Tax avoidance behaviour towards the cost of debt

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Abstract: The aim of the research is to analyse tax avoidance behaviour to cost of debt (COD) moderated by tax rate changes and family ownership structure. The research used the sample manufacturing firms in Indonesia Stock Exchange for the period 2008–2010. The study finds that tax avoidance has positive influence on COD. Tax avoidance creates a risk thereby increasing the COD. In the period before tax rate reduction, the influence of tax avoidance on COD is smaller compared with the period after tax reduction; this indicates the presence of earning management conducted by the company before tax rate reduction. Family ownership structure causes greater influence over tax avoidance on COD; this shows that family ownership increases tax aggressive behaviour. The results of this research are contrary with the research conducted by Lim (2011), which shows negative relationship between tax avoidance and the COD.

Keywords: tax avoidance; cost of debt; tax rates change; family ownership.


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1 Introduction

Choice of debt and equity as a source of funding is an important decision that affects the value of the company. Modigliani and Miller (1963) issued a proposition, which states that a company that uses debts has a higher value than companies that do not owe, because of the tax shield. The use of debts will increase the value of the company, but by considering possibility of financial distress, the company will limit the amount of debt. Optimal capital structure will weigh the benefits of the tax shield and the potential loss because of financial distress.

Tax aspects are the considered factor because taxes are significant burdens on company. For the purpose of optimising the profit, domestic and multinational companies seek to minimise the tax burden by utilising the existing tax provisions. Owners of the companies would encourage management to act in aggressive tax to reduce the tax burden arising (Chen et al., 2010).

Earnings management for the purpose of minimising taxes payable, but, on the other hand, still maintaining optimal profit to satisfy shareholders’ expectations. Tax management can be done either legally (tax avoidance) or illegally (tax evasion). Barr et al. (1977) states that tax avoidance is legal earnings manipulation, which is still in accordance with the provisions of tax laws to minimise the amount of taxes owed, whereas tax evasion is illegal manipulation to reduce the amount of taxes owed.

Cost of debt of a company is determined by the characteristics of the company issuing the debts because it affects the risk of bankruptcy, agency costs and information asymmetry problems (Bhoraj and Sengupta, 2003). Graham and Tucker (2006) and Lim (2011) suggest that efforts to minimise taxes such as tax shelters and tax avoidance are the substitute of the use of debt. The companies that conduct tax avoidance would reduce the use of debts, thereby increasing the financial slack, reducing the costs and risks of bankruptcy, improving credit quality; the impact will reduce the COD. This supports the trade-off theory that tax avoidance will reduce the COD.

Changes in tax rates affect tax avoidance behaviour. Under the Income Tax Act 36 of 2008, there were reductions in tax rates. Income tax of the resident taxpayers and permanent establishment are still charged for the amount of 28% started from 1 January 2009. Moreover, the tax rate was lowered to 25% started from 1 January 2010. The decreasing of tax rate would encourage companies to conduct earnings management by shifting income towards a lower rate. Therefore, earnings management will be more vulnerable to be conducted in the period before the decreasing in tax rates (Guenther, 1994; Yin and Cheng, 2004). Lim (2011) examined the effect of tax avoidance to the
Tax avoidance behaviour towards the cost of debt

COD, which are moderated by changes in tax rates. The results showed that the effect of tax avoidance towards the COD reduced in the period of tax rate decreasing.

Family ownership structures can affect the behaviour of aggressive tax (Chen et al., 2010; Sari, 2010). Both researches show contradictory results, possibly owing to the different characteristics of the samples. Chen et al. (2010) showed that the behaviour of tax aggressive on family firms is lower than non-family. In contrast to studies in Indonesia, Sari (2010) show that companies owned by the family tend to have aggressive tax behaviour than non-family ownership. This is caused by the existence of externalities factors of the business culture and the tax in Indonesia. Moderation of family ownership structure with tax avoidance amplifies the effect of tax avoidance towards the COD.

This study aims to examine the effect of tax avoidance on the COD, and to test whether the changes in tax rates and structure of family ownership affect relationship between tax avoidance and the COD. With samples of manufacturing companies listed in Indonesia, the results of this study indicate that the effect is different from previous studies, which shows that tax avoidance has positive impact on COD. In contrast to the period before reduction in tax rate, tax avoidance has negative impact on COD; this is due to the existence of earnings management to shift income into the lower tax rates. Family ownership shows that significant positive influences on family ownership in Indonesia tend to be tax aggressive and it is seen as a risk for creditors.

This study consists of five sections. The first section contains introductory and background research. The second section contains the conceptual framework and hypothesis development. The third section describes the research methodology in the form of sample selection procedures and variable measurement. The fourth section discusses the interpretation and analysis of findings and implications for research models that have been developed. Section 5 contains the conclusions of the study, the research implications, limitation of the study and discussion of future research that may be conducted.

2 The conceptual framework and hypothesis development

2.1 Conceptual theory and previous research

2.1.1 Agency theory

Jensen and Meckling (1976) define a contract between one or several principals who delegate authority to another person (agent) to make decisions in running the company. Implementation of the contract incurs cost, which are called agency costs; agency cost are costs incurred so that managers can act in harmony with the owner’s goals, e.g., as contracting or oversight. Behaviour of tax avoidance or tax sheltering is affected by agency problems. There is a divergence of interests between the parties. The managers want to increase compensation, the shareholders want to reduce the cost of taxes, whereas the creditors want the company to meet contractual debt and pay interest, principal of debts on time.

2.1.2 Theory of leverage

The use of debts is generally based on cost considerations. At first, Modigliani and Miller (1958) argued that the debts and equity financing do not affect firm value, with no tax
assumption. This assumption is considered unrealistic. Therefore, Modigliani and Miller (1963) made corrections to include tax factors into their theory. The interest cost becomes the deduction for income so it can be used to save tax. As a result, the higher the proportion of debt financing, the more value of the company. The theory of Modigliani and Miller (1963) ignores bankruptcy costs; the implications of this theory are companies using debts as much as possible, while the use of debt would increase the likelihood of potential bankruptcy. With tax shield and the potential financial distress of the underlying trade theory, companies will owe to the optimal point. Optimal point will be reached when the tax benefits of debts (debt tax shields) are equal to the costs of potential financial distress. DeAngelo and Masulis (1980) prove that the debts have the potential to cause financial distress that would reduce the tax benefits of debt.

2.1.3 Cost of debt (COD)
Fabozzi (2007) defines the COD as a desired rate of return on the lender when providing funding to the company. Pittman and Fortin (2004) measure the COD as interest expense paid by the company during the year divided by the average number of long-term debt and short-term interest bearing during the year. Bhoraj and Sengupta (2003) show that the companies COD is defined by its characteristics; it can be seen from the bond issue that affects the risk of bankruptcy, agency costs and information asymmetry problems. COD as one of the important elements in the capital structure is influenced by tax factors and debt tax shields, where the interest expense can be used as a reduction of taxes owed.

2.1.4 Tax avoidance
Lim (2011) defines tax avoidance as tax saving, which is occurred by utilising tax provisions that is done legally to minimise tax liabilities. Tax avoidance is a part of tax planning, which is done for the purpose of minimising tax payments. Legally, tax avoidance is not prohibited although it often lacks good attention from the tax office because it is considered as negative connotation. In contrast to the tax evasion, there are efforts to minimise the amount of tax, which violates provisions applicable taxes. Perpetrators of the tax evasion may be subject to administrative sanctions and criminal sanctions.

Besides tax avoidance, there are also terms of tax aggressive and tax sheltering. Definition of tax aggressive as expressed by Frank et al. (2009) is an action aimed for reducing taxable income through tax planning. Tax aggressive use classified or non-classified methods as tax evasion. Although not all actions are performed against the rules, the methods that are used by companies make them considered more aggressive, whereas in the research of tax sheltering, Graham and Tucker (2006) define tax shelters by US Congress (Joint Committee on Taxation, 1999) as an attempt to evade taxes without being exposed to economic risk or loss. On the basis of this definition, tax aggressiveness and tax sheltering can also be interpreted as tax avoidance. Tax avoidance can be measured by several measurements. Desai and Dharmapala (2006) used the total accruals to separate the different components of book tax different that is caused by tax purposes and earnings management. Meanwhile, Lim (2011) used discretionary accrual. Discretionary accruals are a proxy for earnings management measured by the formula of Dechow et al. (1995). Lim (2011) used discretionary accruals to separate the different
components from book tax different that is caused by earnings management to tax purposes.

2.1.5 Tax rate changes

Changes in tax rates affect tax avoidance behaviour. Under the Income Tax Act 36 of 2008, there were reductions in tax rates. Income tax of the resident taxpayers and permanent establishment are still charged for the amount of 28% started from 1 January 2009. Moreover, the tax rate was lowered to 25% started from 1 January 2010. Earnings management are performed by shifting income towards lower rates, so it will be more susceptible to earnings management carried out in the period before the tax reduction.

Besides changes in tax rates, changes in tax measurement method are also used. In 2008 and several years before, companies used a progressive tax rate (plated), whereas in 2009 and 2010 a single tax rate is used as measurement.

2.1.6 Family ownership structures

In general, companies in developing countries are still controlled by the family ownership. Fama and Jensen (1983) stated that the cost of monitoring is smaller in family ownership than public ownership because in family ownership it is usually more efficient. Anderson et al. (2003) stated that family firms have lower agency conflicts and better protection for creditors’ interest, so family firms will have lower debt costs.

The study uses the definition of family ownership used by La Porta et al. (1999), Claessens et al. (2000) and Arifin (2003). La Porta et al. (1999) defined ownership of voting rights based on ownership percentage, by dividing the five main holdings: family or individual, state, financial institutions such as banks or insurance companies, corporations and other ownership or group ownership where whose ownership is no single investor can control, such as public ownership or individual ownership not disclosed. To reflect that family shareholders are the controlling shareholders, Sari (2010) in her study classifies the family ownership dummy variable; 1 for high family ownership (>50%) and 0 for low family ownership (<50%).

2.2 Hypothesis development

2.2.1 The influence of tax avoidance towards cost of debt

DeAngelo and Masulis (1980) state that companies with debt will relate negatively with non-debt tax shields (such as depreciation deductions or investment tax credits). Graham and Tucker (2006) and Lim (2011) showed that the preferred tax activities such as tax shelters and tax avoidance are the replacement of debt’s use. This indicates that companies use less debt when they engage in tax planning.

The above-mentioned research has shown that tax avoidance can reduce the tendency of companies to owe; thereby increasing the financial slack; reducing the possibility of bankruptcy, having a lower risk of defaults so it will reduce the COD. Tax avoidance has a negative influence on COD or support trade-off theory hypothesis. The greater the tax avoidance, the smaller the COD. In summary, the hypothesis is as follows:

_Hypothesis 1: Tax Avoidance has negative effect on the cost of debt._
2.2.2 The influence of tax rate moderation in tax avoidance relationship and cost of debt

Changes in tax rates affect tax avoidance behaviour. Rate changes in 2009 became 28% while in 2010 became 25%. Reduction in tax rates will encourage companies to do earning management by shifting their income in the period before the tax reduction. Earning management tends to be done in the period before the tax reduction.

Lim (2011) stated that the company would have a strong incentive to commit tax evasion when tax rates are high, so tax avoidance that is performed for the purpose of reducing tax liability will be done in the period before the tax reduction. In a sensitivity analysis of Lim (2011), he examined the effect of tax avoidance to COD that is moderated by changes in tax rates. The used samples of research were divided into three periods that show the rate changes. Research results indicate that the effect of tax avoidance towards COD reduced in the period in which the tax rate is smaller. The influence of tax avoidance on COD is smaller in the period after the change in tax rates. This influence strengthens the effect of tax avoidance to COD in the period before the tax reduction. Therefore, the interaction of tax avoidance with tax rates changes are expected to make a negative impact of tax avoidance to COD larger.

Hypothesis 2: In the period before tax rate reduction, the effect of tax avoidance to cost of debt will be stronger.

2.2.3 Moderation of family ownership towards relationship tax avoidance and cost of debt

Family ownership structures can affect the behaviour of aggressive tax (Chen et al., 2010; Sari, 2010). These two researches show opposite results, Chen et al. (2010) showed that the behaviour of tax aggressive on family firms is lower than non-family firms, because the possession of family tends to pay higher taxes to avoid paying penalties and keep the reputation of the consequences of the tax assessment.

On the other hand, a study conducted in Indonesia by Sari (2010) shows family ownership in Indonesia tends to have higher aggressive tax behaviour than non-family ownership. Tax audit, which is not effective yet causes family ownership, have greater discretion to undertake aggressive tax. Public companies tend to keep their reputation by avoiding aggressive tax actions. Family ownership structure will have a high tax avoidance that will cause COD smaller. Results of previous studies show the effect of tax avoidance to COD are various. However, since the context that is used is Indonesia, this research hypothesis is based on Sari’s research (2010).

Hypothesis 3: The family ownership companies have stronger effect of tax avoidance to cost of debt than non-family ownership companies.

3 Research methods

3.1 Types and sources of data

Type of data that is used is the annual financial statements and annual reports of 2008 until 2010 issued by the Indonesia Stock Exchange on the site of www.idx.co.id and datastream.
3.2 Population and sample

The population in this study is manufacturing companies listed on the Indonesia Stock Exchange. The observations are conducted in the period 2008 until 2010 when there is a change in tax rates. The reason to use manufacturing companies is to obtain sufficient data with many common characteristics. The samples in this study were selected based on the following criteria:

- companies listed during 2008 until 2010
- year ended 31 December, with an unqualified audit opinion
- companies that have a current income tax
- the companies that own interest charges.
- companies that have relevant data in accordance with the measurement variable.

3.3 Research model and formulation of hypotheses

Research models to test Hypotheses 1, 2 and 3 are developed from the model that is used by Lim (2011) by adding a moderating variable (family ownership structure) and control variables (growth and DTA). The other control variables are Age and Size in accordance with the research of Lim (2011). The presentation of the research model is:

\[
\text{COD}_{it} = \alpha_0 + \alpha_1 \text{TA}_{it} + \alpha_2 \text{TA}_{it} \times \text{TRC}_{it} + \alpha_3 \text{TA}_{it} \times \text{FamOwn}_{it} + \alpha_4 \text{Age}_{it} \\
+ \alpha_5 \text{Size}_{it} + \alpha_6 \text{Growth}_{it} + \alpha_7 \text{DTA}_{it} + \epsilon_{it}
\]

COD<sub>it</sub> = Interest expense divided by average long-term debt and short-term interest-bearing loan for a year

TA = Tax avoidance is measured by using two ways:

- TA<sub>Lim</sub> = Proxy measurements of tax avoidance by Lim (2011)
- TA<sub>DD</sub> = Proxy measurements of tax avoidance by Desai and Dharmapala (2006)

TRC<sub>it</sub> = Changes in tax rates by measuring 2 for 2008, 1 for 2009 and 0 for 2010

FamOwn<sub>it</sub> = Dummy on family ownership structures is 1 for high family ownership (>50%) and 0 otherwise

Age<sub>it</sub> = The age of company since it was established

Size<sub>it</sub> = Natural logarithm of the total assets of the company

Growth<sub>it</sub> = Level of companies based on sales growth

DTA<sub>it</sub> = Ratio of total debt on total assets

\( \epsilon_{it} \) = Error model.

3.4 Operational definition and measurement of variables

3.4.1 Dependent variable: cost of debt

Measurement that is used in the variable COD is calculated from the amount of the company’s interest expense in one period divided by the average number of long-term
loans and short-term loans that generate interest during the year (Pittman and Fortin, 2004).

3.4.2 Independent variables

Measurement of tax avoidance that is used in this study is based on measurements of Lim (2011) and Desai and Dharmapala (2006) as a robustness test to strengthen the research results. Lim (2011) creates measurements by modifying the measurements of Desai and Dharmapala (2006). The procedure for calculating the tax avoidance conducted by Lim (2011) has two steps. The first step is to estimate discretionary accruals, using the formula of Dechow et al. (1995). Total accruals for each firm each year were regressed with Dechow formula to obtain residual discretionary accruals (DA_modit).

The second step is to separate components of book tax different, which is caused by earnings management for the tax purposes of identifying these components as tax avoidance. Conducted by the following OLS regression:

\[ BTD_{it} = b_1 DA_{modit} + u_j + e_{it} \]

- \( BTD_{it} \): Book tax different for company \( i \) in year \( t \) scaled by total assets last year
- \( BTD \): Commercial income − Taxable income
- \( Taxable Income \): Current tax expense/tax rate
- \( DA_{modit} \): Discretionary accruals for company \( i \) in year \( t \) scaled by total assets last year.

Residuals from equation BTD are book tax different components, which are caused by earnings management for tax purposes (TA_Lim). Desai and Dharmapala (2006) use total accruals in regression BTD to obtain earnings management for tax purposes (TA_Dd).

3.4.3 Changes in tax rates

Measurement of changes in tax rates that is used in this study is based on the sensitivity of the test conducted by Lim (2011). Measurements performed by Lim (2011) can be applied in Indonesia, which also experienced several tax reductions. This measurement divides the stages of tax rate changes into some assessment as follows: 2 for 2008 with a tax rate of 30%, 1 for 2009 with a tax rate of 28% and 0 for 2010 with a tax rate of 25%. The measurements of dummy variables refer to the period before the tax reduction.

3.4.4 Family ownership structure

La Porta et al. (1999) and Arifin (2003) defined family ownership as a company or individuals who share ownership >5% (whose names are included in the financial statements); those who are not owned by governments, financial institutions, public companies and public (individuals whose ownership is not mandatory contained in the financial statements). A research conducted by Sari (2010) classified firms with family ownership into companies ownership, with a high proportion (>50%) and low proportion (<50%) to reflect that family shareholders are the controlling shareholders. A dummy variable 1 is given for high family ownership and 0 for low family ownership.
3.5 Techniques analysis

Analysis techniques used in this research are descriptive quantitative and regression analysis on panel data to examine the effect of tax avoidance to the COD. The benefits of using panel data are compared with cross section and time series so that heterogeneity of individuals can be determined, e.g., the difference of individuals’ characteristics and the influence of different years of observed variables observations. This is very useful to observe the trend of corporate behaviour samples (Gujarati, 2003).

4 Data analysis and discussion

4.1 Descriptive statistics

In total, all companies listed in the years 2008–2010 is 420. In accordance with the samples criteria in the previous section, there are several companies that should be excluded from the sample, such as companies that delisted during 2008–2010 (33 observations), companies without audit opinion (9 observations), companies that do not have a current income tax expense (96 observations) and companies that have no relevant data (27 observations). By sorting these criteria, there are 255 observations. The data is reduced by outliers to obtain 62 companies that become final sample of 186 observations.

Table 1 illustrates the descriptive statistics of the variables used in this study. Book tax different as a proxy for tax avoidance measurement has −0.00773(−0.00759) as mean (median), where the mean value is smaller than the median. It indicates that, on average, the study sample had a taxable income greater than commercial income. These results can also be viewed from the average value TaxInc (taxable income), which is greater than the average value BookInc (commercial income).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs.</th>
<th>Mean</th>
<th>Median</th>
<th>Standard dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>COD</td>
<td>186</td>
<td>0.08583</td>
<td>0.08177</td>
<td>0.04104</td>
<td>0.01046</td>
<td>0.20161</td>
</tr>
<tr>
<td>TA_Lim</td>
<td>186</td>
<td>−0.00477</td>
<td>−0.00510</td>
<td>0.02276</td>
<td>−0.06628</td>
<td>0.05993</td>
</tr>
<tr>
<td>TA_DD</td>
<td>186</td>
<td>−0.00476</td>
<td>−0.00515</td>
<td>0.02284</td>
<td>−0.06545</td>
<td>0.06087</td>
</tr>
<tr>
<td>Btd</td>
<td>186</td>
<td>−0.00773</td>
<td>−0.00759</td>
<td>0.02148</td>
<td>−0.06014</td>
<td>0.04590</td>
</tr>
<tr>
<td>BookInc</td>
<td>186</td>
<td>0.09296</td>
<td>0.07495</td>
<td>0.07927</td>
<td>−0.05506</td>
<td>0.33635</td>
</tr>
<tr>
<td>TaxInc</td>
<td>186</td>
<td>0.10069</td>
<td>0.08063</td>
<td>0.08085</td>
<td>0.00000</td>
<td>0.33244</td>
</tr>
<tr>
<td>DummyTRC</td>
<td>186</td>
<td>1.00000</td>
<td>1.00000</td>
<td>0.81870</td>
<td>0.00000</td>
<td>2.00000</td>
</tr>
<tr>
<td>FamOwn</td>
<td>186</td>
<td>0.39785</td>
<td>0.00000</td>
<td>0.49078</td>
<td>0.00000</td>
<td>1.00000</td>
</tr>
<tr>
<td>Age</td>
<td>186</td>
<td>27.93548</td>
<td>27.00000</td>
<td>9.98085</td>
<td>9.00000</td>
<td>58.00000</td>
</tr>
<tr>
<td>Size</td>
<td>186</td>
<td>27.98204</td>
<td>27.75048</td>
<td>1.50886</td>
<td>24.67201</td>
<td>32.34750</td>
</tr>
<tr>
<td>Growth</td>
<td>186</td>
<td>0.14721</td>
<td>0.13378</td>
<td>0.28404</td>
<td>−0.52523</td>
<td>1.41638</td>
</tr>
<tr>
<td>DTA</td>
<td>186</td>
<td>0.54517</td>
<td>0.56095</td>
<td>0.16959</td>
<td>0.11329</td>
<td>0.94746</td>
</tr>
</tbody>
</table>

Description: Presentation of descriptive statistics for all study variables that were observed on 62 companies during three years of study (2008–2010).
4.2 Regression results

Model that uses panel data is not relevant for testing the classical assumptions. However, multicollinearity test still needs to be done to identify partial effects between independent variables. Pearson correlation matrix shows that tested variables correlation are smaller and less than 0.8 so it can be concluded that there is no serious multicollinearity problem. To ensure the better models, the researchers conducted Hausman test, which is available in Eviews 7. The results demonstrate that the fixed effect model is the most appropriate to be used in the study.

Empirical regression results can be seen in Table 2. From the two measurements of tax avoidance, the value of F-statistics shows significant results at the 1% level with adjusted R Square that is similar for both tax avoidance measurements, respectively, 72.74% and 72.77%. It means the independent variables that were tested together significantly affect the dependent variable (COD).

4.3 Research results discussion

4.3.1 Analysis of the effect of tax avoidance with cost of debt

Empirical regression results (Table 2) show that the effect of tax avoidance to COD on both proxy measurements of tax avoidance is significantly positive. The result is indeed the opposite of the hypothesis, so we can conclude that hypothesis 1 is not proven (rejected).

Table 2  Empirical regression results

<table>
<thead>
<tr>
<th>COD</th>
<th>( \alpha_0 ) + ( \alpha_1 )TA_Mod_i,t + ( \alpha_2 )TA_Mod_i,t<em>TRC_i,t + ( \alpha_3 )TA_Mod_i,t</em>FamOwn_i,t + ( \alpha_4 )Age_i,t + ( \alpha_5 )Size_i,t + ( \alpha_6 )Growth_i,t + ( \alpha_7 )DTA_i,t + ( \varepsilon_i )t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>Predictions of directions</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.12751</td>
</tr>
<tr>
<td>Ta_Lim</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>(0.4745)</td>
</tr>
<tr>
<td>Ta_Dd</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>(0.0035)***</td>
</tr>
<tr>
<td>Ta_Lim * TRC</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>(0.0000)***</td>
</tr>
<tr>
<td>Ta_Dd * TRC</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>(0.0001)***</td>
</tr>
<tr>
<td>Ta_Lim * FamOwn</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>(0.0025)***</td>
</tr>
<tr>
<td>Ta_Dd * FamOwn</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>(0.0080)***</td>
</tr>
</tbody>
</table>
Empirical regression results (continued)

\[ \text{COD}_{i,t} = \alpha_0 + \alpha_1 \text{TA\_Mod}_{i,t} + \alpha_2 \text{TA\_Mod}_{i,t} \times \text{TRC}_{i,t} + \alpha_3 \text{TA\_Mod}_{i,t} \times \text{FamOwn}_{i,t} + \alpha_4 \text{Age}_{i} + \alpha_5 \text{Size}_{i,t} + \alpha_6 \text{Growth}_{i,t} + \alpha_7 \text{DTA}_{i,t} + \epsilon_{i,t} \]

### Table 2

**COD**

<table>
<thead>
<tr>
<th>Prediction of directions</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.00519</td>
<td>-0.00514</td>
</tr>
<tr>
<td></td>
<td>(0.0000)***</td>
<td>(0.0000)***</td>
</tr>
<tr>
<td>Size</td>
<td>0.00312</td>
<td>0.00267</td>
</tr>
<tr>
<td></td>
<td>(0.3005)</td>
<td>(0.3238)</td>
</tr>
<tr>
<td>Growth</td>
<td>+/-0.00468</td>
<td>-0.00488</td>
</tr>
<tr>
<td></td>
<td>(0.5325)</td>
<td>(0.5078)</td>
</tr>
<tr>
<td>DTA</td>
<td>0.03324</td>
<td>0.03358</td>
</tr>
<tr>
<td></td>
<td>(0.0082)***</td>
<td>(0.0095)***</td>
</tr>
<tr>
<td>Adj $R^2$</td>
<td>0.72746</td>
<td>0.72777</td>
</tr>
<tr>
<td>$F$-Statistic</td>
<td>8.26182</td>
<td>8.27323</td>
</tr>
<tr>
<td>$p$ value ($F$-Statistic)</td>
<td>(0.0000)***</td>
<td>(0.0000)***</td>
</tr>
<tr>
<td>$N$ (Company – years)</td>
<td>186.00</td>
<td>186.00</td>
</tr>
</tbody>
</table>

Both models show differences in the measurement of tax avoidance as measured by using proxy TA\_Lim (Lim, 2011) and TA\_DD (Desai and Dharmapala, 2006); COD is interest expense divided by average long-term loans and short term loans for one year; Dummy TRC is a change in tax rates in 2008 = 2, 2009 = 1 and 2010 = 0; FamOwn is 1 if firms with high family ownership (>50%) and 0 for otherwise; Age is the age of company since it was established; Size is the natural logarithm of the total assets of the company; Growth is the growth levels based on sales; DTA is the ratio of total debt with total assets. In eviews $p$-value from the $t$-statistic for the one-way hypothesis splits into two. Number in parentheses is the $p$-value from $t$-statistics and $F$-statistics where *** significant 1%, ** significant 5%, and * significant 10%.

Indonesia creditors who view tax avoidance behaviour as a risky action have caused this study to have the opposite results from Lim’s (2011) study. Therefore, they increase the COD. Indonesian tax regulations provide less incentive to tax deduction (tax sheltering) in manufacturing companies. Tax rules are even more stringent in giving criteria deductible expenses compared with accounting. The observation period was carried out when the government issued Law of general provisions and tax procedures; they also do tax reformation and improve the corruption eradication. The things mentioned earlier cause the creditors indeed view tax avoidance as a risk.

### 4.3.2 Moderation effect analysis of tax rate changes

Moderation effect of tax rates changes with tax avoidance is significantly negative. It shows that in the year before tax rates change (when tax rates are high), the negative effect of tax avoidance towards COD is greater (more negative) compared with the period after tax rates change (lower tax rates). These results support Hypothesis 2. However, since the effect of tax avoidance towards the COD is positive, it has the role to reduce the effect of tax avoidance towards COD to make the total of effect to be negative. The effect of tax avoidance towards the COD without moderation is positive, with smaller
coefficient. So in the period before tax rate reduction, the negative effect on tax avoidance towards COD has been proven in accordance with the study conducted by Lim (2011). It was not proven in 2010 when tax rates are low.

It happens because when the tax rates are high the corporates tend to perform earnings management by shifting income to the lower tax rate. Therefore, earnings management will be more susceptible to be carried out in the period before the tax reduction. When the tax rates are high, there are strong incentives to manage tax income, i.e., earning management, which is intended to tax purpose. In this case, the creditors consider tax avoidance behaviour in the period before tax reduction is normal and it is a part of tax planning.

4.3.3 Analysis of moderation family ownership structure

Moderation of family ownership structure with the tax avoidance towards COD from empirical regression results in Table 2 shows a significant positive 1% to both of tax avoidance measurements. The regression results show that Hypothesis 3 is rejected; the family company indeed strengthens the positive effect of the COD to the tax avoidance. It is proven that this moderation strengthens the relationships of COD towards tax avoidance, because in the beginning, this relationship between COD and tax avoidance was positive. This result is in line with Sari’s (2010) research in a slightly different context with the initial hypothesis.

The results show that the family company has tax aggressive behaviour, and it causes the creditors to consider this as a risk by raising borrowing rates.

4.4 Sensitivity analysis

Among many proxies that are done to measure tax avoidance, one of which is book tax different. Book tax different is also one proxy for tax avoidance measurement besides the researches carried out by Lim (2011) and Desai and Dharmapala (2006). Sensitivity analysis uses book tax different as tax avoidance measurement proxy, i.e., the difference between accounting income and taxable income (Manzon and Plesko, 2002). Empirical regression results in Table 3 show the significant F-statistics at 1% level and the adjusted R Square 72.19%. It means that the independent variables tested together affect the dependent variable (COD) significantly.

Hypothesis 1 showed significant positive results at a rate of 10%. Lower significant levels in the measurements TA_Btd explain that TA_Btd does not reflect the value of income tax management. It means creditors consider tax aggressive that is not discretionary as something that is not risky. Hypothesis 2 shows significant negative result of 1% towards COD; these results strengthen the measurement of tax avoidance test conducted by Lim (2011) and Desai and Dharmapala (2006). Hypothesis 3 shows no significant results over moderation of book tax difference with family ownership and its effect on COD. The above-mentioned non-significant results explained that measurements TA_Btd have not reflected any management of income taxes. Therefore, creditors consider tax aggressive that is not discretionary by family company is not a risk.
**Table 3** The result empirical regression of sensitivity analysis

\[
\text{COD}_{it} = \alpha_0 + \alpha_1 \text{TA} \_ \text{Btd}_{it} + \alpha_2 \text{TA} \_ \text{Btd}_{it} \* \text{TRC}_{it} + \alpha_3 \text{TA} \_ \text{Btd}_{it} \* \text{FamOwn}_{it} + \alpha_4 \text{Age}_{it} + \alpha_5 \text{Size}_{it} + \alpha_6 \text{Growth}_{it} + \alpha_7 \text{DTA}_{it} + \epsilon_{it}
\]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prediction</th>
<th>Coefficient</th>
<th>Probability</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>–</td>
<td>0.12101</td>
<td>(0.6003)</td>
<td></td>
</tr>
<tr>
<td>Ta_Btd</td>
<td>–</td>
<td>–0.19473</td>
<td>(0.0567)*</td>
<td>H1, acceptable</td>
</tr>
<tr>
<td>Ta_Btd*TRC</td>
<td>–</td>
<td>–0.15149</td>
<td>(0.0001)***</td>
<td>H2, acceptable</td>
</tr>
<tr>
<td>Ta_Btd*FamOwn</td>
<td>–</td>
<td>0.05658</td>
<td>(0.3303)</td>
<td>H3, not acceptable</td>
</tr>
<tr>
<td>Age</td>
<td>–</td>
<td>–0.00495</td>
<td>(0.0000)***</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>–</td>
<td>0.00327</td>
<td>(0.3393)</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>+/-</td>
<td>–0.00491</td>
<td>(0.4682)</td>
<td></td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>0.02342</td>
<td>(0.0123)**</td>
<td></td>
</tr>
<tr>
<td>Adj. \text{R}^2</td>
<td></td>
<td>0.72197</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\text{F-Statistic}</td>
<td></td>
<td>8.06478</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\text{p value (F-Stat.)}</td>
<td></td>
<td>(0.0000)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\text{N (Company – years)}</td>
<td></td>
<td>186.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This model shows the measurement of tax avoidance by using proxy TA\_Btd (Book Tax Different); COD is interest expense divided by average long-term loans and short term loans for one year; Dummy TRC is a change in tax rates in 2008 = 2, 2009 = 1 and 2010 = 0; FamOwn is 1 if firms with high family ownership (>50%) and 0 for otherwise; Age is the age of company since it was established; Size is the natural logarithm of the total assets of the company; Growth is the growth levels based on sales; DTA is the ratio of total debt with total assets. In views \text{p-value} from the \text{t-statistic} for the one-way hypothesis split into two. Number in parentheses is the \text{p-value} from \text{t-statistics} and \text{F-statistics} where *** significant 1%, ** significant 5%, and * significant 10%.

5 Conclusions, implications and limitations

5.1 Research conclusions

Empirical regression results show the effect of tax avoidance towards the COD was positive. Creditors view tax avoidance as the risk so tax avoidance behaviours indeed increase the COD. The period before tax rates reductions (high tariffs) shows the influence of tax avoidance towards COD smaller. It shows creditors consider tax avoidance behaviour in the period before rates change as a part of tax planning so it reduces the COD. Even after considering the rate changes, the relationship between the total tax avoidance and COD is negative. In the period before tax rate reduction, the creditors still consider tax sheltering is proven to reduce tax thereby lowering COD. Family ownership shows the influence of tax avoidance on COD is getting stronger in positive context. Family firms tend to be aggressive (Sari, 2010) and this is seen as a risk by the creditors.
Sensitivity test results are in line with the main test. However, Hypothesis 1 shows significant lower levels and hypothesis 3 shows no significant results. This is because the difference in the measurement of tax avoidance with book tax different does not reflect discretionary so they are considered as something that is not too risky by the creditors.

5.2 Research implications

Tax avoidance is proven to cause higher debt costs, because the creditors assess the behaviour of tax avoidance as a risk. These results indicate that in Indonesia has not had a lot of tax incentives for manufacturing companies that can be used as a tax shelter.

Creditors consider earnings management for tax purpose, which is conducted in the period before the tax rate reduction as a natural thing and part of tax planning by companies. However, a cautious attitude from creditors in addressing tax avoidance behaviour is needed. Family ownership structure suggests that tax avoidance behaviours increase the COD. The management of family firms needs to be careful in conducting tax avoidance in tax planning, so it will not be perceived negatively by creditors and may increase the COD.

The results show that tax avoidance is considered as a risk. Therefore, tax auditors need cautious attitude in addressing tax avoidance behaviour by the companies. The results also show a tendency to increase tax avoidance in the period before the tax reduction. More intensive tax audit needs to be done in those companies before tax reduction period. Tax avoidance behaviour in family firms tends to be higher, so it needs more intensive tax inspection in family firms.

5.3 Research limitations and suggestions for further research

- This study uses only manufacturing companies as samples so that research results cannot be generalised to other types of industries.
- Observation period in this study is very short so it lacks in capturing the volatility of tax avoidance behaviour.
- Weaknesses in the measurement of COD do not reflect the interest rate from real creditors, because it did not pay attention in withdrawal of the loan time aspects.

References


