IMPACT OF A PREVIOUS AUDIT ON TAX AGGRESSIVENESS OF A FIRM TAXPAYER

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Abstract

This study aims to analyze the effect of a previous tax audit on tax aggressiveness of a firm taxpayer who submits Overpayment Annual Tax Return. The degree of tax aggressiveness itself uses Delta Effective Tax Rate as a proxy, generated from Annual Tax Return data from 2011 to 2016. Using multinomial logit regression as a method, this study found that a previous Tax Audit and tax audit result made a firm prefer to choose a positive Delta Effective Tax Rate.

Keywords: Tax Aggressiveness, Effective Tax Rate, Tax Audit

JEL Classification: H25, H26, H32

INTRODUCTION

In Indonesia, tax is the most dominant source of revenue. It reaches more than 80% of the total state revenue (APBN 2017, Ministry of Finance). One of these taxes that should be paid by a firm in Indonesia is Corporate Income Tax (CIT). The amount of this tax based on the firm's income. Therefore, every firm in Indonesia is a subject of Corporate Income Tax.

Like another emerging Nation in the world, Indonesia also encounters a problem on tax compliance. From 2010 to 2016, only less than 60% of a firm taxpayers in Indonesia submitted their Tax Return (Surat Pemberitahuan Tahunan)[1]. Another indicator of this compliance problem is a fact that Indonesia is among the country with a low Tax Ratio in Southeast Asia.

In annual tax return, Firm Taxpayer will declare a status in 3 categories. With a *self-assessment*[2] system embraced by Indonesia's Tax Law, the estimated tax owed by a firm taxpayer, should be paid by witholding mechanism from another taxpayer and installment payment of Income Tax Article 25 by the firm itself. These three categories are:

• Underpayment Status

  The condition where the total of installment payment of Income Tax Article 25 and witholding tax are less than the estimated tax owed in Tax Return.

• Overpayment Status

  The condition where the total of installment payment of Income Tax Article 25 and witholding tax are more than estimated tax owed in Tax Return.

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[1] According to taxation general provisions, Tax Return is a letter that is used by taxpayers to report the calculation and / or payment of taxes, tax objects and / or not tax objects, and / or assets and liabilities based on the tax laws.

[2] The self-assessment system is a tax collection system that gives trust to taxpayers to calculate, pay, and report their own tax owed based on tax laws and regulations.
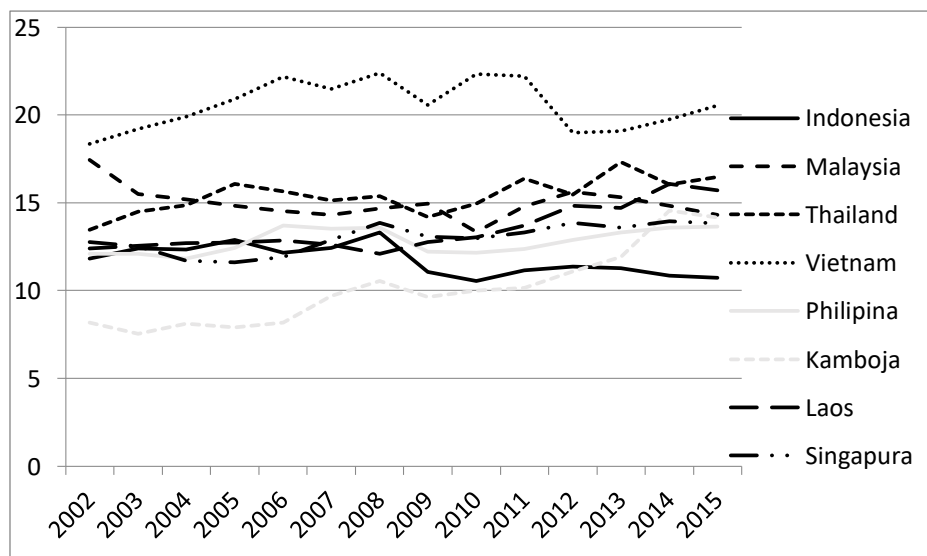
• Nil Status

The condition where the total of installment payment of Income Tax Article 25 and witholding tax are equal to estimated tax owed in Tax Return.

Figure 1
The Number of Annual Tax Return Submitted By Firm Taxpayers **2010-2015**
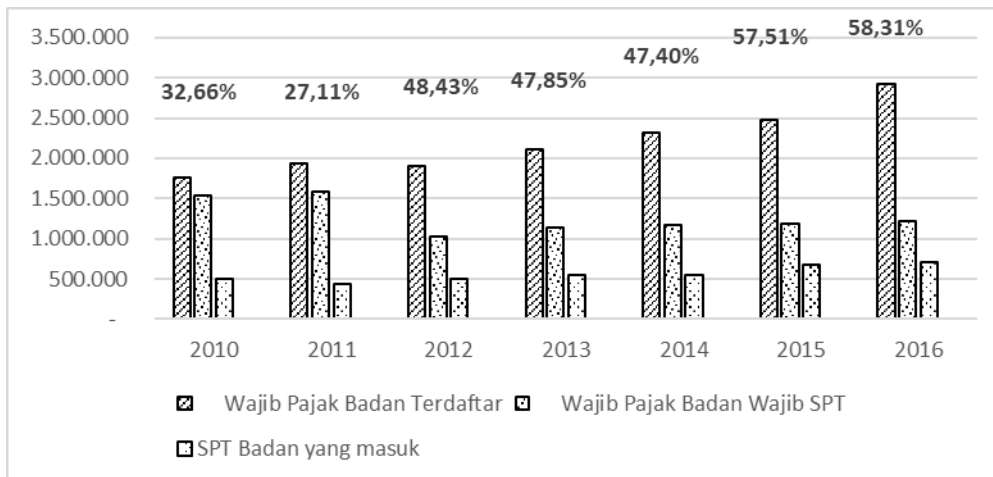
Source: DGT's Income Statement

Figure 2
Tax Ratio **in South East Asian Countries 2002-2015**

Source: World Development Indicators, World Bank 2016

Directorate General of Taxation (DGT) conducts a tax audit[3] to examine the compliance of taxpayer. Before conduct a tax audit, every tax return would be analyzed first. Overpayment Tax Return, automatically become an object of tax audit. While tax return, with underpayment or nil status, could be an object of tax audit when they meet certain criteria.

In previous economic studies, *tax aggressiveness* often to be used as indicator of Tax Compliance. *Tax aggressiveness* is a specific activity with a main pupose to reduce tax owed by a taxpayer (Slemrod 2004). Another wider perspective defines *tax aggressiveness* as an act to report income lower than the actual (under reported income) in tax return (Hanlon and Heitzman 2010). Firm taxpayer commits *tax aggressiveness* through *tax avoidance*[4] and *tax evasion*[5] activity (DeBacker et al. 2015).

The theory about *tax aggressiveness* originally came from Allingham, Sandmo (1972) and Yithzaki (1974) theory about tax compliance. This theory state that tax compliance influenced by the perception from the taxpayer of two factors, the probability of being audited and a penalty for their non-compliant. This theory criticized by certain people. Alm (2009) state that those two factors not only based on taxpayer perception but also based on a lot of information. One of that information could be derived from taxpayer previous experience for being audited (Snow and Warren 2010).

In the beginning, the studies about the impact of a previous audit on *tax aggressiveness* used an experimental method. These studies were conducted by Mittone (2006), Maciejovsky et al. (2007) and Kast-lunger et al. (2009). In these research, participant was given some information that can affect their decision to do a *tax aggressiveness*. For example, In Mittone (2006) study, participant was given an information that audit would be held with a probability 1:15. While in Kastlunger et al. (2009) study, participant was given information that audit would be held randomly 9 times in 60 round. These experimental studies indicate that *tax aggressiveness* increases after an audit.

Following the experimental method, the studies about the impact of a previous audit on *tax aggressiveness* started to use econometrics. These study conduct by Niu (2011), D'Agosto et al. (2017), Gemmel and Rato (2012) and Debacker et al. (2015). Niu (2011) used OLS and Auto Regressive as analysis tools. While D'Agosto et al. (2017) and Gemmel and Ratto (2012) used DID. The result of their research found that *tax aggressiveness* decreases after an audit. In another case, Debacker et al. (2015) used panel data regression as a tool and found that *tax aggressiveness* increases after a previous audit.

Study about *tax aggressiveness* should be important for a country like Indonesia for some reasons. The main reason is a literature debate about the positive or negative impact of a previous audit on *tax aggressiveness*. Hence, empirical and institutional study about *tax aggressiveness* become a necessity in emerging nations who often encounter a problem of tax compliance (Andreoni et al. 1998). The other reason is the study about the development and behavior of *tax noncompliance* become necessary since it has a serious impact on equity and effectiveness of the tax system (Hanlon 2005).

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[3]According to tax general provisions, tax audit is a series of activities to collect and process data, information, and / or evidence carried out objectively and professionally based on a standard audit to examine tax compliance and / or for other purposes in order to implement the provisions of taxation laws and regulations.

[4] *Tax avoidance can be interpreted as an effort made by taxpayers to reduce their tax payment obligations through legal practices by utilizing loopholes from tax regulations..*

[5] T*ax Evasion is an attempt made by taxpayers to reduce their tax payment obligations through an illegal practice.*

The thing that distinguishes this study compared to another study is the Overpayment Tax Return as the object of the research. This becomes interesting since the Overpayment Tax Return automatically become the object of tax audit in Indonesia. Furthermore, to writer's knowledge, this study becomes the first study in Indonesia that analyze the impact of a previous audit on *tax aggressiveness* using firm taxpayer from all over regions in Indonesia who submit the Overpayment Tax Return.

This study aims to achieve two goals. Generally, this study aims to analyze the impact of a previous audit on *tax aggressiveness* of a firm taxpayer who submits the Overpayment Tax Return. Specifically, this study could contribute to describe how effective the audit strategy held by tax authority in Indonesia.

To delineate *tax aggressiveness* of a firm taxpayer who submits the Overpayment Tax Return, this study uses Delta Effective Tax Rate (DETR) as a dependent variable. DETR is a difference between Effective Tax Rate (ETR) based on a tax return with *statutory tax rate*[6]. While *Effective Tax Rate* (ETR) is a ratio of *taxes paid* to *pretax accounting income* in one fiscal year. Consequently, DETR could have a negative, zero or positive value. This study uses DETR instead of ETR because the low value of ETR could not describe *tax aggressiveness* of a firm with a loss in financial condition.

Since DETR categorized in 3 value, therefore this study uses *multinomial logit regression* as an analyzing tool. Data in this research gathered from tax return from 2011 to 2016. This study does not use data from Income Statement because it is hard to obtain such data in Indonesia.

LITERATURE REVIEW
Tax Aggressiveness and *Effective Tax Rate*

The definition of *tax aggressiveness* itself still become a debate among the researcher. Slemrod (2004) defines *Tax aggressiveness* as a specific activity with the main pupose to reduce tax owed by a taxpayer (Slemrod 2004). Another wider perspective defines *tax aggressiveness* as an act to report income lower than the actual (underreported income) in a tax return (Hanlon and Heitzman 2010). In a perspective of a firm taxpayer, they commit *tax aggressiveness* through *tax avoidance* and *tax evasion* activity (DeBacker et al. 2015). Hence, Hanlon and Heitzman (2010) conclude that there is no universal definition of *tax aggressiveness* since its definition varies for every researcher.

Martinez (2017) describes classification of *tax aggressiveness* from legal and tax compliance aspect. Taxpayer commit *tax aggressiveness* through *tax planning* (*tax avoidance*) and *tax fraud* (*tax evasion*). From the legal perspective, *tax planning (tax avoidance)* is legal activity while *tax fraud (tax evasion)* is not. From *compliance aspect*, *tax planning (tax avoidance)* placed on gr*ay area*, the area between legal activity and illegal activity and potentially could become a noncompliance. While *tax fraud (tax evasion)* placed on the left area which is fully an illegal activity and noncompliance.

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[6] Statutory Tax Rate is a tax rate according to taxation provisions in a country. In the context of Indonesian tax law, the Corporate Income Tax rate under the Income Tax Law is 25%.

Figure 3
Tax aggressiveness
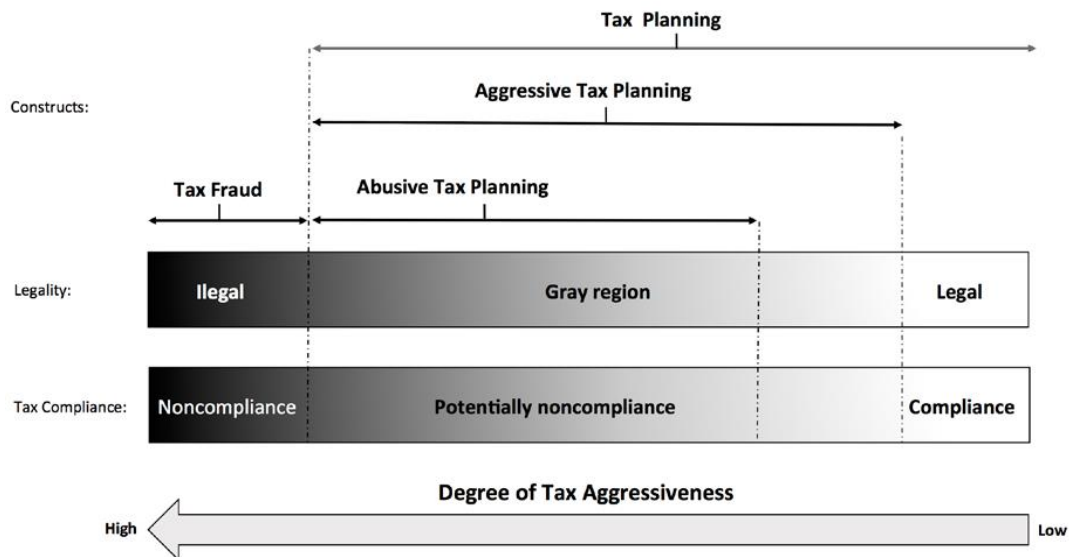
Source Martinez (2017)

Tax aggressiveness can be measured to describe a degree of *tax aggressiveness* itself. A legal point is a point where all activity of a taxpayer complies to any tax law applied. The far the tax payment from the legal point, it can be concluded that the degree of tax aggressiveness is high. And the close the payment to the legal point, it also can be concluded that the degree of tax aggressiveness is low.

Generally, there are two proxies used to measure the degree of *tax aggressiveness*. Those proxies are *Effective Tax Rate* (ETR) and *Book-Tax Difference* (BTD). *Effective Tax Rate* (ETR) is a ratio of *tax expense* to *pretax accounting income* in one fiscal year. While BTD is the difference between commercial profit/loss and fiscal profit/loss. ETR used as a proxy for *tax aggressiveness* in Dyreng et al. (2008, 2010), Lanis and Richardson (2007,2012) and De Backer et al. (2015) studies. While BTD used in Desai and Dharmapala (2006) study.

ETR data could be obtained from *Tax Return* and *financial statement* data. Since *Tax Return* data are confidential, a researcher usually obtains ETR measurement from financial statement data (Plesko 2003). After the formula to measure ETR from tax return data developed, many subsequent studies try to measure ETR using tax return data.

This study uses *Effective Tax Rate* (ETR) as a proxy of *tax aggressiveness* because of its eminence comparing to another proxy. The first one that ETR could detect firms that reduce their tax payment by keeping the level of pretax income but lower their taxable income (Lanis and Richardson 2012). Moreover, ETR could mitigate the *incomplete detection* issue in compliance empirical model (DeBacker et al. 2015).

There are two kinds of ETR that often to be used in research, General Accepted Accounting Principle *Effective Tax Rate* (GAAP ETR) and Cash *Effective Tax Rate* (Cash ETR). GAAP ETR is a comparison between *tax expense* and *pretax accounting income* in a current fiscal year. While Cash ETR is a comparison between *taxes paid* and *pretax*

accounting income in a current fiscal year. Both method developed into a new method and formula such as Current *Effective Tax Rate* (Current ETR), long-run cash ETR and ETR differential.

Previous Empirical Studies

In the beginning, empirical studies try to explain the effect of a previous audit on *tax aggressiveness* by using an experimental method. Mittone (2006) try to analyze taxpayer psychological factors that can influence the *tax evasion* behavior. From his study, it could be concluded that in every round after an audit, *tax aggressiveness* increases. Mittone (2006) call this effect as a *Bomb-Crater Effect*[7]. After that study, Maciejovsky et al. (2007) try to explain this effect by implementing a new setting in the experiment with a focus on a lag between audit. Maciejovsky et al. (2007) found that *Bomb-Crater Effect* occurred through two mechanism, *misperception of chance*[8] and *loss repair*[9]. Maciejovsky et al. (2007) also found that *tax aggressiveness* increases after an audit. Furthermore, Kastlunger et al. (2009) try to explain which mechanism is the dominant one in causing *Bomb-Crater Effect*. They found that *misperception of chance* is the dominant mechanism in generate *Bomb-Crater Effect*.

There are several weaknesses of experimental study about tax compliance. The first one is the fact that the respondent is not always a taxpayer who registered administratively in tax authority. This is not suitable in describing a *tax aggressiveness* of a taxpayer. The other weakness is the information given to the participant in a round of experiment. For example, in Mittone (2006), participant was given an information that audit was conducted randomly with a probability 1:15. In Kastlunger et al. (2009), the information given is the audit were conducted randomly 9 times in 60 rounds. This situation is contrary to reality where taxpayers never know when or where audit should be conducted. All of this conditions do not reflect the real environment of study about tax compliance (Andreoni et al., 1998).

Following the experimental study, empirical study about the effect of a previous audit on *tax aggressiveness* started to use econometric model with a sample of Individual Taxpayers. Gemmel and Rato (2012) try to explain how Individual Taxpayer behave when they experienced a random audit. They found that Individual Taxpayers with random audit experience, increase their *tax aggressiveness*, while taxpayers with no random audit experience, decrease their *tax aggressiveness*. Debacker et al. (2015) try to describe individual taxpayers behavior in reporting their income to the tax authority in long term and short term after being audited. They found that Individual Taxpayers increase their reported income to the tax authority after being audited. Unfortunately, both studies from Gemmel and Rato (2012) and Debacker et al. (2015) only use randomly audited individual taxpayers as a sample.

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[7] Bomb Crater Effect was taken from the term used in the second world war, where allied soldiers believed that a good place for sheltering was in the crater of the German bomb because they believed that the enemy would not attack again in the same place.

[8] Misperception of chance is an assumption from the Taxpayer that events that occur randomly, such as an audit, will occur if the event does not take place for a long time or it will not happen again because it just had happened.

[9] Loss repair explained that Tax Evasion activities conducted by taxpayers because they tried to take revenge to the tax authority after they were audited..

Different from Gemmel and Rato (2012) and Debacker et al. (2015) studies, D'Agosto et al. (2017) try to evaluate the effectiveness of the audit strategy carried out by the Italian tax authorities on the net production value reported to the tax authorities by entrepreneur and sole proprietorship taxpayers. The results indicate that there is a positive effect of the audit to deterrence effect of noncompliance. Since this study uses net production value reported as a degree of compliance, it would be difficult to apply this study in other countries because tax laws and systems are different from one country to another.

Empirical study about the effect of audit on *tax aggressiveness* also conducted on firm taxpayers. Niu (2011) try to examine the impact of audit on a *voluntary compliance* of Sales Tax Reporting. He found that after being audited, taxpayers report an increasing growth of sales to the tax authority. Another study about a firm's tax aggressiveness are conducted by Debacker et al. (2015). They found that a previous audit has an effect on firm's *tax aggressiveness*. This effect shows a certain pattern of tax aggressiveness as a response of previous audit experience. Unfortunately, both of these studies did not use a penalty as a variable in their studies.

Conceptual Framework

The theory about *tax aggressiveness* originally came from Allingham, Sandmo (1972) and Yithzaki (1974) theory about tax compliance. This theory states that tax compliance determined by the perception from a taxpayer of two factors, the probability of being audited and a *penalty* for their non-compliant. This probability of being audited is based on taxpayer perception subjectively. In this theory, tax rate and penalty are exogenous for a taxpayer. This model assumes that audit always detect noncompliance. Thus, taxpayers always pay their penalty for every income evaded. In this model, when the probability of being audited is high, the compliance would also high.

This theory criticized by certain people. Alm (2009) state that those two factors not only based on taxpayer perception but also based on a lot of information. He also said that audit not always detect noncompliance. This situation would affect taxpayer perception on the probability of being audited in the future.

Snow and Warren (2010) introduce a model that can describe about how the previous audit could affect *tax aggressiveness*. They developed a tax compliance model from one period to intertemporal model. In this model, Taxpayers usually do not know when he will be audited. He will estimate the probability of being audited subjectively based on the risk and information gathered from past audit experience. This is known as *Bayesian Updating* of *tax aggressiveness.* When taxpayers successful in committing *tax aggressiveness*, it will encourage them to do the same thing in the future. Snow and Warren (2010) model provides a basic theory for an empirical study to observe how taxpayers change their perception of the probability of being audited based on their past audit experience.

Gemmel and Ratto (2012) also argue that taxpayer compliance behavior is influenced by their perceptions after being audited and numbers of violations that were not detected during the audit. The results of the previous audit will affect taxpayers' perceptions about when will the next audit occur and how much evaded income detected in the future. Taxpayers make their perception only based on information gathered from past audit experience.

Debacker et al.(2015) describe that past audit experience could affect *tax aggressiveness* through 3 mechanisms. These mechanism are *Type Updating*, *Penalty*

Updating, and *Noncompliance Learning*. *Type Updating* describes how taxpayers increase their probability of being audited until the time when he has not been audited for a long time, then they will decrease it. *Penalty Updating* shows that taxpayers will decrease *tax aggressiveness* if a penalty for noncompliance higher than they expected, vice versa. While *Noncompliance Learning* describes that taxpayers would learn from a previous audit if tax aggressiveness not fully detected by the tax authority.

H_1: There is an effect of a previous audit on *tax aggressiveness*.

The Determinant of *Tax Aggressiveness*

Firm size has an effect on *tax aggressiveness*. Zimmerman (1983) argues that the political cost of the firm has an effect on *aggressiveness*. He used firm size as a proxy to estimate political cost. *Firm size* often to be connected with the firm's ability to commit tax avoidance. Larger Firm usually involves more in business activity and financial transaction than a smaller firm. Thus, larger firm has more oppurtunity to commit tax avoidance (Rego, 2003). The larger firm also has more economic and political power to reduce their tax liability (Richardson and Lanis 2007).

H_1: There is an effect of firm size on *tax aggressiveness*.

Duration of a firm registered in tax authority also has an effect on *tax aggressiveness*. Lanis and Richardson (2012) argues that *tax aggressiveness* could be affected by the duration of firm sold his stock in the capital market. There are possibilities for a firm to make a mistake in fulfilling his obligation and report to capital market authority if that firm registered to sell its stock not for a long time. This thing also could happen to firm taxpayers. There are more possibilities for new-registered firm taxpayers to make a mistake in fulfilling his obligation and report to the tax authority.

H_1: There is an effect of a registered period of taxpayer on *tax aggressiveness*.

Firm status, whether as a local firm or foreign-owned firm, also has an effect on *tax aggressiveness*. The foreign-owned firm has the advantage to increase or decrease *tax aggressiveness* through *tax planning* with the associated firm or people abroad (Rego 2003).

H_1: There is an effect of firm status on *tax aggressiveness*.

Tax aggressiveness is affected by trend or situation when taxpayers submit their tax return. Lanis and Richardson (2007) found that tax reform in Australia has influenced on tax aggressiveness of firm taxpayers.

H_1: There is an effect of a year on *tax aggressiveness*.

Tax aggressiveness also affected by the type or characteristic of the firm. Tax aggressiveness could fluctuate through characteristic or sector of the firm (Lanis and Richardson 2012).

H_1: There is an effect of the firm characteristic on *tax aggressiveness*.

METHODOLOGY
Empirical Strategy

Many studies have tried to identify factors that affected tax aggressiveness, specifically those related to taxation issues (Martinez 2017). Those studies aim to understand how specific variable could affect the level of tax avoidance and tax evasion from taxpayers. Those studies usually use interest variables and other variables as controls obtained from previous studies to describe their impact on tax aggressiveness. Modifications from one research to another research are usually on how to estimate the variables.

The selection of variables in this study is strongly influenced by previous empirical studies and the availability of data that can be obtained from the Directorate General of Taxation (DGT). The author chooses a variable based on data that can be obtained from the tax return data including the attachments and tax assessment data obtained from DGT. This study does not use data from a firm's financial statements.

To understand the behavior of firm taxpayers who submitted Overpayment Tax Return after being audited, this study uses delta ETR (DETR) as the dependent variable. Delta ETR is the difference between ETR obtained from Overpayment Tax Return and *statutory tax rate*. Hence, delta ETR value could be negative, zero and positive with criteria :
• Delta ETR is negative when its value below or less than the *statutory tax rate*,
• Delta ETR is zero when its value equal to the *statutory tax rate*
• Delta ETR is positive when its value more than the *statutory tax rate*.
Delta ETR will be categorized into 3 category which is negative, zero and positive. This study prefer to use delta ETR to ETR since lower level of ETR does not reflect *tax aggressiveness* when firm taxpayers gain loss in their bussiness.

Since delta ETR categorized into 3 categories, hence this study uses *multinomial logit regression* as an analysis tool. *Multinomial logit regression* could describe the probability of a firm to choose one of the three categories of delta ETR. Negative Category of DETR would be a base on this estimation.

Empirical model in this study is:

$$\Pr(DETR = 0) = \frac{1}{1 + e^{X\beta^{(1)}} + e^{X\beta^{(2)}}} \tag{1}$$

$$\Pr(DETR = 1) = \frac{e^{X\beta^{(1)}}}{1 + e^{X\beta^{(1)}} + e^{X\beta^{(1)}}} \tag{2}$$

$$\Pr(DETR = 2) = \frac{e^{X\beta^{(2)}}}{1 + e^{X\beta^{(1)}} + e^{X\beta^{(2)}}} \tag{3}$$

where :

DETR	=	delta *Effective Tax Rate*
$\beta^{(1)}, \beta^{(2)}$	=	parameter for each category of DETR
X	=	independent variable of this study
Consists of :		
Auditxp	=	dummy audit experience
Auditnonpen	=	dummy audit result with no penalty
Auditpen	=	dummy audit result with penalty
lntotalasset	=	natural logarythm of total asset,

lamaterdaftar	=	age of firm registered on DGT as a taxpayer
lamaterdaftarsq	=	square of lamaterdaftar
PMAfirm	=	dummy status of foreign-owned firm
Tahun	=	dummy year
Kategori	=	dummy business category or sector of firm

Since magnitude or sign from the parameter of multinomial logit regression does not have a mean directly, hence, to interpret the result of the estimation, this study uses *marginal effect*.

Operational Definition of Variables

The dependent variable of this study is delta ETR. As mentioned before, delta ETR is the difference between ETR obtained from Overpayment Tax Return and *statutory tax rate*. In Indonesia's tax law, a *statutory tax rate* for a firm who gain profit is 25%. While for a firm who gain loss, this rate could not be implemented since their taxable income is zero. Therefore, a *statutory tax rate* in this study is taken from how much tax should be paid by the firm taxpayers.

Since taxes paid different between firm who gain profit and firm who gain loss, consequently this situation affect to 3 categories of delta ETR:

- First Category (Y=0) ; this category occurred when ETR gained from Overpayment Tax Return lower than *statutory tax rate*. This circumstance happened when firms gained profit, but their ETR lower than 25%. Another condition is when firms gained loss, but their ETR was negative. In this study, this category named as **aggressive**.
- The second category (Y=1) ; this category occurred when ETR gained from Overpayment Tax Return equal to a *statutory tax rate*. This circumstance happened when firms gained profit, and their ETR reach 25%. Another condition is when firms gained loss, and their ETR was zero. In this study, this category named as **neutral**.
- Third Category (Y=2), this category occurred when ETR gained from Overpayment Tax Return higher than a *statutory tax rate*. This circumstance happened when firms gained profit, and their ETR higher than 25%. Another condition is when firms gained loss, but their ETR positive. In this study, this category named as **not aggressive**.

In this study, *Effective Tax Rate* (ETR) is a ratio of *taxes paid* to *pretax accounting income* in one fiscal year. These data gathered from form 8A-1 to 8A-8 in the special attachment of tax return and attachment 1 of a tax return. To calculate the level of ETR, we follow the estimation in Debacker et al.(2015).

The main independent variable of this study is auditxp. This variable is dummy which takes value 1 if the firm had been audited before submitting Overpayment Tax Return, and 0 otherwise. This data collected from Tax Assessment data.

The second independent variable of this study is auditnopen. This variable is dummy which takes value 1 if the firm had been audited and the result from the audit detected a violation but not followed by a penalty for noncompliance, and 0 otherwise. This data collected from Tax Assessment data.

The third independent variable of this study is auditpen. This variable is dummy which takes value 1 if a firm had been audited and the result from the audit detected a violation then followed by a penalty for noncompliance, and 0 otherwise. This data collected from Tax Assessment data.

Lntotalasset describes the size of the firm obtained from the natural logarithm of the total assets reported by the Taxpayer in the special attachment of tax return. The use of logarithm itself is to simplify estimations since asset values can reach billions or even trillions in rupiahs (Lanis & Richardson, 2012). Total asset / asset value data obtained from form 8A-1 to 8-A8 in the special attachment of tax return. Debacker et al. (2015) and Lanis and Richardson (2007, 2012) also used this variable as a control variable in their studies.

Lamaterdaftar is the age of firm registered on DGT as a taxpayer, while lamaterdaftarsq is a square of lamaterdaftar as an interaction variable. It describes the period of firm taxpayer registered in DGT's administrative and system. This variable calculated by subtracting the year when Firm Taxpayer submitted Overpayment Tax Return with the year when firm firstly registered in DGT's system as a taxpayer.

PMAfirm is a dummy variable valued 1 when a firm is a foreign-owned firm and 0 otherwise. This data gathered from main form and attachment 5 of a tax return. Philips (2003), Dyreng, Hanlon and Maydew (2008, 2010) and Lanis and Richardson (2007,2012) used this variable as a control variable in their studies.

The last variable is year dummy and business category dummy. Year dummy represents each year from 2011 to 2016. While business category dummy represents business sector category based on taxpayers' Bussiness Classification (KLU) adopted from classification made by Indonesia's Central Bureau of Statistics (BPS). In this study, we simplify this classification from 21 sectors into 11 sectors.

Data

The object of this study is all populations of Annual Overpayment Tax Return (AOTR) from 2011 to 2016. In total, there are 24,921 AOTR as an object of this study. The number of AOTR is not the same every year. The most observations is in 2015 with 7,760 AOTR, while the least in 2014 with 1,087 AOTR.

Table 1
Data

Variable	Definition	Formula	Source
DETR	difference between ETR obtained from Overpayment Tax Return and statutory tax rate	ETR-*statutory tax rate*	Main form and attachment of AOTR
Auditxp	*dummy audit experience*	1 for audited firms, 0 otherwise	Notice of Tax Assessment
Auditnopen	*dummy* audit result without *penalty*	1 for audit without a penalty, 0 otherwise	Notice of Tax Assessment
Auditpen	*dummy* audit result with *penalty*	1 for audit with a penalty, 0 otherwise	Notice of Tax Assessment
lntotalasset	Natural logarithm of total asset	Natural logarithm of total asset	Attachment of AOTR
lamaterdaftar	age of firm registered on DGT as a taxpayer	Year submitting AOTR-Year Registered as taxpayer	AOTR
lamaterdaftarsq	Square of lama terdaftar	Square of lama terdaftar	AOTR
PMAfirm	*dummy* status for foreign-owned *firm*	1 for foreign-owned firm, 0 otherwise	AOTR
Year	*dummy for year of observations*	1 for every year of observations	AOTR
Kategori	*dummy* of bussiness classification	1 for every bussiness clasifications	AOTR

Source from processed data by author

All data in this study obtained from the main form and attachment of Annual Tax Return combined with data from Notice of Tax Assessment for every audited taxpayer in one fiscal year. Years 2011 to 2016 was chosen because based on information from the Directorate of Technology and Tax Information, DGT, data for 2011-2016 is digital data whose validity can be accounted for. According to tax regulations, these data are confidential. Hence, the identity of the Taxpayer and the Taxpayer Identification Number (NPWP) cannot be displayed in this study.

The data used in this study are earning/income before tax, net income, taxable income, taxes owed, total asset value and other data obtained from the main form and attachments of AOTR combined with data from Notice of Tax Assessment.

RESULT AND DISCUSSION
Descriptive Statistic

Observation in this study is 24.921 AOTR from 2011 to 2016. There are 13.281 observations have negative DETR, 6.198 have zero DETR and 5.442 have positive DETR. The year 2015 and 2016 are the years with the most AOTR, while the year 2014 is the year with the least AOTR.

Table 2
DETR

Year	DETR			Total
	(Y=0)	(Y=1)	(Y=2)	
2011	1,499	825	772	3,096
2012	1,365	774	782	2,921
2013	1,187	689	791	2,667
2014	696	240	151	1,087
2015	4,174	1,955	1,631	7,760
2016	4,360	1,715	1,315	7,390
Total	**13,281**	**6,198**	**5,442**	**24,921**

Source : Data from AOTR, DGT, had been processed

There are two status, profit and loss, from each of AOTR in this study. This status is important to determine how much tax that firm taxpayers should pay. Under Indonesian tax regulation, a 25% rate as a statutory tax rate is imposed on firm taxpayers who gain a profit. For firm taxpayers with loss status, since their taxable income is zero, this rate cannot be applied. There are 9,711 AOTR with loss status and 15,210 AOTR with profit status. In every year of observations, the numbers of AOTR with profit status are more than AOTR with loss status.

Table 3
Profit/Loss Status in AOTR

Year	Profit	Loss	Total
2011	1,242	1,854	3,096
2012	1,154	1,767	2,921
2013	1,208	1,459	2,667
2014	382	705	1,087
2015	3,127	4,633	7,760
2016	2,598	4,792	7,390
Total	9,711	15,210	24,921

Source : Data from AOTR, DGT, had been processed

As mentioned before, there are 10 variables in this study with DETR as a dependent variable and 9 others as independent variables. The non-dummy variables in this study are lntotalasset, lamaterdaftar and lamaterdaftarsq. The mean of lntotalasset is 23,66, while its maximum value is 33,41 and minimum value is 10,67. The mean of lamaterdaftar is 12,61 with maximum value 116 and minimum value is zero (0).

Table 4
Descriptive Statistic of Non-Dummy Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
lntotalasset	24,921	23.66026	2.925212	10.67265	33.40976
lamaterdaftar	24,921	12.61322	10.56986	0	116
lamaterdaftarsq	24,921	270.8108	756.3773	0	13456

Source : Data from AOTR, DGT, had been processed

The dummy variables in this study are auditxp, auditnopen, auditpen and PMAfirm. The number of taxpayers audited before submitting AOTR is 6,931 taxpayers. The number of taxpayers who are audited with a non-penalty result is 3,206. While the number of taxpayers audited with the result followed by penalty is 1,120. The number of a firm with foreign-owned status is 2,983 firm taxpayers.

Table 5
Descriptive Statistic of Dummy Variables

Year	auditxp		auditnopen		auditpen		PMAfirm	
	0	**1**	**0**	**1**	**0**	**1**	**0**	**1**
2011	2,165	931	2,678	418	2,960	136	2,472	624
2012	2,085	836	2,535	386	2,792	129	2,359	562
2013	1,807	860	2,270	397	2,500	167	2,174	493
2014	900	187	1,003	84	1,061	26	1,016	71
2015	5,537	2,223	6,727	1,033	7,389	371	7,076	684
2016	5,496	1,894	6,502	888	7,099	291	6,841	549
Total	**17,990**	**6,931**	**21,715**	**3,206**	**23,801**	**1,120**	**21,938**	**2,983**

Source : Data from AOTR, DGT, had been processed

Trade and Processing Industry are the most dominant observations with the number of 8,940 and 6,895 observations respectively. These two sectors are the most widely registered in DGT's database. Utility and others business classification are the least with the number of observations are 171 and 25 observations respectively.

Table 6
Observation Distribution by Business Classification

Bussiness Classification	Year						Total
	2011	2012	2013	2014	2015	2016	
Agriculture	83	137	129	28	288	200	865
Mining	81	84	83	37	143	118	546
Processing Industry	1,114	1,147	1,061	191	1,839	1,543	6,895
Utility	12	14	15	10	52	68	171
Construction and Real Estat	119	135	116	128	635	697	1,830
Trade	882	851	720	472	3,032	2,983	8,940
Transportation and Accomodation	118	103	131	58	373	413	1,196
Information and Communication	107	62	52	15	215	183	634
Financial Services and Insurance	293	213	194	34	389	408	1,531
Services	285	175	164	112	787	765	2,288
Others	2	0	2	2	7	12	25
Total	3,096	2,921	2,667	1,087	7,760	7,390	24,921

Source : Data from AOTR, DGT, had been processed

Regression Result

As mentioned before, there are 10 variables in this study with DETR as a dependent variable and the others as independent variables. To control for other effects on DETR, we include 6 control variables from the previous literature. The limitation of this study is that we could not obtain all of the control variables from the previous study. We have only used data that could be obtain from AOTR, so it would be difficult to estimate another control variables from other sources.

Past audit experience, would encourage firm taxpayers to choose zero DETR (Y=1). The probability of taxpayers which had been audited previously to choose zero DETR will increase by 5.76% ($\alpha = 1\%$). While the probability of choosing a negative DETR (Y = 0) and positive DETR (Y = 2) will decrease by 1.95% ($\alpha = 10\%$) and 3.8% ($\alpha = 1\%$) respectively. In other words, audit experience in the past would encourage taxpayers to be more neutral. This is consistent with Niu (2011) and D'Agosto et al. (2017) studies who found that audit experience in the past has a negative effect on tax aggressiveness. Despite submitted AOTR, taxpayers tend to reduce their tax aggressiveness if they had been audited previously.

Taxpayers who had been audited with problem detection but not followed by penalty would prefer a positive DETR (Y = 2). The probability to choose a positive DETR would increase by 5.53% ($\alpha = 1\%$). While the probability to choose zero DETR (Y = 1) would decrease by 6.31% ($\alpha = 1\%$). Or it could be said that an audit which detects a problem would still encourage taxpayers to be less aggressive. This is consistent with Niu (2011), Debacker et al. (2015) and D'Agosto et al. (2017) studies who found that audits can have a negative

impact on tax aggressiveness. Thus, it can be concluded that if audit had been held right before taxpayers submitted AOTR and resulted in problem detection, would encourage taxpayers to be less aggressive even if it is not followed with a penalty.

Table 7
Multinomial Logit Regression

VARIABLES	Y=1	Y=2
auditxp	0.272***	-0.153***
	(0.0512)	(0.0581)
auditnopen	-0.267***	0.268***
	(0.0656)	(0.0688)
auditpen	-0.118	0.263***
	(0.0906)	(0.0905)
lntotalasset	0.0635***	0.300***
	(0.00696)	(0.00813)
lamaterdaftar	-0.0211***	-0.0101***
	(0.00282)	(0.00298)
lamaterdaftarsq	0.000191***	9.08e-05**
	(3.63e-05)	(3.83e-05)
PMAfirm	-0.159***	0.425***
	(0.0554)	(0.0500)
2012	0.00658	0.0315
	(0.0642)	(0.0670)
2013	0.00809	0.0515
	(0.0666)	(0.0679)
2014	-0.378***	-0.497***
	(0.0889)	(0.106)
2015	-0.0955*	-0.0752
	(0.0532)	(0.0570)
2016	-0.242***	-0.274***
	(0.0539)	(0.0584)
Mining	0.778***	-0.0418
	(0.135)	(0.141)
Processing Industry	0.660***	0.165*
	(0.0975)	(0.0861)
Utility	-0.125	-0.558**
	(0.216)	(0.240)
Construction&RE	-0.466***	-0.353***
	(0.117)	(0.116)
Trade	0.209**	0.0159
	(0.0980)	(0.0876)
Trans&Accom	0.302***	0.0719
	(0.117)	(0.112)
Info&Com	0.364***	0.110
	(0.134)	(0.137)
Financial Serv&Ins	-1.373***	-1.265***
	(0.131)	(0.112)
Services	0.214**	-0.0826
	(0.107)	(0.104)
Others	-0.287	1.405***
	(0.660)	(0.456)
Constant	-2.160***	-7.963***
	(0.197)	(0.223)
Observations	24,921	24,921

Source : Data from AOTR, DGT, had been processed

Notes : * significant on 10%

** significant on 5%

*** significant on 1%

Table 8
Marginal Effect

	(Y=0)	(Y=1)	(Y=2)
auditxp	-0.0195*	0.0576***	-0.0380***
	(-1.94)	(6.70)	(-4.65)
auditnopen	0.00777	-0.0631***	0.0553***
	(0.62)	(-5.75)	(5.75)
auditpen	-0.0106	-0.0358**	0.0464***
	(-0.62)	(-2.37)	(3.70)
lntotalasset	-0.0373***	-0.00485***	0.0421***
	(-29.71)	(-4.23)	(38.50)
lamaterdaftar	0.00286***	-0.00257***	-0.000289
	(7.12)	(-6.93)	(-0.93)
PMAfirm	-0.0212**	-0.0520***	0.0731***
	(-2.11)	(-5.65)	(10.71)
2012	-0.00394	-0.000652	0.00459
	(-0.32)	(-0.06)	(0.47)
2013	-0.00612	-0.00159	0.00770
	(-0.48)	(-0.14)	(0.77)
2014	0.0961***	-0.0431***	-0.0530***
	(5.66)	(-2.91)	(-3.80)
2015	0.0196*	-0.0134	-0.00622
	(1.92)	(-1.44)	(-0.75)
2016	0.0578***	-0.0294***	-0.0283***
	(5.58)	(-3.14)	(-3.37)
Mining	-0.106***	0.156***	-0.0504***
	(-3.95)	(6.26)	(-2.65)
Processing Industry	-0.104***	0.116***	-0.0118
	(-5.95)	(7.52)	(-0.91)
Utilitity	0.0731*	0.00198	-0.0751**
	(1.83)	(0.06)	(-2.49)
Construction&RE	0.0909***	-0.0545***	-0.0364**
	(4.35)	(-3.20)	(-2.13)
Trade	-0.0273	0.0352**	-0.00788
	(-1.56)	(2.31)	(-0.59)
Trans&Accom	-0.0453**	0.0494***	-0.00408
	(-2.10)	(2.59)	(-0.24)
Info&Com	-0.0575**	0.0590***	-0.00156
	(-2.25)	(2.61)	(-0.07)
Financial Serv&Ins	0.257***	-0.128***	-0.128***
	(13.60)	(-8.12)	(-9.10)
Services	-0.0179	0.0413**	-0.0234
	(-0.91)	(2.41)	(-1.51)
Others	-0.183**	-0.107*	0.289***
	(-2.09)	(-1.87)	(3.23)
N	24921	24921	24921

Source : Data from AOTR, DGT, had been processed
Notes   :   * significant on 10%
** significant on 5%
*** significant on 1%

Taxpayers who had been audited with problem detection and followed by penalty would prefer a positive DETR (Y = 2). The probability to choose a positive DETR would increase by 4.64% (α = 1%). While the probability to choose zero DETR (Y = 1) would decrease by 3.58% (α = 1%). Or it could be said that an audit which detects a problem and followed by penalty would encourage taxpayers to be less aggressive. This is consistent with Niu (2011), Debacker et al. (2015) and D'Agosto et al. (2017) studies who found that audits could have a negative impact on tax aggressiveness.

Lntotalasset has a negative effect on tax aggressiveness. From our model, it could be interpreted that every 1% increase in the assets, the probability of taxpayers to choose positive DETR would increase by 4,21% (α=1%). While the probability to choose negative DETR (Y=0) and zero DETR (Y=1) would decrease by 4,85% (α=1%) and 3,73% (α=1%) respectively. This is consistent with Debacker et al. (2015) study who found that firm with larger assets tends to decrease tax aggressiveness. In other words, a larger firm has a higher probability to be less aggressive.

Lamaterdaftar has a positive effect on *tax aggressiveness*. It could be interpreted from our model that every additional year for this variable, would increase the probability of taxpayers to choose negative DETR (Y=0) by 0,29%(α=1%). While the probability to choose zero DETR (Y=1) and positive DETR (Y=2) would decrease by 0,26%(α=1%) and 0,029%(α=1%) respectively. The long the firm registered in tax administration as taxpayer, the higher its probability to be aggressive. It is possible for the firm to know more about the gray area of the tax law and took advantage on it.

PMAfirm also has a negative effect on *tax aggressiveness*. It could be interpreted that foreign-owned firms would increase its probability to choose positive DETR by 7,31%(α=1%). While the probability to choose negative DETR (Y=0) and zero DETR (Y=1) would decrease by 2,12%(α=5%) and 5,2%(α=1%) respectively. This is consistent with Debacker et al. (2015) study who found that foreign-owned status has a negative effect on tax aggressiveness. In other words, foreign-owned firms tend to be less aggressive.

In dummy year variables, it could be seen that there is a tendency from the firms to be more aggressive by choosing a negative DETR (Y=0) in 2014, 2015 and 2016. It is possible to happen since the government issued Peraturan Pemerintah Nomor 46 Tahun 2013 (PP 46) that change the tax rate for the firm, whose gross sales not more than 4,8 billion rupiahs, from 25% of profit to 1% of gross sales. Besides that, DGT also issued the rules about the removal of administrative penalty in Tax Assessment Letter in 2015.

There ia a certain tendency of firms in same bussiness category/classification to choose certain level of DETR. Utility;Construction and Real Estate;Financial Services and Insurance classifications tend to be aggressive by increasing their probabilities to choose negative DETR (statistically significant). There is special treatment for those category in taxation. For example, almost all of construction taxes are the final tax. Meanwhile, mining, processing industry, trade, transportation, accomodation, information and communication sector tend to be neutral (statistically significant). The others sector are less aggressive (statistically significant).

CONCLUSIONS

This study found that previous audit experience before taxpayers submitted AOTR has a negative effect on *tax aggressiveness*. It could be concluded from our model that audit experience would encourage taxpayers to choose positive DETR (Y=2). Even though

taxpayers know that based on the taxation regulations in Indonesia every AOTR automatically becomes the object of the audit, but actually taxpayers tend to reduce their tax aggressiveness if they had been audited previously.

We also find that tax audit resulted in detection would encourage taxpayers to reduce their *tax aggressiveness*. It could be concluded, audit resulted in detection whether followed by penalty or not, gives positive impact to tax compliance. This thing corresponds to Allingham and Sandmo (1972) theory where tax compliance determined by the perception from the taxpayer of two factors, the probability of being audited and *penalty* for their non-compliant.

For DGT, as tax authority in Indonesia, this study could give a description to understand how effective audit strategy that had been conducted to increase firms' tax compliance. We found the fact that after being audited, firms usually decrease their tax aggressiveness even if the firm submits AOTR. We hope that this study could help DGT to update their audit strategy.

This study has several weaknesses that can provide an opportunity for further study in the future. The first one is the time range of observation. This study limits its time range of observation only from 2011 to 2016. The subsequent study can add the time range and even try other methods or analytical tools that are different from this study. The second one is the limitation of control variables. It is better for the next study can add control variables or change the method of estimating variables to get a better result, especially variables that can be obtained from the elements of financial statements. But on top of that, future study should not underestimate the role of the audit in the study of tax compliance (Niu, 2011).

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