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# Does Tax Avoidance Induce Earnings Persistence? An Empirical Study in Korea

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## Abstract

This study investigates whether tax avoidance increases the link between current and future earnings. The cash flows generated by tax avoidance are verified to increase the sustainability of earnings. The sustainability of the earnings is regarded as a criterion for determining the quality of accounting information. The study seeks to confirm whether tax avoidance had a positive or negative effect on accounting information. For this purpose, we use Korean capital market, from 2006 to 2018. Tax avoidance was measured using the effective tax rate, and earnings sustainability is the correlation between the current and future earnings as presented in Sloan (1996). The analysis results are summarized as follows. First, tax avoidance has been shown to increase the sustainability of earnings. Second, the components of the continuity of earnings that tax avoidance increases were observed as cash flows. That is, the cash flows generated by tax avoidance have been shown to make greater relevance between the current period and the future earnings. The results of this study have expanded the studies on tax avoidance and earnings persistence. In addition, amid conflicting studies of the effects of tax evasion on firm value and accounting information, this study provides additional empirical evidence of this contribution.

**Keywords:** Earnings Sustainability, Earnings Persistence, Tax Avoidance

**JEL Classification Code:** D40, G10, M41

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## 1. Introduction

The purpose of this study is to investigate the relationship between tax avoidance and earnings sustainability. Specifically, we verified whether cash flows generated by tax avoidance induce earnings sustainability. Prior studies suggested two perspectives on tax avoidance. The view that the cash flows generated by tax avoidance is positive for firm value. In this view, tax avoidance can induce earnings sustainability (Desai & Dharmapala, 2009). The other side is the possibility that tax avoidance can be used to pursue management's private interests and incur agent costs (Crocker & Slemrod, 2005). This perspective was that, with the higher level of tax avoidance, the opaque

financial reporting environment created would reduce the sustainability of earnings (Hutton, Marcus, & Tehranian, 2009). The two conflicting views are likely to have different effects on the relevance of earnings sustainability. Therefore, the relationship between tax avoidance and earnings sustainability could not be predicted in advance. Moreover, there is no research yet that has examined the level of tax avoidance and the sustainability of earnings, and most of the results are indirect measures of the earnings quality measured by discretionary accruals or real earnings management. This study is likely to provide additional implications for research, given that generally consistent findings are not being reported in studies that have verified the relationship between tax avoidance and earnings quality. Earnings sustainability has been demonstrated by numerous studies regarding its usefulness as the most representative measure of accounting earnings quality. The higher the sustainability of the earnings, the more predictable the accounting standard provides, and the qualitative characteristics of the accounting information that described in International Financial Reporting Standard (IFRS). Therefore, the study is expected to provide information on what the impact of firms' tax planning on the earnings quality is.

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We analyzed 12,497 firm-year listed on the Korean capital market from 2006 to 2018. The analysis results are summarized as follows. Tax avoidance enhanced earnings persistence. This relationship is maintained even though we use pre-tax income, operating earnings and post-tax earnings. In addition, the results of the disaggregation of cash flows and accruals amounts, which are components of earnings, indicated that the continuity of the cash flows was greater than the continuity of accruals. It indicates tax avoidance induced the sustainability of the cash flows.

This study showed that the firms' tax plan affects the earnings sustainability, the most representative measure of earnings quality. Particularly in previous studies, the level of tax avoidance was measured using the book-tax difference (BTDs); this measure was not only a diluted measure of tax avoidance, but also a measure of earnings management, which limited the generalization of research results. However, there is a difference from the study that we investigate the level of tax avoidance as firm's tax burden.

## 2. Literature Review

Earnings persistence, measured through the primary autocorrelation between current net income and net income for the next year, is a method that directly examines information on the predicted value through the relationship between net income and net income for the next year. In this regard, some studies in the field of accounting have used it to measure the quality of earnings (Sloan, 1996; Atwood, Drake & Myers, 2010). Earnings persistence refers to the extent to which earnings are maintained in the future period (Lipe, 1990). In other words, companies with high earnings persistence are more likely to continue to report earnings in the future than companies with low earnings persistence, which means that earnings are made up of permanent earnings (repeatable earnings) rather than temporary earnings.

Therefore, companies with high earnings persistence use the current earnings as a summary of future performance more usefully than companies with low earnings persistence (Dechow, Ge, & Schrand, 2010), and in the results of previous studies, the higher the earnings persistence, the higher the earnings response coefficient (Collins & Kothari, 1989; Lev & Thiagarjan, 1993), and the cost of capital also decreased (Francis, LaFond, Olsson, & Schipper, 2004). Earnings persistence is defined as the ability of a company to survive in the future, and in the future, sustainable earnings tend to be unchanged and not temporary (Penman & Zhang, 2002; Scott, 2010). Earnings persistence is one factor that characterizes the quality of earnings, and it is known that it reflects the actual financial performance of a company because there is little noise in accounting earnings (Chandarin, 2003; Wijayanti, 2006).

Therefore, for investors interested in information about corporate performance, sustainability of earnings is an

important issue. Hanlon (2005) analyzed how investors evaluate the difference in reported earnings. In the group with a positive (+) value with a relatively large difference in reported earnings, the persistence of accruals and cash flows was low. Investors understood that the difference in reported earnings was large as a red signal and lowered expectations for the persistence of accruals. However, investors still overestimate the persistence of accruals, indicating that the information on the difference in reported earnings provides useful information to investors, but is not fully reflected in the stock price. Blaylock et al. (2012) expanding the study by Hanlon (2005) found that positive (+) BTD resulting from earnings adjustment showed low earnings persistence, but the positive (+) BTD resulting from tax avoidance showed high earnings persistence.

Previous studies have simply analyzed whether the difference between accounting earnings and tax earnings affects persistence of earnings. This is the same as a study that posits BTD has information on low quality of earnings and information as a risk signal (Mills, 1998; Hanlon, 2005). If the tax earnings are lower than the accounting earnings (LPBTD), there is a high likelihood of being subjected to a tax investigation (Mills, 1998); the firms with a large BTD have a lower sustainability of earnings than the firms with a small BTD. Considering the large size is a risk signal, the sustainability of future earnings is underestimated (Hanlon, 2005).

As stated in the accounting standards that value predictability, continuity of earnings is the most critical factor in determining the quality of financial reporting. Predictability plays an important role in determining the most important cash flows and discount rates for investors in setting corporate value in the capital market.

In this context, tax avoidance is likely to affect both cash flows and discount rates. First, tax avoidance is a factor that seeks to change cash flow. The cash flows generated by tax evasion will become a component of earnings and consequently increase the sustainability of the earnings. In this view, the higher the level of tax avoidance, the more predictable the earnings will be.

However, the effect of tax avoidance on discount rates cannot be ruled out either because it is closely related to agency issues. Therefore, the higher the level of tax avoidance, the higher the information asymmetry and information risk, as a result, are more relevant to opaque financial reporting. Prior studies showing that the quality of low financial reporting is low in terms of earnings sustainability, negative relationship between tax avoidance and earnings sustainability is foreseen. Therefore, the hypothesis was established as follows:

**H1:** Tax avoidance will have a negative impact on sustainability of earnings.

### 3. Research Methods and Materials

#### 3.1. Tax Avoidance

Tax avoidance is measured by the effective tax rate (ETR). We divided ETR into the book effective tax rate ( $ETR^{GAAP}$ ) and the cash effective tax rate ( $ETR^{CASH}$ ), respectively. The  $ETR^{GAAP}$  is calculated by dividing the tax expense by the pre-tax income, and the  $ETR^{CASH}$  is calculated by income tax expense adding the change in deferred tax assets to the tax expense and deducting the change in deferred tax liabilities, and defining it as the tax burden, and dividing the tax burden by the pre-tax income. In order to prevent problem by extreme value, we replaced to 0, if ETR is below 0 and replaced 1, if ETR is above 1.

#### 3.2. Earnings Sustainability

In this study, the earnings sustainability is based on Sloan's (1996) study, which has validated the relationship between current and future earnings. This is expressed in arithmetic as follows.

$$EARN_{t+1} = \beta_0 + \beta_1 EARN_t + \varepsilon_t \quad (1)$$

In the following expression, EARN refers to earnings.  $t$  is a point in time. The model measures current earnings correlation to the next earnings. If  $\beta_1$  have significant positive of value, the current earnings and the next period earnings is very high correlated. In other words, earnings persistence is high. In this study, the earnings are measured at pre-tax earnings (EBIT), operating earnings (OIA), and post-tax earnings (ROA) respectively.

#### 3.3. Research Model

We modified earnings persistence model by including the tax avoidance and certain control variables.

$$\begin{aligned} EARN_{t+1} = & \beta_0 + \beta_1 EARN_t + \beta_2 TAXAVOID_t \\ & + \beta_3 EARN \times TAXAVOID_t + \beta_4 SIZE_t \quad (2) \\ & + \beta_5 LEV_t + \beta_6 GRW_t + \beta_7 YEAR_t \\ & + \beta_8 KSIC_t + \varepsilon_t \end{aligned}$$

In the following equation, the variable of interest is  $EARN \times TAXAVOID$ , which can be interpreted that tax avoidance ( $ETR^{GAAP}$ ,  $ETR^{CASH}$ ) induces the positive relevance of current and future earnings. We choose three control variables (SIZE, LEV, GRW). All of them were to control firm characteristics. SIZE was calculated by taking a natural log into the total assets. SIZE plays a role in controlling variables that have not yet been controlled in this study. Second is debt ratio (LEV). The debt ratio was

calculated by dividing the total debt by the total assets. Lastly, it is GRW. GRW was based on sales growth. The growth rate of sales was divided into the amount of a year ago sales after deducting the amount of a year ago sales from the current term sales.

#### 3.4. Sample Selection

Sample period is from 2006 to 2018 based on the KOSPI and KOSDAQ markets. We use the KISVALUE database of NICE Evaluation Information Co., Ltd. for analysis. For this purpose, data were extracted from 2005 to 2018. The following cases were excluded for consistency.

1. Firms that belong to the financial industry;
2. Firms with designated issues for administration by KOSPI and KOSDAQ market;
3. Firms with impaired capital;
4. Pre-tax earnings less than zero;
5. Unable to extract the variables required for this study from the database.

The reason for excluding the financial industry in (1) is to enhance the comparability of the sample because the format of financial statements and the characteristics of account subjects are different from that of general manufacturing. (2) and (5) are about the data source. Financial data and data necessary for analysis are provided by NICE Credit Review. They were extracted from the KISVALUE database of temporary information. Firms under (3) are excluded from the sample because it is a company with high reliability of financial statements or high probability of financial statements. Firms under (4) are excluded because there was no reason to avoid tax. The sample selected includes 12,497 firm-year. The distribution is shown in Table 1. Panel A represents the annual sample distribution and Panel B represents the industry-specific sample distribution. The sample distribution by industry was based on the Korean Standard Industrial Classification. The annual sample distribution showed an overall even distribution from 2006 to 2018. A sample distribution by industry showed that manufacturing accounted for about 66.76 percent. However, in the empirical analysis, the dummy variables used to control the industry were used in disaggregation, which did not show a distribution skewed toward certain industry.

### 4. Results and Discussion

#### 4.1. Descriptive Statistics

The descriptive statistics are shown in Table 2. The average of ETRs ( $ETR^{GAAP}$ ,  $ETR^{CASH}$ ), a substitute for tax avoidance, was 0.200 and 0.218, respectively. In other words,

**Table 1:** Sample Distribution

<b>Panel A: Distribution by Year</b>			
<b>Years</b>	<b>KOSPI</b>	<b>KOSDAQ</b>	<b>Total</b>
2006	439	500	939
2007	401	451	852
2008	386	466	852
2009	397	492	889
2010	441	567	1,008
2011	446	594	1,040
2012	412	576	988
2013	396	566	962
2014	400	573	973
2015	419	564	983
2016	428	568	996
2017	430	603	1,033
2018	402	580	982
Total	5,397	7,100	12,497
<b>Panel B: Distribution by Industry</b>			
	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
Agriculture, forestry and fishing	51	0.41	0.41
Manufacturing	8,343	66.76	67.17
Electricity, gas, steam and air conditioning supply	103	0.82	67.99
Water supply, sewage, waste management, materials recovery	38	0.30	68.30
Construction	391	3.13	71.43
Wholesale and retail trade	862	6.90	78.32
Transportation and storage	191	1.53	79.85
Accommodation and food service activities	27	0.22	80.07
Information and communication	1,307	10.46	90.53
Real estate activities	76	0.61	91.13
Professional, scientific and technical activities	831	6.65	97.78
Business facilities management and business support services; rental and leasing activities	121	0.97	98.75
Education	79	0.63	99.38
Arts, sports and recreation related services	64	0.51	99.90
Membership organizations, repair and other personal services	13	0.10	100
Total	12,497	100	

the average effective tax rate of a sample entity was around 20 percent and 21.8 percent. Pre-tax earnings of  $t + 1$  ( $EBITA_{t+1}$ ) averaged 0.081, and the current pre-tax earnings ( $EBITA_t$ ) was 0.087. Operating earnings (OIA), however, was observed at 8.3 percent on average and 7.2 percent on after-tax earnings (ROA), respectively. The sample of this study showed a

somewhat higher rate of earnings in that it excluded cases in which pre-tax earnings (EBITA) was lower than zero, but it was generally similarly to the results for the Korean capital market. The accruals (ACC) appeared close to zero. SIZE, which represents firm size, averaged 25.816, debt ratio (LEV) 0.366 and sales growth rate (GRW) 14.7%, respectively.

**Table 2:** Descriptive Statistics

Variables	<i>n</i>	Mean	S.D.	0.25	Mdn	0.75
ETR <sup>GAAP</sup> <sub><i>t</i></sub>	12,497	0.200	0.135	0.129	0.205	0.250
ETR <sup>CASH</sup> <sub><i>t</i></sub>	12,497	0.218	0.190	0.098	0.199	0.274
EBITA <sub><i>t+1</i></sub>	12,497	0.081	0.064	0.034	0.066	0.111
EBITA <sub><i>t</i></sub>	12,497	0.087	0.067	0.038	0.072	0.118
OIA <sub><i>t</i></sub>	12,497	0.083	0.065	0.037	0.067	0.113
ROA <sub><i>t</i></sub>	12,497	0.072	0.057	0.031	0.058	0.096
CFO <sub><i>t</i></sub>	12,497	0.079	0.086	0.027	0.070	0.125
ACC <sub><i>t</i></sub>	12,497	-0.008	0.075	-0.047	-0.010	0.028
SIZE <sub><i>t</i></sub>	12,497	25.816	1.483	24.839	25.602	26.556
LEV <sub><i>t</i></sub>	12,497	0.366	0.188	0.212	0.359	0.508
GRW <sub><i>t</i></sub>	12,497	0.147	0.331	-0.009	0.080	0.216

Notes: ETR<sup>GAAP</sup> is effective tax rate that income tax divided by pretax income, ETR<sup>CASH</sup> is effective tax rate that adding change variable deferred tax assets to corporate tax expenses and deducting change variable deferred tax liabilities divided by pretax income, EBITA is earnings before income tax divided by total asset, OIA is operation income divided by total asset, ROA is net income divided by total asset, CFO is cash from operation divided by total asset, ACC is accruals divided by total asset, SIZE is natural log of total asset, LEV is debt divided by total asset, GRW is change variable of sales divided by sales of  $t-1$ .

**Table 3:** Correlation

	ETR <sup>CASH</sup> <sub><i>t</i></sub>	ETR <sup>GAAP</sup> <sub><i>t</i></sub>	EBITA <sub><i>t+1</i></sub>	EBITA <sub><i>t</i></sub>	ROA <sub><i>t</i></sub>	OIA <sub><i>t</i></sub>	CFO <sub><i>t</i></sub>	ACC <sub><i>t</i></sub>	SIZE <sub><i>t</i></sub>	LEV <sub><i>t</i></sub>	GRW <sub><i>t</i></sub>
ETR <sup>GAAP</sup> <sub><i>t</i></sub>	1.00										
ETR <sup>CASH</sup> <sub><i>t</i></sub>	0.49***	1.00									
EBITA <sub><i>t+1</i></sub>	-0.02***	-0.05***	1.00								
EBITA <sub><i>t</i></sub>	-0.03***	-0.13***	0.64***	1.00							
ROA <sub><i>t</i></sub>	-0.16***	-0.19***	0.61***	0.95***	1.00						
OIA <sub><i>t</i></sub>	-0.01*	-0.07***	0.64***	0.88***	0.84***	1.00					
CFO <sub><i>t</i></sub>	-0.06***	-0.07***	0.41***	0.50***	0.50***	0.53***	1.00				
ACC <sub><i>t</i></sub>	-0.05***	-0.06***	-0.01	0.13***	0.17***	0.01	-0.75***	1.00			
SIZE <sub><i>t</i></sub>	0.16***	0.11***	-0.19***	-0.20***	-0.23***	-0.23***	-0.11***	-0.03***	1.00		
LEV <sub><i>t</i></sub>	0.06***	0.04***	-0.14***	-0.21***	-0.22***	-0.09***	-0.11***	-0.04***	0.09***	1.00	
GRW <sub><i>t</i></sub>	-0.06***	-0.06***	0.21***	0.28***	0.30***	0.32***	0.12***	0.08***	-0.11***	0.12***	1.00

1) Variable definitions refer to Table 2.

2) \*, \*\*, \*\*\* is significant level of 10%, 5%, 1%, respectively.

## 4.2. Correlations

Table 3 presents the results of the correlation analysis of the variables used in this study. A significant positive relationship was observed at the 1% level between ETR<sup>GAAP</sup> and ETR<sup>CASH</sup>, a measure of tax avoidance. This means that

the similarities between the two measures of tax avoidance are very high. Although correlation analysis does not directly identify the relationship between tax avoidance and earnings sustainability, tax avoidance generally indicated a significant negative relationship with the earnings variables (EBITA, OIA, ROA). In other words, the level of tax

avoidance lowered the firms' return. Meanwhile, in the results of the control variables, the larger the size of the firm, the higher the debt ratio, and the lower the growth rate, the higher the level of tax avoidance was observed. However, these results simply represent the correlation between the two variables and therefore need to be further examined through regression analysis.

### 4.3. Regression Results

The results of the verification of the hypothesis in this study are given in Table 4. In Table 4, the model (1) is the result of the basic model of earnings sustainability, in order to determine whether the sample of this study shows earnings persistence. The model (2) is the result of including control variables in the basic model of earnings sustainability. The model (3) and the model (4) are the results after including tax avoidance and control variables, respectively. The model (3) is result of  $ETR^{GAAP}$ , and the model (4) is result of  $ETR^{CASH}$ .

As a result of checking whether the sample of this study shows the continuity of interest variable, EBITA was observed in the model (1) and model (2), respectively, in significant. This means that there is a very high amount of correlation between current and future earnings and that indicates a continuity of earnings. Looking at the results of the ETR, which is a variable of interest, significant quantities of values were observed in the model (3) and model (4),

respectively. This means that the level of tax avoidance enhanced relevant the current and future earnings.

Table 5 is the result of using operating earnings. Unlike pre- and post-tax earnings, operating earnings is a key earnings indicator for firms' sustainability. While pre-tax or post-tax earnings contain temporary components, operating earnings is different in terms of earnings information resulting from the entity's original activities. Therefore, the effect of a series of tax avoidance activities on the sustainability of the firm's core management activities is further verified by verifying the sustainability of its operating earnings. As a result of the empirical analysis, the sustainability of operating earnings was significant in both the basic model and the hypothesis model, including the control variables. In the model (3), the interaction term with the cash effective tax rate ( $OIA_t \times ETR_t^{CASH}$ ) showed a significant positive value. It means that the higher the level of tax avoidance induce the sustainability of operating earnings. In addition, the same results were obtained when measured as a tax avoidance in  $ETR_t^{GAAP}$ .

Table 6 showed whether tax avoidance increases the sustainability of earnings, similarly to the previous analysis, even when measured in post-tax earnings, net income. Net income called "Bottom line" is one of the most frequently used accounting information by investors in making investment decisions, and it would be meaningful if we investigate using post-tax earnings. Furthermore, this

**Table 4:** Regression Result

	(1)	(2)	(3)	(4)
	Dependent Variable: $EBITA_{t+1}$			
Intercept	0.037*** (2.77)	0.097*** (6.17)	0.100*** (6.34)	0.101*** (6.41)
$EBITA_t$	0.577*** (85.56)	0.563*** (77.82)	0.552*** (63.46)	0.551*** (63.60)
$ETR_t^{CASH}$			0.009*** (3.49)	
$EBITA_t \times ETR_t^{CASH}$			0.025*** (2.87)	
$ETR_t^{GAAP}$				0.001 (0.41)
$EBITA_t \times ETR_t^{GAAP}$				0.022** (2.52)
$SIZE_t$		-0.002*** (-7.24)	-0.003*** (-7.81)	-0.003*** (-7.64)
$LEV_t$		0.001 (0.50)	0.001 (0.35)	0.001 (0.37)
$GRW_t$		0.006*** (4.51)	0.007*** (4.81)	0.007*** (4.75)
YEAR	Yes	Yes	Yes	Yes
KSIC	Yes	Yes	Yes	Yes
F-value	140.636	136.654	133.693	133.139
Adj. $R^2$	0.435	0.439	0.440	0.439
N	12,497	12,497	12,497	12,497

1) Variable definitions refer to Table 2.

2) \*, \*\*, \*\*\* is significant level of 10%, 5%, 1%, respectively.

**Table 5:** Regression Result (Operating Income)

	(1)	(2)	(3)	(4)
	Dependent Variable: $OIA_{t+1}$			
Intercept	0.020* (1.71)	0.069*** (5.01)	0.073*** (5.27)	0.074*** (5.37)
$OIA_t$	0.644*** (104.22)	0.636*** (96.75)	0.618*** (76.91)	0.615*** (77.93)
$ETR_t^{CASH}$			-0.003 (-1.32)	
$OIA_t \times ETR_t^{CASH}$			0.030*** (3.74)	
$ETR_t^{GAAP}$				-0.012*** (-3.99)
$OIA_t \times ETR_t^{GAAP}$				0.041*** (4.93)
$SIZE_t$		-0.002*** (-7.11)	-0.002*** (-7.41)	-0.002*** (-7.38)
$LEV_t$		0.020*** (9.21)	0.020*** (9.15)	0.020*** (9.29)
$GRW_t$		0.002* (1.65)	0.002* (1.92)	0.002* (1.86)
YEAR	Yes	Yes	Yes	Yes
KSIC	Yes	Yes	Yes	Yes
F-value	204.916	200.425	195.387	195.839
Adj. $R^2$	0.530	0.535	0.535	0.536
N	12,497	12,497	12,497	12,497

1) Variable definitions refer to Table 2.

2) \*, \*\*, \*\*\* is significant level of 10%, 5%, 1%, respectively.

**Table 6:** Regression Result (Net Income)

	(1)	(2)	(3)	(4)
	Dependent Variable: $ROA_{t+1}$			
Intercept	0.036*** (3.08)	0.097*** (7.15)	0.099*** (7.29)	0.101*** (7.38)
$ROA_t$	0.540*** (78.17)	0.521*** (69.78)	0.514*** (59.61)	0.517*** (60.13)
$ETR_t^{CASH}$			0.007*** (3.07)	
$ROA_t \times ETR_t^{CASH}$			0.028*** (3.10)	
$ETR_t^{GAAP}$				0.010*** (3.31)
$ROA_t \times ETR_t^{GAAP}$				0.019** (2.00)
$SIZE_t$		-0.002*** (-8.49)	-0.003*** (-8.99)	-0.003*** (-9.12)
$LEV_t$		-0.000 (-0.21)	-0.000 (-0.21)	-0.001 (-0.30)
$GRW_t$		0.005*** (4.20)	0.005*** (4.33)	0.005*** (4.37)
YEAR	Yes	Yes	Yes	Yes
KSIC	Yes	Yes	Yes	Yes
F-value	119.998	117.111	114.581	114.429
Adj. $R^2$	0.397	0.401	0.402	0.402
N	12,497	12,497	12,497	12,497

1) Variable definitions refer to Table 2.

2) \*, \*\*, \*\*\* is significant level of 10%, 5%, 1%, respectively.

**Table 7:** Regression Result (Earnings Before Interest, Taxes, and Amortization)

	(1)	(2)	(3)	(4)
	Dependent Variable: $EBITA_{t+1}$			
Intercept	0.043*** (3.15)	0.096*** (5.93)	0.104*** (6.48)	0.110*** (6.80)
$CFO_t$	0.659*** (79.64)	0.637*** (71.57)	0.601*** (58.83)	0.610*** (59.71)
$ACC_t$	0.563*** (60.61)	0.540*** (54.52)	0.523*** (43.25)	0.526*** (42.90)
$ETR_t^{CASH}$			0.012*** (4.73)	
$CFO_t \times ETR_t^{CASH}$			0.102*** (9.48)	
$ACC_t \times ETR_t^{CASH}$			0.071*** (4.60)	
$ETR_t^{GAAP}$				0.027*** (7.32)
$CFO_t \times ETR_t^{GAAP}$				0.082*** (7.46)
$ACC_t \times ETR_t^{GAAP}$				0.059*** (3.81)
$SIZE_t$		-0.002*** (-6.07)	-0.003*** (-7.44)	-0.003*** (-8.27)
$LEV_t$		-0.003 (-1.07)	-0.003 (-1.01)	-0.003 (-1.24)
$GRW_t$		0.008*** (5.59)	0.008*** (5.94)	0.009*** (6.17)
YEAR	Yes	Yes	Yes	Yes
KSIC	Yes	Yes	Yes	Yes
F-value	122.975	119.537	118.582	118.637
Adj. $R^2$	0.406	0.409	0.417	0.417
N	12,497	12,497	12,497	12,497

1) Variable definitions refer to Table 2.

2) \*, \*\*, \*\*\* is significant level of 10%, 5%, 1%, respectively.

approach resulted in relatively concrete research results for the sustainability of tax avoidance and post-tax net income. Result showed the cash effective tax rate ( $ETR_t^{CASH}$ ), a significant positive relevance was observed at the 1% level, but a significant amount was shown at the 5% level when measured at the book effective tax rate ( $ETR_t^{GAAP}$ ).

Table 7 looked at the components of the earnings divided by the amount generated and the cash flows. Although the analysis results generally showed a higher sustainability of both cash and the amount of cash generated, they were observed to be more relevant to the sustainability of cash flows. This indicates that the higher sustainability of tax avoidance is more relevant to cash flows among the earnings components.

## 5. Conclusion

This study investigates whether tax avoidance increases the link between current and future earnings. The cash flows generated by tax avoidance are verified to increase the sustainability of earnings. The sustainability of the earnings is regard as a criterion for determining the quality of accounting information. And we approached to confirm

whether tax avoid had a positive or negative effect on accounting information.

The samples used for this purpose were conducted on KOSPI and KOSPI market companies from 2006 to 2018. Here, tax avoidance was measured at the cash effective tax rate and at the book effective tax rate. The analysis results are summarized as follows. First, tax avoidance has been shown to increase the sustainability of earnings. Second, the components of the continuity of earnings that tax avoidance increases were observed as cash flows. That is, the cash flows generated by tax avoidance have been shown to make greater relevance between the current period and the future earnings.

The results of this study have expanded prior studies in tax avoidance and earnings persistence. In addition, amid conflicting studies of the effects of tax evasion on firm value and accounting information, this study provides additional empirical evidence.

Nevertheless, this study has problems and imperfections in measurements, which are common limitations of empirical studies. Tax avoidance we used was measured at an effective tax rate. It indicates that lower the effective tax rate indicates the firm performed its tax strategy for tax reduction. Therefore,

in subsequent studies, sensitivity analysis of the results will need to be performed as a result of the development of more improved measurements. In addition, because tax avoidance increases the sustainability of earnings, it is difficult to say that tax avoidance improves the quality of earnings. Overall, the study of earnings sustainability reports the positive relation between tax avoidance and earnings persistence. Our results can be affected by manager improving the sustainability of the earnings by making the production of the earnings smoothing. Therefore, subsequent research on the sustainability of earnings will require that the usefulness of the sustainability of the earnings as a measure of the quality of the earnings will continue steadily.

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