

The effect of internal control on tax avoidance: the case of Indonesia

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Abstract

Purpose – The purpose of this paper is to analyze the effect of internal control on tax avoidance analyzing internal (family ownership) and external (environmental uncertainty) factors on the effectiveness of internal control in preventing tax avoidance.

Design/methodology/approach – First, the authors examine the direct effect of the effectiveness of internal control on tax avoidance. Second, the authors examine the effect of moderation of family ownership and environmental uncertainty on the relationship of the effectiveness of internal control on tax avoidance. Third, the authors divide the full sample into two groups, high and less effectiveness of internal control to examine the direct effect of internal control effectiveness on tax avoidance and when considering moderating variables. Fourth, the authors use two different measures of the effectiveness of internal control.

Findings – This research found that effective internal control can reduce tax avoidance. Family ownership affects the relationship between internal control and tax avoidance, but environmental uncertainty does not influence the relationship between internal control and tax avoidance.

Practical implications – Internal control increases compliance with rules and policies, so companies must design and implement effective internal control to prevent tax avoidance activities in violation of tax regulations.

Originality/value – In contrast to previous studies, this study measures the effectiveness of internal control using the index of internal control practice disclosure and considers internal and external factors that can affect the effectiveness of internal control to prevent tax avoidance.

Keywords Business, Internal control, Tax avoidance, Family ownership, Environmental uncertainty

Paper type Research paper

1. Introduction

Tax expense is an operational cost that reduces company profits, so tax planning is a way to increase reported profits (Lee and Kao, 2018). The management carries out tax planning because this cost component is quite high and the company does not benefit directly from the taxes paid. The reason that is often cited is that management has an incentive to carry out tax planning, namely, diverting tax costs to increase company value (Rezaei and Ghanaeenejad, 2014). In addition, there is an opinion that tax planning is done for the benefit of management, such as increasing management compensation and bonuses (Armstrong *et al.*, 2015).

Aggressive tax planning is classified as tax avoidance, and most studies use the agency problem perspective in discussing tax avoidance (Gaaya *et al.*, 2017); from this perspective, tax avoidance is illegal (Lee *et al.*, 2015; Rezaei and Ghanaeenejad, 2014). The aggressive tax avoidance must be prevented, and if it is proven to violate the rules, it will be subject to penalties and loss of reputation and in the long run, hamper business sustainability.



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From the perspective of agency theory, tax planning requires management judgment and estimation. In its implementation, management is faced with challenges such as complexity and discretion (Gleason *et al.*, 2017). Through this discretion, management has an incentive to carry out tax planning that benefits management through increased compensation (Khan *et al.*, 2016) at the expense of shareholders.

Internal control is a monitoring mechanism that aims to ensure that financial statements are free from material misstatements (Ashbaugh-Skaife *et al.*, 2008; Gleason *et al.*, 2017). In the context of tax avoidance, effective internal control mitigates management errors when making a judgment and estimating corporate tax policies. Internal control also ensures that management does not violate applicable laws and regulations (Rae *et al.*, 2017), including tax regulations. Another purpose of internal control is to protect company assets.

Effective internal control encourages management to make tax plans that comply with applicable regulations and do not harm the company in the future. It also prevents management from behaving opportunistically and prudently in carrying out tax planning activities. Aggressive tax avoidance can be minimized and carried out within the framework of increasing the value of the company in the long run.

Gaaya *et al.* (2017) stated that there have not been many studies on tax avoidance that consider ownership structures, especially family ownership. Likewise, not many studies have discussed the effectiveness of internal control to reduce the opportunistic behavior of management in tax avoidance in family businesses. The ownership structure determines company policy, including in the design policy and implementation of internal control systems. Family ownership has unique characteristics and company management tends to be family oriented, including the supervision of the company (Suárez, 2017). The effect of family ownership on tax avoidance has two perspectives. First, families tend to want to maintain their reputation and avoid fines for violating tax regulations (Chen *et al.*, 2010). Another perspective is that family-owned companies tend to do tax avoidance. The higher the family ownership, tax avoidance is more aggressive because the family tends to influence management for the interests of the owner (Gaaya *et al.*, 2017).

Environmental uncertainty is an external factor that can affect tax avoidance. Environmental uncertainty occurs due to changes in business elements, especially as changes in the market of products produced by the company (Cormier *et al.*, 2013), such as changes in customer consumption patterns and the competitive structure of products produced. Several studies reveal that management will adjust to environmental changes by changing strategy and operations (Ghosh and Olsen, 2009). One of the practices carried out is to adjust the operational cost structure. The explanation indicates management discretion against company policies, especially based on the use of financial resources, including tax costs. Reactions to high uncertainty environments have an impact on control systems that can ultimately influence management behavior in making decisions about tax avoidance (Williams and Seaman, 2014).

In contrast to previous studies (Bauer, 2016) regarding internal control and tax avoidance, this study contributes to the measurement of the effectiveness of internal control by using an index of internal control practice disclosure in the annual report. Another contribution is to consider the company's internal and external factors that can affect the effectiveness of internal control over tax avoidance practices. Internal factors are family owned. Family ownership dominates because of the ownership of public companies in Indonesia (Claessens *et al.*, 2000; Siregar and Utama, 2008). External factors are environmental uncertainties that have recently become a significant concern due to increasingly intense competition among producers and also changes in customer preferences.

The purpose of this study is first to analyze the effect of internal control on tax avoidance. Second, analyzing internal (family ownership) and external (environmental uncertainty)

factors on the effectiveness of internal control in preventing tax planning practices. This study also conducted additional testing by looking at the descriptive statistic in companies with high and less effectiveness of internal control, regression analysis classifying companies with high and low internal control effectiveness and using different internal control measures.

2. Literature review and hypothesis development

2.1 Tax avoidance and internal control

Tax avoidance is an effort made by management to reduce the effective tax rate on income before tax (Dyreng *et al.*, 2010). The study of tax avoidance has two different perspectives. The first perspective sees tax avoidance as tax planning by management to increase the value of the company (Lee and Kao, 2018) by saving cash and diverting the tax expense to make investments. Another perspective is that management conducts tax avoidance to avoid or reduce tax payments (tax evasion) for the benefit of management, such as to increase bonuses and compensation for management (Desai and Dharmapala, 2006).

Tax avoidance is an effort made by management in every way to avoid taxes (Dyreng *et al.*, 2010). The management carries out tax avoidance in order to increase the amount of cash flow that can be used to increase production capacity, which, in turn, increases the value of the company. However, Shin and Park (2019) argued that the objectives of tax avoidance cannot be achieved if management behaves opportunistically. In the view of agency theory, management has an incentive to do tax avoidance to increase compensation and bonus giving (Armstrong *et al.*, 2015). Management tends to reduce the amount of tax burden to increase profit after tax (Gaaya *et al.*, 2017) to obtain compensation and bonuses. In line with this concept, this study considers that tax avoidance, both in the context of tax planning and tax evasion, has a tax risk because it is related to government regulations which can lead to fines or penalties for violating existing regulations. So companies that do not do tax avoidance are considered better than those who do it.

Internal control ensures the achievement of company goals, financial statements are free from material misstatements, complies with laws or regulations or policies, and protects company assets (Rubino and Vitolla, 2014; Rae *et al.*, 2017). Effective internal control can prevent and detect mistakes made by management, both intentional and unintentional. Previous research provides empirical evidence that internal control influences management behavior in compiling financial information and other company policies (Doyle *et al.*, 2007; Ashbaugh-Skaife *et al.*, 2008; Han, 2010). More specifically, Gleason *et al.* (2017) and Huang and Chang (2015) provide empirical evidence that adequate internal control reduces the opportunistic behavior of management in carrying out tax avoidance. So conceptually, in line with Doss and Jonas (2004), effective internal control aims to ensure that tax planning is effective and supports the achievement of company goals.

Tax planning is a decision that requires management's estimation and judgment. Management has the opportunity to make discretion in making decisions, so there is a probability of risk arising when making the wrong decision. In its implementation, management faced with challenges in the form of high levels of complexity and discretion (Gleason *et al.*, 2017). A strong understanding of tax regulations and quality supporting information is needed to ensure that there are no significant errors in tax planning. The wrong decision causes a loss for the company.

Tax planning is also strongly influenced by management behavior. Discretion allows management to carry out tax planning that benefits management (Khan *et al.*, 2016). Companies with significant book-tax differences tend to manipulate, both for bookkeeping and tax estimation (Hanlon and Heitzman, 2010; Huang and Chang, 2015). Companies that have material weaknesses in the internal control mechanism related to tax have a significant tax difference book (Huang and Chang, 2015). Likewise, Gleason *et al.* (2017) provided

evidence that adequate internal control reduces tax avoidance. Based on the literature review and existing arguments, the hypothesis that will test is:

H1. Effective internal control has a negative effect on tax avoidance.

2.2 Family ownership, internal control and tax avoidance

The family, as the owner of the company, has an incentive to do tax planning because the company is considered as their asset (Chen *et al.*, 2010). Two perspectives explain how family behaves in managing taxes, entrenchment and alignment (Fan and Wong, 2002). Entrenchment is characterized by opportunistic family behavior to take advantage at the expense of minority shareholders. Alignment is indicated by good behavior or in other words trying to increase the value of the company for the benefit of all shareholders.

In the alignment effect, the family carries out tax management with the principle of protecting the company's reputation from possible sanctions imposed due to tax avoidance (Chen *et al.*, 2010). Families as owners tend to support the company's internal control policies regarding tax avoidance activities. For the owner, internal control is not only considered to be able to provide certainty that the company's goals achieved but also reduces the possibility of the emergence of risks (Ji *et al.*, 2017), including the risks posed when performing tax avoidance.

In the entrenchment effect, family behavior makes tax savings for family interests at the expense of other shareholders (Steijvers and Niskanen, 2014). As owners, the family takes short-term profits that, in turn, can reduce the prosperity of other shareholders. Internal control becomes ineffective in facilitating management to carry out tax policies that are not following applicable tax rules. Tax avoidance can reduce tax cash payments to cover losses incurred by reducing tax costs, concealing information and ultimately reducing shareholder wealth (Desai and Dharmapala, 2006; Gaaya *et al.*, 2017).

Conceptually, family ownership reduces the effectiveness of internal control, so it cannot prevent tax avoidance that is detrimental to the company. Not many researchers have studied the effect of moderating family ownership on the relationship between internal control and tax avoidance. Bardhan *et al.* (2014) proved that family ownership causes ineffective internal control. Annuar *et al.* (2014) provided empirical evidence that family ownership affects tax avoidance. Both studies indicate that families tend not to prioritize internal control mechanisms so they cannot prevent tax avoidance. Based on the literature review and existing arguments, the hypothesis that will test is:

H2. There is a difference in the effect of internal control on tax avoidance in companies with high family ownership and low family ownership.

2.3 Environmental uncertainty, internal control and tax avoidance

Research on the effect of environmental uncertainty on the relationship of internal control with tax avoidance is still scarce. According to the theory of the firm, environmental uncertainty is a significant factor influencing corporate strategic decisions (Cormier *et al.*, 2013). Management seeks to adjust internal conditions to suit the conditions of the external environment. As a reaction to adjust to environmental uncertainty, management takes strategic decisions, including changing the monitoring mechanism (Williams and Seaman, 2014).

The impact of environmental changes that lead to policy improvements predicts environmental changes for the company's future (Cormier *et al.*, 2013), including in allocating economic factors (Rajeev, 2012). Management has the opportunity to choose several alternative strategic and operational decisions, including decisions to save money or efficiency. However, the policies taken are often detrimental to the company (Shleifer, 2004),

because due to uncertainties it causes management to have difficulty estimating and determining the right policies (Gallemore and Labro, 2015).

Information asymmetry tends to be quite high. In the context of agency theory, the situation increases opportunistic behavior (Cormier *et al.*, 2013). The internal control mechanism becomes ineffective and cannot prevent or detect opportunistic behavior, including preventing intentional and unintentional mistakes in tax estimation. Byun *et al.* (2012) provided empirical evidence that internal corporate governance mechanisms are increasingly effective in improving company performance in environments with low levels of competition. Research conducted by Cai and Liu (2009) provides empirical evidence that companies in high competition situations tend to do tax avoidance. Both empirical evidence shows that the effectiveness of internal control mechanisms to avoid tax avoidance is influenced by external environmental conditions. Based on a review of the literature and arguments above, the hypothesis to be tested is:

- H3. There are differences in the influence of internal control on tax avoidance in companies that face high levels of environmental uncertainty and low environmental uncertainty.

3. Research methodology

3.1 Research samples and data collection

The population observed was manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2012 to 2017. The reason for choosing manufacturing companies is because the number of listed companies in this sector is more than any other sector. Companies included in the manufacturing sector are basic industry and chemicals as well as miscellaneous industry based on Fact-book 2012–2017 issued by IDX.

The sample selection uses the purposive sampling method, which is the method that determines the sample that provides the data or information needed. This study analyzes data using a balanced panel, using STATA software if there is one company that does not meet the criteria excluded from the sample. The sample selection criteria are companies that registered from 2012 to 2017 (not delisted), provided complete information needed, and did not report losses during the observation period. There are 139 manufacturing companies listed on IDX, but after removing companies that did not meet the criteria obtained, 40 manufacturing companies with a total observation of 240 firm-years.

3.2 Measurement of variables

This study measures tax avoidance using the cash effective tax rate (CETR). The CETR measurement focuses on paying taxes in cash and can illustrate the book-tax difference due to the effect of permanent and temporary differences. This study measures CETR based on a study conducted by Chen *et al.* (2010), which is dividing cash payments for taxes divided by pre-tax income.

The effectiveness of internal control is measured using the scoring method for disclosing the implementation of internal control mechanisms in the annual report developed by Deumes and Knechel (2008). Scoring for the effectiveness of internal control consists of several questions, whether the commissioner discusses the internal control system? Are the objectives of internal control clearly stated? Management is responsible for the implementation of internal control, statements about the effectiveness of internal control, has an internal control unit, and finally does the company implement risk management? If the company discloses the information, it will be given a score of 1 and 0 if it does not disclose. The total score is the total score obtained by each company divided by the number of questions.

Family ownership is determined using criteria developed by Peng and Jiang (2010), the percentage of share ownership by a family (not a listed company, financial institution or government) with minimum ownership of 5 percent of ownership rights. Environmental uncertainty was measured using the model used by Gong *et al.* (2009) which measures environmental uncertainty using sales volatility, which is the standard deviation of sales during the observation year divided by total assets for the current year.

Other independent variables used are firm size and profitability. According to Huang and Chang (2015), SIZE measured by the natural logarithm of total assets. Large companies also have sufficient resources to plan activities to reduce taxes. Return On Assets (ROA) is a measure of profitability, which is profit divided by total assets (Richardson and Lanis, 2007). The higher the level of profitability of companies, the lower the effective tax rate (Derashid and Zhang, 2003) this is because companies with high-profit levels tend not to want to pay high taxes.

The model used to test hypotheses consists of two models, the first model is that analyzes the direct influence of internal control on tax avoidance (CETR1) and the second model with family ownership variables and environmental uncertainty as moderating variables of internal control and tax avoidance (CETR2):

$$\text{CETR1}_{it} = \alpha_{it} + \beta_1 \text{IC}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{ROA}_{it} + \varepsilon_{it},$$

$$\begin{aligned} \text{CETR2}_{it} = \alpha_{it} + \beta_1 \text{IC}_{it} + \beta_2 \text{FAM}_{it} + \beta_3 \text{UE} + \beta_4 \text{IC} \times \text{FAM}_{it} + \beta_5 \text{UE} \times \text{IC} \\ + \beta_6 \text{SIZE}_{it} + \beta_7 \text{AGE}_{it} + \varepsilon_{it}, \end{aligned}$$

where CETR is the cash effective tax rate, IC is the internal control, FAM is the family ownership, EU is the environmental uncertainty, SIZE is the company size and ROA is a return on assets that is profit divided by total assets.

4. Results and discussion

4.1 Descriptive statistics

Before processing the data, this research treats outliers using winzorizing analysis using criteria, on average, plus twice the standard deviation. Data normality testing uses the skewness value, if between 2 and -2, then the data are assumed to have a normal distribution. Descriptive statistics testing for the variables used in this study is in Table I.

In all samples, the average CETR was 33.7 percent with a standard deviation of 22 percent, meaning that the average effective tax rate paid by the company was 33.7 percent. The average scoring effectiveness of the internal control mechanism of the company's internal control is 50.3 percent, with a maximum value of 1 (disclose 100 percent of information about internal control). The average shareholding by the family is 34.2 percent, and the level of environmental uncertainty has an average of 20.2 percent. The average size of the samples is the size of 12,492 or IDR 3.106.542.664.844, with an average leverage of 1.75 percent and a profitability average of 13.5 percent.

The subsequent descriptive analysis is to divide the sample based on the high effectiveness of internal control (above average) and less effective (below-average). The high effective internal control groups were 67 samples and 173 samples less effective. The average CETR value on companies with high effective is 36 percent higher than less effective groups (32 percent). These results provide an early indication that companies with effective internal control mechanisms are less likely to do tax avoidance than companies with below-average effectiveness.

The average score of the internal control in groups' effective internal control is 78.1 percent, whereas the less effective group is 39.5 percent. The average size (SIZE) and

Variable	Max.	Min.	Mean	SD	Skewness
<i>All samples (n = 240)</i>					
CETR	1.100	0.010	0.337	0.220	1.889
IC	1.000	0.170	0.503	0.201	0.813
FAM	0.980	0.000	0.342	0.299	0.303
UE	0.870	0.030	0.202	0.140	1.484
SIZE	14.470	10.900	12.492	0.824	0.271
LEV	4.472	0.902	1.746	0.580	1.998
ROA	0.425	0.000	0.135	0.110	1.228
<i>Sample with high effective internal control (n = 67)</i>					
CETR	1.100	0.050	0.360	0.232	1.869
IC	1.000	0.670	0.781	0.118	0.597
FAM	0.930	0.000	0.244	0.283	0.705
UE	0.470	0.030	0.174	0.110	0.698
SIZE	14.470	11.210	12.712	0.924	0.151
ROA	0.425	0.000	0.141	0.105	1.290
<i>Sample with less effective internal control (n = 173)</i>					
CETR	1.100	0.010	0.328	0.216	1.893
IC	0.500	0.170	0.395	0.093	-0.086
FAM	0.980	0.000	0.380	0.297	0.170
UE	0.870	0.040	0.213	0.149	1.507
SIZE	13.990	10.900	12.407	0.768	0.213
ROA	0.425	0.000	0.133	0.112	1.217

Notes: CETR_{it}, company's cash effective tax rate *i* in year *t*; IC_{it}, disclosure score of company internal control *i* in year *t*; FAM_{it}, ownership of shares by company family *i* in year *t*; EU_{it}, uncertainty of company *i*'s environment in year *t*; SIZE_{it}, company size is measured using the logarithm of the total assets of company *i* in year *t*; ROA_{it}, return on company assets *i* in year *t*

Table I.
Statistic descriptive

the level of profitability (ROA) in group samples with effective internal control higher compare to a less effective group. This fact shows that large companies and making profits tend to have adequate resources to implement internal control better than small companies.

Internal and external factors also determine the level of disclosure of internal mechanisms. Companies with effective internal control tend to occur in companies with low family ownership (an average of 24 percent). The data show that family businesses tend not to implement an effective internal control mechanism; there are allegations that the supervision system is attached to the owner, not to the formal supervision system. Companies with effective control tend to face a low level of environmental uncertainty compared to less effective control, the indication is that external environmental also influence the effectiveness of internal control.

4.2 Hypothesis testing

Hypothesis testing using balanced panel data regression. Based on the CHOW test and Hausman test, the data were analyzed using a fixed-effect model panel regression data. The variable used has multicollinearity; for this reason, it is cantered (reducing the value of the variable by its average). The treatment results show that the value of variance inflation factor uncentered is less than 10. Data processing uses robust options to overcome the problem of heteroscedasticity and autocorrelation.

Hypothesis testing is carried out in the following stages. The first stage tested the direct effect of IC on TA (CETR1). The second stage is testing the influence of moderation of family ownership and environmental uncertainty on the relationship between IC and TA (CETR2).

Table II is an analysis of the direct influence of internal control on tax avoidance and the moderating effect of family ownership (IC×FAM) and environmental uncertainty (IC×EU). F-statistics show that the CETR1 and CETR2 models can be used to predict the effect of independent variables on the dependent variable. The independent variable can explain the dependent variable of 6.1 percent on the CETR1 model and 5.2 percent of the CETR2 model.

Internal control variables have a positive and significant effect on tax avoidance in both models. The coefficient of the influence of internal control on tax avoidance on the CETR1 model is 0.199 and on the CETR2 model is 0.272. These results indicate that the higher the quality of internal control, the higher the effective tax rate paid, meaning that the smaller the tax avoidance by the company. This empirical evidence is consistent with *H1* that effective internal control has a negative effect on tax avoidance. The results of this study are consistent with previous research (Gleason *et al.*, 2017; Huang and Chang, 2015) that the more effective internal control, the less the tendency of management to behave opportunistically in conducting tax avoidance. In the context of corporate governance, internal control is a factor that determines tax avoidance (Armstrong *et al.*, 2015).

The empirical evidence shows that family ownership variables (IC×FAM) moderate the relationship of internal control to tax avoidance ($\alpha = 10$ percent) with a coefficient of 0.553. These results indicate that internal control is increasingly able to reduce tax avoidance in companies with high family ownership compared to low family ownership. In general, the family strengthens the implementation of internal controls to prevent material mistakes in reporting on the company's financial condition. This result is consistent with the second hypothesis that there is a difference in the effect of internal control on tax avoidance in companies with a high percentage of family ownership and low family ownership.

External factors, environmental uncertainty, are proven not to affect the relationship between internal control and tax avoidance. This result is not consistent with the third hypothesis that there are differences in the effect of internal control on tax avoidance in companies that face high levels of environmental uncertainty and low environmental uncertainty. The external environment measured using environmental uncertainty makes no difference in the implementation of internal controls.

Variable	Coef.	CETR1 <i>p</i> -value	VIF	Coef.	CETR <i>p</i> -value	VIF
C	0.487	0.000***		0.443	0.000***	
IC	0.199	0.042***	2.17	0.272	0.022**	2.81
SIZE	-0.329	0.010***	1.01	-0.303	0.147	1.12
ROA	-1.850	0.000***	2.17	-1.757	0.000***	2.65
FAM				-0.575	0.035**	8.49
UE				0.130	0.368	8.93
IC×FAM				0.553	0.089*	8.85
IC×UE				-0.283	0.347	9.45
<i>R</i> ²		0.061			0.052	
Prob > <i>F</i>		0.000			0.000	
<i>n</i>		240			240	

Notes: CETR_{*it*}, company's cash effective tax rate *i* in year *t*; IC_{*it*}, disclosure score of company internal control *i* in year *t*; FAM_{*it*}, ownership of shares by company family *i* in year *t*; EU_{*it*}, uncertainty of company *i*'s environment in year *t*; SIZE_{*it*}, company size is measured using the logarithm of the total assets of company *i* in year *t*; ROA_{*it*}, return on company assets *i* in year *t*. *, **, ***Significant at $\alpha = 10, 5$ and 1 percent (one-tailed):

$$CETR1_{it} = \alpha_{it} + \beta_1 IC_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \epsilon_{it}$$

$$CETR2_{it} = \alpha_{it} + \beta_1 IC_{it} + \beta_2 FAM_{it} + \beta_3 UE + \beta_4 IC \times FAM_{it} + \beta_5 IC \times UE_{it} + \beta_6 SIZE_{it} + \beta_7 ROA_{it} + \epsilon_{it}$$

Table II.
Effect of internal control on tax avoidance

Hanlon and Heitzman (2010) stated that high tax avoidance indicates that management is manipulating both when preparing financial reports and tax reports as well as. In this context, empirical evidence shows that effective internal control can achieve its objectives to ensure that tax planning is more effective in supporting the achievement of corporate objectives (Doss and Jonas, 2004). Internal control can prevent management from doing illegal tax avoidance because internal control can prevent and detect when management doing aggressive tax avoidance. Control can prevent opportunistic behavior (Khan *et al.*, 2016; Gleason *et al.*, 2017). Another goal of internal control is to provide certainty that the company's goals are achieved and ensure compliance with applicable laws and regulations (Rubino and Vitolla, 2014; Rae *et al.*, 2017).

Regression results on moderating family ownership; the results are not consistent with studies conducted by Bardhan *et al.* (2014), their study states that family causes ineffective internal control in achieving its goals. This difference can explain because, in Indonesia, the family considers the company as a long-term asset and reflects the owner's reputation. Therefore, families tend to maintain the company's reputation by avoiding the risk of being sanctioned due to taxation problems (Ji *et al.*, 2017), if proven cheating in reporting taxation in Indonesia will be subject to criminal sanctions in the form of fines to prison.

The internal environment (family ownership) can influence internal control compared to external conditions (environmental uncertainty). The company's strategy can change to deal with environmental uncertainty, but this is not the same as a monitoring mechanism. The monitoring system can still achieve its objectives to prevent management from engaging in aggressive tax avoidance.

Overall, the empirical evidence of this study proves that internal control reduces the tendency of management to do tax avoidance. Management complies with applicable tax regulations and laws. Internal control can prevent and detect mistakes made by management either unintentionally or intentionally (opportunistic behavior) in taking tax policies. Empirical evidence also shows that internal environmental factors influence the effectiveness of internal control on tax avoidance activities. Internal control in high family ownership tends to be more effective in preventing tax avoidance activities (the coefficient of the variable internal control interaction and family ownership is higher than the direct relationship of internal control to tax avoidance).

4.3 Additional testing

Additional testing is to test the effect of internal control on tax avoidance on samples that have high internal control effectiveness (above average) (Table III). The next test was to replace the internal control variable measured using a scoring developed by Doyle *et al.* (2007) (Table IV).

In the first test, companies with internal control effectiveness above average were given a value of 1 and 0 for those whose effectiveness was below average. Then CETR is multiplied by the dummy variable so that CETR obtains for companies with above-average internal control effectiveness. Tests show that companies with high effectiveness of internal control tend not to do aggressive tax avoidance (at α 1 percent). While family ownership in companies with high effectiveness does not affect internal control effectiveness in preventing aggressive tax avoidance, as well as environmental uncertainty, this can indicate that the company in this sample has to establish (established) in implementing internal control so that the internal and external environment does not influence it.

The second additional test is to change the measurement of the internal control using a measuring instrument developed by Doyle *et al.* (2007). The effectiveness of internal control is measured using nine questions which include the commissioner discussing elements of internal control, expressing the objectives of internal control, management declaring responsibility for internal control, having an internal audit function. The company discloses

Variable	CETR1_HIGH_IC			CETR2_HIGH_IC		
	Coef.	<i>p</i> -value	VIF	Coef.	<i>p</i> -value	VIF
C	-0.15	0.02**		-0.195	0.005*	
IC	0.71	0.00***	2.17	0.777	0.000***	2.78
SIZE	-0.08	0.12	1.01	0.051	0.348	1.13
ROA	-0.77	0.01***	2.17	-0.669	0.008***	2.65
FAM				-0.355	0.053*	8.49
UE				0.395	0.019**	8.22
IC×FAM				0.493	0.113	8.86
IC×UE				-0.439	0.220	8.70
<i>R</i> ²		0.393			0.447	
Prob > <i>F</i>		0.000			0.000	
<i>n</i>		240			240	

Notes: CETR_{*it*}, company's cash effective tax rate *i* in year *t*; IC_{*it*}, disclosure score of company internal control *i* in year *t*; FAM_{*it*}, ownership of shares by company family *i* in year *t*; EU_{*it*}, uncertainty of company *i*'s environment in year *t*; SIZE_{*it*}, company size is measured using the logarithm of the total assets of company *i* in year *t*; ROA_{*it*}, return on company assets *i* in year *t*. *, **, ***Significant at $\alpha = 10, 5$ and 1 percent (one-tailed):

$$CETR1_{it} = \alpha_{it} + \beta_1 IC_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \varepsilon_{it}$$

$$CETR2_{it} = \alpha_{it} + \beta_1 IC_{it} + \beta_2 FAM_{it} + \beta_3 UE + \beta_4 IC \times FAM_{it} + \beta_5 IC \times UE_{it} + \beta_6 SIZE_{it} + \beta_7 ROA_{it} + \varepsilon_{it}$$

Table III.
Additional testing
based on internal
control effectiveness
above sample
average value

risk management activities, has a committee audit, code of conduct, reviews accounting records manuals, and has a whistle blower policy. If the company discloses the information, it will be given a score of 1 and 0 otherwise. The total score is the total score obtained by each company divided by the number of questions.

Empirical evidence of additional testing (see Table IV) shows results consistent with the testing of the first hypothesis (*H1*). Effective internal control can reduce aggressive tax avoidance.

5. Conclusion

Internal control is a determinant of tax avoidance and can prevent management from engaging in aggressive tax avoidance. Family ownership affects the relationship between

Variable	CETR1			CETR		
	Coef.	<i>p</i> -value	VIF	Coef.	<i>p</i> -value	VIF
C	0.409	0.000***		0.374	0.000***	
IC	0.309	0.020**	2.25	0.357	0.012**	2.59
SIZE	-0.383	0.005***	1.01	-0.328	0.183	1.14
ROA	-1.814	0.000***	2.26	-1.723	0.000***	2.56
FAM				-0.494	0.052*	7.99
UE				0.262	0.204	8.94
IC×FAM				0.395	0.074*	8.33
IC×UE				-0.447	0.307	9.00
<i>R</i> ²		0.054			0.046	
Prob > <i>F</i>		0.000			0.000	
<i>n</i>		240			240	

Notes: CETR_{*it*}, company's cash effective tax rate *i* in year *t*; IC_{*it*}, disclosure score of company internal control *i* in year *t*; FAM_{*it*}, ownership of shares by company family *i* in year *t*; EU_{*it*}, uncertainty of company *i*'s environment in year *t*; SIZE_{*it*}, company size is measured using the logarithm of the total assets of company *i* in year *t*; ROA_{*it*}, return on company assets *i* in year *t*. *, **, ***Significant at $\alpha = 10, 5$ and 1 percent (one-tailed):

$$CETR1_{it} = \alpha_{it} + \beta_1 IC_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \varepsilon_{it}$$

$$CETR2_{it} = \alpha_{it} + \beta_1 IC_{it} + \beta_2 FAM_{it} + \beta_3 UE + \beta_4 IC \bar{n} FAM_{it} + \beta_5 IC \bar{n} UE_{it} + \beta_6 SIZE_{it} + \beta_7 ROA_{it} + \varepsilon_{it}$$

Table IV.
Additional testing
effects of internal
control on tax
avoidance

internal control and tax avoidance, meaning that the more effective internal control is, the more it is easier to reduce tax avoidance in companies with high family ownership compared to low family ownership. External environmental conditions do not influence the relationship between internal control and tax avoidance.

The theoretical implication of the results of this study is that supervision and a more specific internal control can consider as factors that can influence tax avoidance activities. Internal control is a system that does not stand alone but is influenced by the environment in which the system located. Empirical evidence shows that internal factors are more dominant in influencing the effectiveness of internal control than external factors.

Empirical evidence of the research has implications for regulators, internal control to reduce tax avoidance. Effective internal control will provide confidence that management complies with existing regulations and policies, including in the field of taxation. For businesses, companies must pay attention to scoring items that get low marks to plan for the improvement or improvement needed.

The weakness of this research is that other parties do not review the assessment of internal control disclosures, so there is a possibility of an error in grading because it is subjective. Subsequent research can conduct a review of the scoring conducted in order to obtain more objective results.

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