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The Derivative on the Value Relevance Through Tax Avoidance and Earnings Control

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Abstract---This investigation expects to inspect and analyze the effect of derivative transactions on earnings management, the role of corporate tax avoidance in moderating effect of derivative transactions on earnings management, the effect of earnings management worth pertinence of earnings, and the effect of derivative transactions Worth Pertinence of earnings. This examination utilizes information from non-monetary organizations in Indonesia and Thailand for the period 2013-2017 with 91 test of organizations. This investigation, earnings management is calculated based on the Jaggi model and the Jaggi changed model. The value relevance of earnings is calculated based on Ohlson's model. Corporate tax avoidance is calculated based on the book tax difference. The results show that subordinate exchanges have a constructive outcome on earnings management. Corporate tax avoidance has not been proven to strengthen the effect of derivative transactions on earnings management. Earnings management adversely influences the worth pertinence of earnings. Derivative transactions negatively affect the value relevance of earnings. Derivative transactions, especially those with non-hedging criteria, show a high tendency towards earnings management activities. Intercountry testing, derivative transactions have a positive effect on earnings management in Indonesia while in Thailand it does not.

Keywords---corporate, derivative transactions, earnings management, tax avoidance, value relevance.

Introduction

The driving force for the emergence of derivative transactions originated from the complaints of wheat farmers in America in the 19th century, where the price of wheat tended to fall during major harvests and tended to rise when this period was pass. In anticipation of a fall in prices during the harvest season, to-arrive contract (a type of future contract) is created that allows them to lock in the price for future transactions. At the time of executing the transaction, they get the locked price. By doing so, they obtain certainty about the price at which the product is sold in the future (Bray et al., 2018; Fischer et al., 2016; Rakowski et al., 2017). Based on Bank for International Settlement (BIS) data, the volume of world derivative transactions from 2003 to 2017 increased by 170%, from around US \$ 197 trillion in 2003 to US \$ 532 trillion in 2017. The notional amount of derivatives which constitutes the number of currencies, shares, units of weight or volume, or other measures specified in the contract (PSAK 55, 2014), over the counter (OTC) decreased from the end of June to the end of December 2018, from \$ 595 trillion to \$ 544 trillion. The national value of OTC derivatives fell from \$ 10.3 trillion to \$ 9.7 trillion. The previous two years, namely 2016-2017, the notional number of OTC derivatives has increased.

Table 1
Indonesia and Thailand macro economics

Country	Macro Economics	2013	2014	2015	2016	2017
Indonesia	GDP Growth Per Capita	4,2%	3,7%	4,5%	3,7%	3,8%
11140110014	Balance of Payments Surplus (Deficit)	-3,2%	-	-2,0%	-	-1,7%
	r is the first term of the fir	-,	3,1%	.,	1,8%	,
	Inflation	6,9%	6,4%	6,4%	3,5%	3,8%
	Country rating (Fitch Rating)	BBB-	BBB-	BBB-	BBB-	BBB
	Bank Indonesia Rate/7-day Reverse	6,5%	7,5%	7,5%	6,0%	4,5%
	Repo Rate	•	·	,	,	•
Thailand	GDP Growth Per Capita	2,7%	0,5%	2,2%	3%	3,6%
	Balance of Payments Surplus (Deficit)	-0,5%	3,7%	8,0%	10,5	9,7%
					%	
	Inflation	2,2%	1,9%	-0,9%	0,2%	0,7%
	Country rating (Fitch Rating)	BBB+	BBB	BBB+	BBB	BBB+
			+		+	
	Bank of Thailand Rate	2,3%	2,0%	1,5%	1,5%	1,5%

Sources: Asian Development Bank, Bank of Indonesia, Bank of Thailand

Derivatives have become an integral part of the investment environment and one of the uses of derivatives is to protect risks or transfer risks to other parties. Apart from protecting risks, derivatives can be used to take positions and are speculative in nature. Although derivatives can be speculative in nature, companies generally use derivative products as a risk management tool (Bodie et al., 2014). Subsidiary monetary instruments are utilized by organizations to lessen income and pay instability brought about by market hazard factors, like variances in financing costs, vacillations in unfamiliar cash trade rates, changes in product costs and other danger factors (Barton, 2001; Pincus & Rajgopal, 2003).

Devi & Efendi (2018), the cash effective tax ratio (CETR) as a proxy for tax avoidance has a negative correlation with the fair value of hedged derivative assets. Shows that the firm reduces tax payments by delaying the realization of profit from derivative transactions designed to hedge. In addition, CETR is negatively correlate with the fair value of non-hedged derivative assets (liabilities). In line with Lee (2017), the fair value of derivative asset hedges is negatively related to CETR. Wang & Chen (2012), proves that there is a positive and significant correlation between earnings management and tax avoidance. Sebrina et al. (2018), proved that tax avoidance has a positive and significant effect on earnings management. Reinforced by the findings of Razali et al. (2019), tax avoidance has a positive effect on earnings management (Sykes, 1990; Elkington, 2002).

The Finish of Bookkeeping by Lev & Gu (2016) express the fast and nonstop weakening in the utilization and pertinence of monetary data, particularly over the most recent twenty years identified with financial backer choices. What amount of the offer cost is attached to profit and book esteem? The appropriate response is around 80 to 90 percent in the 1950 to 1960 period, current conditions are just in the scope of 50% (Lev & Gu, 2016). Three principle reasons why book keeping reports lose their significance: (1) Unexplained treatment about elusive resources - predominant organization esteems, scholarly capital -, for example, brand improvement, HR, advancement and examination - which are all financed by current bookkeeping norms. (2) Bookkeeping is not, at this point about realities however more about emotional decisions, assessments, and projection of directors (3) Un recorded business occasions progressively influence the worth of the firm (unsettling contenders, administrative changes, rebuilding and agreeable partnerships) (Brown, 2001; Constantinides & Perrakis, 2002).

Common uses of a company's reported earnings including: forecasting earnings to manage speculation choices and evaluating an organization's exhibition by income shock. Regardless, that significance of detailed income to financial backers is melting away. In producing profits from speculation, pay is surpass with incomes, and in evaluating firm execution, financial backers' frail responses to profit shocks cast genuine questions on the monetary significance of announced profit. Income is the primary outcome of complex accounting measurement and valuation systems, this finding is an early indication of things to come: comprehensive evidence of the diminishing usefulness of accounting information for investors (Lev & Gu, 2016).

The important thing in the book of The End of Accounting Lev & Gu (2016), is that the utilization of bookkeeping norms in various developing and underdeveloped countries needs to be considered by the IFRS Board. The IFRS version of asset valuation is effective in both the production and information era, because assets are evaluated using the latest economic indicators and applicable free market laws. Thus, IFRS standards can still be apply in the information age. In accordance with IFRS that all assets are task with maintaining business continuity, assets that do not function must be remove from the balance sheet. Value relevance is very important to study Ozek (2016), show that the results have not been able to prove the connection between the utilization of subsidiary exchanges and the worth significance of income. Murwaningsari et al. (2015),

demonstrate that there is a connection among subsidiaries and the worth significance of income. Interesting phenomenon regarding the value relevance study is the pros and cons in connection with the research of Francis & Schipper (1999) which did not find a large decrease in value relevance in industries that use high technology.

Lev & Zarowin (1999), there is a significant decrease in the role of value relevance for companies with an increase in research and development. Dahmash & Qabajeh (2012), explain that the Ohlson model, which is company value consisting of book value and earnings as well as clean surplus concept of shareholder value. Shows results that are particularly relevant for public and commercial companies that have gone public at share prices. The book value of equity and abnormal income are the relevant values. Heshmat et al. (2015), proved that real earnings management and artificial earnings management have a negative effect on the value relevance of earnings. Mostafa (2017), states that value relevance is related to earnings management, because value relevance and earnings management are related to the empirical phenomenon of fraud (fraudulent) that occurs in the development of international business (McNichols, 2000; Lo, 2008).

Based on the openness of experimental investigations, a few exploration holes were found. To start with, there were conflicting outcomes in regards with the impact of profit the executives on the worth significance of income. Income the board negatively affects esteem significance of profit Mostafa (2017); Heshmat et al. (2015), another finding of income the executives positively affects esteem pertinence of profit Agostino et al. (2011); Rachmawati (2019); Temile et al. (2018), there is no connection between profit the board and bookkeeping esteem significance (Fattahi et al., 2014). The relationship of subsidiaries with profit the board and worth pertinence of income is an exploration hole to put profit the executives as an arbiter of the impact of subordinates on the worth significance of income (Armstrong et al., 2015; Slemrod & Yitzhaki, 2002).

Second, Ohlson (1995), model, which is a proxy for value relevance, finds inconsistent results between researchers and inconsistent findings on the effect of earnings management on value relevance. Besides that, several empirical studies stated that the Ohlson model is very relevant for measuring the VRE variable. The findings of Dahmash & Qabajeh (2012), that the Ohlson model shows a very relevant value for public and commercial companies that have gone public at stock prices. The book value of equity and abnormal income are relevant values. There is a gap to analyze the impact of income the board on VRE using the Ohlson model (Hung, 2000; Baboukardos & Rimmel, 2016).

Third, empirical contemplates have been directed to demonstrate the connection among benefit and profit the executives and company growth variables as control variables (Gorganli & Vakilifard, 2014; Llukani, 2013; Ohlson, 2014). Firm size is use as a control variable for earnings management (Dang et al., 2017; Dechow et al., 1995; Kothari et al., 2005; Nguyen, 2015). These findings will be developed again in this study involving firm growth and firm size variables as earnings management control variables. In addition, the control variables for VRE are earnings persistence Moienadin & Tabatabaenasab (2014); Sloan (1996); Yang

(2018); Zach (2001), and audit quality (Jensen & Meckling, 1976; Subanidja et al., 2016).

Fourth, tax avoidance is negatively correlated with derivatives and derivatives provide opportunities by taking advantage of tax ambiguities. Other researchers on corporate tax avoidance as a mediating variable (Annuar et al., 2014; Gebhart, 2017; Hanlon & Heitzman, 2010). The pros and cons of derivative transactions against tax avoidance are the loopholes in using tax avoidance as a moderating effect of derivatives on earnings management. Fifth, there is a positive connection between profits the executives and income, which is in accordance with the model of Jaggi et al. (2009) in view of an income based accumulation model with organization development estimated through changes in income and in property, plant and hardware (PPE). Jaggi's model will be changed in this investigation, to be specific the net subordinate as one of the deciding elements for EM in the condition. The model will be a curiosity in this examination as an intermediary for income the board, namely modified Jaggi. The economic factors included in derivative transactions in the new measurement are needed (Grigorievna et al., 2021; Nagimova, 2021).

Sixth, this study compares two countries (Indonesia and Thailand) with the nonfinancial sector in their respective stock exchanges. The results of previous studies have not found any studies comparing the two countries with a construct like this study. The reason for the population in the study, namely Thailand and Indonesia, is because both countries are the countries with the largest economies in the Southeast Asia region. Seventh, derivative transactions in this study distinguish between hedging and non-hedged derivative transactions. Previous studies of derivative transactions were only in the form of dummy variables stated in the disclosure of financial statements. Research by Nguyen et al. (2018), stated that almost all non-financial companies in eight Asian countries do not use derivative transactions for speculation or trading purposes, this information is obtained from the company's annual reports. This study carried out in detail all the information in the annual report and audited financial reports, so that complete data on the hedge and non-hedge categories were obtained (Wong, 2021; Rinartha et al., 2018). In light of the gap research that has been depicted it can be concluded that the previous empirical study which is the reference of this study has still not found a model for developing earnings management with net derivatives which refers to the model (Jaggi et al., 2009). The new model in this study is to create an earnings management model as a mediator that connects derivative transactions with the value relevance of earnings (Hidah & Sedana, 2021; Allolinggi et al., 2021).

Literature review and hypothesis development

Earnings management

Earnings management (EM) is the manager's intervention on the financial reporting information to get the personal benefit. Managers manipulate profits to achieve what they want. This original model, as declared by Jaggi et al. (2009), uses the total accruals (TAC) as the dependent variable and three proxies of the operating cash flow [OCF(t-1), OCF(t), and OCF(t+1)], and two proxies of the

quality of accrual: change in revenue (ΔR) and property, plant, and equipment (PPE).

$$TAC_{i,t} = \delta_0 + \delta_1 CFO_{i,t-1} + \delta_2 CFO_{i,t} + \delta_3 CFO_{i,t+1} + \delta_4 DRev_{i,t} + \delta_5 PPE_{i,t} + e_{1,i,t}$$
(1)

Some notes related to the first equation is as follows:

- TAC of the firm at the time t calculated by the formula in equation 1a.
- TAC = (Profits before extraordinary account + depreciation + amortization) OCF(1a)
- All the variables get already divided by total assets.
- ε_1 is the residual based on the modified Jaggi model.

New model of earnings management

The development in this study for the Jaggi model, net derivatives, namely derivative assets reduced by derivative liabilities. Derivative assets and derivative liabilities arise due to derivative transaction contracts, this value is closely related to the notional amount of the derivative transaction. The determinants of the Jaggi model development are (1) Derivative transactions are used for hedging or non-hedging Emery & Finnerty (1997); Devi & Efendi (2018), an important requirement in paragraph PSAK 55-2014. 85 requires that each derivative transaction has a partner in the form of a protected transaction or item (2) Derivative transactions are used as an earnings management strategy Barton (2001); Pincus & Rajgopal (2003); Minton et al. (2009); Choi et al. (2015); Murwaningsari et al. (2015); Ozek (2016), derivative transactions in the hedged and non-hedged categories will affect net income, particularly non-hedged derivative transactions. This change has implications for the total value of current accruals and the value of discretionary accruals. (3) Derivative transactions are a component of financial statements that are prone to being manipulated because they contain a lot of uncertainty McKee (2005); Lee (2017), (4) Economic factors in the form of changes in exchange rates, risk of changes in interest rates, changes in commodity prices, credit risk and risk. liquidity has been accommodated in derivative transactions (PSAK 71, 2018) (5) Jaggi et al. (2009), using cash flow from operation (CFO) year t-1, CFO year t, and CFO year t + 1, the components of growth (growth) and property, plant and equipment with discretionary accruals were obtained from the residual value (E) (Indonesia, 2021). The measurement of EM adopts the residual of the Jaggi model modified by the additional variable, net derivative (Deriv) as a net of derivative asset and liability in balance sheet (see equation 2).

TAC_{i,t} =
$$\beta_0$$
 + β_1 CFO_{i,t-1} + β_2 CFO_{i,t} + β_3 CFO_{i,t+1} + β_4 DRev_{i,t} + β_5 PPE_{i,t} + β_6 Deriv_{i,t} + $e_{1,i,t}$ (2)

Derivative transaction

Derivative is a contract whose value or profit opportunity is related to the performance of another asset, known as the underlying asset (www.idx.co.id). The differences between hedging derivatives and speculative derivatives are (1) hedging derivatives, which are derivative transactions used to hedge the fair value

of future company assets or liabilities. (2) Speculative derivatives, namely derivative transactions that are not intended to hedge but to maximize company profits. According to Trang (2018), one of the company's strategies in hedging market risk is the use of financial derivative transactions. The relationship between the use of financial derivatives and disclosure of country risks, exchange rate risk and interest rate risk. These three derivative transactions are important because they have significant implications. By denoting Allayannis & Weston (2001); Barton (2001); Huang et al. (2009) moreover, derivative transaction (DT) is measured by the ratio of the total notional derivatives to the previous total assets (see equation 3).

$$DT = \frac{Notional\ derivative_t}{Total\ assets_{t-1}} \dots (3)$$

Corporate tax avoidance

Tax avoidance is the way of the firm to get the reduction of taxes legally by utilizing dodges from the tax regulation in a country. Also, it is the form of tax planning done by the firm before the duty of tax payment stands up. By following Guenther (2014); Tang & Firth (2011), this study uses the book-tax difference (BTD) as the measurement of tax avoidance. The formula of BTD, furthermore, can get looked at in equation four.

$$BTD = \frac{(Accounting \ profits - Taxable \ profits)_{t}}{(Total \ assets)_{t}} = \frac{\left(Commercial \ profits - \frac{Tax \ expense}{Tax \ rate}\right)_{t}}{(Total \ assets)_{t}} \ \dots (4)$$

Value relevance of earnings

Measurement of Value Relevance of Earnings (VRE) using Clean Surplus Theory (Feltham & Ohlson, 1995). The Ohlson model is used to estimate firm value based on the book value of equity plus the cash value of abnormal earnings. Value relevance of earnings is measured by the ability of financial statement information to capture various kinds of information that affect stock value. Ohlson (1995), model and modification Botosan (1997); Utami (2006), to determine the value relevance is calculated by the current book value plus expected earnings (which comes from financial statements) minus the stock price.

$$r_t = (B_t + E(x_{t+1}) - P_t) / P_t$$
(5)

The derivative transaction against earnings management

In their study, Devi & Efendi (2018) attempt to prove the derivative transaction as the toll to manage profits. They explain that the company can fasten to recognize the loss of speculative derivative transactions to postpone the realization of the earnings. Similarly, Murwaningsari et al. (2015); Oktavia et al. (2019), find that derivative transactions positively affect earnings management measured by discretionary accrual. According to these explanations, we propose the first hypothesis as follows.

• H₁: Derivative transactions have a positive effect on earnings management.

The moderating effect of tax avoidance on the impact of the derivative transaction on the tendency of the firms to manage profits

The results of the study Shackelford & Shevlin (2001); Erickson *et al.* (2004), state that there is a tradeoff between tax aggressiveness and earnings management. Tax avoidance is done by reducing profits so that tax payments are low, earnings management is done by increasing profits and for this it cannot be done simultaneously. In other words, the positive influence of CTA on managing earnings will get reduced when firms comply with the tax regulation. According to these explanations, we propose the second hypothesis as follows.

• H₂: Corporate tax avoidance weakens the effect of derivative transactions on earnings management.

Earnings management against value relevance of earnings

The presentation of profit with a high accrual side in the recognition of expenses and income will cause the value relevance of reported earnings to be low. Conversely, the presentation of earnings with a small accrual side in terms of revenue and expense recognition, will present real profit and make the value relevance of earnings presented in the financial statements even higher. The results of this study support Heshmat *et al.* (2015); Altintas *et al.* (2017), stating that earnings management practices reduce the value relevance of earnings and earnings management will be a negative signal for value relevance of earnings. According to these explanations, we propose the third hypothesis as follows:

• H3: Earnings management has a negative effect on the value relevance of earnings

Derivative transactions against value relevance of earnings

Derivatives contain relevant value information and other studies linking VRE with derivative instruments have been carried out, among others (Altintas et al., 2017; Cheng & Li, 2014; Feltham & Pae, 2000; Habib, 2004; Marquardt & Wiedman, 2004; Mostafa, 2017; Tucker & Zarowin, 2006). A study on the effect of derivative instruments on earnings management has also been conducted by Murwaningsari et al. (2015), that there is a negative relationship between financial derivatives and the value relevance of earnings using price and return models. According to these explanations, we propose the forth hypothesis as follows:

• H4: Derivative transactions have a negative effect on the value relevance of earnings

Research Method

Variable definition

This research uses two kinds of variables. Firstly, the dependent variable named earnings management measured by the residual (ε_1) of the modified model of

Jaggi et al. 2009, in the first and second equation. Secondly, the dependent variable named value relevance of earnings calculated by the current book value plus expected earnings (sourced from financial statements) minus the stock price in the fifth equation. Thirdly, the explaining variables consisting of derivative transactions, tax avoidance, firm growth, firm size, audit quality and earnings persistence.

- To measure derivative transactions (TD), we use the ratio of the total notional derivatives to the previous total assets based on the second equation.
- To calculate tax avoidance, we use the book-tax difference (BTD) by mentioning the third equation.
- To compute the firm growth and size, we use the total assets growing and the natural logarithm of total assets.
- To define the audit quality, we use the measure of big four public accountant and others, and earnings persistence using the accrual quality-based earnings persistence approach.

The population and sample

The population comes from the non-financial firms from 2013 to 2017 listed on the capital market of Indonesia and Thailand. The samples get obtained by purposive sampling with two criteria, i.e., the firms have to own the derivative transaction and the complete financial statements (see the details in Table 1). To obtain company data using derivatives or without derivatives, researchers read the company's annual reports and examined them one by one and obtained 91 Indonesian companies and Thai companies.

Table 1
The process of getting the number of firms based on the criteria in the purposive sampling method

	The number of non	Total	
Description/criteria	Indonesia capital	Thai capital market	Total firms
	market		11111110
The firms from 2013 until 2017	480	688	1,168
The firms without DT	(437)	(585)	(1,022)
The firms with DT	43	103	146
The firms with DT and do not own			
the financial reports completely	(O)	(55)	(55)
The firms with DT and have			
financial reports completely	43	48	91

The method of analyzing data

Data analysis used Smart Partial Least Square (PLS) version 3.2.8. The structural equation model is used to answer hypotheses 1 and 2, using the equations in model 6 and answering hypotheses 3 and 4, using the equations in model 7. Two structural equation models are stated as follows.

$$EM_{it} = \gamma_0 + \gamma_1 DT_{it} + \gamma_2 DT_{it} * CTA_{it} + \gamma_3 FS_{it} + \gamma_4 FG_{it} + \epsilon_{1it}.....(6)$$

$$VRE_{it} = \gamma_0 + \gamma_5 DT_{it} + \beta_1 EM_{it} + \gamma_6 EP_{it} + \gamma_7 AQ_{it} + \epsilon_{2it}.....(7)$$

Result and Discussion

This study employs 91 non-financial firms for 5 years; hence, 455 observations (N) exist. Table 2 presents the statistics to describe the variables based on this number, i.e., minimum, maximum, average, and standard deviation.

- Derivative transactions (DT) measured by the ratio of the total notional derivatives to the previous total assets have average, minimum, maximum, and standard deviation 0.11248, 0.00000, 1.08830, and 0.17329, individually.
- Tax avoidance (CTA) measured by the book-tax difference has average, minimum, maximum, and standard deviation of 0.01547, -0.33443, 0.84612, and 0.07611, correspondingly.
- The residual of Jaggi et al. (2009) (EM) has average, minimum, maximum, and standard deviation of 0.03909, 0.00019, 0.32591, and 0.03927, respectively.
- The residual of the modified model of Jaggi et al. (2009) (EM Modified) has average, minimum, maximum, and standard deviation of 0.03893, 0.00003, 0.31670, and 0.03850, respectively.
- The value relevance of earnings with Ohlson model (VRE) has average, minimum, maximum, and standard deviation of 0.10008, -1.07863, 19.52482, and 1.59528, respectively.
- Firm size (FZ) measured by the natural logarithm of total assets owns average, minimum, maximum, and standard deviation of 20.68443, 16.89091, 23.80681, and 1.42097, one-to-one.
- Firm growth measured by the total assets growing (FG) has average, minimum, maximum, and standard deviation of 0.10761, -0.68899, 5.78647, and 0.39895, individually.
- Audit quality measured by big four and other (AQ) owns average, minimum, maximum, and standard deviation of 0.71868, 0.00000, 1.00000, and 0.45014, one-to-one.
- Earnings persistence (EP) measured using the accrual quality-based earnings persistence approach owns average, minimum, maximum, and standard deviation of 0.0000, -0.31657, 0.42941, and 0.07042, one-to-one.

Table 2
Descriptive statistics

Variable	N	Average	Minimum	Maximum	Std. Deviation
DT	455	0.11248	0.00000	1.08830	0.17329
CTA (BTD)	455	0.01547	-0.33443	0.84612	0.07611
EM (Jaggi)	455	0.03909	0.00019	0.32591	0.03927
EM (Jaggi Modified)	455	0.03893	0.00003	0.31670	0.03850
VRE (Ohlson)	455	0.10008	-1.07863	19.52482	1.59528
Firm Size (LNAsset)	455	20.68443	16.89091	23.80681	1.42097

Firm Growth (Aset)	455	0.10761	-0.68899	5.78647	0.39895
AQ (Big Four)	455	0.71868	0.00000	1.00000	0.45014
EP (Residual)	455	0.00000	-0.31657	0.42941	0.07042

Source: Output of IBM SPSS 22

The result of the regression model estimation

Table 3 shows the estimation result of the regression model. This model contains two panel: panel A: estimation results of path coefficients related to hypothesis testing 1 to 4 and panel B: estimation result of path coefficient related to direct and indirect effect testing with Sobel Test. Moreover, to test the hypotheses proposed, this study utilized the regression estimation in the model.

 $\begin{array}{ll} Tabel \ 3 \\ The \ Estimation \ Result \ moderated \ by \ Earnings \ Management \ Jaggi \ Modified \ Model \\ EM_{it} &= \gamma_0 + \ \gamma_1 DT_{it} + \gamma_2 DT_{it} ^*CTA_{it} + \gamma_3 FS_{it} + \gamma_4 FG_{it} + \epsilon_{1it} \\ VRE_{it} &= \gamma_0 + \ \gamma_5 DT_{it} + \beta_1 EM_{it} + \gamma_6 EP_{it} + \gamma_7 AQ_{it} + \epsilon_{2it} \end{array}$

Panel A. Estimation Results of Path Coefficients Related to Hypothesis Testing 1 to 4									
Hypothesi	ž		Path Standard Coefficient error		t-stat	t-statistic			
S	Relationship	Coen		error					
1	$DT \rightarrow EM$		0.080	0.047		1.691	0.046		
-	$CTA \rightarrow EM$		-0.129	0.051		2.538	0.006		
2	$CTA*DT \rightarrow EM$		-0.085	0.048		1.776	0.038		
-	$FS \rightarrow EM$	I	-0.107	0.049		2.181	0.015		
-	$FG \rightarrow EM$	I	0.083	0.048		1.727	0.042		
3	$EM \rightarrow VRE$		-0.156	0.050		3.150	0.001		
4	$DT \rightarrow VRE$		-0.068	0.050		1.359	0.087		
-	EP → VRE	C	-0.141	0.054		2.593	0.005		
-	KA → VRE	C	-0.145	0.050		2.909	0.002		
Panel B. E	Stimation Result o	f Path Co	efficient Rel	ated to Direc	ct and Indi	rect Effe	ct Testing		
		,	with Sobel T	`est					
	Mediation	Path		Multiply	Standar	Z -	Prob.		
	relationship:	Coefficie	Standard	path	d error	statist	(2-		
	$DT \rightarrow EM \rightarrow$	nt	error	coefficien	Sobel	ic	tailed)		
	VRE	111		ts	Sonei	IC	ianea)		
-	DT → EM	0.0800	0.0470			-			
	$EM \rightarrow VRE$			-0.0125	0.0087	1.438	0.1418		
		-0.1560	0.0500			4			
Source: Mo	Source: Modified Output of Smartpls 3.28								

Tabel 4
Test Comparison of Jaggi versus Jaggi Modified

All sample companies in Indonesia and Th						Thailand	[
Hypothesis	Causality Relationship	Path Coef. Jaggi	oef. p-Values		Path Coef. Jaggi Modified	p-Va Jaggi M	
1	DT à EM	0.088	0.031	**)	0.080	0.046	**)
_	CTA à EM	-0.141	0.005		-0.129	0.006	<u> </u>

	2	CTA*DT à EM	-0.093	0.033	**)	-0.085	0.038	**)		
	-	FS à EM	-0.106	0.018	**)	-0.107	0.015	**)		
	-	FG à EM	0.064	0.114		0.083	0.042	**)		
	3	EM à VRE	-0.158	0.001	***)	-0.156	0.001	***)		
	4	DT à VRE	-0.067	0.086	*)	-0.068	0.087	*)		
	-	EP à VRE	-0.143	0.003	***)	-0.141	0.005	***)		
	-	KA à VRE	-0.146	0.003	***)	-0.145	0.002	***)		
Direct and Indirect Effect Testing										
$DT \to EM \to VRE$		-0.014	0.117		-0.013	0.142				

Notes:

*** Significant at the level 1%; ** Significant at the level 5%; * Significant at the level 10% Source: Modified Output of Smartpls 3.28

The result of the hypotheses testing

In table 3, the probability value of the t-statistic on the causal relationship of DT to EM, CTA*DT to EM, EM to VRE, and DT to VRE, 0.046, 0.038, 0.001 and 0.087, respectively, are still below the level of significance by 10%. Based on these conditions, hypothesis 1, derivative transactions has a positive effect on earnings management, hypothesis 2, corporate tax avoidance weakens the effect of derivative transactions on earnings management, hypothesis 3, earnings management has a negative effect on value relevance of earnings, and hypothesis 4, derivative transactions has a negative effect on value relevance of earnings, is accepted (Collins et al., 2017).

Related to the more influential test, direct derivative transactions on the value relevance of earnings or through earnings management, given the probability value (2-tailed) of the Z-statistic for the Sobel test of 0.1418 which is greater than the significance level of 5%, So with these results it is stated that earnings management does not mediate the effect of derivative transactions on the value relevance of earnings. The direct effect of derivative transactions on value relevance of earnings can be seen in the path coefficient of -0.068 (Table 3). Meanwhile, the indirect effect is calculated from the multiplication between the coefficient of the effect of derivative transactions on earnings management and the coefficient of the effect of earnings management on the value relevance of earnings. The coefficient of the influence of earnings management on value relevance of earnings is -0.156. The coefficient of the effect of derivative transactions on earnings management is 0.08. The product of the two is -0.156 x 0.08 = -0.012. The direct effect coefficient -0.068 is greater than the indirect effect coefficient -0.012. Thus, what has a greater influence is the direct effect, namely derivative transactions on the value relevance of earnings.

Based on the results of the sensitivity test in Table 4, the following explanation can be given: First, the sensitivity test of replacing the earnings management measure as a mediating variable with Jaggi's model also provides significant results. With the sensitivity test, the results of derivative transactions on earnings management remain significant at the 5% level, this result is consistent with the modified Jaggi model test. Second, with a sensitivity test, corporate tax avoidance weakens the effect of derivative transactions on earnings management. The results are consistent with the modified Jaggi model test. Third, earnings

management has a negative effect on the value relevance of earnings and the results remain significant at the 1% level. Fourth, derivative transactions have a negative effect on value relevance of earnings, the results remain equally significant at the 10% level. Tests for direct and indirect effects also provide consistent results where earnings management does not mediate the effect of derivative transactions on value relevance of earnings. This result can be seen from the two models with the single test showing insignificant results.

Discussion

Overall, the research model is a fit model because both of them have a significant model together. It means that the model can be proven and supports the theories used to build the model. In the estimation results of the structural equation model with the residual of the Modified Jaggi model as a mediating variable, it is evident that derivative transactions are a strong signal for the occurrence of earnings management activities. These results support the rationale for signaling theory Spence (1978), where it is proven that derivative transactions can be used as a positive signal for earnings management activities. Activities that delay or accelerate the recognition of profit or loss from derivative transactions can signal positive earnings management. This research has strengthened this thinking. Derivative transactions are very prone to being engineered so that actions related to derivative transactions will be the concern of analysts to assess the potential for earnings management that may occur. Taking into account the evidence of the results of this study, of course, risk management is very important to be managed properly by the issuer. This can be useful to avoid negative sentiment from the market and analysts on derivative transaction activities carried out by issuers. In line with the rationale of the agency theory from Jensen and Meckling (1976), that managers as agents have performance contracts that must be achieved, so that derivative transactions also have the potential to be part of a means of proving the performance contracts. Responding to this condition, the principal or stakeholder certainly hopes that the potential for earnings management does not occur as a result of derivative transaction activities. It is necessary to manage risk management to control the risk of derivative transactions carried out by the company.

In the same model, it is proven that earnings management has a negative effect on value relevance or earnings. Then derivative transactions have a negative effect on value relevance or earnings. These results support the rationale for agency theory from Jensen & Meckling (1976), in which agents are bound by contracts to provide good performance for issuers. Efforts to achieve this achievement, agents always try to maximize the potential and opportunities available to show good performance. It's just that earnings management activities are still often used as an effort to show their achievements. If this continues, it will certainly set a bad precedent to achieve the value relevance of the earnings generated by the issuer. Earnings management activities are proven to reduce the value relevance of earnings in this study. In line with the thinking of signaling theory (Spence, 1978). Furthermore, derivative transactions have a negative impact on the value relevance of the resulting earnings. It can be interpreted that derivative transactions have information that is relevant to the income statement which is presented in the financial statements. An insider who acts as a signaler, for the

benefit of all stakeholders, provides information that is in line with the reporting of earnings in the financial statements.

Agents do have interests and contracts that must be achieved, so that if derivative transactions are not presented in accordance with actual conditions, this will be able to have a negative impact on the value relevance of earnings presented in the financial statements. In line with Mashayekhi et al. (2013), at the stage of growth, the revenue earned by the company is not stable because the company is in the stage of expanding its market share and profits cannot reflect the condition of the company's value and has no value relevance to share prices. At the mature stage, the company is at a stable sales level and has the ability to generate higher profits than the previous stage. Decline stage, the company experienced a decline in sales so that the profits obtained were lower (Nozarpour & Norouzi, 2015). In the stages of mature and decline earnings can be a good information and useful in decision making. Earnings per share has value relevance to share prices at mature and decline stages. Derivative transactions are influenced by currency movements, interest rates and in a stable condition earnings volatility will also be low, thus affecting earnings per share with implications for value relevance. Fluctuate conditions will impact to the movement of currency and results in high volatility in earnings. High earnings volatility tends to get a negative response from investors and low value relevance. In accordance with the research Altintas et al. (2017), there is a positive relationship between earnings and stock market returns.

Conclusion and Recommendations

In general, there is a positive effect of derivative transactions on earnings management and corporate tax avoidance is weaken to the effect of derivative transactions on earnings management and there is a negative effect on earnings management and derivative transactions on the value relevance of earnings.

- Derivative transactions have a positive effect on earnings management. These results provide an interpretation that derivative transactions are followed by earnings management activities. Derivative transactions themselves are intended to manage risk, but risk management is also followed by earnings management activities. The results of this study support the research of Murwaningsari et al. (2015), stated that derivatives positively related to discretionary accruals, where implementation discretionary accruals are used in earnings management mode. The measurement of earnings management in this study uses the Jaggi model and the modified Jaggi model as the mediating variable. It can be proven that the modified Jaggi model is better than the previous model, the Jaggi model. It can be seen from the regression results that the adjusted R square value for the modified Jaggi model is higher than the Jaggi model. Net derivatives as a factor used for calculating the residual value further sharpens the value of earnings management, thereby making the accrual discretionary value on the modified Jaggi model more accurate.
- Corporate tax avoidance weaken the effect of derivative transactions on earnings management.

It can be interpreted that corporate tax avoidance activities are not related to earnings management activities. Derivative transactions are used and followed by earnings management activities, however corporate tax avoidance activities are decreasing and companies continue to pay taxes in accordance with applicable regulations. The results of the study are not in line with Amidu & Yorke (2017); Donohoe (2015); Oktavia et al. (2019), which states that financial derivatives are used as instruments to avoid taxes. The results support the research (Shackelford & Shevlin (2001); Erickson et al. (2004), that there is a tradeoff between tax aggressiveness and earnings management. Tax avoidance is done by reducing profits so that tax payments are low, earnings management is done by increasing profits and for this it cannot be done simultaneously.

- Earning management has a negative effect on the value relevance of earnings.
 - The presentation of profit with a high accrual side in the recognition of expenses and income will cause the value relevance of reported earnings to be low. Conversely, the presentation of earnings with a small accrual side in terms of revenue and expense recognition, will present real profit and make the value relevance of earnings presented in the financial statements even higher. The results of this study support Heshmat et al. (2015); Altintas et al. (2017), stating that earnings management practices reduce the value relevance of earnings and earnings management will be a negative signal for value relevance of earnings.
- Derivative transactions have a negative effect on the value relevance of earnings.

One of the objectives of derivative transactions is to manage the risks faced by listed companies, however, derivative transactions are prone to being misused so that the value relevance of earnings decreases. As a result, the level of investor confidence in the listed company decreases. The results of this study support Murwaningsari et al. (2015) which states that there is a negative relationship between financial derivatives and the value relevance of earnings. Hairston & Brooks (2019) stated that there is still much room for improvement in regulations related to derivatives and it is the duty of managers to report derivative transactions with more complete, transparent disclosures and disclosures related to the strategy of derivatives owned by companies.

By referring to some research evidence, this study gives two suggestions. The first is the practical ones, addressed to the leader and the members of the supervisory board.

- Firstly, the leader and the members of the supervising board need to strictly monitor the manager's transaction in the derivatives by motivating them to cover the firm position from risks through hedging to reduce earnings management.
- Secondly, the supervisory board has to encourage the managers to follow the tax regulation because their obedience can reduce earnings management that makes the firms trusted by the public shareholders.
- The second is the academic suggestions for the next scholars to make some improvements based on this study.

• This research only utilizes firms with derivative transactions from two countries. Hence, this study suggests the next scholars add the number of countries with the capital market in Southeast Asia except for Timor-Leste and Brunei. Furthermore, they can test the moderating variable based on the occupied countries by the multi-group analysis.

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