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Thin Capitalization Rules, Capital Structure, Tax Avoidance, and the Covid-19 Pandemic: Evidence from Indonesian Listed Firms

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ABSTRACT

In 2015, the Indonesian Government issued a regulation regarding thin capitalization rules, which was applied in 2016. This study generally aims to test and analyze the effectiveness of thin capitalization rules in reducing tax avoidance measures in Indonesia, especially for listed companies. The effect of thin capitalization rules is divided into two types: the influence on the company's capital structure (direct impact) and corporate tax avoidance (indirect impact). The test was carried out using a regression method with a difference-in-difference (DiD) approach in proving causal inference between the studied independent and dependent variables. Furthermore, this research will also discuss the moderating effect of the financial crisis due to the Covid-19 pandemic. The selection of samples uses purposive sampling techniques, where the samples are companies listed on the Indonesia Stock Exchange from 2011 to 2020. The regression results indicate that implementing thin capitalization rules negatively affects companies' capital structure but does not affect their tax avoidance level. The results also confirm that the economic crisis caused by the Covid-19 pandemic moderates the influence of thin capitalization rules on capital structures and tax avoidance levels of enterprises. The findings are expected to offer relevance, particularly to the Indonesian tax authority, concerning the effectiveness of the thin capitalization rules in minimizing the possibility of tax avoidance.

Keywords: Capital Structure, Covid-19 Pandemic, Public Companies, Tax Avoidance, Thin Capitalization Rules.

INTRODUCTION

Tax avoidance will always be a major concern for the tax authority, given that reluctance to pay taxes is the nature of taxpayers. One form of tax avoidance that companies or corporate taxpayers commonly carry out is through the practice of thin capitalization. Thin capitalization is a condition in which the proportion of a company's debt is much more significant than the capital owned or, in other words, has a high debt-to-equity ratio (Richardson et al., 1998; Taylor and Richardson, 2020). This practice is categorized as tax avoidance, where the more significant the proportion of debt a company has, the greater the interest expense that can be deducted from taxable income (Buttner et al., 2012).

In 2013, the OECD released the Base Erosion Profit Shifting (BEPS) Action Plan, which consists of 15 action plans to reduce tax avoidance levels, harmonize international tax regulations, and promote the importance of tax transparency (De la Cuesta-González and Pardo, 2019). BEPS Action 4 recommends using interest limitation or the 'earning stripping/earning threshold approach, one of which is by applying a fixed ratio rule, namely using a ratio to determine how much interest costs can be reduced from the amount of income. The ratio comes from interest to EBITDA (Earnings Before Interest, Tax, Depreciation, and Amortization), with a benchmark ratio between 10% and 30%.

Historically, thin capitalization rules have been introduced in Indonesia since 1984 through the Decree of the Minister of Finance Number 1002/KMK.04/1984. Here, the debt-to-equity ratio for taxation calculation is a maximum of three to one (3:1). However, this provision was postponed for implementation through the Decree of the Minister of Finance Number 254/KMK.01/1985. Consequently, Indonesia did not have regulations related to interest limitation rules for 30 years (from 1985 to 2015). In 2015 through the Minister of Finance Regulation Number 169/PMK.010/2015, titled "Determination of Company's Debt and Equity Ratio for Income Tax Calculation Purpose," the Indonesian Government reintroduced thin capitalization rules and stipulates that in calculating the interest expenses that can be deducted from income, the debt-to-equity ratio is a maximum of four to one (DER ≤ 4). In other words, the proportion of debt allowed for taxation calculation is at most 80% of the total assets owned. This rule has been effective since the 2016 tax year and does not apply or is excluded from companies engaged in banking, financing institutions, insurance and reinsurance, oil and gas mining, general mining, and other mining and infrastructure.

This study wants to test the impact of thin capitalization rules (PMK-169/2005) on the practice of corporate tax avoidance in Indonesia. The impact is divided into 'direct impact' and 'indirect impact.' The direct impact is how thin capitalization rules can affect financial funding decisions or the company's capital structure, considering that PMK-169/2015 directly regulates the limitation of the debt-to-equity ratio. Meanwhile, indirect impact measures the extent of the influence of thin capitalization rules on the level of tax avoidance carried out by the company. Empirical testing is then carried out using the Difference-in-Differences (DiD) approach to capture causal inference or causal relationships between variables, more than just associative relationships (Clair and Cook, 2015). Considering that the covid-19 pandemic has caused a global financial crisis, the Covid-19 pandemic is added as a moderating variable since, in the conditions of an economic crisis, access to external sources of funding in the form of loans or debts is increasingly limited for companies (Edwards et al., 2013; Brondolo, 2009). Therefore, this study will also examine how the financial crisis caused by the Covid-19 pandemic

can moderate the effect of applying thin capitalization rules on capital structure (direct effect) and corporate tax avoidance actions (indirect effect).

LITERATURE REVIEW

Tax Avoidance

Tax avoidance is generally defined as any action taken to affect an explicit tax liability of a company (Hanlon and Heitzman, 2010; Badertcher et al., 2019). Barr et al. (1977) in Masri and Mertani (2012) explain tax avoidance as a legal act that does not violate tax laws. Unlike tax evasion, which can be subject to administrative and criminal sanctions because it involves violations of tax provisions (Masri and Mertani, 2012), tax avoidance takes advantage of loopholes in applicable regulations.

The Effective Tax Rate (ETR) is one of the most commonly used proxies in various academic studies to measure tax avoidance rates. The ETR is calculated as a comparison of the value between the total tax burden and pre-tax income (Dyreng et al., 2008), where the lower the ETR value (when compared to the applicable tax rate) indicates a higher level of tax avoidance (Armstrong, Blouin, and Larcker, 2011; Gupta and Newberry, 1997; and Rego, 2003). The ETR has several forms used by researchers, such as Cash ETR, Current ETR, and GAAP ETR. Cash ETR means dividing the cash tax paid against profit before tax (Dyreng et al., 2010; Chen et al., 2010). Current ETR is the comparative value between current tax expense and profit before tax (Salihu et al., 2013). Meanwhile, GAAP ETR is the total value of tax expense divided by profit before tax (Dyreng et al., 2010; Chen et al., 2010).

Thin Capitalization Rules

Thin capitalization is a condition where the proportion of company debt is much more significant than the capital owned or, in other words, has a high debt-to-equity ratio. (Richardson et al., 1998; Taylor and Richardson, 2013). This practice is categorized as tax avoidance, where the greater the proportion of debt a company has, the greater the interest expense that can be deducted from taxable income (Buttner et al., 2012). Meanwhile, thin capitalization rules are regulations made to address the problem of tax avoidance due to the practice of thin capitalization (Taylor and Richardson, 2013).

After the release of the Base Erosion Profit Shifting (BEPS) Action Plan by the OECD in 2013, which consists of 15 (fifteen) action plans, in which BEPS Action 4 recommends the use of interest limitation rules aimed at reducing tax avoidance measures (De la Cuesta-González and Pardo, 2019). The Government of the Republic of Indonesia issued thin capitalization rules through the Minister of Finance Regulation Number 169/PMK.010/2015, titled "Determination of the Amount of Comparison between Debt and Company Capital to calculate Income Tax." It has been effective since the 2016 tax year. In this PMK, the Government stipulates that to calculate interest expenses that can be deducted from income, the debt-to-equity ratio is a maximum of four to one (DER ≤ 4) or in other words, the proportion of debt allowed for taxation calculations is at most 80% of the total assets owned. This provision does not apply or excludes companies engaged in banking, financing institutions, insurance and reinsurance, oil and gas mining, general mining, and other mining and infrastructure.

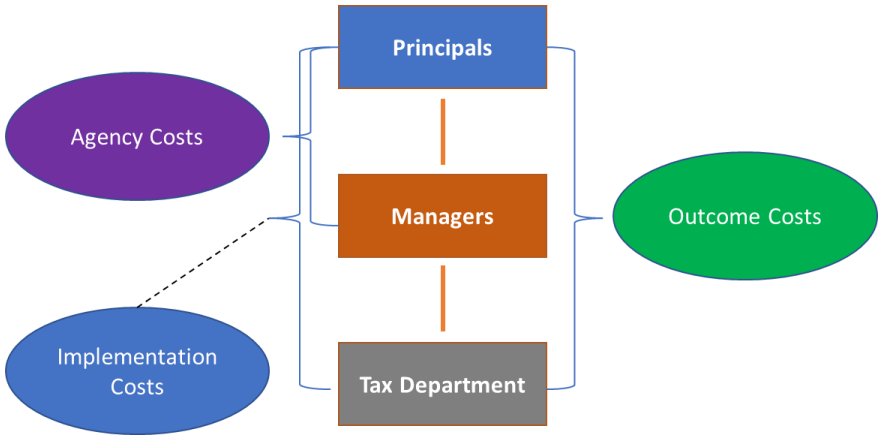
Agency Theory

Jensen and Meckling (1976) in Godfrey et al. (2010) suggest that the separation of roles between agents and principals would create a conflict of interest. The main goal of an enterprise is to optimize the utility of shareholders. In this case, the interest of the shareholders (principal) is to maximize the company's value, but the manager (agent)

can take advantage of information asymmetry for his benefit. Managers are interested in maximizing profits so that their performance looks positive. Tax avoidance is one of the actions that management can take to provide a positive image related to the company's performance.

Wilde and Wilson (2018) put forward an agency-based approach in decision-making related to a company's tax planning strategy, where tax planning is a function of three types of costs, namely (1) agency costs related to conflicts of interest between managers and shareholders; (2) implementation costs related to constraints and frictions faced in implementing tax planning strategies; and (3) outcome costs related to the results obtained from the implementation of certain tax planning strategies. Theoretically, the tax planning strategy companies should provide greater benefits than the costs incurred.

Figure 1. Conceptual Framework determining Tax Planning Strategy



Source: Wilde, J. H., & Wilson, R. J. (2018). Perspectives on corporate tax planning: Observations from the past decade. The Journal of the American Taxation Association, 40(2), 63-81.

The Trade-Off Theory of Leverage

In Pecking Order Theory, which discusses the company's preference in choosing funding sources, it is stated that companies will prioritize internal funding derived from retained earnings. Source funds from debt, while issuing new shares is the last option. When the company needs an external funding source, the loan application or issuance of debt securities takes precedence over the issuance of new shares due to the lower cost of debt than the cost of capital of issuing new shares (Leary and Roberts, 2010).

The Trade-Off Theory of Leverage is a development of the theory proposed by Modigliani and Miller (1958), which recognizes the existence of tax benefits obtained from interest payments (Brigham and Ehrhardt, 2011). It is known that interest paid on borrowed funds is deductible from taxable income, in contrast to dividends paid on equity (Brigham and Ehrhardt, 2011; Egger et al., 2014). Taking into account the tax element, the change in debt-to-equity ratio will affect the WACC (Weighted Average Cost of Capital), where the higher the debt level, the lower the WACC will be (Copeland et al., 2004). In other words, the actual cost of debt is less than the nominal cost due to tax benefits.

Hypotheses Development

Relationship between Thin Capitalization Rules and Company Capital Structure

A limit on the maximum amount of debt-to-equity ratio for tax calculation purposes makes companies with a high debt ratio above the limit of the thin capitalization rules tend to reduce the amount of debt. In this study, we define high DER companies as companies

with a DER > 4 or above the limit of the provisions regulated by PMK-169/2015. Buetnerr et al. (2006) found that thin capitalization rules can effectively reduce incentives to use internal funding and instead increase external borrowing as part of a company's tax planning strategy. Another study by Blouin et al., 2014 showed that after the thin capitalization rules, the leverage ratio of companies in the United States fell by 43%. Therefore, we formulate the hypothesis as follows:

H1: The application of thin capitalization rules negatively affects the company's leverage ratio for high DER companies.

Relationship between Thin Capitalization Rules and Corporate Tax Avoidance

The relationship between thin capitalization rules and corporate tax avoidance can be reviewed based on the trade-off theory of leverage and agency theory. Based on the trade-off theory of leverage perspective, the greater the debt ratio owned, the more tax benefits the company gets because the interest expense on the debt can be deducted from the calculation of taxable income. So that the higher the debt-to-equity ratio (DER), the greater the tax savings the company obtains. Meanwhile, from the agency theory perspective, one of the leading indicators in evaluating management performance is the company's financial performance, so that management has a strong incentive to carry out tax avoidance, aiming to increase the company's profit after tax.

Previous researchers such as Adegbite and Bojuwon (2019), Jovanovic (2014), Cheung (2012), Slemrod (2001), and Rego (2003) have empirically proven the relationship between the practice of thin capitalization (high DER value) and tax avoidance (Corporate Tax Avoidance). Therefore, with the DER restrictions for tax calculations (thin capitalization rules), it is expected that it will have an impact on decreasing Corporate Tax Avoidance, so the first hypothesis is formulated as follows:

H2: The application of thin capitalization rules decreases corporate tax avoidance levels.

Moderating Effect of the Covid-19 Pandemic

Various Government policies in order to reduce the spread of Covid-19 have caused a decrease in economic activity in various sectors. In the economic crisis, external funding sources in the form of loans or debt are increasingly limited for companies (Edwards et al., 2013; Brondolo, 2009). It will encourage the company to find other sources of funding to carry out its business operations. Research conducted by Richardson et al. (2015) shows that tax avoidance in Australia increased along with the global financial crisis in 2008. Based on this, we formulate the following hypotheses:

H3: The effect of thin capitalization rules on the company's capital structure after the economic crisis caused by the Covid-19 pandemic is more significant than before the covid-19 pandemic.

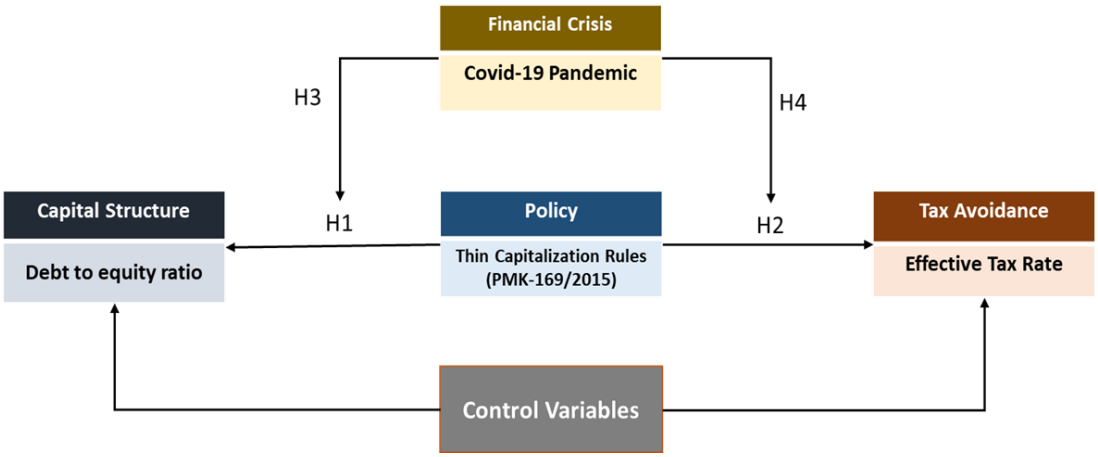
H4: The effect of thin capitalization rules on corporate tax avoidance after the economic crisis caused by the Covid-19 pandemic is more significant than before the Covid-19 pandemic.

RESEARCH METHOD

This study uses a difference in difference (DID) approach in looking for the influence of exogenous changes on tax policy. The difference in difference (DID) approach is typically used to estimate the effects of a particular treatment or policy by comparing changes in outcomes over time between the population affected by the policy (treatment group) and the population that is not affected by the policy (control group). In this case, the

Treatment group is the firms with DER > 4, and the Control group is the firms with DER ≤ 4.

Figure 2. Research Framework



Sample Selection

The selection of samples uses purposive sampling techniques, where the sample is a company listed on the Indonesia Stock Exchange and submits financial statements for the period 2011 to 2020. Firms related to these industries are excluded from the sample selection: banks; financial service institutions; insurance and reinsurance companies; infrastructure, oil, gas, and mining industries.

Research Model

The research models to test Hypotheses 1–4 is presented below.
To test hypothesis 1:

$$DER_{it} = \alpha_{it} + \beta_1 POST_{tt} + \beta_2 TREATED_{it} + \beta_3 POST*TREATED_{it} + \beta_4 SIZE_{it} + \beta_5 ICT_{it} + \beta_6 PROF_{it} + \beta_7 TANG_{it} + \epsilon_{it} \quad (I)$$

To test hypothesis 2:

$$CuETR_{it} = \alpha_{it} + \beta_1 POST_{it} + \beta_2 TREATED_{it} + \beta_3 POST*TREATED_{it} + \beta_4 SIZE_{it} + \beta_5 PROF_{it} + \beta_4 TANG_{it} + \epsilon_{it} \quad (II)$$

To test hypothesis 3:

$$DER_{it} = \alpha_{it} + \beta_1 POST_{it} + \beta_2 TREATED_{it} + \beta_3 POST*TREATED_{it} + \beta_4 COVID_{it} + \beta_5 POST*TREATED*COVID_{it} + \beta_6 SIZE_{it} + \beta_7 ICT_{it} + \beta_{8it} + \beta_9 TANG_{it} + \epsilon_{it} \quad (III)$$

To test hypothesis 4:

$$CuETR_{it} = \alpha_{it} + \beta_1 POST_{it} + \beta_2 TREATED_{it} + \beta_3 POST*TREATED_{it} + \beta_4 COVID_{it} + \beta_5 POST*TREATED*COVID_{it} + \beta_6 SIZE_{it} + \beta_7 PROF_{it} + \epsilon_{it} \quad (IV)$$

Table 1. Descriptions of research variables

Variables Codes	Descriptions
Dependent Variables	
CuETR	Current Effective Tax Rate (Current Income Tax divided by pretax income)
DER	Debt to Equity Ratio (Total Debt divided by Total Equity)
Independent Variables	
POST	dummy variable for post-implementation of the thin capitalization rule (1= for the year 2016 and after ; 0= others)
TREATED	dummy variable the effect of the thin capitalization rule (1= the population affected by the policy / DER > 4:1 ; 0= others)
Control Variables	
SIZE	Company Size (natural logarithm of total assets)
PROF	Profitability (ROA = pretax income divided by total assets)
ICR	Interest Coverage Ratio (EBIT/Interest Expense)
TANG	Tangibility (Tangible Assets/Total Assets)
COVID	dummy variable for the Covid-19 pandemic ((1= for the year 2020 and after ; 0= others)

RESULTS

The dependent variable descriptive statistics results are an initial description of the research sample data, which will later be confirmed through testing with a regression model. This study incorporates two bound variables: the capital structure or company leverage ratio (DER) and the level of corporate tax avoidance (Current ETR). These two dependent variables will benchmark the impact of thin capitalization rules on companies whose shares are traded on the exchange. A detailed statistical breakdown of variables is presented in Table 2.

Table 2. Descriptive Statistics of Dependent Variables

Dependent Variables	**Mean**	**Median**	**Minimum**	**Maximum**	**Standard Deviation**
DER	0.7381159	0.4512612	5.40e-06	17.9998	1.147156
CuETR	0.2585499	0.249591	0.0000781	0.9727305	0.1437855
Notes: Total Sample = 387 Total Observation = 1847					

Based on Table 2, it is known that the average CuETR value is 0.2585 or above the statutory tax rate or Corporate Income Tax rate that applies in the research period, where the Corporate Income Tax rate from 2011 to 2019 is 25%, while the Corporate Income Tax rate in 2020 and 2021 is 22%. The CuETR value distribution is 0-0.97, where very low CuETR characterizes companies that pay minimal taxes. However, on the other hand, there are also companies whose tax payments are 97.27% of the total profit before tax. Meanwhile, the average DER ratio of sample companies is 0.738, but some companies have a very high DER value of 17.9998.

Table 3. Tabulation of Descriptive Statistics of Dependent and Independent Variables

Dependent Variable	Pre-Implementation of TCR (POST = 0)		Post-Implementation of TCR (POST = 1)	
	Control Group (Treated =0)	Treatment Group (Treated =1)	Control Group (Treated =0)	Treatment Group (Treated =1)
Mean DER	0.6819673	0.7813551	0.5982515	6.66649
Mean CuETR	0.2613201	0.2374828	0.2567226	0.2803536
Total Observation	688	11	1128	20

Based on Table 3, it can be seen that for companies affected by the application of TCR (DER>4), the average value of *Current* ETR has increased from 0.2374 to 0.2804, which indicates a decrease in the level of tax avoidance for companies affected by TCR. On the other hand, the average value of *current* ETR companies that were not affected by TCR decreased from 0.2613 to 0.2567. This decrease in the average *Current* ETR indicates an increase in the level of tax avoidance carried out by companies that are not affected by TCR.

Table 4. Regression Results of the research hypothesis model

Independent Variables	*Model 1 Dependent Variable DER*		Model 2 Dependent Variable Adj_CuETR		Model 3 Dependent Variable DER		Model 4 Dependent Variable Adj_CuETR	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
POST	-0.1570	0.000***	0.019	0.021**	-0.142	0.000***	0.022	0.007***
TREATED	5.2155	0.000***	-0.001	0.977	5.210	0.000***	-0.009	0.884
POSTxTREATED	-0.6477	0.005***	0.005	0.929	-0.597	0.010***	-0.028	0.617
SIZE	0.0221	0.481	-0.015	0.046**	0.056	0.085*	-0.010	0.191
ICR	0.0000	0.672			0.000	0.698		
PROF	-1.4057	0.000***	-0.533	0.000***	-1.396	0.000***	-0.538	0.000***
TANG	0.0424	0.745	0.165	0.000***	0.091	0.485	0.163	0.000***
COVID					-0.124	0.000***	-0.021	0.013**
POSTxTREATEDxCOVID					-0.717	0.081*	0.309	0.002***
Constant	0.2372	0.789	0.412	0.048**	-0.727	0.429	0.283	0.190
Prob. F	0.000***		0.000***		0.000***		0.000***	
R^2	0.5467		0.0158		0.5506		0.0186	
N (observation)	1,782		1,833		1,782		1,833	
***, **, * indicates significance at 1%, 5%, 10% levels, respectively								

Regarding the statutory tax rate change during the research period, the current ETR value has to be adjusted to accommodate the difference in the applicable rate in the observation period. The statutory tax rate for the year 2011 to 2019 is 25%, while the statutory tax rate for the years 2020 and 2021 is 22%. Adjusted Current ETR is formulated as follows:

$$Adjusted\ Current\ ETR = Current\ ETR - Statutory\ Rate$$

This study uses a difference-in-differences (DID) approach so that the independent variable in this study is a dummy variable resulting from the interaction of the period of

application of thin capitalization rules (POST) with companies affected by these provisions (TREATED). Therefore, the partial significance test (t-test) will focus on observing POSTxTREATED interaction variables to determine the effect of thin capitalization rules on DER and Adjusted Current ETR as dependent variables.

DISCUSSION

The first regression result shows that the thin capitalization rules affect High DER companies' leverage ratio. The negative coefficient of POSTxTREATED means high DER companies decrease their leverage ratio after the Government applied the thin capitalization rules. Thus, research hypothesis 1 is accepted.

The second regression result shows that implementing the thin capitalization rules does not affect corporate tax avoidance since the p-value is insignificant. A positive POSTxTREATED coefficient suggests that the application of thin capitalization rules tends to lower the level of tax avoidance. However, that effect is not significantly indicated by a p-value greater than α for all significance levels. Thus, research hypothesis 2 is rejected.

The third regression result shows that the Covid-19 pandemic moderates the influence of thin capitalization rules on capital structures. The negative coefficient means the covid-19 pandemic strengthens the effect of the thin capitalization rules in reducing companies' leverage ratio. In other words, the effect of thin capitalization rules on the company's capital structure is more significant after the economic crisis caused by the Covid-19 pandemic. Thus, research hypothesis 3 is accepted.

The fourth regression result shows that the Covid-19 pandemic moderates the influence of thin capitalization rules on corporate tax avoidance. The positive coefficient means the covid-19 pandemic strengthens the effect of the thin capitalization rules in reducing corporate tax avoidance. In other words, the effect of thin capitalization rules on corporate tax avoidance is more significant after the economic crisis caused by the Covid-19 pandemic. Thus, research hypothesis 4 is accepted.

CONCLUSION

This study investigates the effectiveness of thin capitalization rules in reducing tax avoidance measures in Indonesia, especially in companies listed on the Indonesia Stock Exchange. The effect of thin capitalization rules is divided into two types: the influence on the company's capital structure (direct impact) and the influence on corporate tax avoidance (indirect impact). Furthermore, this research will also discuss the moderating effect of the financial crisis due to the Covid-19 pandemic.

The results show that the application of thin capitalization rules generally affects companies to change their capital structure by reducing the ratio of debt owed. It is in line with research by Blouin et al. (2014), showing that after the implementation of the thin capitalization rule, the leverage ratio of companies in the United States decreased by 43%. However, it was found that the effect of thin capitalization rules on corporate tax avoidance is not significant. The existence of a downward trend in the level of tax avoidance in the research period based on descriptive statistical results is not confirmed by inferential statistical testing.
The Covid-19 pandemic strengthened the influence of thin capitalization rules in reducing the leverage ratio of companies and the level of corporate tax avoidance. In other words, the effect of thin capitalization rules in reducing the debt-to-equity ratio and the level of

corporate tax avoidance after the economic crisis due to the Covid-19 pandemic is more significant (stronger) than conditions before the COVID-19 pandemic. It is difficult to obtain external funding in the form of debt in the conditions of the financial crisis due to the Covid-19 pandemic. Research conducted by Edwards et al. (2013) and Brondolo (2009) states that in conditions of economic crisis, access to external sources of funding in the form of loans or debts is increasingly limited for companies (Edwards et al., 2013; Brondolo, 2009). The difficulty in accessing external funding sources during the financial crisis made the company look for alternatives to fund operational activities, one of which was by conducting tax avoidance.

LIMITATION

This study used companies listed on the Indonesia Stock Exchange as the population and research sample. The results of research on companies that have not yet gone public or private companies that are not listed on the Indonesia Stock Exchange will provide different research results.

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DECLARATION OF CONFLICTING INTERESTS

We declare that we have no conflict of interest and certify that the submission is original work and is not under review at any other publication.

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