

Determinants of Effective Tax Rate of the Top 45 largest listed companies of Indonesia

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Abstract- *The capital inflows and outflows of a country are closely related to the established tax rate policy. Tax rate is one of important factors in investment decisions. Evidence that there are variations in effective tax rates amongst firms draw attention of researchers to understand the impact of tax policies on corporate tax burdens (Gupta and Newberry, 1997[5]; Molloy, 1998)[12]. Effective tax rate is a dependent variable that is commonly used as a proxy to measure corporate tax burden. This study examined corporate effective tax rates (ETRs) of the top 45 largest listed companies of Indonesia within 2009-2014 (after tax reform of 2008, to be exact). We used two types of ETR1 and ETR2 measures as dependent variables. The first type is the ratio of current income tax expense divided by income before interest and taxes and the second type is the ratio of total income tax expense (current tax expense plus deferred tax expense) divided by income before interest and taxes (Noor et al. 2008)[13]. We also used some of independent variables related to firms' characteristics, such as firm size, capital intensity, leverage, returns on assets, and inventory intensity. The statistical results reveal that all independent variables contributed to ETR1 and ETR2 except the capital intensity is not contributed to ETR2. However, the findings provide support for the tax policy on corporate actual tax burdens.*

Keywords- *Corporate effective tax rates; tax burdens; tax policy; firms' characteristics.*

1. INTRODUCTION

Tax reform undertaken by the Indonesian government reached its climax at the ratification of income tax law draft in 2008 by the House of Representatives (Dewan Perwakilan Rakyat). One of the significant changes was in the application of the one standardized corporate tax rate of 28% for 2009 and 25% for 2010 and the following years. This was in contrast to corporate tax rates which had applied before, namely the progressive rates of 10% for taxable income of up to IDR 50 million, 15% for IDR 50 million up to IDR 100 million and 30% for more than IDR 100 million of taxable income. The Directorate General of Taxation and the House of Representatives argued that the proposed implementation of a single rate would make the climate investment in the country more competitive and facilitate officers in conducting tax surveillance.

Taxes are the most important factor for state finances to ensure the sustainability of national development without being dependent on natural resources and foreign aid. This implies that an effective tax system will be able to move the wheel of development without depending on external aid and natural resources. It can not be imagined how the state's financial condition would be without the contribution of taxes as the main source of income for the state finances. Development can not be executed if the source of funding is not available.

Corporate tax rate is used as an instrument of fiscal policies. Moreover, the main agenda of government is all about the establishment of the statutory tax rate. According to popular belief, taxes are important and crucial sources of state's revenues to develop their public policies. However, the acts to increase statutory taxes are often constrained by other vital aspects such as the relevance of corporate taxation to attract foreign investment (Ribeiro et.al. 2015)[16].

Taxes are extremely significant elements for firms' strategic decisions. As well documented by Graham (2003)[4] effective tax rates can affect corporate managerial system, including decision making and other related aspects such as capital structure, payout policy and risk management. A study about factors that determine and influence effective tax rate will provide benefits for investors, managers and shareholders because it can contribute to potential corporate tax savings. In addition, policy makers have a crucial interest in identifying the main factors that trigger corporate taxes. Effective tax rate is a dependent variable that is commonly used as a proxy to measure corporate tax burden.

The main purpose of firms' activity is focusing on the creating wealth for its owners. Therefore, any actions towards minimization of tax burdens support that objective. Based on this perspective, we want to examine whether firms' specific characteristics are determinants of effective tax rates or not. ETRs become an interesting

discussion material to briefly show the effectiveness of tax planning and tax incentives in an easy calculation. The influence of firms' specific characteristics on ETRs has caught many researcher's attention (Gupta and Newberry, 1997[5]; Desai and Dharmapala, 2006[2]; Dyreng et al., 2008[3]; Hanlon et al., 2010[7]; Minick and Noga, 2010[11]; Armstrong et al. 2012)[1]. We do expect those variables mentioned above were related to firms' tax expense.

Furthermore, to look at the factors that influence the ETRs variation among companies, we used several independent variables related to characteristics of the firm, for instance company size, capital intensity, leverage, return on assets, and inventory intensity. The statistical results reveal that all independent variables contributed to ETR1. Meanwhile, all independent variables contributed to ETR2 except the capital intensity. However, the finding provides support for the tax policy on corporate actual tax burdens.

The rest of this paper is organized as follows. Section 2 is an overview of Indonesian corporate tax system. Section 3 discusses the literature review related to this study. Section 4 describes the research design and data collection conducted. Section 5 contains the analysis of the findings and the last section summarizes and concludes the main results.

2. THE INDONESIAN CORPORATE TAX SYSTEM: AN OVERVIEW

Corporate tax system in Indonesia is a self assessment system which means taxpayers are trusted to calculate, deposit and report the taxes to the state by themselves. On the other hand, there's also a cutting system (*withholding system*). This withholding system is the easiest way for government to levy taxes, where the taxes will be collected by the third party. In this way the government does not need to waste a large amount of money just to levy taxes. Income tax is calculated by multiplying the income tax rate by the amount of taxable income. The income tax structure is simplified in order to encourage the growth of small and medium enterprises. The government facilitates the enterprises to grow more rapidly by performing tax cut.

Basically, the rate of corporate income tax is subject to a single rate of 28%. This rate was valid in 2009 and then reduced to 25% in 2010. The 25% effective corporate tax rate was effective for 2010 and beyond. This rate applies to the resident taxpayer and the permanent establishment. This rate is applied to corporate taxpayers in the form of public corporations that entitled to a tax cut of 5% off the standard rate. To be eligible for the tax cut facility benefit, corporate taxpayers have to provide at least 40% of their total shares to be traded on the Indonesia stock exchanges

and it must be owned by at least three hundred parties. Each party is allowed to own not more than 5% (five percent) of the total issued and fully paid shares.

Taxpayers of domestic entity with a gross turnover of up to IDR 50 billion are entitled to a 50% discount of the standard tax rate which is imposed proportionally on taxable income of the gross turnover up to IDR 4.8 billion. Certain enterprises with gross turnover of less than IDR 4.8 billion are subject to final income tax of 1% of turnover.

The calculation of taxable business profits are based on normal accounting principles as modified by certain tax adjustments. A deduction granted for all expenditures incurred to obtain, collect, and maintain taxable business profits. A timing deference may arise if an expenditure written as an expense for accounting cannot be claimed as a deduction for tax immediately.

3. LITERATURE REVIEW

The management has raised concern on the issue of corporate tax, which is relevant to corporate business decisions. This income tax should be a potential consideration in managerial financial decisions (Graham, 2003)[4]. Corporate tax absolutely affects firms' performance. Therefore, there are too many ways to reduce the corporate tax burden. Many literature have been developed to investigate effective tax rate (Dyreng et al., 2008[3]; Minick and Noga, 2010[11]; Armstrong et al., 2012[1]; Vieira, 2013[19]; Kraft, 2014)[9].

In reality, the corporate tax expense can be categorized as current tax expense and deferred tax. Current tax expense is obtained by multiplying the prevailing tax rate to the amount of taxable income and deferred tax expense incurred due to the temporary differences in the timing of revenue and expense recognition. This is due to the difference between commercial and fiscal accounting systems. In an effort to reduce the tax burden in a legal way, managers can took advantage from this gap (Ribeiro et al. 2015)[16].

Some of independent variables related to the firms' characteristics, for instance firms' size, capital intensity, leverage, return on assets, and inventory intensity create variation in ETRs across companies. There are several research projects, which are supporting and arguing this statement. First, Stickney and McGee (1982)[18] agree that capital intensity and leverage create variation in ETRs across companies, but also argue that foreign operations and size are less important determinants of ETRs. Second, Wilkie (1988)[20] states that pre-tax income is essential to determine the variation in corporate tax burdens. Last but not least, Gupta (1977)[5] supports capital structure and return on assets were crucial determinants for corporate ETRs.

Gupta and Newberry (1997)[5] documented a negative relation between ETRs and leverage, and between ETRs and capital intensity. Hsieh (2011)[8] found a conflicting result on relationship between ETR and firm size. There are three possible associations, positive association by Zimmerman (1983)[21], negative association by Porcano (1986)[14] and no association based on studies by Stickney and McGee (1982)[18] and Shevlin and Porter (1992)[17]. Other studies argued that greater resources will impact the larger firms to have lower ETR (Rego, 2003[15]; Hanlon, 2003[6], Desai and Dharmapala, 2006[2]). Larger firms also pay less tax because they devoted more efforts to tax planning and political lobbying.

4. DATA AND ESTIMATION MODELS

4.1 Data Introduction

The target population of this study is the companies of Indonesia listed in LQ-45 index which have high liquidity shares and market capitalization. The data required to conduct this study are from financial statements within 2009 to 2014. Based on the sampling criteria we selected 15 firms as samples. Thus, there are 90 firm-years observations. We used these samples for models estimation.

4.2 Estimation Models and Variable Definitions

Previous researchers have used different ETRs measures. Gupta and Newberry (1997)[5] and Rego (2003)[15] are examples that used the current tax expense as a numerator. This total tax expense consists of current tax expense and deferred tax expense. When deferred tax expense used as a numerator, it will produce more accurate results because deferred tax expense reflects the effect of the firm's characteristics. The denominator of ETRs is earnings before interest and taxes.

In line with Noor et al (2008)[13], two types of effective tax rate measures are used as the dependent variable. First, the ETR1 defined as the ratio of current tax expense relative to earnings before interest and taxes. Second, ETR2 defined as the ratio of total tax expense (current tax expense plus deferred tax expense) relative to earnings before interest and taxes. The first independent variable is firms' size measured as natural logarithm of total assets. Firm size is often used as variable in various study about effective tax rates (Gupta and Newberry, 1997[5]; Minnick and Noga, 2010[11]; Vieira, 2013[19]). To assess the effect of borrowing costs on tax expense, we use leverage measured as long-term debt divided by total

assets. The capital and inventory intensity as part of the assets structure be able to reduce tax burdens due to depreciation deductibility and higher or lower proportion of stocks. Capital intensity is the ratio of fixed assets relative to total assets and inventory intensity is the ratio of inventories relative to total assets. Firms' profitability as explanatory variable of ETRs, we used return on assets defined as the ratio of pre-tax income to total assets.

For data analysis in this study, we use general multiple regression model. The ETR model is estimated for ETR1 and ETR2, as follows:

$$ETR_t = \beta_0 + \beta_1 SIZE_t + \beta_2 LEV_t + \beta_3 CAPINT_t + \beta_4 ROA_t + \beta_5 INVINT_t + \varepsilon_t$$

Notes:

ETR : ETR 1, ETR 2

ETR 1 : Current income tax expense divided by income before interest and taxes.

ETR2 : Total tax expense divided by income before interest and taxes.

β_0 : Constant

$\beta_1 SIZE$: Firm size measured as log of total assets

$\beta_2 LEV$: Firm leverage measured as long term debts divided by total assets

$\beta_3 CAPINT$: Capital intensity measured as fixed assets divided by total assets

$\beta_4 ROA$: Return on assets measured as pre-tax income divided by total assets

$\beta_5 INVINT$: Inventory intensity measured as inventory divided by total assets

ε_t : an error term

t : firm-years from 2009 to 2014.

5. RESULTS AND DISCUSSION

5.1 Descriptive Statistics

The following Table 1 and Table 2 summarise descriptive statistics for both dependent and explanatory variables for the period of 2009-2014. Table 1 presents descriptive statistics for both ETR measures. The mean for ETR1 is 26.46%, and ETR2 is 27.05%. The mean for both ETR measures is higher than the statutory tax rate. This study found that the mean for ETR2 is slightly higher than ETR1. This is due to the provision of future tax liability which is included in the tax expense of ETR2. The standard deviation for ETR1 of 7.36% and ETR2 of 10.94% reveal considerable variations in ETRs among companies in the sample for both ETR measures. Table 2 tabulates descriptive statistics for various determinants of corporate ETRs.

Table 1: Descriptive Statistics for Years of 2009 - 2014

	ETR1	ETR2
Mean	26.46	27.05

Standard deviation	7.36	10.94
Maximum	51.50	77.00
Minimum	15.20	15.10
Firm years	90	90

Note: Variable definitions are as follows:

ETR1 = current income tax expense / income before interest and taxes

ETR2 = total tax expense (current income tax expense plus deferred tax expense) /income before interest and taxes

Table 2: Descriptive Statistics for ETR Determinants for Years of 2009 - 2014

Variables	Firm-years	Minimum	Maximum	Mean	Std. Deviation
SIZE	90	28.987	33.095	30.84823	.967747
LEV	90	.133	.759	.37952	.153881
CAPINT	90	.055	.755	.33234	.167983
ROA	90	.043	.597	.23101	.123553
INVINT	90	.000	.486	.11057	.109921

Source: data processed

As expected, our sample consisting of LQ-45 index firms total assets present mean value of 30.8; leverage, capital intensity, return on assets, and inventory intensity present mean value respectively of 37.9%; 33.2%; 23.1%, and 11%. Comparison of the minimum dan maximum values of all explanatory variables reveal wide gap of financial ratio among the listed firms. In addition, the standard deviations of all explanatory variables are still below the mean value.

5.2 Regression Results

Table 3 presents the model regression results for various determinants of corporate ETRs. As previously explained, these two tax variables only differ in the numerator's choice. ETR1 is computed by using current tax expense as numerator. Alternatively, ETR2 is calculated using total expense as numerator. Regression coefficient for the variable SIZE evidenced a significantly negative association with ETR1 ($\beta = -.025$, $t = -2.361$) and, as well, with ETR2 ($\beta = -.038$, $t = -2.144$). Therefore, larger firms have lower corporate effective tax rate. These results are

consistent with previous findings of Porcano (1986) [14]. Regarding the influence of firms' leverage on effective tax rate, a positive and significant relationship between LEV and ETR1 ($\beta = .192$, $t = 3.494$) is found. We also find a positive and significant relationship between LEV and ETR2 ($\beta = .296$, $t = 3.314$). The reason for this finding is that firms facing a higher tax rate will have more debt, in order to maximize the effect of the tax savings provided by interest payments. Further, the influence of firms' return on asset and inventory intensity provide negative coefficient estimates and is significant for ETR1 and ETR2, but for the firms' capital intensity it is negative yet significant for ETR1 and insignificant for ETR2. As an effect of depreciation, firms with intensive capital asset will have lower income burdens. A high profitable firm will explain the negative association between ROA and ETRs. Meanwhile, the inventory turnover will explain the association between inventory intensity & ETRs, because the companies have the tax incentive benefits that give them the ability to avoid tax.

Table 3: Model Regression Results

Variables	ETR1 Coefficient (t-stat)	ETR2 Coefficient (t-stat)
SIZE	-.025 [-2.361]	-.038 [-2.144]
LEV	.192 [3.494]	.296 [3.314]
CAPINT	-.099 [-2.214]	-.088 [-1.213]
ROA	-.193 [-2.647]	-.284 [-2.397]
INVINT	-.470 [-6.163]	-.516 [-4.171]
Adjusted R-squared	.305	.172
Firm (Firm-years)	15(90)	15(90)

Note: Significant at the 5%-level

6. CONCLUSIONS

This study examines the determinants of the variability in corporate effective tax rates of top 45 largest Indonesian companies. The reason these companies were selected as top 45 is because they represent the most liquid firms across industries. All of top 45 firms are generally subject to a flat tax rate of 25%. Specially, those firms satisfying certain other requirements are entitled to a tax cut of 5% (five percent) off the standard rate, giving them an effective rate of 20%.

To examine the determinants of effective tax rates, our analysis is focused mostly on relation to firms' size, capital intensity, leverage, return on assets, and inventory intensity. In order to examine what affects ETRs we use a sample of 15 firms of top 45 largest listed companies of Indonesia with 90 firm-years observation during the period of 2009-2014.

The results of this study reveal that larger firms have lower ETRs. These results approve Porcano's (1986)[14] observation of a negative association. The study also found a positively significant relationship between leverage and both ETRs. Thus, the positive relationship indicates that highly leveraged firms face higher income tax burdens. But the study also finds a negatively significant relationship between return on assets and both ETRs, inventory intensity and both ETRs. Thus, the negative relationship indicates that firms with highly return on assets, and inventory intensity face lower income tax burdens.

Regarding the influence of firms' capital intensity on effective tax rate, this study finds a negatively significant relationship between CAPINT and ETR1, conversely a negative and insignificant relationship between CAPINT and ETR2. Firms with a more capital-intensive assets structure evidence lower income tax burdens due to the effect of depreciations. The reason for a negative significant relationship between return on assets and ETRs, inventory intensity and ETRs indicates that highly profitable and inventory turnover companies are able to avoid tax through the tax incentives benefit.

However, this study adds some insights to the former literature by providing evidence about what and how they affect and determine effective tax rates. In fact, the variability in corporate ETRs among companies may probably be due to tax avoidance behavior through tax planning. This study also provides recommendations to Indonesian's tax authorities for tax audit and investigation exercise in order to minimize undue tax avoidance.

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