Long Run Corporate Tax Avoidance and Firm Value: Evidence from Indonesia

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Keywords: Long Run Corporate Tax Avoidance, Firm Value, Risk Minimisation.

Abstract: This study examines the level to which corporate tax avoidance activity is valued by investors in a large sample of Indonesian firms. The risk minimization perspective of corporate tax avoidance suggest that such activities, especially aggressive tax strategies may diminish the firm values, as investors consider them as risky strategies. Under cash flow maximization perspective, however, corporate tax avoidance is considered as a value-enhancing activity as it may increase firm value through tax saving. Based on a sample consisting of 1,023 firm-year observations, made up of 244 unique firms over the period 2006-2015, I find that the tax avoidance strategies – proxied by long run GAAP effective tax rates and cash effective tax rates – are negatively associated with firm value, which lends credence to the risk minimization motive. My inferences still hold after controlling year and industry-fixed effect and a propensity score matching (PSM) test.

1. INTRODUCTION

This paper investigates the association between corporate tax avoidance and firm value in a large sample of Indonesian firms. The study distinct to other studies in Indonesian setting based on at least three reasons. First, a three year (i.e., long run) corporate tax avoidance measure is used instead of an annual measure. Previous studies suggest the long run corporate tax avoidance measures generally capture different aspects of a firm's tax avoidance behavior than the short run measures (e.g., Dyreng et al., 2008; Guenther et. al., 2016). Specifically, corporate long run tax avoidance proxies encapsulate the evolution of firms' tax avoidance strategies over a longer horizon, which allows researchers to better capture the cross-sectional variation in tax strategies, as tax strategies generally require time to take shape (Hanlon & Heitzman, 2010). Second, I utilize the cash taxes paid measure as a proxy of corporate tax avoidance to capture the firm's incentives to reduce actual cash taxes paid. Unlike effective tax rate, cash effective tax rate is not biased by changes in tax accounting accruals. Furthermore, the cash measure reflects tax avoidance activities that defer cash taxes paid (i.e., temporary differences) as well as those that directly affect net income (i.e., permanent differences). Finally, in the setting of firm value valuation, the use of a long run corporate tax strategy is more appropriate, as the effect of firm tax strategies in the firm outcomes may not be captured over a short time horizon (Dyreng et al., 2008).

I rely on two competing arguments in explaining the relationship between corporate tax avoidance and firm value. First, under risk minimization perspective, corporate tax avoidance especially aggressive strategies could diminish the firm value, as investor consider this strategy as risky. As documented by prior studies, corporate tax avoidance may increases firm risk, imposes reputational costs and leads to adverse capital market consequences such as reduced firm value and increased cost of capital (e.g., Dhaliwal et al., 2016; Hutchens & Rego, 2012; Kim et al., 2011). Second, under cash flow maximization perspective, corporate tax avoidance is considered as a beneficial activity and which may increase firm value in the future. Consistent with this notion, Goh et. al. (2016) find that equity investors demand a lower expected rate of return due to the positive cash flow effects of corporate tax avoidance. Using a sample of Indonesian firms from 2006 to 2015 and a cross-sectional regression framework, which regresses a proxy of firm value on two measures of long run corporate tax avoidance – along with relevant firm

Soepriyanto, G.
Long Run Corporate Tax Avoidance and Firm Value: Evidence from Indonesia.
In *Proceedings of the Journal of Contemporary Accounting and Economics Symposium 2018 on Special Session for Indonesian Study (JCAE 2018) - Contemporary Accounting Studies in Indonesia*, pages 267-275
ISBN: 978-989-758-339-1

explanatory variables, I find that a firm engages in more tax avoidance activities is associated with lower firm value, which lends credence to risk-minimization perspective. My study is important to investors who presumably evaluate the extent of corporate tax avoidance when making investment decisions. The results from this study may help investors infer the extent and nature of long run tax avoidance a firm engages in.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Corporate tax avoidance can be broadly defined as the reduction of taxes. Hanlon and Heitzman (2010) define corporate tax avoidance as a continuum of tax planning strategies with perfectly legal and low-risk strategies at one end and other strategies that entail tax evasion or tax sheltering at the other end. Given the broad range of strategies available to firms, managers may also have to decide on whether they opt for more aggressive or less aggressive forms of tax avoidance. In an attempt to segregate corporate tax avoidance from tax aggressiveness strategies based on firms' tax positions, tax aggressive behavior is defined by Rego and Wilson (2012) as firms being involved in significant tax positions with relatively weak supporting facts. Consistent with this, Guenther et al. (2016) considers a high tax risk firm as a firm with a high degree of uncertainty about future payments of taxes and penalties arising from tax avoidance activities.

Desai and Dharmapala (2009), in investigating the association between corporate tax avoidance and firm value, fail to find any significant overall effect of tax avoidance on Tobin's Q or market-to-book ratio. However, for firms with high levels of institutional ownership (well-governed firms) they find a positive relation between tax avoidance and firm value measures, while for firms with low institutional ownership (poorly governed firms) they find no significant association. Considering institutional ownership as a proxy for governance quality, these results are consistent with agency views, as they indicate a mitigating role of governance on the agency problems related to tax avoidance, which may be reflected in firm value.

In a related working paper, Katz, Khan and Schmidt (2013) indirectly test whether tax avoidance is partly value destroying by examining whether and to what extent it might reduce the future profitability of a firm. They argue that tax savings may either be directed towards positive net present value investments, or be extracted by opportunistic managers. The authors document that current profitability components (i.e., margins, utilizations of assets, and operating leverage) imply a reduced future profitability for tax avoiders when compared to non-tax avoiders.

To examine the association between firm value and long run-corporate tax avoidance, I rely on two competing arguments. First, under risk minimization perspective, corporate tax avoidance especially aggressive strategies could diminish the firm value, as investor consider this strategy as risky. As documented by prior studies, corporate tax avoidance may increases firm risk, imposes reputational costs and leads to adverse capital market consequences such as reduced firm value and increased cost of capital (Dhaliwal et al., 2016; Hutchens & Rego, 2012). Second, under cash-flow maximization perspective, corporate tax avoidance is considered as an advantageous activity and which may increase firm value in the future. Consistent with this notion, Goh et. al. (2016) find that equity investors demand a lower expected rate of return due to the positive cash flow effects of corporate tax avoidance. As a consequence of those two perspectives, my prediction focuses on clarifying the association between firm value and long run corporate tax avoidance. Hence, I formulate my hypothesis in an alternative form but without signed prediction, as follows:

H_A: *Long run corporate tax avoidance is associated with the firm value*.

3. RESEARCH DESIGN

This study employs the following multivariate regression model to test the hypothesis, which examines the association of long run corporate tax avoidance and firm value:

$$Q_{i,t} = \propto + \beta TAV_{i,t} + \gamma_1 ROA_{j,i,t} + \gamma_2 SIZE_{j,i,t} + \gamma_3 LEV_{j,i,t} + \gamma_6 CAPEX_{j,i,t} + \gamma_8 SGA + \gamma_9 RD_{j,i,t} + \gamma_{11} INTAN_{j,i,t} + \varepsilon$$

The dependent variable, *Q*, captures Tobin's q which defined as the market value of equity plus the book value of assets minus the sum of book value of equity and deferred taxes, all divided by the book value of assets. The test variables, *TAV*, captures long run tax avoidance and is based on two different

measures of corporate tax avoidance used in prior literature. Consistent with Dyreng et al. (2008), I employ three-year long-run tax avoidance using GAAP ETRs *(LETR)* and cash ETRs *(LCETR)* as the two measures of long run corporate tax avoidance. To compute the three-year GAAP ETRs, I aggregate a firm's total tax expense over the current period (*t*) and last two-year period (*t-2*) and divide the aggregate tax expense by aggregated total pretax income over the same period, after leaving out special items effects. To calculate three-year cash ETRs, I sum a firm's cash taxes paid over the current period (*t*) and last two-year period (*t-2*) and divide the aggregated cash taxes paid by the sum of its total pretax income, excluding the effects of special items, over the same period. I multiply *LETR* and *LCETR* by -1 so that larger values capture greater corporate tax avoidance. Based on risk-minimization perspective, long-run corporate tax avoidance will increase firm risk profile and therefore will lead to lower firm value. As such, long-run corporate tax avoidance is expected to be negatively associated with firm value. In contrast, under cash flow maximization perspective, long run corporate tax avoidance will increase firm cash saving and prevent a transfer of resource from firm to government. Therefore, under the cash flow maximization perspective, long run corporate tax avoidance is expected to be positively associated with firm value.

Consistent with prior studies (e.g., Bebchuk et al., 2011; Chen et al., 2013), I also control for firm size (*SIZE*- log natural of total assets), leverage (*LEV*-the ratio of the firm's long-term debt to total assets), capital expenditure (*CAPEX*, measured as capital expenditures scaled by gross property, plant, and equipment), *SGA* defined as selling, general, and administrative expenses divided by net sales, *RD* is measured as research and development expense divided by net sales and intangibles (*INTAN*, coded 1 if a firm has intangibles and 0 otherwise). Finally, the empirical model includes controls for year and industry fixed effects. Year fixed effects control for macroeconomic changes in firms' operating environments over time and the industry fixed effects ensure that the results are not driven by differences in industry characteristics.

4. DATA AND SAMPLES

I used the financial statements data from IDX websites to generate data. The samples selection and procedures is demonstrated in Table 1. Panel A of Table 1 outlines the sample selection process for this study. I start with 6,579 observations obtained from IDX website during the period of 2000-2015. I then eliminate all financial institutions and firm using foreign currencies, because prior research suggests that regulated firms are subject to a different set of tax and/or accounting rules (Hanlon, Kelley, & Shevlin, 2005). This reduces the sample to 4,342 firm-year observations. A further 3,319 are excluded because they do not have the data for computing my long-run corporate tax avoidance measures and share price data. Note that, because pre-tax income can be negative, the ETR realizations are difficult or impossible to interpret. As a result, the ETR to measure corporate tax avoidance drop loss years, thus discarding a significant fraction of the overall population. This provides me with the final data of 1,023 firm-year observations. Panel B of Table 1 presents the yearly distribution of the observations in the final sample. I find that all years after 2008, are generally evenly distributed in my sample, contributing between 93 (9.09 percent) and 155 observations (15.15 percent). Panel C of Table 1 reports the industry distribution of the final sample firms based on the IDX industry classification scheme. The manufacturing of food product industry represents the largest industry, making up 12.81 percent of the full sample followed by the chemical product and communications industries, which contribute 9.87 percent and 5.47 percent of the sample, respectively. It is important to note that I control for year and industry-fixed effects in my regression models.

Table 1: Sample Selection and Distribution

Panel A: Sample Selection	**Firm-year**
Total firm-year from IDX database (2000-2015)	6,579
Less: Financial institution firms	(1,737)
Less: Firms using foreign currencies	(500)
Firm-year available for sample selection from IDX database	4,342
Less: firm-year without share price data	(826)
Less: firm-year missing required long run tax avoidance data	(2,493)
Firm-year with requisite data	1,023
Unique firms	244

Panel B: Distribution of Firm-Year Observations by Year

Year	**Firm-year**	**%**
2006	19	2.83
2007	12	1.17
2008	33	3.23
2009	93	9.09
2010	111	10.85
2011	146	14.27
2012	144	14.08
2013	150	14.66
2014	155	15.15
2015	150	14.66
	1,023	**100%**

Panel C: Distribution of Firm Observations, by Industry

Industry	**Firm-year**	**%**
Manufacturing: Food products	131	12.81
Manufacturing: Chemical products	101	9.87
Transportation & Public Utilities: Communications	56	5.47
Manufacturing: Stone, Clay & Glass Product	48	4.69
Wholesale trade: Nondurable goods	48	4.69
Manufacturing: Primary metal industries	45	4.40
Transportation & Public Utilities: Railroad transportation	40	3.91
Manufacturing: Rubber & Plastic product	39	3.81
Services: Hotel & Lodging places	33	3.23
Petroleum & Coal product	29	2.83
Coal mining	25	2.44
Services: Business Services	25	2.44
Agriculture Production	22	2.15
Manufacturing: Tobacco Products	21	2.05
Remaining industries (35 industries)	309	30.20
	1,023	**100%**

5. RESULT AND ANALYSIS

5.1 Summary Statistics

Table 2 presents the descriptive statistics for the proxy of firm value, proxies of long run corporate tax avoidance and the control variables. Focusing on the Tobin's Q, on average, firms in my sample have 1.88 with median of 1.32. On the first proxy of long-run corporate tax avoidance (*LETR*), on average, firms in my sample have total tax expenses amounting to 27 percent of pre-tax income (median= 26 percent), while the second proxy *(LCETR)*, on average, firms in my sample have total cash taxes paid amounting to 32 percent of pre-tax income (median=0.28 percent). I find that, on average (median), firms in my sample have operating income amounting to 12 (9) percent of their total assets *(ROA)*. The mean of SIZE is 14.65 (median=14.55). The average ratio of long-term debt to total assets *(LEV)* for the sample firms is 10 percent, suggesting that my sample firms predominantly use equity as their source of financing. The sample firms, on average, have capital expenditure amounting to 14 percent of gross PPE (mean *CAPX*=0.06). The sample firms, on average, spend 23.4 percent of their net sales on sales, general and administration expenses (mean *SGA*=0.17), 13 percent companies have non-zero spending on research and development expenditure (mean RD=0.13). Finally, on average, sample firms have 3 percent of their total assets as intangibles (mean *INTAN*=0.03).

Table 2: Descriptive Statistics

	N	Mean	SD	Q1	Median	Q3
Q	1,023	1.88	1.76	0.93	1.32	2.11
LETR	1,023	-0.27	0.10	-0.30	-0.26	-0.23
LCETR	1,023	-0.32	0.20	-0.37	-0.28	-0.22
ROA	1,023	0.12	0.11	0.05	0.09	0.16
SIZE	1,023	14.65	1.58	13.41	14.55	15.73
LEV	1,023	0.10	0.13	0	0.05	0.17
CAPEX	1,023	0.14	0.14	0	0.06	0.11
SGA	1,023	0.17	0.29	0	0.07	0.11
INTAN	1,023	0.03	0.09	0	0	0.01
RD	1,023	0.13	0.34	0	0	0

Notes: Q= defined as the market value of equity plus the book value of assets minus the sum of book value of equity and deferred taxes, all divided by the book value of assets. *LETR*= 3 years GAAP effective tax rates, *LCETR*= 3 years cash effective tax rates. I multiply *LETR* and *LCETR* by -1 so that larger values capture greater corporate tax avoidance. SIZE = log natural of total assets), LEV= the ratio of the firm's long-term debt to total assets, CAPEX is measured as capital expenditures scaled by gross property, plant, and equipment,, SGA defined as selling, general, and administrative expenses divided by net sales, RD is measured as research and development expense divided by net sales and intangibles, INTAN, coded 1 if a firm has intangibles and 0 otherwise).

5.2 Main Empirical Results

Table 3 reports the results from the estimation of empirical model, which regresses firm value on long run corporate tax avoidance and the control variables. The table presents the results from a model specification that uses different long run corporate tax avoidance measures *(LETR* and *LCETR)* for the test variables and Tobin's Q as the dependent variable. Column (1) presents the regression results using *LETR* as the test variable, while column (2) relates to *LCETR*. The results based on *LETR* as test variable (column (1)) reveal that the coefficient on *LETR* is negative (-0.164) and significant at the 5 percent level (t-statistic=-2.96). This result suggests that as the level of long run corporate tax avoidance increases, the firm value decreases. The results based on *LCETR* (column (2)) indicate that the coefficient on *LCETR* is negative (-0.507) and significant at the 1 percent level (t-statistic=-5.47), suggesting that as long run cash taxes paid tax rates increases, the firm value decreases. This findings provide support to the risk-minimization motive, where investors consider corporate tax avoidance as risky and value-reducing strategies. The coefficients on the control variables based on the *LETR* and *LCETR* analyses are generally significant (p<.05 or better) and have signs consistent with those reported in prior studies (e.g. Rego, 2003; Gupta & Newberry, 1997). Finally, the adjusted R-squared values from the two regression specifications reported in Table 3 indicate that the explanatory variables collectively explain around 71.71 percent and 72.14 percent of the total variation in the firm value measure.

Table 3:Cross-Sectional Regressions of Tobin's *q* on Long Run Corporate Tax Avoidance Measures and Control Variables

Variable	***Sign***	***Q***	***Q***
		(1)	**(2)**
LETR	+/-	-0.164	
		(-2.96)**	
LCETR	+/-		-0.507
			(-5.47)***
ROA	+	4.682	5.010
		(5.17)***	(6.87)***
SIZE	+/-	0.133	0.136
		(7.86)***	(8.06)***
LEV	-	0.214	0.234
		(1.21)	(1.33)
		0.214	0.250
CAPX	+	(1.87)*	(2.18)**
		-0.033	-0.029
		(-0.55)	(-0.48)
SGA	-	-0.167	-0.258
		(-0.81)	(-1.24)
INTAN	+	0.097	0.119
		(2.01)**	(2.46)**
RD	-	-1.328	-1.492
		(-4.67)**	(-5.26)**
Cons	?	4.682	5.000
		(25.17)***	(26.87)***
Year and industry fixed-effects		Yes	Yes
Adjusted R^2		0.7171	0.7214
F-statistics		89.14	89.83
Sample size		1,023	1,023

Notes:
This table presents regression results of firm value measure *(Tobin's q)* on long run corporate tax avoidance *(LETR* and *CETR)* and control variables. Reported in parentheses are *t*-statistics based on standard errors corrected for heteroscedasticity. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Significance levels are for one-tailed *t*-tests where a predicted direction is provided, two-tailed otherwise. The variables are defined in Table 2.

6. ROBUSTNESS TESTS

I also employ a propensity score matching approach to further alleviate the concern that the negative association between long run corporate tax avoidance and firm value is due to self-selection bias. To implement this analysis, I first perform a logistic regression using an indicator dependent variable, defined as 1 if long run corporate tax avoidance is above or equal to the sample median ('high' tax avoidance), and 0 otherwise ('low' tax avoidance). I include all the stand-alone independent variables in my empirical model as explanatory variables in this logistic regression analysis. These variables include a spectrum of firm fundamentals. Panel A of Table 4 reports the logit regression results. Next, I use the propensity scores obtained from the estimation of the logistic regression and perform a one-to-one nearest neighbor match by selecting a best control match (i.e., low tax avoidance) for each firms in the treatment group (i.e., high tax avoidance). To ensure that the treatment and matching sub-samples are not significantly different in terms of major firm characteristics, I use the caliper matching method and match observations within a caliper of 10 percent, where caliper refers to the difference in the predicted probabilities between the treatment and control firm.

Table 4: Results for Firm Value and Long Run Corporate Tax Avoidance using Propensity Score Matching

PANEL A: Logit Regression of High Long Run Tax Avoidance						
ROA	+	0.707				
		(1.70)*				
SIZE	+	0.084				
		(2.76)**				
LEV	?	-0.008				
		(-0.21)				
CAPX	+	0.466				
		(1.51)				
SGA	-	0.261				
		(1.47)				
INTAN	-	0.575				
		(1.14)				
RD	-	0.015				
		(1.19)				
PANEL B: Comparison Between Treatment Sample and Control Sample – Independent Variables						
	Treatment sample (High Tax Av.)		Control sample (Low Tax Av.)			
	Obs.	Mean	Obs.	Mean	Difference	t-statistics
ROA	268	0.13	268	0.14	-0.00	-0.42
SIZE	268	14.84	268	14.94	-0.09	-0.50
LEV	268	0.09	268	0.11	-0.02	-0.99
CAPX	268	0.15	268	0.16	-0.01	-0.58
SGA	268	0.20	268	0.15	0.05	0.96
INTAN	268	0.03	268	0.02	0.01	0.82
RD	268	0.18	268	0.19	-0.01	-0.16
PANEL C: Comparison Between Treatment Sample and Control Sample –Dependent Variables						
	Treatment sample (High Tax Av.)		Control sample (Low Tax Av.)			
	Obs.	Mean	Obs.	Mean	Difference	t-statistics
Tobin's q	268	2.04	268	2.81	-0.77	-1.75*
PANEL D: Propensity Score Matching Regression Results						
			Q (1)	***Q (2)***		
LETR	+/-		-0.195			
			(-1.69)*			
LCETR	+/-			-0.219		
				(-1.86)*		
ROA	+		0.172	3.674		
			(4.78)***	(10.57)***		

SIZE	+/-	-0.390	0.174
		(-1.06)	(4.97)***
LEV	-	0.253	-0.307
		(1.64)	(-0.85)
CAPX	+	0.280	0.249
		(3.98)***	(1.65)*
SGA	+	-0.502	0.273
		(-1.20)	(3.98)***
INTAN	+	0.052	-0.521
		(0.57)	(-1.28)
RD	+	-1.788	0.052
		(-3.02)***	(0.58)
		3.881	3.674
Cons	?	(10.87)***	(10.57)***
Adjusted R^2		0.7715	0.7729
Industry and Year Fixed Effects		Yes	Yes
Sample Size		268	268

Panel B of Table 4 provides summary statistics of variables that are used in the matching process (i.e., variables used as explanatory variables in the logistic regression used to extract the propensity scores) for both treatment and control sub-samples, as well as tests of differences in mean values of matched variables across the treatment and control sub-samples.

Having constructed the propensity score matched sample, I then compare firm value descriptive statistics of high tax avoidance (treatment sample) and low tax avoidance firms (control sample). Panel C of Table 4 presents the results from this comparison. The mean value of firm value for treatment sample firms is 2.04 while the comparable value for firms in the control sub-sample is 2.81. Thus, these statistics suggest that the firm value for firms with high long run corporate tax avoidance are, on average, lower than firm value for firms with low long run corporate tax avoidance. The results from a two-sample t-test indicate that the difference is statistically significant at the 10 percent level (t-statistic=1.75). In summary, the descriptive statistics based on a propensity score matched sample are consistent with the main results that as long run corporate tax avoidance increases, the level of firm value decreases.

Having successfully identified my propensity-score matched treatment and control firms, I next re-estimate the main empirical models limited to the propensity score matched sample. Panel D of Table 4 reports the regression results from the propensity score matched sample. The results based on *LETR* (column (1)) demonstrate that the coefficient on *LETR* is negative (-0.195) and significant at the 10 percent level (t-statistic=-1.69), indicating that as long run corporate tax avoidance increases the firm value decreases. The results from column (2) indicate that the coefficient on *LCETR* is negative (-0.219) and significant at the 10 percent level (t-statistic=-1.86), suggesting that as cash taxes paid rate increases, the firm value decreases. Again, the results from this exercise reinforce my main results in Table 3, suggesting that long run corporate tax avoidance is associated negatively with firm value.

7. CONCLUSION

In this study, I examine the association between long run corporate tax avoidance and firm value. I consider two explanations of the possible association between long run corporate tax avoidance and firm value. First, under risk minimization view, corporate tax avoidance especially aggressive strategies could reduce the firm value, as investor consider this strategy as risky. Second, under cash-flow maximization perspective, corporate tax avoidance is considered as a value-enhancing activity and which may increase firm value in the future due to cash saving from tax payment. Based on a sample consisting of 1,023 firm-year observations, made up of 244 unique firms over the period 2006-2015, this study finds that long run corporate tax avoidance is negatively associated with firm value. My study is significant to investors who apparently evaluate the extent of corporate tax avoidance when making investment decisions. The findings from this study may assist investors deduce the extent and nature of long run tax avoidance an Indonesian firm engages in. Finally, my study has limitations, which in turn suggest opportunities for some

interesting extensions. For example, the risk minimization perspective of investor on corporate tax avoidance activities could be driven by concern of managers' opportunistic behavior. As such, further extension on how different level of corporate governance mechanism could influence the association between firm value and long run corporate tax avoidance is warranted.

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