



## International Journal of Economic Research

ISSN : 0972-9380

available at <http://www.serialsjournal.com>

© Serials Publications Pvt. Ltd.

Volume 14 • Number 10 • 2017

### The Role of Tax Environment on the Relationship between Tax Avoidance and Earnings Quality: Evidence from ASEAN Country<sup>1</sup>

Oktavia<sup>1</sup>, Sylvia Veronica Siregar<sup>2</sup>, Ratna Wardhani<sup>2</sup> and Ning Rahayu<sup>2</sup>

<sup>1</sup> Krida Wacana Christian University

<sup>2</sup> Universitas Indonesia

**Abstract:** This research aims to examine the relationship between the level of tax avoidance and the quality of earnings proxied by the accrual-based earnings management and earnings persistence. In addition, this research also aims to examine if the relationship between the level of tax avoidance and accrual-based earnings management and earnings persistence depends on the tax environment of a country. This research uses a cross-country analysis with the scope of ASEAN countries, consisting of Philippines, Indonesia, Malaysia, and Singapore. The result of this research indicates that the tax environment of a country affects the relationship between the level of tax avoidance and the accrual-based earnings management, but does not affect the relationship between the level of tax avoidance and earnings persistence.

**Keyword:** Tax avoidance, accrual-based earnings management, earnings persistence, tax environment

#### 1. INTRODUCTION

There have been numerous literatures indicate that tax avoidance activities affect the quality of corporate earnings (which is proxied by the accrual-based earnings management and persistence of earnings), because managers have strong incentives to do earnings management activities and tax management activities simultaneously (Mills and Newberry, 2001; Phillips *et al.*, 2003; Wilson, 2009; Frank *et al.*, 2009). For example, a research conducted by Mills and Newberry (2001) proves that the higher level of corporate tax avoidance, measured by the amount of the book tax difference (BTD), is positively related to earnings management activity. The finding of Mills and Newberry (2001) indicates that the higher the level of tax avoidance, the higher the earnings management conducted by companies. In support of the finding of Mills and Newberry (2001), Frank *et al.* (2009) also suggests that tax avoidance activities undertaken to reduce fiscal earnings are positively associated with the earnings management activities undertaken by companies to improve accounting earnings. In other words, companies can perform tax management at the same time

with earnings management without facing trade-off between financial reporting decision and tax reporting decision.

The finding of Frank *et al.* (2009) indicates that a company can simultaneously make efforts to increase the reported commercial earnings to shareholders while reduce the reported fiscal earnings to the tax authorities. The finding of Frank *et al.* (2009) also opposes the arguments of Shackelford and Shevlin (2001) that a company often faces trade-off between financial reporting and tax reporting decisions (for example: firms that wants to increase its commercial earnings will face the cost of increasing fiscal earnings). According to Frank *et al.* (2009), a positive and significant relationship between tax avoidance activities and earnings management activities is caused by non-conformity between the financial accounting standards and tax regulations. Such non-conformity offers an opportunity for a company to increase its accounting earnings (without affecting its fiscal earnings figures) and decrease its fiscal earnings (without affecting its accounting earnings figures) in the same reporting period.

Furthermore, if a BTM indicates discretion in the accrual acknowledgment process, then a company with a large BTM value will also have less persistent accrual components (Hanlon, 2005). To prove the argument, Hanlon (2005) examines whether a large BTM (large positive BTM or large negative BTM) is related to less persistent accrual components. The research of Hanlon (2005) finds empirical evidence that a company with a large BTM value has less persistent accrual components than a company with low BTM value. Since the accrual components are parts of the earnings components, the large and positive BTM also shows less persistent earnings, making it not surprising that investors interpret large and positive BTM as a “red flag” with regard to earnings quality (Hanlon, 2005). Based on the finding of Hanlon (2005) above, it can be concluded that tax avoidance activities can decrease the persistence of accrual components, thus making the accrual components of the earnings become less persistent.

This research aims to re-examine the relationship between the level of tax avoidance and the magnitude of accrual-based earnings management and earnings persistence. In addition, this research also aims to examine whether the relationship between the level of tax avoidance and the magnitude of accrual-based earnings management and earnings persistence depends on the tax environment of a country. This research has two contributions. Firstly, this research extends previous research examining the relationship between tax avoidance and quality of earnings, which is proxied using the accrual-based earnings management and earnings persistence. We expand our previous research by re-examining the relationship between tax avoidance and quality of earnings which is proxied using the accrual-based earnings management and earnings persistence. The difference of this research and previous research lies in the context as previous research uses one country, while this research uses the context of countries in ASEAN.

Second, this research includes tax environment factor in examining the relationship between tax avoidance and quality of earnings, which is proxied by using the accrual earnings management and earnings persistence. To the best of our knowledge, there has been no research that links the role of the tax environment in a country in examining the relationship between the level of tax avoidance and the magnitude of accrual-based earnings management and earnings persistence. It is important to know if the tax environment in a country can cause different effect of tax avoidance on the earnings quality.

This study was conducted using cross-country analysis limited to four countries in ASEAN, i.e.: the Philippines, Indonesia, Malaysia and Singapore. This countries were chosen as the research sample for

several reasons. First, there is a diversity in the level of economy among countries in the ASEAN region. Malaysia and Singapore are developed countries, while the Philippines and Indonesia are emerging countries. Second, there is a diversity in tax environment characteristics. Malaysia and Singapore represents the group of countries with a competitive tax environment (as they adopt the territorial & remittance basis system, relieve the imposition of income tax on dividends as well as have an indefinite tax loss carry-forward period), while the Philippines and Indonesia represents the group of countries with an uncompetitive tax environment. With the presence of these diverse characteristics, the results of this study are expected to provide an interesting overview on the relationship between tax avoidance with accrual-based earnings management and earnings persistence in the ASEAN region.

The rest of this paper is organized into four sections: Section 2 covers the hypotheses development; Section 3 outlines the sample, designates the research model and defines the variables; Section 4 covers the statistical and empirical evidence as well as the sensitivity analysis; while Section 5 provides the conclusion of the research.

## **2. PRIOR RESEARCH AND HYPOTHESES DEVELOPMENT**

### **2.1. The Effect of Tax Avoidance on Accrual-Based Earnings Management**

Mills and Newberry (2001) and Frank *et al.* (2009) find that tax avoidance activities are positively associated with corporate earnings management activities. The higher the level of tax avoidance that company uses to reduce the fiscal earnings, the higher the earnings management will be done by the company to increase its accounting earnings. This breaks Shackelford and Shevlin (2001) arguments suggesting that a manager seeking to increase the earnings reported in the financial statements will face the cost of increasing fiscal earnings to be reported to tax authorities (there is a trade-off between the financial reporting decision and tax reporting decision).

The positive and significant relationship between tax avoidance activities and earnings management practices is caused by non-conformity between the financial accounting standards and tax laws. According to Frank *et al.* (2009), the non-conformity offers an opportunity for a company to increase its accounting earnings (without affecting the fiscal earnings figures) and decrease fiscal earnings (without affecting its accounting earnings figures) in the same reporting period. Based on the above explanation, this research will reexamine the effect of tax avoidance on the accrual-based earnings management. Therefore, the hypothesis of this research is as follows:

*H1: The level of tax avoidance has a positive effect on the magnitude of accrual-based earnings management*

The research also suspects that the tax environment characteristics in a country can affect the relationship between the level of tax avoidance and the accrual-based earnings management. A country with competitive tax environment gives many advantages in terms of taxation to companies. The numerous tax facilities provided by the country further motivates companies to engage in aggressive tax avoidance activities, for example in a country that embraces territorial & remittance basis systems and exempts income tax on dividends, companies will be more motivated to engage in tax avoidance activities that shift income from foreign subsidiaries to jurisdictions that have lower tax rates, since dividends received from foreign subsidiaries are exempted from domestic taxes. Therefore, there is a suspicion that the more competitive the tax environment in a country, the higher the level of tax avoidance by companies will be. The higher the level

of tax avoidance done by companies, the higher the level of accrual-based earnings management done by companies. In other words, competitive tax environment strengthens the relationship between the level of tax avoidance and the magnitude of accrual-based earnings management. Based on the above explanation, the following hypothesis has been developed:

*H2: The positive effect of the level of tax avoidance on the magnitude of accrual-based earnings management is higher in a country with competitive tax environment than in countries with uncompetitive tax environment*

## **2.2. The Effect of Tax Avoidance on the Persistence of Earnings Components**

The level of tax avoidance can lead to a difference in the persistence of earnings components, especially the accrual component (Hanlon, 2005). Hanlon's research (2005) found that the greater the BTM value (including large positive BTM and large negative BTM) of a company, the lower the persistence of earnings component. Furthermore, Hanlon (2005) also examines the relationship between BTM and the persistence of the accrual component, and finds that the persistence of the accrual components in a company with large BTM (both positive and negative) is lower than the persistence of the accrual components in a company with small BTM.

The reason why large BTM (large positive BTM and large negative BTM) can reduce the persistence of accrual components is because BTM reflects the earnings management and the earnings quality (Mills and Newberry, 2001; Hanlon, 2005; Tang and Firth, 2011). The greater the value of BTM, the greater the incentive of earnings management (Mills and Newberry, 2001). The greater the value of BTM (both positive and negative), the lower the quality of earnings (Hanlon, 2005). Low quality of earnings, in turn, can cause the accrual component of the earnings to be less persistent. Based on the above explanation, the following research hypothesis has been developed:

*H3: The level of tax avoidance has a negative effect on the persistence of the accrual components*

The research also suspects that the tax environment in a country can strengthen the negative relationship between the level of tax avoidance and the persistence of the accrual component of earnings. The more competitive the tax environment in a country, the more tax facilities provided to companies. The large number of favorable taxation facilities for companies will motivate companies to engage in more aggressive tax avoidance activities, which in turn lead to a higher tax avoidance level. The higher the tax avoidance level, the lower the persistence of the accrual components of earnings. Based on these arguments, the following hypothesis has been developed:

*H4: The negative effect of the level of tax avoidance on the persistence of the accrual components is higher in a country with competitive tax environment than in a country with uncompetitive tax environment*

## **3. RESEARCH METHOD**

### **3.1. Sample selection and data source**

Annual reports and financial statements data were obtained from Thomson Reuters Datastream Pro data center. The period of this study is from year 2009 to 2013. Although in 2008 all sample countries in this study had carried out the IFRS convergence process, year 2008 is excluded as the study period due to the occurrence of global financial crisis that most likely affected the financial condition of the companies during the year. The population in this study is companies listed on stock exchanges in the ASEAN countries.

This study however only uses four countries as sample, i.e. the Philippines, Indonesia, Malaysia, and Singapore. Thailand is not included as sample because Thai Accounting Standards (TAS) No. 12 “Accounting for Income Tax” have not been applied yet.

The sample selection of companies in the study is conducted using purposive sampling method. This study has final observations of 1395 firm-years with the sample criteria used in this study are as follows:

- a) Companies were detected to carry out foreign exchange and interest rate derivatives transactions.
- b) Companies are not part of the financial industry due to the differences in specific industrial accounting practices and in relation to the government’s special regulations to the industries.
- c) Companies calculate their taxable income normally on the basis of net income and use normal corporate income tax rates. Companies that calculate their taxable income based on gross revenue or are subjected to special income tax rates were excluded from the sample.
- d) Companies have English version of the financial statements
- e) Companies have the completeness of data required for the study.

### 3.2. Research Model

To test hypothesis H1, we use the following research model:

$$ABS\_DACC_{it} = \alpha_0 + \alpha_1 ABS\_TAXVOID_{it} + \alpha_2 SIZE_{it} + \alpha_3 ROA_{it} + \alpha_4 DTA_{it} + \alpha_5 COUNTRY_{it} + \alpha_6 YEAR_{it} + \varepsilon_{it} \quad (1)$$

Hypothesis H1 is acceptable if  $\alpha_1 > 0$

Descriptions:

$ABS\_TAXVOID_{it}$	=	The level of tax avoidance
$ABS\_DACC_{it}$	=	Absolute value of discretionary accruals
$SIZE_{it}$	=	Natural logarithm of total assets
$ROA_{it}$	=	Return on assets
$DTA_{it}$	=	Total debt to total assets
$COUNTRY_{it}$	=	Country dummy variables
$YEAR_{it}$	=	Year dummy variables

Hypothesis H2 is tested using the following research model:

$$ABS\_DACC_{it} = \alpha_0 + \alpha_1 ABS\_TAXVOID_{it} + \alpha_2 TAXENVIRON_{it} + \alpha_3 ABS\_TAXVOID * TAXENVIRON_{it} + \alpha_4 SIZE_{it} + \alpha_5 ROA_{it} + \alpha_6 DTA_{it} + \alpha_7 YEAR_{it} + \varepsilon_{it} \quad (2)$$

Hypothesis H2 is acceptable if  $\alpha_3 > 0$

Descriptions:

$ABS\_TAXVOID_{it}$	=	The level of tax avoidance
$ABS\_DACC_{it}$	=	Absolute value of discretionary accruals
$TAXENVIRON_{it}$	=	Tax environment dummy variables
$SIZE_{it}$	=	Natural logarithm of total assets

- ROA<sub>it</sub> = Return on assets  
 DTA<sub>it</sub> = Total debt to total assets  
 COUNTRY<sub>it</sub> = Country dummy variables  
 YEAR<sub>it</sub> = Year dummy variables

To test hypothesis H3, we use the following research model:

$$\begin{aligned} \text{EARN}_{it+1} = & \alpha_0 + \alpha_1 \text{CFO}_{it} + \alpha_2 \text{DACC}_{it} + \alpha_3 \text{NDAC}_{it} + \alpha_4 \text{ABS\_TAXVOID}_{it} + \\ & \alpha_5 \text{CFO}_{it} * \text{ABS\_TAXVOID}_{it} + \alpha_6 \text{NDAC}_{it} * \text{ABS\_TAXVOID}_{it} + \\ & \alpha_7 \text{DACC}_{it} * \text{ABS\_TAXVOID}_{it} + \alpha_8 \text{COUNTRY}_{it} + \alpha_9 \text{YEAR}_i + \varepsilon_{it} \end{aligned} \quad (3)$$

Hypothesis H3 is acceptable if  $\alpha_6 < 0$ ;  $\alpha_7 < 0$

Descriptions:

- EARN<sub>it+1</sub> = Earnings before extraordinary item in the period of t+1  
 CFO<sub>it</sub> = Cash flow from operation  
 NDAC<sub>it</sub> = Non-discretionary accrual  
 DACC<sub>it</sub> = Discretionary accrual  
 ABS\_TAXVOID<sub>it</sub> = The level of tax avoidance  
 COUNTRY<sub>it</sub> = Country dummy variable  
 YEAR<sub>it</sub> = Year dummy variable

Hypothesis H4 is tested using the following research model:

$$\begin{aligned} \text{EARN}_{it+1} = & \alpha_0 + \alpha_1 \text{CFO}_{it} + \alpha_2 \text{NDAC}_{it} + \alpha_3 \text{DACC}_{it} + \alpha_4 \text{ABS\_TAXVOID}_{it} + \\ & \alpha_5 \text{TAXENVIRON}_{it} + \alpha_6 \text{CFO}_{it} * \text{ABS\_TAXVOID}_{it} + \\ & \alpha_7 \text{NDAC}_{it} * \text{ABS\_TAXVOID}_{it} + \alpha_8 \text{DACC}_{it} * \text{ABS\_TAXVOID}_{it} + \\ & \alpha_9 \text{CFO}_{it} * \text{TAXENVIRON}_{it} + \alpha_{10} \text{NDAC}_{it} * \text{TAXENVIRON}_{it} + \\ & \alpha_{11} \text{DACC}_{it} * \text{TAXENVIRON}_{it} + \alpha_{12} \text{ABS\_TAXVOID}_{it} * \text{TAXENVIRON}_{it} + \\ & \alpha_{13} \text{CFO}_{it} * \text{ABS\_TAXVOID}_{it} * \text{TAXENVIRON}_{it} + \\ & \alpha_{14} \text{NDAC}_{it} * \text{ABS\_TAXVOID}_{it} * \text{TAXENVIRON}_{it} + \\ & \alpha_{15} \text{DACC}_{it} * \text{ABS\_TAXVOID}_{it} * \text{TAXENVIRON}_{it} + \alpha_{16} \text{YEAR}_i + \varepsilon_{it} \end{aligned} \quad (4)$$

Hypothesis H4 is acceptable if  $\alpha_{14} < 0$ ;  $\alpha_{15} < 0$

Descriptions:

- EARN<sub>it+1</sub> = Earnings before extraordinary item in the period of t+1  
 CFO<sub>it</sub> = Cash flow from operation  
 NDAC<sub>it</sub> = Non-discretionary accrual  
 DACC<sub>it</sub> = Discretionary accrual  
 ABS\_TAXVOID<sub>it</sub> = The level of tax avoidance  
 TAXENVIRON<sub>it</sub> = Tax environment dummy variables  
 COUNTRY<sub>it</sub> = Country dummy variable  
 YEAR<sub>it</sub> = Year dummy variable

### 3.3. Definition of Variables

The TAXVOID variable in this study is constructed using confirmatory factor analysis on three tax avoidance measures, i.e.: BTD, abnormal BTD (ABTD), and DTAX. For hypothesis testing in this study, the degree of tax avoidance is measured using the absolute value of TAXVOID (i.e.: ABS\_TAXVOID). Such means of turning TAXVOID into absolute value follows the measurement carried out by Joos *et al.* (2000), Hanlon (2005), Tang and Firth (2011), Tang and Firth (2012), and Hanlon *et al.* (2012). Following is the formula to calculate BTD, ABTD, and DTAX:

a) BTD (Book-Tax Difference)

The size of BTD can capture both earnings management and tax avoidance activities carried out by companies (Joos *et al.*, 2000; Hanlon, 2005; Tang and Firth, 2011; Tang and Firth, 2012; Hanlon *et al.*, 2012). BTD (Book-Tax Difference) is measured using the difference between accounting profit and fiscal profit. Fiscal profit is calculated by dividing the current tax expense by statutory corporate tax rate.

b) Abnormal BTD (ABTD)

In calculating ABTD, this study adopts the model of Tang and Firth (2011) as well as Tang and Firth (2012). The model to estimate the value of ABTD is as follows:

$$BTD_{it} = \alpha_0 + \alpha_1 \Delta INV_{it} + \alpha_2 \Delta REV_{it} + \alpha_3 TL_{it} + \alpha_4 TLU_{it} + \alpha_5 BTD_{it-1} + \varepsilon_{it} \quad (5)$$

Descriptions:

- BTD<sub>it</sub> = BTD reported by company i in year t
- $\Delta INV_{it}$  = Change in value of gross property, plants, and equipment from year t-1 to year t
- $\Delta REV_{it}$  = Change in revenue from year t-1 to year t
- TL<sub>it</sub> = Operational net loss of company i in year t
- TLU<sub>it</sub> = Tax loss carry-forward value of company i in year t
- BTD<sub>it-1</sub> = BTD reported by company i in year t-1

Equation (5) is estimated per sector and per year using the data of companies population (except financial institutions, real estate companies, property companies, companies calculating their taxable income based on the gross revenue, as well as companies subject to special income tax rate) from each country observed in this study.

c) DTAX (Discretionary measures of tax avoidance)

This DTAX measure, developed by Frank *et al.* (2009), basically refers to the model of Jones (1991) which was used to separate discretionary accruals component and non-discretionary accruals component. In calculating DTAX, this study follows the measurement of DTAX developed by Frank *et al.* (2009). DTAX is a residual from the following model:

$$PERMDIFF_{it} = \alpha_0 + \alpha_1 UNCON_{it} + \alpha_2 MI_{it} + \alpha_3 CSTE_{it} + \alpha_4 \Delta NOL_{it} + \alpha_5 LAGPERM_{it} + \varepsilon_{it} \quad (6)$$

Descriptions:

- PERMDIFF = Permanent difference of company *i* in year *t*  
 UNCON = Income (loss) reported with equity method by company *i* in year *t*  
 MI = Income (loss) distributed to minority shareholders by company *i* in year *t*  
 CSTE = Current tax expense reported in the financial statement by company *i* in year *t*  
 ΔNOL = Change in net operating loss carryforward from year *t*-1 to year *t*  
 LAGPERM = PERMDIFF company *i* in year *t*-1

PERMDIFF is the difference between the sum of BT D (Book Tax Difference) and temporary BT D. Equation (6) is estimated per sector and per year using the data of companies population (except financial institutions, real estate companies, property companies, companies calculating their taxable income based on the gross revenue, as well as companies subject to special income tax rate) from each country observed in this study.

TAXENVIRON variable is measured using dummy variable. Table 1 presents the categorization of the dummy variable of TAXENVIRON. It is known from the said table that Malaysia and Singapore have the same characteristics of tax basis, imposition of income tax on dividends, tax loss carry-forward period, and book-tax conformity. Meanwhile, both Philippines and Indonesia also have the same characteristics of tax basis, imposition of income tax on dividends, tax loss carry-forward period, and book-tax conformity. It is therefore determined that the dummy value of TAXENVIRON for Malaysia and Singapura is 1, while the dummy value of TAXENVIRON for Philippines and Indonesia is 0.

The group of countries which is given the value of 1 (Malaysia and Singapore) represents the group of countries with a competitive tax environment, as they adapt the territorial & remittance basis system, relieve the imposition of income tax on dividends as well as have an indefinite tax loss carry-forward period; and thus are highly attractive for investors to invest in the countries. The group of countries which is given the value of 0 (Indonesia and Philippines) represents the group of countries with an uncompetitive tax environment.

**Table 1**  
**Categorization of the Dummy Value of TAXENVIRON**

<i>Characteristics</i>	<i>Malaysia</i>	<i>Singapore</i>	<i>Philippines</i>	<i>Indonesia</i>
Tax Basis	Territorial & remittance basis	Territorial & remittance basis	World Wide Income	World Wide Income
Imposition of income tax on dividends	Relieved	Relieved	Not relieved	Not relieved
Tax loss carry-forward period	Indefinite	Indefinite	Definite	Definite
Book-Tax Conformity	High level of book-tax conformity	High level of book-tax conformity	Low level of book-tax conformity	Low level of book-tax conformity
Dummy value of TAXENVIRON	1	1	0	0

Discretionary accruals in this study are estimated using the model proposed by Kothari *et al.* (2005). This model is chosen as it has the best ability and been widely used to detect earnings management (Ibrahim,



2009; Wan, 2010; Collins *et al.*, 2012; Cheng *et al.*, 2012; Gerakos, 2012; Lee and Vetter, 2015). Discretionary accruals are obtained from the residual value of the following model:

$$ACC_{it}/TA_{it-1} = \alpha_1(1/TA_{it-1}) + \beta_1((\Delta REV_{it} - \Delta REC_{it})/TA_{it-1}) + \beta_2(PPE_{it}/TA_{it-1}) + \beta_3ROA_{it} + \varepsilon_{it} \quad (7)$$

Descriptions:

- ACC<sub>it</sub> = Total accruals, calculated from earnings before extraordinary items subtracted by the operating cash flow
- TA<sub>it-1</sub> = Lagged total assets
- DREV = Change in revenue
- DREC = Change in accounts receivable
- PPE = Gross property, plants, and equipment

Equation (7) is estimated per year and per sector, by using the company population data (except financial companies, real estate companies, property companies, companies which calculate their taxable income based on the gross revenue, and companies subjected to special income tax rates) from each observed country. This study uses the absolute value of discretionary accruals to specifically test hypotheses H1 and H2 because the focus of this hypothesis is the magnitude of accrual-based earnings management.

EARN<sub>t+1</sub> is measured by earnings before extraordinary item in year t+1, divided by lagged total assets. Moreover, The control variables used to estimate equation (1) are as follows: firm size (SIZE), profitability (ROA), leverage (DTA), country dummy variables, and year dummy variables. We measure SIZE as the natural logarithm of total assets. ROA is measured as net income divided by lagged total assets. DTA is measured as total debt divided by total assets. Country dummy variables is a dummy variable for each country sample (the Philippines, Malaysia, and Singapore), with Indonesia as the reference country. Meanwhile, year dummy variables is a dummy variable for the observation years (2010, 2011, 2012, and 2013), with 2009 as the reference year.

## 4. EMPIRICAL RESULTS

### 4.1. Descriptive Statistics

Table 2 shows that ABS\_TAXVOID variable has an average value of 0.0383 and a standard deviation value of 0.0412, which indicates considerable variation in tax avoidance level (ABS\_TAXVOID) performed by companies. In addition, it also shows that the average value of ABS\_DACC (0.0598) is greater than the average value of ABS\_TAXVOID (0.0383). These results indicate that the earnings management level performed by the company is greater than the level of tax avoidance performed by companies.

From Table 2 it is also known that the average earnings in one period to come (EARN<sub>t+1</sub>) is positive, indicating that the average of the sample companies experience an increase in the earnings in one period to come. It can be seen that CFO has an average value of 0.0788. This value indicates that in average, sample companies have a positive cash flow. In addition, it is also known that NDACC and DACC variables have average values of -0.0129 and -0.0016 with standard deviations of 0.0492 and 0.0811, which indicate considerable variation in the accrual components of earnings.

**Table 2**  
**Descriptive Statistics**

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Std. Dev.</i>
ABS_TAXVOID	1395	0.0383	0.0256	0.0000	0.3364	0.0412
ABS_DACC	1395	0.0598	0.0428	0.0001	0.2649	0.0548
EARN <sub>t+1</sub>	1395	0.0616	0.0507	-0.1846	0.4478	0.0885
CFO	1395	0.0788	0.0669	-0.2469	0.5058	0.1128
NDAC	1395	-0.0129	-0.0135	-0.1673	0.1354	0.0492
DACC	1395	-0.0016	-0.0029	-0.2377	0.2649	0.0811
SIZE	1395	21.1970	20.3397	17.1222	31.4198	3.1455
ROA	1395	0.0688	0.0567	-0.1901	0.4460	0.0861
DTA	1395	0.4753	0.4853	0.0641	0.9578	0.1947

ABS\_TAXVOID: The level of tax avoidance; ABS\_DACC: Absolute value of discretionary accrual; EARN<sub>t+1</sub>: Earnings before extraordinary item in year t+1; CFO: Cash flow from operation; NDAC: Nondiscretionary accrual; DACC: Discretionary accrual; SIZE: natural logarithm of total assets; ROA: Return on asset; DTA: Total debt to total assets.

#### 4.2. Correlation Matrix

Table 3 presents the correlation of the variables used in estimating model (1) and model (2). From the table it can be seen that variable ABS\_TAXVOID has significant positive correlation with variable ABS\_DACC. The correlation indicates that the higher the tax avoidance level, the higher the accrual earnings management performed by companies. The finding provides an early indication of the empirical evidence supporting hypothesis H1.

**Table 3**  
**Correlation Matrix – Model (1) and (2)**

<i>Variable</i>	<i>ABS_DACC</i>	<i>ABS_TAXVOID</i>	<i>SIZE</i>	<i>ROA</i>	<i>DTA</i>
<b>ABS_DACC</b>	1.0000				
<b>ABS_TAXVOID</b>	***0.0990	1.0000			
<b>SIZE</b>	***0.0780	-0.0320	1.0000		
<b>ROA</b>	***0.1266	***0.2184	***0.2213	1.0000	
<b>DTA</b>	***0.1435	-0.0329	***0.3183	***-0.0839	1.0000

ABS\_TAXVOID: The level of tax avoidance; ABS\_DACC: Absolute value of discretionary accrual; SIZE: natural logarithm of total assets; ROA: Return on asset; DTA: Total debt to total assets. \*) \*\*) (\*\*\*) indicate significant at 1%, 5%, and 10%, respectively, two-tailed test

Table 4 shows that CFO variable (operating cash flow) is positively correlated with the variable EARN<sub>t</sub> + 1 which means that the higher the operating cash flow of a company in this period, the higher the company's earnings in one coming period. In addition, it is also known that NDAC variable is positively correlated with variable EARN<sub>t</sub> + 1 (meaning the higher non-discretionary accruals of this period, the higher the company's earnings in one period to come) and the DACC variable has a significant negative correlation with variable EARN<sub>t</sub> + 1 (meaning the higher the discretionary accruals of this period, the

higher the earnings of the company in one period to come). In Table 4 it can also be seen that ABS\_TAXVOID variable which is a measure of tax avoidance level, has a positive and significant correlation with the company's earnings in one period to come. This means that the higher the level of tax avoidance done by the company, the higher the company's earnings in one period to come.

**Table 4**  
**Correlation Matrix – Model (3) and (4)**

<i>Variable</i>	<i>EARNT1</i>	<i>CFO</i>	<i>NDAC</i>	<i>DACC</i>	<i>ABS_TAXVOID</i>
<b>EARNT1</b>	1.0000				
<b>CFO</b>	***0.5335	1.0000			
<b>NDAC</b>	***0.2917	-0.0055	1.0000		
<b>DACC</b>	***-0.1685	***-0.7762	***-0.0787	1.0000	
<b>ABS_TAXVOID</b>	***0.1933	***0.1332	***0.0996	-0.0290	1.0000

ABS\_TAXVOID: The level of tax avoidance;  $EARN_{t+1}$ : Earnings before extraordinary item in year t+1; CFO: Cash flow from operation; NDAC: Nondiscretionary accrual; DACC: Discretionary accrual\*) \*\*) (\*\*\*) indicate significant at 1%, 5%, and 10%, respectively, two-tailed test

### 4.3. Regression Results

#### *The Effect of Tax Avoidance on the Magnitude of Accrual-based Earnings Management*

Table 5 shows that ABS\_TAXVOID variable has a positive and significant coefficient that means the higher the level of tax avoidance, the higher the magnitude of accrual-based earnings management done by the company. This result indicates that in a company using financial derivatives, tax avoidance activities and earnings management activities can be done simultaneously. The result is consistent with the findings of Mills and Newberry (2001), Hanlon (2005), Wilson (2009), Frank *et al.* (2009), and Tang and Firth (2011) that shows empirical evidence that tax avoidance is positively correlated to earnings management. The empirical evidence indicates that managers have strong incentives to engage in tax avoidance practices as well as earnings management practices simultaneously. Thus, it can be concluded that hypothesis H1 in this research is acceptable.

The significant positive correlation between the level of tax avoidance and the magnitude of accrual earnings management found in this research also breaks the arguments of Shackelford and Shevlin (2001) that saying there is a trade-off between financial reporting decision and tax reporting decision. Managers who seek to increase accounting earnings will face the cost of increasing the fiscal earnings that will be reported to tax authorities. Conversely, managers who seek to lower fiscal earnings will face the costs of decreasing accounting earnings to be reported to shareholders (Shackelford and Shevlin, 2001)

Table 5 also shows that the SIZE control variable has a negative and significant coefficient. This result indicates that the larger the size of a company, the lower the magnitude of earnings management accruals. The explanation for this result is that a large company tends to get greater attention from analysts and investors than small companies, making it more cautious in its actions. From Table 5 it can also be seen that ROA variable has a positive and significant coefficient indicating that the higher the level of profitability

of a company, the higher the magnitude of earnings management accruals made by the company. Furthermore, it can be seen also that DTA variable has a positive and significant coefficient indicating that the higher the level of debt owned by the company, the higher the accrual-based earnings management done by the company.

**Table 5**  
**Regression results – Hypothesis H1**

<b>Model (1)</b>				
$ABS\_DACC_{it} = \alpha_0 + \alpha_1 ABS\_TAXVOID_{it} + \alpha_2 SIZE_{it} + \alpha_3 ROA_{it} + \alpha_4 DTA_{it} + \alpha_5 D\_COUNTRY_{it} + \alpha_6 D\_YEAR_i + \epsilon_{it}$				
<i>Variabel</i>	<i>Predicted Sign</i>	<i>Coef.</i>	<i>t</i>	<i>Sig.</i>
ABS_TAXVOID	+	0.1018	2.31	**0.0105
SIZE	?	-0.0030	-3.48	***0.0005
ROA	+	0.0792	3.31	***0.0005
DTA	+	0.0492	6.02	***0.0000
Intercept		0.0659	6.57	***0.0000
Country Dummy			included	
Year Dummy			included	
N			1395	
R-Square			7.95%	
F-stat			9.02	
Prob. F(stat)			***0.0000	

ABS\_TAXVOID: The level of tax avoidance; ABS\_DACC: Absolute value of discretionary accrual; SIZE: natural logarithm of total assets; ROA: Return on asset; DTA: Total debt to total assets.

\*) \*\*) (\*\*\*) indicate significant at 1%, 5%, and 10%, respectively, one-tailed test

Table 6 shows that the coefficient of ABS\_TAXVOID\*TAXENVIRON variable is positive and significant, indicating that competitive tax environment strengthens the positive effect of tax avoidance on the accrual-based earnings management, because the more competitive the tax environment in a country indicates the more favorable taxation facilities provided to companies, making it easier for companies to perform tax avoidance activities which leads to a high level of tax avoidance in countries with competitive tax environment, which in turn also increases the magnitude of accrual-based earnings management. Therefore, hypothesis H2 is acceptable.

### *The Effect of Tax avoidance on Earnings Persistence*

Table 7 shows that NDAC\*ABS\_TAXVOID and DACC\*ABS\_TAXVOID variables have negative and significant coefficients meaning that the tax avoidance level negatively affects the persistence of the accruals component of earnings, either non-discretionary accruals or discretionary accruals. This finding suggests that in companies using financial derivatives, the higher the level of tax avoidance done by the company, the lower the persistence of the accrual component of earnings. This finding is consistent with Hanlon's (2005) findings. Thus, it is concluded that hypothesis H3 is acceptable.

**Table 6**  
**Regression results – Hypothesis H2**

**Model (2)**

$$ABS\_DACC_{it} = \alpha_0 + \alpha_1 ABS\_TAXVOID_{it} + \alpha_2 TAXENVIRON_{it} + \alpha_3 ABS\_TAXVOID * TAXENVIRON_{it} + \alpha_4 SIZE_{it} + \alpha_5 ROA_{it} + \alpha_6 DTA_{it} + \alpha_7 D\_YEAR_i + \varepsilon_{it}$$

<i>Variable</i>	<i>Predicted Sign</i>	<i>Coef.</i>	<i>t</i>	<i>Sig.</i>
ABS_TAXVOID	+	-0.0181	-0.19	0.4265
TAXENVIRON	?	-0.0212	-2.90	***0.0020
ABS_TAXVOID*TAXENVIRON	+	0.1568	1.49	*0.0685
SIZE	?	-0.0013	-1.78	**0.0375
ROA	+	0.0759	3.20	***0.0005
DTA	+	0.0467	5.93	***0.0000
Intercept		0.0441	5.48	***0.0000
Year Dummy			included	
N			1395	
R-Square			6.08%	
F-stat			7.69	
Prob. F(stat)			***0.0000	

ABS\_TAXVOID: The level of tax avoidance; ABS\_DACC: Absolute value of discretionary accrual; TAXENVIRON: Tax environment dummy variable; SIZE: natural logarithm of total assets; ROA: Return on asset; DTA: Total debt to total assets.

\*) \*\*) (\*\*\*) indicate significant at 1%, 5%, and 10%, respectively, one-tailed test

Table 7 also shows that variable CFO\*ABS\_TAXVOID has a negative and significant coefficient indicating that the tax avoidance activities undertaken by a company does not only decrease the persistence of the accrual component, but also decreases the persistence of the operating cash flows components. This finding is consistent with Hanlon's (2005) findings. Companies that manage earnings through accruals also tend to manage earnings through cash flow. According to Hanlon (2005), companies tend to prefer earnings management through cash flow management rather than through accrual management. Managing cash flows will distance companies from supervising auditors and regulators than by managing accruals (Hanlon, 2005). This shows that cash flow is also managed in such a way as to achieve earnings targets. Therefore, high BTD level is also associated with the persistence of the company's cash flow components.

Table 8 presents the result of the testing of hypothesis H4 which states that the negative effect of tax avoidance on the persistence of the accrual components of earnings is higher in a country with competitive tax environment than in countries with uncompetitive tax environment. From Table 8 it is known that none of the coefficients of NDAC\*ABS\_TAXVOID\*TAXENVIRON and DACC\*ABS\_TAXVOID\*TAXENVIRON is significant. The insignificant coefficients of NDAC\*ABS\_TAXVOID\*TAXENVIRON and DACC\*ABS\_TAXVOID\*TAXENVIRON variables indicate that the tax environment in a country does not affect the relationship between the level of tax avoidance and the persistence of the accrual components of earnings. Thus, it is concluded that hypothesis H4 in this research is unacceptable.

**Table 7**  
**Regression results – Hypothesis H3**

<b>Model (3)</b>				
$EARN_{it+1} = \alpha_0 + \alpha_1 CFO_{it} + \alpha_2 DACC_{it} + \alpha_3 NDAC_{it} + \alpha_4 ABS\_TAXVOID_{it} + \alpha_5 CFO_{it} * ABS\_TAXVOID_{it} + \alpha_6 NDAC_{it} * ABS\_TAXVOID_{it} + \alpha_7 DACC_{it} * ABS\_TAXVOID_{it} + \alpha_8 COUNTRY_{it} + \alpha_9 YEAR_i + \varepsilon_{it}$				
Variable	Predicted Sign	Coef.	t	Sig.
CFO	+	0.9024	28.94	***0.0000
NDAC	+	0.9977	18.56	***0.0000
DACC	+	0.8620	20.27	***0.0000
ABS_TAXVOID	?	0.1823	1.98	**0.0240
CFO*ABS_TAXVOID	-	-0.8428	-1.80	**0.0360
NDAC*ABS_TAXVOID	-	-5.0763	-5.21	***0.0000
DACC*ABS_TAXVOID	-	-1.3463	-1.40	*0.0815
Intercept		0.0220	2.43	***0.0075
Country dummy			included	
Year dummy			included	
N			1,395	
R-Square			59.79%	
F-stat			78.70	
Prob. F(stat)			***0.0000	
ABS_TAXVOID: The level of tax avoidance; EARN <sub>it+1</sub> : Earnings before extraordinary item in year t+1; CFO: Cash flow from operation; NDAC: Nondiscretionary accrual; DACC: Discretionary accrual *) **) ***) indicate significant at 1%, 5%, and 10%, respectively, one-tailed test				

#### 4.4. Sensitivity Tests

A sensitivity test was conducted to ensure the reliability of the regression results in this research. A separate test is performed for each of these tax avoidance measures (ie: BTD, ABTD, and DTAX). The result of this sensitivity test is also consistent with the results of the main test. It is concluded that the result of this research is robust.

### 5. CONCLUSION

Based on the test results of the effect of tax avoidance level on the earnings management, it can be concluded that the level of tax avoidance by a company has a positive effect on the earnings management. The higher the level of tax avoidance, the higher the magnitude of accrual-based earnings management done by the company. In addition, the test result also shows that the tax environment in a country strengthens the positive effect of tax avoidance on the accrual-based earnings management. The more competitive the tax environment in a country, the more lucrative the taxation facilities provided to companies, making it easier for companies to perform tax avoidance activities, which in turn will increase the accrual-based earnings management. It can be concluded that the effect of tax avoidance on the accrual-based earnings management depends on the tax environment in the country.

**Table 8**  
**Regression results – Hypothesis H4**

<b>Model (4)</b>				
<i>Variable</i>	<i>Predicted Sign</i>	<i>Coef.</i>	<i>t</i>	<i>Sig.</i>
$EARN_{it+1} = \alpha_0 + \alpha_1 CFO_{it} + \alpha_2 NDAC_{it} + \alpha_3 DACC_{it} + \alpha_4 ABS\_TAXVOID_{it} + \alpha_5 TAXENVIRON_{it} + \alpha_6 CFO_{it} * ABS\_TAXVOID_{it} + \alpha_7 NDAC_{it} * ABS\_TAXVOID_{it} + \alpha_8 DACC_{it} * ABS\_TAXVOID_{it} + \alpha_9 CFO_{it} * TAXENVIRON_{it} + \alpha_{10} NDAC_{it} * TAXENVIRON_{it} + \alpha_{11} DACC_{it} * TAXENVIRON_{it} + \alpha_{12} ABS\_TAXVOID_{it} * TAXENVIRON_{it} + \alpha_{13} CFO_{it} * ABS\_TAXVOID_{it} * TAXENVIRON_{it} + \alpha_{14} NDAC_{it} * ABS\_TAXVOID_{it} * TAXENVIRON_{it} + \alpha_{15} DACC_{it} * ABS\_TAXVOID_{it} * TAXENVIRON_{it} + \alpha_{16} YEAR_i + \epsilon_{it}$				
CFO	+	0.9249	19.33	***0.0000
NDAC	+	1.0489	14.63	***0.0000
DACC	+	0.8523	8.95	***0.0000
ABS_TAXVOID	?	-0.0996	-1.25	0.1055
TAXENVIRON	?	-0.0030	-0.41	0.3405
CFO*ABS_TAXVOID	-	-0.1475	-0.38	0.3535
NDAC*ABS_TAXVOID	-	-5.7641	-3.70	***0.0000
DACC*ABS_TAXVOID	-	0.8318	0.59	0.2765
CFO*TAXENVIRON	-	-0.0306	-0.45	0.3260
NDAC*TAXENVIRON	-	-0.0813	-0.88	0.1895
DACC*TAXENVIRON	-	0.0024	0.02	0.4915
ABS_TAXVOID*TAXENVIRON	?	0.3150	2.34	***0.0095
CFO*ABS_TAXVOID*TAXENVIRON	-	-0.7854	-0.89	0.1880
NDAC*ABS_TAXVOID*TAXENVIRON	-	1.0067	0.53	0.2985
DACC*ABS_TAXVOID*TAXENVIRON	-	-2.3895	-1.23	0.1100
Intercept		0.0229	2.86	***0.0020
Year Dummy		included		
N		1,395		
R-Square		59.76%		
F-stat		70.27		
Prob. F(stat)		***0.0000		

ABS\_TAXVOID: The level of tax avoidance; EARN<sub>it+1</sub>: Earnings before extraordinary item in year t+1; CFO: Cash flow from operation; NDAC: Nondiscretionary accrual; DACC: Discretionary accrual; TAXENVIRON: Tax environment dummy variable.

\*) \*\*) (\*\*\*) indicate significant at 1%, 5%, and 10%, respectively, one-tailed test

Based on the test result of the effect of tax avoidance on the persistence of the accrual components, it is known that tax avoidance rate negatively affects the persistence of the accrual components of earnings. The higher the level of tax avoidance, the lower the persistence of the accrual component of the earnings. These results are consistent with previous research of Hanlon (2005). The test result also shows that there is no difference in the effect of the level of tax avoidance on the persistence of the accrual components

between a country with competitive tax environment and countries that have less competitive tax environment. It can be concluded that the effect of the tax avoidance on the persistence of the accrual components does not depend on the tax environment in the country.

## REFERENCES

- Cheng, Agnes C.S., Cathy Zishang Liu, & Wayne Thomas. (2012), Abnormal Accrual Estimates and Evidence of Mispricing. *Journal of Business Finance & Accounting*, 39, 1–34.
- Collins, D. W., Raunaq S. Pungaliya, & Anand M. Vijh. (2012), *The Effects of Firm Growth and Model Specification Choices on Tests of Earnings Management in Quarterly Settings*. Working Paper.
- Frank, M. M., Lynch, J. L., & Rego, O. S. (2009), Tax reporting aggressiveness and its relation to aggressive financial reporting. *The Accounting Review*, 467-496.
- Gerakos, Joseph. (2012), Discussion of Detecting Earnings Management: A New Approach. *Journal of Accounting Research*, 50, 335-347.
- Hanlon, M. (2005), The persistence and pricing of earnings, accruals, and cash flows when firms have large book tax differences. *The Accounting Review*, 80 (1), 137-166.
- Ibrahim, Salma S. (2009), The Usefulness of Measures of Consistency of Discretionary Components of Accruals in the Detection of Earnings Management. *Journal of Business Finance & Accounting*, 36, 1087–1116.
- Jones, J. (1991), Earnings management during import relief investigations”. *Journal of Accounting Research*, 29, 193-228.
- Joos, P., Pratt, J., & Young, D. (2000), *Book-tax differences and the value relevance of earnings*. Working Paper, Massachusetts Institute of Technology, Indiana University and Insead.
- Kothari, S., Leone, A., & Wasley, C., (2005), Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39, 163–197.
- Lee, Brian, & William Vetter. (2015), Critical Evaluation of Accrual Models in Earnings Management Studies. *Journal of Accounting and Finance*, 15 (1), 62-71.
- Mills, L., & Newberry, K. (2001), The influence of tax and non-tax costs on book-tax reporting differences: Public and private firms. *Journal of the American Taxation Association*, 23(1), 1–19.
- Phillips, J., M. Pincus, & S. Rego. (2003), Earnings management: New evidence based on deferred tax expense. *The Accounting Review*, 78 (2), 491–521.
- Shackelford, D., & T. Shevlin. (2001), Empirical tax research in accounting. *Journal of Accounting and Economics*, 31, 321–387.
- Tang, Tanya, & Michael Firth. (2011), Can book-tax differences capture earnings management and tax management? Empirical evidence from China. *The International Journal of Accounting*, 46, 175 – 204.
- Tang, Tanya, & Michael Firth. (2012), Earnings persistence and stock market reactions to the different information in book-tax differences: Evidence from China. *The International Journal of Accounting*, 47, 369 – 397.
- Wan, Huishan. (2010), How accurate are the discretionary accrual models?. *International Journal of Business and Public Administration*, 7, 1-10.
- Wilson, Ryan. (2009), An examination of corporate tax shelter participants. *The Accounting Review*, 84 (3), 969-999.