The effect of tax avoidance and tax risk on firm risk

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ABSTRACT

Today, tax avoidance done by a company tends to streamline tax costs borne by the company. On the contrary, it can affet the emergence of firm risks in the future, such as managerial reputation risk, reputation risk of transparency of the company's financial statements, and the risk of the collapse of company value This study aims to determine whether tax avoidance and tax risk have an influence on firm risk. This study uses data in the form of annual financial statements of manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2014 to 2018. The results of this study show that tax avoidance and tax risk have a positive effect on firm risk. The results of this study prove the signaling theory that company management sends signals in the form of in-formation about tax avoidance and tax risk to investors. The investors then use the information as a tool in making decisions in the future.

ABSTRAK

Saat ini penghindaran pajak yang dilakukan oleh suatu perusahaan cenderung untuk mengefisienkan biaya pajak yang ditanggung oleh perusahaan. Sebaliknya dapat mem-pengaruhi munculnya risiko perusahaan di masa yang akan datang, seperti risiko reputasi manajerial, risiko reputasi transparansi laporan keuangan perusahaan, dan risiko runtuhnya nilai perusahaan. Penelitian ini bertujuan untuk mengetahui apakah peng-hindaran pajak dan risiko pajak berpengaruh terhadap risiko perusahaan. Penelitian ini menggunakan data Laporan Tahunan perusahaan manufaktur yang terdaftar di BEI tahun 2014 sampai dengan 2018. Hasil penelitian ini menunjukkan bahwa penghindaran pajak dan risiko pajak berpengaruh positif terhadap risiko perusahaan. Hasil penelitian ini membuktikan teori sinyal bahwa manajemen mengirimkan sinyal berupa informasi mengenai penghindaran pajak dan risiko pajak lalu diterima oleh investor, dimana informasi tersebut digunakan sebagai alat dalam mengambil keputusan di masa depan.

1. INTRODUCTION

Tax avoidance is an action taken by a company to streamline tax costs that the company has to bear. In addition, tax avoidance can also affect the emergence of firm risks in the future. For example of these are such as managerial reputation risk, reputation risk of transparency of the company's financial statements, and the risk of the collapse of company value (Hasan et al., 2014; Balakrishnan et al., 2019; Gallemore et al., 2014; Chen et al., 2019).

In reletion to the case above, this study tries to examine the effect of tax avoidance and tax risk on firm risk. Tax avoidance is beneficial for the company because the tax burden paid is smaller than the actual tax burden. The information regarding tax avoidance received by investors can be used as a tool in assessing the company. Corporate tax avoidance can pose a risk to the company. One of the risks of tax avoidance is financial risk, where the company will have to pay fines in the future. The financial risk that will be experienced by the company in the future is important information for investors in making investment decisions in the company. Guenther et al. (2016), Firmansyah and Muliana (2018), Hutchens et al. (2020), Cao et al. (2021), and Carolina (2021) examined the effect of tax avoidance on firm risk. However, these studies have different results. The results

of research conducted by Guenther et al. (2016) show that tax avoidance has a negative effect on firm risk. The results of research conducted by Hutchens et al. (2020) show that tax avoidance has positive and negative effects on firm risk. Cao et al. (2021) examined the effect of tax avoidance on firm risk in China and the results show that tax avoidance has a positive effect on firm risk. The are several studies in Indonesia that examine the effect of tax avoidance on firm risk. The results of research conducted by Firmansyah and Muliana (2018) show that tax avoidance has no effect on firm risk. Meanwhile, the results of research conducted by Carolina (2021) show that tax avoidance has a negative effect on firm risk.

In addition to examining the effect of tax avoidance on firm risk, this study also examines the effect of tax risk on firm risk. The information about the existence of tax risk to the company is a signal that can be used by investors in making decisions. Hutchens and Rego (2015) conclude that the higher the tax risk, the higher the firm risk will be. The results of research conducted by Günther et al. (2013) show that tax risk has an effect on firm risk. According to Günther et al. (2013), tax risk is an important component of firm risk. Similar to the results of research conducted by Günther et al. (2013), the results of research conducted by Cao et al. (2021) also show that tax risk has a positive effect on firm risk. Firmansyah and Muliana (2018) conducted a study on the effect of tax risk on firm risk in Indonesia and the results show that tax risk has no effect on firm risk.

The difference between this study and previous research lies in the measurement used to measure tax avoidance and tax risk. The measurement used in this study is GAAP ETR, while the measurement used in the previous research is Cash ETR where the measurement shows a comparison between the value of taxes paid and profit before taxes. The value of the tax paid is a mixed value of corporate income tax, income tax 21, income tax 23, and others. This value does not indicate the actual value of the tax avoidance carried out. Therefore, this study uses GAAP ETR as a tool to measure tax avoidance and tax risk. The reason for using GAAP ETR is that the tax value used in GAAP ETR is the tax expense on company profits. This study uses data in the form of annual financial statements of manufacturing companies listed on IDX from 2014 to 2018. This study does not use 2019 data because of the use of t+1 data on

firm risk. If this study uses 2019 data, the firm risk data uses is 2020 data. Meanwhile, 2020 data cannot be used because of the pandemic condition during that year.

2. THEORITICAL FRAMEWORK AND HYPOTHESIS

Signaling Theory

There are some references related to signaling theory. First, it is the signaling theory introduced by Spence (1978) explains that information is sent using a signal by the sender. The parties receiving the signal then use the information to adjust their behaviours according to the signal. Another one is by Brigham and Houston (2019), who argued that signaling theory is information on management's perception of the company's condition, and this information becomes a signal for shareholders in making decisions. The signaling theory explains that company management provides signal in the form of information about the company. The information contains what management has done in running the company that is included in the financial statements. After receiving the information, the outsiders consider it as good or bad information before finally using it as a tool in decision making.

Drake et al. (2019) examined the effect of tax avoidance on investors' assessments. The results show that when investing, investors can identify tax avoidance that is less volatile or risky (unpredictable tax avoidance in the future). Guenther et al. (2016) and Hutchens et al. (2020) examined the effect of tax avoidance on firm risk. The results of the study support the signaling theory that information about tax avoidance will be received by investors and the information will used by investors in making decisions.

Tax Avoidance and Firm Risk

Tax avoidance is an action taken by a company to reduce tax costs that must be paid the company by way of making tax-free investments to risky strategies (Hanlon and Heitzman, 2010, Pohan, 2015, Dyreng et al., 2018, Hutchens et al., 2020). Firm risk is an event experienced by investors, as shareholders, where the company's finances are in uncertain conditions (Chen, 2019). According to Chen Chen (2019) there are five types of risk: financial risk, marketing risk, operational risk, strategic risk, and legal risk.

Guenther et al. (2016) examined the effect of tax avoidance on firm risk and the results show that tax avoidance has a negative effect on

firm risk. Hutchens et al. (2020) also examined the effect of tax avoidance on firm risk and the results of the study explain that tax avoidance does provide benefits to the company's cash, and this action can even cause uncertainty in the company's financial condition in the future because of the risk of this action. The results of research conducted by Cao et al. (2021) show that tax avoidance has a positive effect on firm risk. Meanwhile, the results of research conducted by Carolina (2021) show that tax avoidance has a negative effect on firm risk. Based on the explanation above, the hypothesis can be formulated as follows:

H1: Tax Avoidance has a positive effect on company risk.

Tax Risk and Firm Risk
According to Drake et al. (2019), tax avoidance carried out by the company is a planned action and the company already knows the level of risk that arises as a result of the tax avoidance. Neuman et al. (2020) explains that this risk arises because of the interaction of economic risk and uncertainty over tax law which can give rise to potential risks caused by current actions or activities, where this action will cause future tax results that are different from expectations. Meanwhile, according to Hutchens and Rego (2015), tax risk is tax uncertainty on transactions, operations, financial statement decisions, and company reputation. It can be concluded that tax avoidance by lowering the cost of the tax can lead to tax risk.

Tax risk arising from tax avoidance can also pose a corporate risk. Günther et al. (2013) and Hutchens and Rego (2015)) examined the effect of tax risk on corporate risk and the results show that tax risk has an effect on

corporate risk. According to Günther et al. (2013), tax risk is an important component of the company's overall risk.

Based on the explanation above, the hypothesis can be formulated as follows:

H2: *Tax risk has a positive effect on firm risk.*

3. RESEARCH METHOD
This study is a quantitative causal-comparative research using the archival method for the anlysis. The research data were obtained from existing archive data. The sample consists of manufacturing companies in Indonesia. This study uses manufacturing company data because the MVA (Manufacturing Value Added) data for manufacturing companies in Indonesia is at the top level among manufacturing companies in ASEAN. The data used is in the form of financial statements of manufacturing companies listed on IDX period 2014-2018. Sampling is carried out using purposive sampling method with the criteria described in Table 1. The emergence of data outliers in this study is because the data for each variable has an extreme value.

Measurement of the Variables
The variables used in this study are firm risk (dependent variable), tax avoidance (independent variable) and tax risk (independent variable).

Firm Risk (Dependent Variable)
According to Guenther et al. (2016), firm risk arises when companies reduce tax payments by using complex transactions, such as diverting revenues to countries with low tax rates. If information about tax avoidance is revealed to the public, it will be detrimental to

Table 1
Research Sample

No.	Criteria	Number of Samples
1	Manufacturing companies listed on the IDX	1095
2	Manufacturing companies listing on the IDX from 2014 to 2018	-285
3	Net operating cash flow data is negative	-28
4	Data experiencing income tax benefits	-290
5	Pre-Tax Book Income data is negative	-155
6	Tax risk data is minus	-7
7	Firm risk data has zero value	-1
8	Data Outlier	-50
	Number of Samples	279

Source: Results of Data Processing

the company and the value of the company's shares will decrease due to the uncertainty of the company's cash flows in the future. In this study, the measurement of firm risk follows the research conducted by Guenther et al. (2016):

$$FR = SD\Sigma ADMSR_{t+1} \quad ....(1)$$

Where:
FR : Firm Risk
$SD\Sigma ADMSR_{t+1}$: Standard Deviation of Annual Daily Monthly Stock Return 1 year after period t

Tax Avoidance (Independent Variable)
According to Guenther et al. (2016), tax avoidance is a tax reduction activity, ranging from tax-profitable investments to riskier strategies. Measurement of tax avoidance in this study is carried out using the 5-year GAAP ETR following previous research.

$$TA_t = \Sigma TE_{t-4-t} / \Sigma PI_{t-4-t} \quad ....(2)$$

Where:
TA_{t-4-t} : Tax Avoidance in year t
ΣTE_{t-4-t} : Total Tax Expense 4 years before to year t
ΣPI_{t-4-t} : Net profit before tax 4 years before t to year t

Tax Risk (Independent Variable)
In measuring the tax risk, it can be referred to the previous proponents. For example, according to Drake et al. (2019), in doing tax avoidance, the company already knows the level of risk that will be experienced. Another example is Hutchens and Rego (2015) stating that tax risk is tax uncertainty on transactions, operations, financial statement decisions, and company reputation. In this study, the measurement of tax risk is carried out by following the research conducted by Drake et al. (2019) using the standard deviation of the tax avoidance measurement.

$$TR_t = SD\Sigma TA_{t-4-t} \quad ....(3)$$

Where:
TR_{t-4-t} : Tax Risk year t
$SD\Sigma TA_{t-4-t}$: Standard Deviation of tax avoidance 4 years before t to year t where tax avoidance is measured using GAAP ETR (Tax expense is divided by profit before tax).

Control Variable
This study uses five control variables: PreTax Book Income (PTBI), Leverage, Size, Volatility

Operational Cash Flow, and Volatility PTBI. The reason for using these five variables is because in the research conducted by Guenther et al. (2016), these five control variables have an effect on firm risk.

PTBI= Profit before Tax t / Total Assets t-1...(4)

Lev= Long-Term Debt t / Total Assets t-1.....(5)

Size= LN Total Aset..(6)

Vol_CF = SD (Net Operating Cash Flow t - t-4 / Total Assets t-1 - t-5)......................................(7)

Vol_PT = SD (Profit before Tax t – t-4 / Total Assets t-1 – t-5)...(8)

Data Analysis Technique
This study uses linear regression analysis technique to examine the effect of tax avoidance on firm risk and the effect of tax risk on firm risk. The regression equation for each hypothesis is as follows:

$$FR_t = \beta 0 + \beta 1 \times TA_t + \alpha 1 \times PTBI_t + \alpha 2 \times Vol\_PTBI_t + \alpha 3 \times Leverage_t + \alpha 4 \times Size_t + \alpha 5 \times Vol\_CashFlow_t + \varepsilon_t ....(9)$$

$$FR_t = \beta 0 + \beta 1 \times TR_t + \alpha 1 \times PTBI_t + \alpha 2 \times Vol\_PTBI_t + \alpha 3 \times Leverage_t + \alpha 4 \times Size_t + \alpha 5 \times Vol\_CashFlow_t + \varepsilon_t ....(10)$$

Where:
FR_t : Firm Risk
TA : Tax Avoidance
TR : Tax Risk
PTBI : Pre-Tax Book Income (Profit before tax t divided by total assets t-1)
Vol_PTBI : Standard Deviation of Pre-Tax Book Income 4 years before t to year t
Leverage : Long-term debt t divided by total assets t-1
Size : Natural Logarithm of total assets
Vol_Cashflow : Standard Deviation of Operating Cash Flows in year t divided by total assets t-1 for 5 years.

This study uses the SPSS application version 22 to perform descriptive statistics and classical assumption tests. The classical assumption test used consists of normality and multicollinearity tests. In addition to the classical assumption test, this study also conducted hypothesis testing (R^2 test and t test).

Table 2
Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. deviation
SQ_FR	279	0.1158	0.4779	0.294245	0.0711233
SQ_TA	279	0.3582	0.6454	0.503547	0.0451689
SQ_TR	279	0.0490	0.7278	0.218820	0.1176016
SQ_PTBI	279	0.0422	0.8161	0.326153	0.1442844
SQ_Vol_PTBI	279	0.0189	0.4785	0.203812	0.0790008
SQ_Leverage	279	0.0436	0.8254	0.335736	0.1567806
Size	279	24.5877	33.4737	28.813758	1.6597720
SQ_Vol_CashFlow	279	0.1252	0.5877	0.252899	0.0771933

Source: Results of Data Processing

Table 3
Normality Test

		Model 1	Model 2
N		279	279
Normal Parameter	Mean	0.00000	0.00000
	Std. Deviation	0.06641502	0.06639097
Most Extreme Differences	Absolute	0.029	0.029
	Positive	0.029	0.029
	Negative	-0.028	-0.028
Test Statistics		0.029	0.029
Asymp. Sig. (2-tailed)		0.200	0.200

Source: Results of Data Processing

4. DATA ANALYSIS AND DISCUSSION

This study uses sample consisting of manufacturing companies that have financial statements from 2014 to 2018. The total sample used in this study is 279. Table 2 describes the number of samples, minimum value, maximum value, mean value, and standard deviation value for each variable after the transformation. The results of the transformation for each variable indicate that the mean value is greater than the standard deviation value. Therefore, the data used obviously represents the entire data. Table 3 describes the results of the normality test in this research data. The results of the normality test show a significant value for model 1 and model 2, or greater than 0.05 (0.200). So it can be concluded that the research data is normal.

Table 4 shows the test results for model 1. In model 1, the tolerance value is above 0.1 and the VIF value is below 10. This means that model 1 is free from multicollinearity. Table 4 also shows that the adjusted R-squared value is 0.109, which means tha the independent variable in model 1 is explained by 10.9%, while the rest is explained by other independent variables not discussed in this study.

The regression model for model 1 in Table 4 shows that when there are no independent variables, the firm risk variable increases by 4.894. The tax avoidance variable has a positive effect on the firm risk of 2.060. Hanlon and Heitzman (2010) explain that the effective tax rate is one of the measuring tools to measure tax avoidance, where the smaller the effective tax rate, the greater the tax avoidance, so that the coefficient value of tax avoidance is multiplied by minus one. It indicates that when tax avoidance increases, the firm risk will also increase.

PTBI and Vol_PTBI variables have a negative effect on firm risk, while Leverage and Vol_CashFlow variables have a positive effect on firm risk. So, it can be concluded that when the PTBI and Vol_PTBI variables increase, the firm risk will decrease. On the other hand, when the Leverage and Vol_CashFlow variables increase, the firm risk will increase.

In this study, the size variable has no effect on firm risk. The significant value of the effect of size on firm risk is 0.124, where the value is greater than the significant value of 0.01, 0.5, and 0.10.

Table 5 shows the test results for model 2. In model 2, the tolerance value is above 0.1 and the VIF value is below 10. This indicates that model 2 is free from multicollinearity. Table 5 also shows that the adjusted R-squared value is 0.109, so it can be concluded that the independent variable in model 1 is described by 10.9%, and the rest is described by other independent variables outside the model. The regression model for model 2 in Table 5 shows

that when there are no independent variables, the firm risk increases by 3.501. In this study, the tax risk variable has a positive effect on firm risk.

Table 5 shows that the significance value and t-statistic value for the firm risk variable are 0.036 and 2.108. Leverage and Vol_CashFlow variables have a positive effect on company risk. The positive effect can be seen from the t-statistic value on the two variables that have a positive value, while the effect is clearly in the significance value below 0.01, 0.5, and 0.10. PTBI, Vol_PTBI, and Size variables have no effect on firm risk because the significant value of the three variables is above 0.10.

Table 4
Multicollinearity, R^2, and t Tests for Model 1

Variable	Coefficient	T-statistic	Sig.	Tolerance	VIF
SQ_TA	-0.211	-2.060	0.040**	0.755	1.324
SQ_PTBI	-0.090	-2.860	0.005*	0.780	1.282
SQ_Vol_PTBI	-0.133	-2.224	0.027**	0.722	1.384
SQ_Leverage	0.089	3.137	0.002*	0.828	1.208
Size	-0.004	-1.542	0.124	0.793	1.262
SQ_Vol_CashFlow	0.193	3.409	0.001**	0.848	1.179
Constant	0.500	4.894			
Adj. R-Squared	0.109				
F-Statistic	6.655				
Prob. (F-statistic)	0.000				

*, **, and *** show statistically significant at the level of 0.01, 0.5 and 0.10

Source: Results of Data Processing

Table 5
Multicollinearity, R^2, dan t Tests for Model 2

Variable	Coefficient	T-statistic	Sig.	Tolerance	VIF
SQ_TR	0.089	2.108	0.036**	0.656	1.525
SQ_PTBI	-0.043	-1.205	0.229	0.612	1.634
SQ_Vol_PTBI	-0.082	-1.510	0.132	0.877	1.140
SQ_Leverage	0.090	3.200	0.002**	0.830	1.206
Size	-0.002	-0.836	0.404	0.771	1.296
SQ_Vol_CashFlow	0.183	3.278	0.001*	0.871	1.148
Constant	0.295	3.501			
Adj. R-Squared	0.109				
F-Statistic	6.693				
Prob. (F-Statistic)	0.000				

*, **, and *** show statistically significant at the level of 0.01, 0.5, and 0.10

Source: Results of Data Processing

Tax avoidance is an action taken by the company to streamline the tax costs that must be paid by the company. However, tax avoidance can pose a risk to the company in the future. Information about tax avoidance received by investors will then be used by for making investment decisions because tax avoidance can pose a risk to the company in the future, as shown in Table 4. The results of this study indicate that tax avoidance has a positive effect on company risk, and the results are in accordance with the first hypothesis. So, it can be concluded that the higher the level of tax avoidance done by manufacturing companies in Indonesia, the higher the level of risk of the company in the future. The results of this first hypothesis indicate that there is conformity with signaling theory, where the company's signal in the form of tax avoidance information that the investors received and can make it decisions in the future. The results of this study are in accordance with the results of research conducted by Cao et al. (2021) that tax avoidance has a positive effect on firm risk. In addition, the PTBI and PTBI volatility variables have a negative effect on firm risk, while leverage and cash flow volatility variables have a positive effect on company risk. It can be concluded that information about PTBI, PTBI volatility, leverage, and cash flow volatility is received by investors and is then used to determine whether the information is risky for the company in the future. Information about the increase in PTBI and PTBI volatility reduces the firm risk in the future, while information about the increase in leverage and cash flow volatility increases the firm risk in the future.

Tax risk is a risk that arises due to tax avoidance. Tax risk can pose a risk to the company in the future. The information about tax risk that is received by investors can be used to determine whether the tax risk poses a risk to the company in the future. The results in table 5 show that the information about tax risk received by investors is used to make decisions whether the tax risk has a risk for the company in the future. The results of this study indicate that tax risk has a positive effect on firm risk. These results are in accordance with the second hypothesis. So, it can be concluded that when companies do risky tax avoidance, the firm risk will increase in the future. The results of this second hypothesis show conformity with signaling theory where the company's signal in the form of tax risk information is received by

investors and is used to make decisions. The results of this study are in accordance with the results of research conducted by Günther et al. (2013) and Hutchens and Rego (2015) that tax risk has a positive effect on firm risk. In addition, the variables of leverage and cash flow volatility have a positive effect on firm risk. Information about leverage and cash flow volatility is used by investors to determine whether the information poses a risk to the company in the future. Information on the increase in leverage and cash flow volatility experienced by the company causes the firm risk to increase in the future.

5. CONCLUSION, IMPLICATION, SUGGESTION AND LIMITATION

The study shows that tax avoidance has a positive effect on firm risk. This evidence is in accordance with the results of research conducted by Cao et al. (2021) that tax avoidance has a positive effect on company risk. Therefore, it indicates that the first hypothesis in this study is proven, which means that information from management in the form of tax avoidance is a signal for investors. Companies that do tax avoidance will experience an increase in firm risk in the future, on the other hand companies that do not do tax avoidance will not experience an increase in firm risk.

In addition, the results of this study also show that tax risk has a positive effect on firm risk. These results are in accordance with the results of research conducted by Günther et al. (2013) and Hutchens and Rego (2015) that tax risk has an effect on firm risk. Information about tax risk can be a signal for investors in making decisions to invest. So, it can be concluded that information about tax risk due to tax avoidance done by management can be used as a tool by investors in making decisions. Thus, the higher the tax risk, the higher the firm risk.

The results of this study prove the theoretical and practical implications. Theoretically, the results of this study support the signaling theory, where information about tax avoidance and tax risk done by company's management can be used by investors in making decisions. So, when the company's management performs tax avoidance and tax risk, the company's risk will increase. Practically, this study shows that information about tax avoidance and tax risk in the financial statements can be used by investors in making decisions.

Suggestion and Limitation

There are several suggestions for further research. The measurement used for tax avoidance in this study is the GAAP ETR, where the value of tax costs in the GAAP ETR has a current and deferred tax value. Current tax arises on corporate income tax in one period, while deferred tax arises due to differences in the applicable fiscal and accounting regulations. Therefore, it is suggested that further research use measurements other than GAAP ETR and Cash ETR, such as Current ETR where this measurement shows the value of corporate tax on the company's profits. In addition, Current ETR also shows tax adjustments and tax penalties imposed on companies.

The limitation of this study is that the data on the financial statements of manufacturing companies listed on the IDX before 2010 cannot be found, therefore, the data used is only that of manufacturing companies listed on the IDX from 2014 to 2018. In addition, this study also does not use 2019 data because of the use of t+1 company risk data, or 2020 data. This study did not use 2020 data because 2020 data had decreased compared to 2019 data due to the Covid-19 pandemic. Therefore, researchers only use data until 2019 for company risk data.

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