencies or ambiguities in tax laws (Hanlon & Heitzman, 2010). While this strategy can increase net income and optimize a company's cash flow in the short term, aggressive tax avoidance has the potential to cause serious problems. Tax avoidance can trigger negative reactions from fiscal authorities, incur future fines or penalties, and damage the company's image in the eyes of the public and investors (Desai et al., 2005; Hasan et al., 2014). Furthermore, tax avoidance practices are often not explicitly disclosed in financial statements, thus intensifying information asymmetry between management and stakeholders. Consequently, the implementation of a less transparent tax avoidance strategy has the potential to increase the company's risk exposure due to the uncertainty of the legal aspects and the accompanying reputational risks.

H1: Tax risk has a positive effect on corporate risk
H2: Tax avoidance has a positive effect on corporate risk

### 2.7. Tax Avoidance on Corporate Risk moderated by Gender

Gender, particularly the presence of women in strategic positions such as the board of directors or top management, is believed to influence managerial decision-making processes to be more cautious and ethically based (Faccio et al., 2016; Muhammad et al., 2022). Women in leadership positions tend to exhibit higher levels of risk aversion than men and are more concerned with corporate reputation and regulatory compliance (Darmawan & Roba'in, 2022). In the context of tax avoidance, the presence of female leaders can act as an internal oversight mechanism that discourages management from taking aggressive, high-risk actions. Thus, gender can function as a moderating variable that weakens or reduces the negative impact of tax avoidance on corporate risk.

H3: Gender reduces the effect of tax avoidance on corporate risk

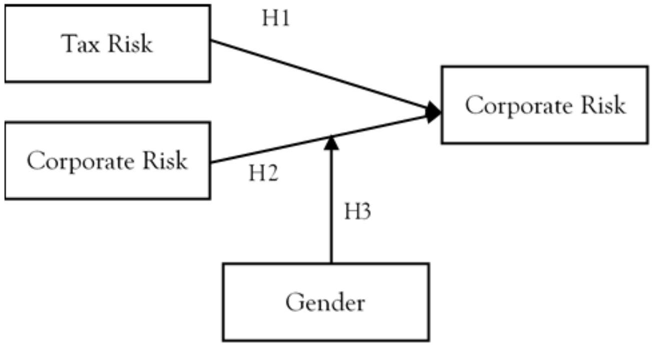


**Figure 1.** Conceptual Framework

Figure 1 shows a conceptual framework for the relationship between tax risk and tax avoidance on corporate risk, with gender as a moderating variable. This model illustrates that the influence of tax risk and tax avoidance strategies on corporate risk can be strengthened or weakened by gender characteristics within a company's leadership structure.

## 3. Methods

This research uses a quantitative method with a panel data regression approach. The analyzed data comes from the annual financial reports of consumer goods companies listed on the Indonesia Stock Exchange for the period 2021–2023. The independent variables used are tax risk and tax avoidance, while corporate risk is the dependent variable. Gender is used as a moderating variable to test whether gender characteristics in leadership influence the relationship between tax practices and corporate risk. The analysis was conducted using statistical software to empirically test causal relationships and moderating effects. This study used a population of industrial goods companies listed on the Indonesia Stock Exchange (IDX) for the 2021-2023 observation period. The sampling technique used was purposive sampling with the following selection criteria:

**Table 1.** Sample Selection Process

| Criteria | Number of Samples |
|---|---|
| Industrial goods companies listed on the Indonesia Stock Exchange in 2021-2023. | 34 |
| Companies that have suffered losses | (2) |
| Data available in full (no female board of directors) | (16) |
| Analysis year 2021-2023 | 16 |
| Number of observations (8 x 3 years) | 48 |

Table 1 shows the sample selection process for the study, which included 34 industrial goods companies listed on the IDX for the 2021–2023 period. After filtering out loss-making companies, incomplete data, or companies with female directors, 16 companies with a total of 48 observations were selected for analysis over three years.

**Tabel 2.** Variable Measurement

| Definition | Measurement | Skala |
|---|---|---|
| Tax Risks | $Cash\ ETRit = \frac{Tax\ Payment\ it}{Profit\ Before\ Tax\ it}$ <br> Volatility Cash ETR it = Standard deviation of company's cash ETR it | Rasio |
| Tax Avoidance | $Tax\ Avoidance\ it = \frac{Profit\ Before\ Tax\ it}{Total\ Assets\ it}$ | Rasio |
| Gender | $Gender = \frac{Number\ of\ female\ Board\ of\ Directors\ it}{Number\ of\ Board\ of\ Directors\ it}\ 100\%$ | Rasio |
| Corporate Risk | $Return\ Saham\ it = \frac{(Stock\ price\ it) - (Stock\ price\ it - 1)}{Stock\ price\ it}$ <br> Stock Return Volatility it = Standard deviation of stock returns of company it. | Rasio |

Table 2 explains the definition, measurement, and scale of the research variables. The variables include tax risks, tax avoidance, gender, and corporate risk, all measured using ratio-based formulas. Measurements are made using standard deviation and comparisons of the company's financial components over the observation period to illustrate volatility and proportion.

This study uses secondary data in the form of financial reports from industrial goods companies listed on the Indonesia Stock Exchange for the 2021-2023 period. The research design employed is quantitative research with an explanatory research approach to test the formulated hypotheses. The analytical method used is panel data regression analysis with the aid of EViews software version 12. The panel data method was chosen based on the data structure, which has cross-sectional (company) and time series (time period) dimensions, thus allowing for a more comprehensive analysis by controlling for individual heterogeneity. The panel data regression equation model to examine the effect of tax risk and tax avoidance on corporate risk with moderating variables is as follows:

*Main Effect Test:*

$$\boldsymbol{Corporate\ Risk_{it} = \alpha + \beta_1\ Tax\ Risk_{it} + \beta_2\ Tax\ Avoidance_{it} + e_{it}}$$

*Moderating Effect Test:*

$$\boldsymbol{\begin{aligned} Corporate\ Risk_{it} \\ &= \alpha + \beta_1\ Tax\ Risk_{it} + \beta_2\ Tax\ Avoidance_{it} \\ &+ \beta_3\ Gender_{it} + \beta_4\ Tax\ Avoidance_{it} * Gender_{it} \\ &+ e_{it} \end{aligned}}$$

## 4. Results

Descriptive statistical analysis was conducted to provide an overview of the characteristics of the research data, including the dependent, independent, and control variables. The descriptive statistics presented include the number of observations (N), minimum value, maximum value, average (mean), and standard deviation for each research variable. The following table presents the results of the descriptive statistical analysis of all variables used in this study.

**Table 3.** Descriptive Statistics

| Variable | Obs. | Min. | Max. | Mean | Std.dev |
|---|---|---|---|---|---|
| Y | 45 | 0.000 | 0.870 | 0.136 | 0.201 |
| X1 | 45 | -2.160 | 5.280 | 0.286 | 0.985 |
| X2 | 45 | -0.070 | 0.470 | 0.061 | 0.095 |
| M | 45 | 0.100 | 0.500 | 0.328 | 0.135 |
| Description: Y: Company Risk. X1: Tax Risk. X2: Tax Avoidance. M: Gender | | | | | |

Based on descriptive statistics in Table 3 obtained from data processing using EViews 12. This study involved 45 observations focusing on four main variables: Corporate Risk (Y), Tax Risk (X1), Tax Avoidance (X2), and Gender (M). The Corporate Risk (Y) variable has a minimum value of 0.000 and a maximum of 0.870, with a mean of 0.136 and a standard deviation of 0.201. This indicates that the company's risk level is generally low, but some companies have a much higher risk level. Meanwhile, Tax Risk (X1) shows a wider distribution, with a minimum value of -2.160 and a maximum of 5.280, a mean of 0.286 and a standard deviation of 0.985. This indicates significant variations in the tax risks faced by companies in the sample, reflecting heterogeneous fiscal conditions. The Tax Avoidance (X2) variable has a mean of 0.061, with a standard deviation of 0.095. The minimum value is -0.070 and the maximum is 0.470. This figure indicates that tax avoidance practices among companies are generally relatively low, but there are significant differences between companies in terms of the tax avoidance strategies they use. Meanwhile, the Gender variable (M), represented as a proportion, has a mean of 0.328 and a standard deviation of 0.135. The minimum value of 0.100 and the maximum value of 0.500 indicate that gender representation (the possible proportion of women in management or the board) varies within the study sample, although it tends to be dominated by one particular gender group. Overall, the distribution of the means and standard deviations of the four variables indicates that the data have sufficient variation for further analysis and meet the basic characteristics of the regression approach. This study applies the White heteroscedasticity consistent variance approach and the standard error approach as correction methods for heteroscedasticity problems.

**Tabel 4.** Pairing test

| Uji Chow | Model I | Model II |
|---|---|---|
| Cross-section F (sig) | 0.000 | 0.000 |

| | | |
|---|---|---|
| Information | Fixed | Fixed |
| Cross-section Random (sig) | 0.4142 | 0.8504 |
| Information | Random | Random |
| Cross-section Random (sig) | 0.0000 | 0.0000 |
| Information | Random | Random |
| Conclusion | Random | Random |

Based on Table 4, the results of the panel data model selection test for Model I, which examines the effect of tax risk and tax avoidance on corporate risk, the Chow test yields a cross-section F significance value of 0.000. This indicates that the fixed effects model is more appropriate than the common effects model, as its significance value is below the 5% level. Furthermore, the Hausman test yields a cross-section random effects significance value of 0.4142, indicating no significant difference between the fixed and random effects estimates, thus making the random effects model preferable. However, the Lagrange Multiplier (LM) test yields a significance value of 0.0000, indicating that the random effects model outperforms the common effects model. Taking these three tests into account, the random effects model is selected as the most appropriate model for Model I.

Meanwhile, in Model II, which evaluates the effect of tax avoidance on corporate risk with gender as a moderating variable, the Chow test also yields a cross-section F significance value of 0.000, indicating that the fixed effects model outperforms the general effects model. The Hausman test for this model yields a significance value of 0.8504, again indicating that random effects are more appropriate than fixed effects, as there is no significant difference between the two. Furthermore, the Lagrange Multiplier test results with a significance value of 0.0000 support the use of the random effects model over the general effects model. Thus, based on the three diagnostic tests conducted, the random effects model is also the best choice for Model II. Overall, these results provide strong statistical justification for choosing the random effects approach for both analysis models in this study.

**Tabel 5.** Hypothesis Test

| **Independent Variables** | **Model I** | | | **Model II** | | |
|---|---|---|---|---|---|---|
| | **Main Effects** | | | **Moderation Effect** | | |
| | **Dependent Variable: Y** | | | **Dependent Variable: Y** | | |
| | **Koef.** | **t-stat.** | **Sig** | **Koef.** | **t-stat.** | **Sig** |
| X1 | 0.978 | -2.877 | 0.007 | | | |
| X2 | 6.922 | 8.441 | 0.000 | 10.566 | 2.942 | 0.006 |
| M | | | | -0.057 | 0.058 | 0.955 |
| X2*M | | | | 11.864 | 1.116 | 0.273 |
| Konst. | 3.198 | 22.181 | 0.000 | -3.431 | 9.334 | 0.000 |
| Adjusted $R^2$ | | 69.7% | | | 60.2% | |
| F-stat. | | 38.926 | | | 17.639 | |
| Sig. | | 0.000 | | | 0.000 | |
| Obs. | | 45 | | | 45 | |

Description: Y: Corporate risk. X1: Tax Risk. X2: Tax Avoidance. M: Gender. X2M: Tax Avoidance*Gender.

Based on Table 5, the test results in Model I, which aims to examine the effect of tax risk and tax avoidance on corporate risk, show that the tax risk variable (X1) has a regression coefficient of -0.978, a t-statistic value of -2.877, and a significance level of 0.007. A significance value below 0.05 indicates that tax risk has a negative and significant effect on corporate risk, thus supporting hypothesis H1. This finding suggests that the higher the tax risk faced by a company, the lower the level of corporate risk. This decrease may be due to prudent measures taken by management in response to fiscal uncertainty. Companies in Indonesia may tend to be conservative in facing tax risks, which ultimately minimizes overall corporate risk. This implies that companies are aware of the fiscal consequences and adopt more cautious managerial policies to avoid potential tax sanctions. Conversely, the tax avoidance variable (X2) shows a coefficient of 6.922, a t-statistic of 8.441, and a significance level of 0.000, which is statistically significant. This indicates that the higher the intensity of tax avoidance, the more significant the corporate risk, thus supporting hypothesis H2. This finding is consistent with the studies of Badertscher (2012) and Hasan et al. (2014) which state that tax avoidance practices can increase the uncertainty of future cash flows as well as litigation and reputation risks, which in turn increase corporate risk.

Furthermore, in Model II, which includes gender as a moderating variable to test the interaction between tax avoidance and corporate risk, the analysis results show that tax avoidance (X2) remains positive and significant on corporate risk with a coefficient of 10.566, a t-statistic of 2.942, and a significance level of 0.006. However, the gender variable (M) shows insignificant results with a coefficient of -0.057, a t-statistic of -0.058, and a significance level of 0.955. Furthermore, the interaction between tax avoidance and gender (X2*M) produces a coefficient of -11.864, a t-statistic of -1.116, and a significance value of 0.273, which indicates statistical insignificance, thus rejecting hypothesis H3. These results indicate that gender on the board of directors has not been able to moderate the effect of tax avoidance on corporate risk. Referring to Desai et al. (2005). Tax avoidance by management reflects information asymmetry and low financial transparency. This is in line with the views of Balakrishnan et al. (2017), and Dhaliwal et al. (2017), Dyreng et al. (2019), and Cao et al. (2021) who stated that tax avoidance creates uncertainty over tax regulations and future cash flow implications. This failure to moderate may be due to the unrepresentative composition of female board directors, as indicated by the average value of 32.8%. This reflects the absence of a strong gender balance in the company's strategic decision-making structure. This implies that the role of women in management is not yet strong enough to influence the company's strategic fiscal policy.

## 5. Discussion

This study investigates the influence of tax risk and tax avoidance on corporate risk, with gender as a moderating variable. Empirical results indicate that tax risk and tax avoidance have a significant positive effect on corporate risk, while gender significantly moderates the relationship between tax avoidance and corporate risk. This finding aligns with previous studies emphasizing the strategic role of tax decisions in influencing corporate financial volatility (Guenther et al., 2017; Drake et al., 2019).

Tax risk, as measured by cash ETR volatility, reflects uncertainty about future tax payments. This uncertainty leads to unpredictable cash flows, ultimately increasing corporate risk (Zuzanto et al., 2024). Guenther et al. (2017) found a positive relationship between tax rate volatility and stock price volatility, supporting the conclusion that tax risk contributes to operational and market-based uncertainty. Similarly, Carolina et al. (2021) documented those fluctuations in tax reporting behavior significantly impact investor confidence and risk exposure. On the other hand, tax avoidance, while often aimed at minimizing legal tax liabilities, can lead to reputational damage and regulatory scrutiny, which magnifies risk (Hanlon & Heitzman, 2010; Hutchens et al., 2015; Cao et al., 2021). Aggressive use of legal loopholes or complex tax schemes increases the risk of restatement and future enforcement actions (Frank et al., 2009). Drake et al. (2019) also argue that while investors may view tax avoidance positively in the short term, tax uncertainty actually weakens company valuations in the long term.

Unfortunately, the moderating role of gender provides an additional layer of insight. This study found that companies with female representation on the board of directors experience a lower impact of tax avoidance on firm risk. This supports the notion that female leaders tend to adopt more conservative financial strategies and exhibit lower risk tolerance (Faccio et al., 2016; Muhammad et al., 2022). Bogan et al. (2013) further emphasized that gender diversity in leadership correlates with reduced speculative decision-making and improved governance quality.

The inconsistent results of previous studies underscore the complexity of this relationship. For example, Firmansyah and Muliana (2018) reported an insignificant relationship between tax risk and firm risk, which may stem from external influences such as changes in macroeconomic policy. Conversely, studies such as Cao et al. (2021) and Carolina et al. (2021) found a significant positive effect, suggesting that context, such as the strength of corporate governance and the market environment, plays a significant role in shaping outcomes.

Other influencing factors include leverage and liquidity. Sambiring (2022) noted that highly leveraged firms tend to reduce tax aggressiveness due to the presence of interest-based tax shelters, while firms with strong liquidity can meet tax obligations more comfortably, thereby reducing the incentive for risk-averse practices. Damayanti and Susanto (2015) highlighted that while corporate profitability and risk influence tax behavior, governance structures such as audit committees exhibit limited control, potentially due to weak enforcement or implementation.

This study contributes by combining these perspectives and empirically demonstrating a close relationship between tax strategy, gender governance, and corporate risk. This study also echoes the findings of Desai et al. (2005), who showed that effective governance can transform tax avoidance into a value-creating activity, rather than a risk-amplifying one.

These findings underscore the need for companies to adopt prudent tax strategies and strengthen governance, particularly through inclusive leadership structures. Regulators should also consider incorporating gender diversity into corporate governance guidelines to enhance risk oversight. Future research could explore sector-specific effects or integrate psychological and behavioral metrics for more in-depth analysis.

## 6. Conclusion

This study empirically investigates the influence of tax risk and tax avoidance on corporate risk, while assessing the moderating role of gender on the board of directors. Using a random effects panel data regression on industrial goods companies in Indonesia during 2021–2023, the findings reveal that tax risk has a significant negative effect on corporate risk, suggesting that firms respond conservatively to fiscal uncertainty. Conversely, tax avoidance exhibits a significant positive effect on corporate risk, reflecting higher exposure to cash flow volatility and reputational challenges. However, gender representation on the board does not significantly moderate this relationship, likely due to the still limited proportion of female directors in the observed firms.

These findings have several implications. For corporate management, the results underline the need for caution in applying aggressive tax avoidance strategies, which may increase both legal and reputational exposure. Regulators are encouraged to enhance tax transparency and tighten oversight to mitigate excessive avoidance. For investors, tax-related disclosures can serve as crucial signals in evaluating a company's risk profile. Additionally, the weak moderating effect of gender highlights the strategic importance of increasing female representation in corporate leadership to foster more balanced, risk-averse decision-making.

However, this study has several limitations. The analysis focuses solely on industrial goods firms within a three-year period, limiting generalizability across sectors and time. The low proportion of women on corporate boards may also weaken the validity of moderation effects. Moreover, the study relies exclusively on secondary quantitative data, without capturing qualitative aspects such as managerial ethics or cultural influences.

Future research should expand the sample across sectors and use longer observation periods. Integrating qualitative methods such as interviews or case studies can provide richer insights into gender roles in governance. Researchers are also encouraged to explore other moderating variables like governance quality or institutional ownership.

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