Does Tax Policy Change Affect Tax Avoidance Behaviour? Evidence from the Thin Capitalisation Rule in Indonesia

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ABSTRACT

Manuscript type: Research paper
Research aims: This research endeavours to assess the extent to which corporations modify their tax avoidance strategies following the initiation of a new anti-tax avoidance policy. Concentrating on the enforcement of the thin capitalisation rule in Indonesia, this study scrutinises whether the introduction of the new policy induces changes in firms' tax avoidance practice, measured by conforming and nonconforming tax avoidance.
Design/Methodology/Approach: Drawing on financial data from publicly traded companies in Indonesia, spanning the years 2012-2019, a Difference-in-Differences (DID) method is employed to disentangle the impact of thin capitalisation rule on corporate tax avoidance behaviour from extraneous factors. In setting up the DID method, we separate the study period into pre- and post- implementation of thin capitalisation rule. We also separate our sample into high-debt firms and lower-debt firms. We apply a two-way fixed effect and the Driscol-Kraay standard errors to ensure the robustness of our analysis.
Research findings: Our findings reveal that the implementation of the new tax rule, which limits company's debt, is associated with a decrease in conforming tax avoidance. Notably, multinational corporations exhibit a decrease in conforming tax avoidance but simultaneously exhibit an increase in nonconforming tax avoidance. These outcomes suggest that

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the introduction of a novel tax rule designed to curtail tax avoidance may lead to an upswing in overall tax avoidance behaviour and firms may adjust to a more aggressive approach. Our findings align with prior studies suggesting that companies consistently adapt and tailor their strategies to prevailing conditions to achieve an optimal level of tax avoidance.

Research limitation/Implications: As governments in emerging economies endeavour to promulgate new tax policies aimed at curtailing tax avoidance practices, our study underscores the potential futility of singular policy focus, as corporations may adeptly adjust their approaches to attain an optimal level of tax avoidance.

Originality: The introduction of the thin capitalisation rule in Indonesia provides a unique opportunity to implement quasi experimental method to test whether a stricter anti-avoidance rule effectively curtails firms' aggressive tax avoidance behaviour. Additionally, we utilise the two distinct types of tax avoidance, conforming and nonconforming tax avoidance. This nuanced classification enables a more detailed analysis of the shifts in tax avoidance behaviour following changes in tax policy.

Keywords: conforming tax avoidance, non-conforming tax avoidance, thin capitalisation.
JEL Classification: H26, H32

1. Introduction

Managers tend to make decisions based on corporate value maximisation (Asiri et al., 2020). Managers ascertain that decisions made are profit maximising, as corporate profits have been proven to be strongly correlated with business values (Hubbert, 1998). In calculating profits, taxes are major cost components. Minimising tax expenses results in increased profits, which consequently increases business value (Armstrong et al., 2015). In minimising tax expense, tax avoidance is considered as the most effective method due to its ability to reduce tax expense without conducting any transgression against the law (Lisowsky, 2010).

This study focuses on whether and to what extent a change in anti avoidance-based tax policy affects firm's tax avoidance behaviour. This study builds on Scholes's (1990) assertion that each firm seeks an optimal level of tax avoidance, striking a balance between associated costs and benefits, and draws from Kim et al.'s (2019) argument that firms inevitably re-align with this optimal tax avoidance level, albeit at varying rates of adjustment. Our study advances the proposition that the adoption of anti-tax avoidance policies by a country may prompt firms to temporarily deviate from this optimal level. Nevertheless, firms are anticipated to strategically transition to alternative methods of

tax avoidance, ensuring the restoration and maintenance of the optimal level, thus exemplifying the dynamic nature of firms in response to evolving regulatory frameworks.

In assessing changes in anti-tax avoidance policy, our study employs the adoption of the thin capitalisation rule in Indonesia as an exogenous event. Thin capitalisation stands out as a prominent method utilised by corporations for tax avoidance, while concurrently representing a widely recognised anti-avoidance rule implemented by numerous countries globally (Blouin et al., 2014). Aligning with the challenges faced by many developing nations, Indonesia has grappled with enhancing its tax ratio. As of 2021, Indonesia's tax-to-GDP ratio stands at 10.9%, falling below the averages observed in Asian-Pacific countries (19.8%) and African nations (16%). The Indonesian tax authorities persistently endeavour to adapt and refine existing anti-avoidance regulations. In 2015, after a period without specific regulations on thin capitalisation, the Indonesian government introduced the thin capitalisation rule, prescribing limits on the Debt-to-Equity Ratio at 4:1. The rule became effective in 2016, generally constraining firms' interest deductions by establishing a maximum debt-to-equity composition. Exceeding this composition renders firms ineligible to deduct additional interest expenses in corporate income tax calculations. Given that interest expense deduction is a prevalent tax avoidance strategy, a decline in tax avoidance behaviour is anticipated. However, recognising that a more stringent thin capitalisation rule may prompt firms to deviate from their optimal tax avoidance levels, we anticipate strategic adjustments to restore them to this optimal level.

In our empirical approach, we employ the difference-in-differences (DID) method to assess the impact of the new rule. By segregating periods pre- and post-implementation of the rule, we discern the differential effects on firms' tax avoidance strategies. Subsequently, we establish a treatment group, comprising high-debt firms more significantly affected by the new rule, and a control group of other companies. Our analysis scrutinises whether there are discernible shifts in the tax avoidance behaviour of the treatment group relative to the control group following the enactment of the thin capitalisation rule. Following Badertscher et al. (2019), we divide tax avoidance into conforming and nonconforming tax avoidance.

Utilising panel data analysis with two-way fixed effects and Driscoll-Kraay standard errors, our findings reveal a decrease in conforming tax avoidance after the implementation of the thin capitalisation rule. This reduction aligns with the rule's targeting

of company interest expenses, a primary component of conforming tax avoidance mechanisms. Conversely, we do not observe any statistically significant changes in nonconforming tax avoidance subsequent to the new rule's implementation.

Our examination, accounting for firms' multinational characteristics, yields consistent findings. Specifically, we observe a more pronounced reduction in conforming tax avoidance among multinational companies relative to their non-multinational counterparts following the enforcement of the thin capitalisation rule. Furthermore, our analysis reveals an escalation in nonconforming tax avoidance activities by multinational companies compared to their non-multinational counterparts subsequent to the thin capitalisation rule's implementation. These outcomes affirm our hypothesis that firms modify their tax avoidance strategies in response to new tax policies, seeking to realign with the optimal tax avoidance level. The heightened adaptability of multinational companies, attributed to their intricate operations and greater resources, is evident in the observed findings. Consequently, our results underscore that the response of firms to a novel anti-avoidance rule is contingent upon the available avenues for implementing a new tax avoidance policy.

Taxation literature has long identified various factors influencing tax avoidance. Firm-specific variables such as financial leverage (Taylor & Richardson, 2012), profitability (Taylor & Richardson, 2012), and corporate governance, including board and CEO characteristics (Desai & Dharmapala, 2009; Yahaya, Oon, and Jusoh, 2024), as well as ESG performance (Jiang & Jiang, 2024), have been found to be associated with the level of tax avoidance. Additionally, prior studies have shown that tax systems and policies also affect corporate tax avoidance, including the existence of public country-by-country reporting (Overesch & Wolff, 2021), tax rates (Hines & Rice, 1994), and transfer pricing regulations (Lohse & Riedel, 2013).

Our study contributes to the field of tax policy and tax avoidance practices in several significant ways. Firstly, between 2004 and 2015, various countries globally enacted more stringent anti-avoidance rules (Johansson, Skeie, & Sorbe, 2016). The introduction of the thin capitalisation rule in Indonesia, recognised as one of the most influential anti-avoidance measures, provides a unique opportunity to examine whether a stricter anti-avoidance rule effectively curtails firms' aggressive tax avoidance behaviour. In addressing this inquiry, our paper also enriches the ongoing discourse on optimal tax avoidance. Existing literature suggests that managers consistently seek avenues to minimise tax expenses (Armstrong et al., 2015). We

contribute to testing this proposition by categorising tax avoidance practices into two distinct types—conforming and nonconforming tax avoidance (Badertscher et al., 2019). This nuanced classification enables a more detailed analysis of the shifts in tax avoidance behaviour following changes in tax policy. Our research, therefore, provides valuable insights for regulators, particularly tax policy makers, in comprehending the impact of novel tax policies.

The paper continues with a background on Indonesian thin capitalisation law and a review of the literature and hypothesis development. Next, we describe our data and develop the research design. We then present descriptive statistics and provide our empirical results and findings. Finally, we conclude with a discussion of the implications of our findings.

2. Literature Review and Hypothesis Development

2.1. Indonesian thin capitalisation policy

Numerous global initiatives have been undertaken by governments to curb corporate tax avoidance, exemplified by the implementation of policies included in the General Anti-Avoidance Rule (GAAR) and the Specific Anti-Avoidance Rule (SAAR). The period spanning 2004 to 2015 witnessed a documented surge in the adoption of anti-avoidance rules across countries, indicative of a probable escalation in the implementation of more stringent measures by OECD member countries in the foreseeable future, as noted by Johansson, Skeie, and Sorbe (2016). Furthermore, various G20 member countries have widely embraced SAAR provisions, including transfer pricing, thin capitalisation, and controlled foreign corporation (CFC) rules, reflecting a global trend in the adoption of these anti-avoidance measures (Johansson, Skeie, & Sorbe, 2016).

The concept of thin capitalisation emerges within the taxation system, where interest expenses resulting from debt financing are allowed as deductions in the calculation of taxable income, whereas dividend expenses from equity financing are not permitted as deductions (Haufler & Runkel, 2012). This divergent tax treatment creates an incentive for firms to favor debt financing over stock financing, leading to an escalation in interest expenses. In response to the potential inflation of debt and interest payments, many countries adopt the thin capitalisation rule. This regulatory measure typically prescribes a maximum limit for the debt-to-equity ratio (DER)[1], beyond which any interest payments on debt exceeding the specified limit are no longer eligible for tax deductions.

The initiation of the thin capitalisation rule in Indonesia dates back to its first enactment in 1984. This regulatory measure was introduced through the Ministry of Finance decree number 1002/KMK.04/1984, establishing an initial maximum limit for the debt-to-equity ratio (DER) at 3:1. However, within a year of its implementation, the Indonesian Government revoked this decree with the issuance of Ministry of Finance decree number 254/KMK.01/1985 (Ministry of Finance Indonesia, 1985). Subsequently, there was a prolonged absence of a thin capitalisation rule until 2015. In that year, the Indonesian government reinstated the thin capitalisation rule via the Ministry of Finance regulation number 169/PMK.10/2015, effective from 2016, with amended limits on the DER set at 4:1. It is noteworthy that the Indonesian thin capitalisation rule is applicable to all companies operating within Indonesia, encompassing multinational corporations owned by foreign entities.

2.2. Theory and hypothesis development

This study primarily relies on agency theory as its foundational framework. According to agency theory, shareholders (principal) aspire to maximise profits, as heightened corporate profits yield increased returns for them (Fama & Jensen, 1983). Previous research underscores a proportional relationship between increased corporate value and higher profits (Asiri et al., 2020). In contrast, the manager (agent), characterised as a rational and risk-averse entity, makes decisions based on incentives (Fama & Jensen, 1983). Managers typically receive compensation tied to profits, motivating them to seek avenues for enhancing company profits. Prior studies affirm that managers consistently endeavour to minimise tax expenses to achieve higher corporate profits (Armstrong et al., 2015). Consequently, many corporations designate their tax division as a profit center (John et al., 2014) and employ tax avoidance strategies to optimise corporate profits (Lisowsky, 2010). The practice of tax avoidance allows agents to preserve or increase corporate value and garner incentives from principals, thereby augmenting utility or profit for the agents themselves.

When making decisions about tax avoidance, managers, as agents within the corporation, interact with several key stakeholders and must weigh the associated costs and benefits. In the theoretical framework of tax avoidance, Wilde & Wilson (2018) posit that managers must consider the government and shareholders, as both contribute costs and benefits that are instrumental in assessing the efficacy of the corporation's tax avoidance strategy. Wilde &

Wilson (2018) propose three types of costs that managers should take into account when engaging in tax avoidance: agency cost, implementation cost, and outcome cost. This framework underscores that each manager will consistently strive to optimise their tax avoidance level by considering all relevant parties and costs directly associated with their tax avoidance strategies (Wilde & Wilson, 2018).

The thin capitalisation rule and the shift in tax avoidance behaviour could be linked to the theoretical framework of tax avoidance in several facets:

1. The thin capitalisation rule limits DER into 4:1 and thus also limits corporations in avoiding taxes via interest expense. This increases the implementation costs of applying thin capitalisation as a method for tax avoidance.
2. The thin capitalisation rule offers a legal provision for the tax treatment of interest expense fiscal correction, which increases outcome cost that could arise in the form of fiscal correction, or as tax penalties.

Earlier studies have affirmed that the implementation of thin capitalisation rules compels corporations to diminish their leverage levels (Buettner et al., 2012; Mooii, 2021). Consequently, the effective tax rate of the company tends to rise proportionately, as one of the avenues for tax avoidance can no longer be optimally utilised.

Given the limitations of directly observing firms' specific tax policies, our analysis of corporate tax avoidance behaviour requires us to classify tax avoidance practices into two primary categories: conforming tax avoidance and non-conforming tax avoidance, as delineated by Badertscher et al. (2019). Conforming tax avoidance entails a purposeful reduction of a firm's business profit, affecting both fiscal and accounting income. For instance, firms may elevate their maintenance expenses, thereby reducing both accounting income and taxable income since maintenance costs are tax-deductible.

This intentional reduction makes detecting conforming tax avoidance challenging through the conventional book-tax difference methodology (Badertscher et al., 2019). An instance of conforming tax avoidance is observed in the utilisation of thin capitalisation, wherein a firm strategically manages its debts to recognise interest payments as fiscal expenses (Ezeoha & Ogamba, 2010).

Conversely, non-conforming tax avoidance entails practices that reduce taxable income without affecting accounting income, thereby

manifesting in book-tax differences. Examples of non-conforming tax avoidance methods include the selection of depreciation methods, variations in revenue and expense recognition methods (Plesko, 2004), and adjustments in inventory valuation that impact cost of goods sold and gains/losses from asset disposals (Badertscher et al., 2019).

Drawing on agency theory, we anticipate that corporate managers, acting as agents obligated to fulfill stockholders' expectations as principals, will endeavour to maximise firms' value through the maximisation of profits. The imposition of a more stringent legal framework prohibiting tax avoidance is anticipated to prompt firms to deviate from their existing tax avoidance practices. Consequently, managers adjust their tax avoidance strategies to realign with the optimal tax avoidance level. Given that the thin capitalisation rule restricts the deduction of interest expenses in corporate income tax calculations, the new policy may trigger lower debt, resulting in lower interest expense. A reduction in conforming tax avoidance is thus expected following the implementation of the new tax law. However, if firms contemporaneously adapt their tax strategies using methods that do not generate book-tax differences, there should be no discernible alteration in the level of conforming tax avoidance. By adhering to this fact that thin capitalisation is a form of conforming tax avoidance, hence, hypothesis H1 in this research is as follows.

> *H_1: After the implementation of the thin capitalisation rule, there is a decrease in conforming tax avoidance.*

The thin capitalisation rule disrupts the effective implementation of interest expense, a method commonly employed for conforming tax avoidance. Corporations that find this avenue curtailed may seek alternative conforming tax avoidance strategies. For instance, companies could optimise other expenses by augmenting management fees charged to the company (Bowman & Sussman, 2015) or engaging in profit-shifting between groups of companies within the same country or across borders, capitalising on varying tax rates (Barker et al., 2017). Consequently, when firms encounter limitations in executing conforming tax avoidance through thin capitalisation, affected companies might pivot towards non-conforming tax avoidance strategies If firms indeed opt to modify their strategies utilising approaches that only affect their taxable income, there may be an upswing in the nonconforming tax avoidance level subsequent to the enactment of the new rule.

The second hypothesis is thus:

H_2: After the implementation of the thin capitalisation rule, there is an increase in non-conforming tax avoidance among the affected companies.

Numerous studies have demonstrated that multinational corporations exhibit a tendency to engage in more aggressive tax avoidance when compared to their domestic counterparts (Slemrod, 2001; Rego, 2003; Taylor & Richardson, 2012). Furthermore, the prevalence of aggressive tax avoidance within multinational corporations has been corroborated by various articles in mainstream news outlets (Huizinga & Laeven, 2008; Duhigg & Kocieniewsky, 2012).

Lastly, building on the insights of Wilde and Wilson (2018), who propose that the implementation cost influences tax avoidance, our study explores whether firms with greater means (lower implementation costs), exhibit stronger incentives to adjust their tax policies in response to new anti-avoidance laws. Within the realm of thin capitalisation, multinational corporations have the opportunity to leverage internal debt within business groups across different countries, aiming to maximise the tax benefits for the entire business group (OECD, 2012). The Specific Anti-Avoidance Rule (SAAR) is explicitly designed to curtail such practices by multinational companies. Consequently, we posit that multinational corporations are disproportionately impacted by the thin capitalisation rule, leading to a reduction in their conforming tax avoidance practices. The hypothesis is thus:

H_{3a}: After the application of the thin capitalisation rule, multinational companies experience greater reduction in conforming tax avoidance compared to non-multionational companies.

Moreover, multinational corporations subject to thin capitalisation rules may adapt their tax avoidance strategies using alternative methods. For instance, these corporations have the capacity to relocate profits by transferring them from countries with higher tax rates to those with lower tax rates (Taylor & Richardson, 2012; Dharmapala, 2014). This shift in profit allocation is a common practice among multinational corporations, known for their propensity for more aggressive tax avoidance strategies (Slemrod, 2001; Rego, 2003; Taylor & Richardson, 2012). Given the greater means of multinationals to exercise nonconforming tax avoidance, our next hypothesis is as follows:

H_{3b}: After the application of the thin capitalisation rule, multinational companies experience greater increase in nonconforming tax avoidance compared to their counterparts.

3. Research Methodology

3.1. Sample selection

We collected data on Indonesian public companies between 2012 – 2019. The periods are divided into periods before the implementation of thin capitalisation rule (years 2012-2015) and periods after the implementation of thin capitalisation rule (2016-2019). Our data exclude firms in banking, insurance, and financial services industry because these firms have different financial statement format compared to other firms and the thin capitalisation rules do not apply to these firms. We also exclude firms in the industries subject to final income taxes,[2] such as construction and real estate. Additionally, we dropped observations with missing information. Our sample for the regression analysis includes a total of 1353 firm-years. We collected all our data from the Thomson Reuters database.

To apply the Difference-in-Differences method, we divide firms into treated group and control group. Treated groups are firms that are more affected by the thin capitalisation rules, which are firms with high debt-to-equity ratio. We define firms with high debt-to-equity as firms which debt-to-equity ratio exceeds the industry average. Control groups are those which do not meet the criteria of high debt-to-equity.

3.2. Analytical models

The analytical models used to address hypotheses 1 and 2 are as follows:

$$Tax\ Avoidanceit = \begin{matrix} \alpha_{it} + \alpha_1 Post + \alpha_2 HighDebt_i + \alpha_3 POST*HighDebt_i + \lambda X_{ist} \\ + \theta_s + \pi_t + e_{is} \end{matrix} \quad (1)$$

Whilst the analytical model to address hypotheses 3a and 3b is:

$$Tax\ Avoidanceit = \begin{matrix} \alpha_{it} + \alpha_1 Post + \alpha_2 HighDebt_i + \alpha_3 Multinational_i + \\ \alpha_4 Post*HighDebt_i + \alpha_5 Post*Multinational + \\ \alpha_6 HighDebt*Multinational + \alpha_7 Post*HighDebt_i*Multinational_i \\ + \lambda X_{ist} + \theta_s + \pi_t + e_{is}. \end{matrix} \quad (2)$$

The variable *Post* indicate the periods after the implementation of thin capitalisation rule and $HighDebt_i$ is an indicator variable indicating firms have greater debt compared to their peers. The variable $Multinational_i$ is an indicator variable reflecting whether firms are multinational companies.

The dependent variable in this study is the level of tax avoidance ($Tax\ Avoidance_{it}$). Badertscher et al (2019) proved that measurements of the level of tax avoidance used in previous studies were only one side of tax avoidance level measurement. More clearly, Badertscher et al (2019) categorise tax avoidance into conforming tax avoidance and non-conforming tax avoidance. Therefore, this study uses both tax avoidance measures that are previously introduced by the study of Badertscher et al (2019).

The first tax avoidance measure is the conforming tax avoidance. The conforming tax avoidance measurement used in this study adopt the one developed by Badertscher et al (2019). The operationalisation for variable conforming tax avoidance is represented in the model as follows:

$$TAXPAID\_ASSET_{it} = \begin{array}{l} \alpha 0 + \alpha 1 BTD_{it} + \alpha 2\ NEG_{it} + \alpha 3\ BTD_{it}\ x\ NEG_{it} + \alpha 4 NOL_{it} + \\ \alpha 5 \Delta NOL_{it} + \varepsilon_{it} \end{array}$$

The regression to calculate the conforming tax avoidance involves the relationship between the tax paid divided by total asset (TASSET), book-tax difference (BTD), an indicator variable measuring whether with book-tax difference is negative (NEG), losses carryforward (NOL), and the difference from NOL between years t and t-1 (ΔNOL) (Badertscher, et al, 2019). The regression controls for the BTD and NOL that are the indicators of non-conforming tax avoidance as both the conforming and the non-conforming tax avoidance will impact the amount of cash flows paid for tax. Following Badertscher et al (2019), the conforming tax avoidance is the residual value of the regression. To acquire accurate conforming tax avoidance value, this study uses regression per industry (Badertscher, et al, 2019). The lower the residual value from the regression, it can be concluded that the company has a higher level of conforming tax avoidance.

The second dependent variable is the corporate tax avoidance behaviour in the context of non-conforming tax avoidance that is measured through book-tax difference (BTD). This measurement was decided to be used in this study with several considerations. First, BTD is widely used in previous studies aside from CETR and ETR (Dyreng, Hanlon, Maydew, & Thornock, 2017; Mills, 2019; De

Simone, Nickerson, Seidman, & Stomberg, 2020). Second, BTD can be used as a strong indication of the presence of NCTA in a company because it is proven that many companies in the same fiscal year have high accounting profits but have low fiscal profits (Frank, Lynch, & Rego, 2009). Lastly, a large body of research that use ETR only use positive number because negative ETR condition raises are prone to bias interpretation (Thomsen & Watrin, 2018; Beladi, Chao, & Hu, 2018; Kim, McGuire, Savoy, & Wilson, 2019). Meanwhile, as we use the BTD to measure tax avoidance, no sample reduction was needed.

To calculate the book-tax difference (BTD), the approach used in this study is the same as the one used by Wilson (2009) and De Simone et al (2020). The BTD is measured as the Pre-tax Income - (Current Tax Expense/Statutory tax Rate). Furthermore, this study uses log total asset as scaling to normalise the BTD value, as used by Badertscher et al (2019). The higher the BTD value of a company shows the greater the differences between taxable income and the accounting income, which is an indication of higher level of non-conforming tax avoidance.

Additionally, this study aims to ascertain whether multinational corporations, which have more means to carry out tax avoidance, react more strongly to the new regulation. To examine this, this study uses a second model, the difference-in-difference-in-differences (DIDID) that examine companies that have DER above the industry average as treated group 1 and companies with multinational characteristics as treated group 2. The result of the analysis shows the differences in tax avoidance behaviour between multinational firms with high debt and their counterparts.

3.3. Control variables

Control variables are used to control factors that possibly influence the variations in dependent variables and may bias the analysis. The control variables used in this study are the size of the company (SIZE), capital intensity (CAPINT), the level of sales growth (SGROWTH), the debt-to-equity ratio (LEV), and company age (Age). Variable θ_i is firm fixed-effect that captures time-invariant variables that might impact firm's tax avoidance behaviour, while π_t is year fixed-effect that captures time-specific characteristics that impact firm's tax avoidance behaviour.

A detailed explanation of the variables used in this study can be seen in the table 1.

Table 1: Variable Description

No	Variable	Definition
Dependent Variables		
1	Tax Avoidance	
	Conforming Tax Avoidance (CTA)	CTA represents the residual value from regressing the current tax expense divided by total assets on factors such as the book-tax difference and Net Operating Losses (NOL).
	Non-Conforming Tax Avoidance (NCTA)	NCTA represents Book-Tax Difference (BTD) divided by lag total assets
Independent Variables		
1	*Post*	An indicator variable, which equals 1 for the periods after the thin capitalisation implementation
2	*High Debt*	An indicator variable, which equals 1 if firm's debt to equity ratio is higher than industry average
3	*Multinational*	An indicator variable, which equals 1 if firm is a multinational company
Control Variables		
1	*Size*	Natural Logarithm of Total Asset
2	*Capital Intensity*	Total Fixed Asset divided by Total Asset
3	*Sales Growth*	Change in Sales divided by Prior Year Sales
4	*Leverage*	Debt to Equity ratio
5	*Age*	Company's age since establishment

4. Results

4.1. Descriptive statistics

Table 2 shows the descriptive statistics of firms in our sample. The average conforming tax avoidance is around 0.05%, which means, on average, companies have low conforming tax avoidance.[3] The average nonconforming tax avoidance shows a positive sign, which means on average firms' pretax income is greater than the taxable income. About half of our sample (57.7%) represents the periods after the implementation of thin capitalisation, and around 36% of our sample represents firms which debt-equity ratios are greater than their industry-average. Additionally, about 34% of our sample are classified as multinational firms.

Table 2: Descriptive Statistics

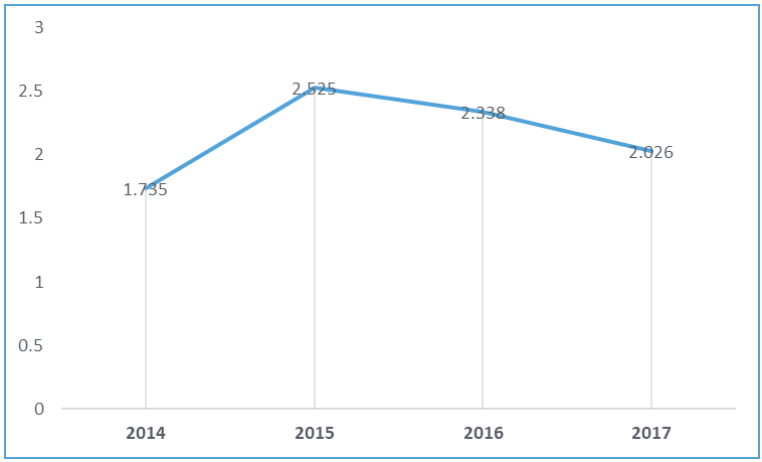
Variable	Mean	Std. Deviation	Min	Max
Conforming Tax Avoidance	0.000368	0.0286	-0.0458	0.282
Nonconforming Tax Avoidance	0.209	1.575	-29.73	21.38
Post-Thin Capitalisation Rule	0.577	0.494	0	1
High-Debt Firms	0.360	0.480	0	1
Multinational Firms	0.343	0.475	0	1
Size	29.09	1.578	20.67	33.49
Capital Intensity	0.405	0.230	0.00578	0.920
Age	15.04	9.801	0	42
Leverage	0.504	0.339	0.0665	8.533
Growth	0.0930	0.287	-0.909	5.564

Our control variables indicate that the average capital intensity is 40.5%, although the minimum capital intensity is 0.6% and the maximum reaches 92%. We thus observe a significant variation in firms' capital intensity. Additionally, the average firm's age is 15 years, with the minimum of zero (established in less than 1 year) and the maximum of 42 years. The average debt to equity is 50% although we observe the maximum value of 8.5 times. The growth variable indicates the average growth of firms in our sample is 9.3%, which indicate a growth.

4.2. Regression results and discussions

The thin capitalisation rule is intended to limit the tax-deductible interest expenses by limiting the amount of company's debt. Graph 1 shows that the average Debt-Equity ratio for high-debt firms decrease after the implementation of thin capitalisation rule.

Graph 1: Average Debt to Equity Ratio High-Debt Firms between 2014-2017



Our findings align with a prior study in Indonesia conducted by Ramadhan et al. (2017), which observed a decrease in the average debt of Indonesian public companies following the implementation of thin capitalisation rules.

To address cross-sectional dependence identified through the Pesaran test in our regression models, we employed Driscoll & Kraay Standard Error (Hoechle, 2007). This approach was chosen to mitigate cross-sectional dependence among the samples. Additionally, we incorporated two-way fixed effects to control for time-invariant and firm-invariant variables, respectively. The results of our regression analyses are presented in Tables 3 and 4.

Table 3 specifically details the impact of the thin capitalisation rule on corporate tax avoidance. In line with our study's hypothesis, we anticipated a decrease in conforming tax avoidance and an increase in nonconforming tax avoidance after the enforcement of the thin capitalisation rule. More precisely, our Difference-in-Differences (DID) models assess whether high-debt companies alter their tax avoidance behaviour compared to their counterparts post the implementation of thin capitalisation rules. For enhanced interpretability, we multiplied the coefficient of regression results for Conforming Tax Avoidance (CTA) by -1, aligning its interpretation with that of Nonconforming Tax Avoidance (NCTA). The results in Table 3, column 1, reveal a positive relationship between Post*HighDebt and CTA. In other words, after the thin capitalisation rule's implementation, conforming tax avoidance decreases significantly ($p < 0.05$). However, we do not observe any

meaningful impact of the thin capitalisation rule on nonconforming tax avoidance, as indicated in Table 3, column 2.

Table 3: Regression Result for the Effect of Thin Capitalisation on Tax Avoidance

	(1)	(2)
VARIABLES	**Conforming Tax Avoidance**	**Nonconforming Tax Avoidance**
POST x HIGH DEBT	***0.00594****	***0.191***
	(0.00216)	***(0.146)***
SIZE	0.0216	-0.0239
	(0.0177)	(0.0704)
CAPITAL INTENSITY	-0.0171	-0.609
	(0.0104)	(0.337)
GROWTH	0.000738***	-0.000367
	(3.87e-05)	(0.000421)
AGE	0.00770**	0.101
	(0.00321)	(0.0994)
LEVERAGE	-0.0276	0.0697
	(0.0247)	(0.0590)
2013.YEAR	-0.00873	-0.156*
	(0.00563)	(0.0821)
2014.YEAR	-0.0214*	-0.272
	(0.0111)	(0.177)
2015.YEAR	-0.0324*	-0.0882
	(0.0160)	(0.273)
2016.YEAR	-0.0433*	-0.327
	(0.0199)	(0.388)
2017.YEAR	-0.0531*	-0.494
	(0.0245)	(0.484)
2018.YEAR	-0.0626*	-0.495
	(0.0289)	(0.583)
2019.YEAR	-0.0706*	-0.735
	(0.0324)	(0.682)
Constant	-0.684	-0.0795
	(0.532)	(2.260)
Observations	1,353	1,353
R-squared	0.69%	12.24%
Year Fixed Effect	Yes	Yes
Firm Fixed Effect	Yes	Yes
Standard Error	Driscoll-Kraay	Driscoll-Kraay

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The thin capitalisation rule is a component of the Specific Anti-Avoidance Rules (SAARs) proposed by the OECD to curb aggressive tax behaviour. This rule impacts corporate tax avoidance by regulating a company's debt, thereby limiting interest expenses, which are recognised as deductible both in calculating accounting income and taxable income. Consequently, the thin capitalisation rules directly influence conforming tax avoidance. Our findings affirm this relationship, as we observe a decrease in conforming tax avoidance following the implementation of the thin capitalisation rule, indicating its effectiveness in curbing firms' tax avoidance behaviour.

However, our analysis yields no significant results for nonconforming tax avoidance. This aligns with the nature of thin capitalisation rules, which, as part of the SAAR, is applicable within a specific scope and cannot singularly enforce control over all corporate tax avoidance behaviour. It necessitates complementarity with other SAAR and General Anti-Avoidance Rule (GAAR) provisions.

Further stratifying our analysis based on whether firms are multinational companies, we anticipate that multinational corporations possess more sophisticated means to adjust their tax avoidance strategies (Taylor & Richardson, 2012; Dharmapala, 2014). The result from the hypothesis testing can be seen from the coefficients of the Post*HighDebt*Multinational variable. Table 4, column 1, demonstrates that multinational companies experience a more substantial reduction in conforming tax avoidance post the implementation of thin capitalisation rules compared to their counterparts. Given that thin capitalisation, as part of the SAAR, aims to limit multinational companies' exploitation of internal debt from business groups in different countries (OECD, 2012), our findings underscore the pronounced impact of the thin capitalisation rule on multinational companies. Moreover, multinational companies significantly escalate their nonconforming tax avoidance after the implementation of thin capitalisation rules. These results align with Kim et al.'s (2019) assertion that companies consistently adapt to prevailing conditions to achieve the optimal tax avoidance level. Furthermore, our findings support Wilde & Wilson's (2018) agency-tax avoidance theoretical framework, suggesting that companies may experience a shock when confronted with government-enacted thin capitalisation rules, prompting them to adjust their tax avoidance strategy to attain the optimal level.

Table 4: Regression Result for the Effect of Thin Capitalisation on Tax Avoidance for Multinationals

VARIABLES	(1) Conforming Tax Avoidance	(2) Nonconforming Tax Avoidance
POST x HIGH DEBT x MULTINATIONAL	***0.0110****	***1.258*****
	(0.00414)	***(0.343)***
HIGH DEBT x MULTINATIONAL	-0.0187**	-0.990***
	(0.00660)	(0.186)
POST x MULTINATIONAL	0.00563**	0.142
	(0.00193)	(0.0830)
POST x HIGH DEBT	0.00144	-0.345
	(0.00335)	(0.195)
SIZE	0.0230	0.0567
	(0.0182)	(0.0745)
CAPITAL INTENSITY	-0.0175	-0.638
	(0.0105)	(0.347)
GROWTH	0.000774***	0.00255
	(2.71e-05)	(0.00162)
AGE	0.00674*	0.0348
	(0.00295)	(0.0895)
LEVERAGE	-0.0267	0.118
	(0.0250)	(0.0671)
2013.YEAR	-0.00814	-0.110
	(0.00557)	(0.0730)
2014.YEAR	-0.0200	-0.175
	(0.0109)	(0.157)
2015.YEAR	-0.0303*	0.0667
	(0.0156)	(0.243)
2016.YEAR	-0.0423*	-0.160
	(0.0197)	(0.371)
2017.YEAR	-0.0513*	-0.270
	(0.0242)	(0.457)
2018.YEAR	-0.0599*	-0.212
	(0.0284)	(0.546)
2019.YEAR	-0.0670*	-0.387
	(0.0316)	(0.635)
Constant	-0.711	-1.533
	(0.546)	(2.235)
Observations	1,353	1,353
R-squared	12.76%	2.04%
Year Fixed Effect	Yes	Yes
Firm Fixed Effect	Yes	Yes
Standard Error	Driscoll-Kraay	Driscoll-Kraay

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Sensitivity Tests

To assess the robustness of our findings, we conducted two sensitivity tests. Firstly, we explored various alternatives for the classification of the treatment group. While our primary regressions identified treatment groups as firms consistently reporting a debt-to-equity ratio higher than the industry average, in the sensitivity tests, we classified treatment groups as (1) firms consistently higher than the industry average most of the time before the implementation of the new rule, and (2) firms higher than the industry average in the year preceding the new rule implementation. The results from these alternative classifications remained consistent.

In our second sensitivity test, we restricted the analysis to the period spanning from 2013 to 2017, thereby focusing on the short-term impact of thin capitalisation. Our Difference-in-Differences (DID) model yielded similar results. However, in the regression involving multinational companies, we observed no significant decrease in conforming tax avoidance.

6. Conclusions

This study aims to investigate the changes in corporate tax avoidance behaviour following the implementation of the thin capitalisation rule in Indonesia. Additionally, it seeks to explore the influence of multinational characteristics on companies and their shifts in tax avoidance behaviour. To achieve these objectives, a quasi-experimental approach was employed, utilising the Difference-in-Differences (DID) and Double Difference-in-Differences (DIDID) methods to distinguish between groups of affected companies and those unaffected by the rule implementation.

The findings indicate that, the thin capitalisation rule has the capacity to reduce the conforming tax avoidance in affected companies. Companies might perceive the implementation of the thin capitalisation rule as a regulatory measure by the government to enforce taxation rules. Rational and risk-averse agents anticipate rising implementation and outcome costs, leading to a lower level of conforming tax avoidance.

While the thin capitalisation rule effectively targets conforming tax avoidance by controlling capital structure and suppressing the exploitation of debt for maximising interest expenses, it lacks direct control over other corporate tax avoidance behaviours. Our results indeed show no significant change in non-conforming tax avoidance.

Our analyses reveal a more pronounced decline in conforming tax avoidance among multinational companies in comparison to their non-multinational counterparts following the implementation of the thin capitalisation rule. Furthermore, there is an observed increase in nonconforming tax avoidance activities by these companies after the enforcement of the thin capitalisation rule. These findings substantiate our hypothesis that firms adjust their tax avoidance strategies in response to newly introduced tax policies, aiming to realign with the optimal tax avoidance level. The heightened adaptability of multinational companies, stemming from their intricate operations and greater resources, is evident in the observed variations. Consequently, our results emphasise that the reaction of firms to a novel anti-avoidance rule is contingent upon the available avenues for implementing a new tax avoidance policy.

Our study contributes to both the academic literature and practical applications in several important ways. First, the existing literature suggests that managers consistently seek opportunities to minimise tax expenses (Armstrong et al., 2015) and adjust their tax avoidance strategies to realign with an optimal level of tax avoidance. We directly examine this proposition by categorising tax avoidance practices into two distinct types: conforming and nonconforming tax avoidance (Badertscher et al., 2019). This nuanced classification allows for a more detailed analysis of shifts in tax avoidance behaviour in response to changes in tax policy. As a result, our research offers valuable insights for both academics and regulators, especially tax policymakers, in understanding the impact of new tax policies. Furthermore, while numerous global initiatives have been undertaken by governments to curb corporate tax avoidance, our study suggests that stricter anti-avoidance rules alone may not effectively reduce aggressive tax avoidance behaviour. Instead, these rules should be complemented with other Specific Anti-Avoidance Rules (SAAR) and General Anti-Avoidance Rules (GAAR) provisions.

While our study provides valuable insights into tax avoidance practices, it is important to acknowledge that our analysis focuses exclusively on one specific policy—thin capitalisation—without considering the potential interactions and effects of other tax policies. This narrow focus may limit the generalisability of our findings to broader tax avoidance strategies. Additionally, the period examined in our study is relatively short, which may not capture the full impact of the policy changes over a longer duration. Future research should aim to explore the intricate balance between multiple tax policies and assess their combined effects on corporate tax avoidance

behaviour. Moreover, extending the analysis to a longer time frame could provide a more comprehensive understanding of the long-term consequences of tax policy adjustments.

Endnotes

1. Countries could also define how "debt" and "equity" are calculated to get the debt-to-equity ratio.

2. Indonesia adopted final income tax regime in which firms are taxed based on a certain rate. The taxes are withheld by the payers so firms receiving the income do not need to calculate the end-of-year income taxes for the income.

3. High CTA means firms pays more taxes compared to their counterparts.

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