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THE RELATIONSHIP BETWEEN STATE OWNERSHIP AND TAX AVOIDANCE LEVEL: EMPIRICAL EVIDENCE FROM VIETNAMESE FIRMS

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ABSTRACT

This paper investigates the relationship between tax avoidance behavior and state-ownership level at corporates in Vietnam to find out whether state-ownership influence the tax avoidance behavior of Vietnamese firms. Effective tax rate presents for the tax avoidance level, in which higher effective tax rate means the lower tax avoidance level. In this research, the authors check robustness by using different methods to calculate the level of tax avoidance of corporates. Using Feasible Generalized Least Squares (FGLS) method with data of 460 enterprises listed on Vietnam Stock Exchange market from 2009 to 2015, the empirical result shows that the level of state ownership has an inverse relationship with tax avoidance behavior of corporates. In other words, the higher level of state-owned is, the fewer taxes they avoid. Empirical evidence also confirms that low concentration ($\leq$ 30%) of state ownership has a positive effect on tax avoidance behavior. Besides that, size, firm performance, tangible assets level, and debt ratio have a meaningful positive relationship with the degree of tax avoidance, similarly prior studies.

Contribution/ Originality: This study provides empirical evidence for prior theory on the relationship between corporate ownership and the manager' behavior. The study results again confirmed that there is a conflict of benefits between business executives and shareholders, by measuring the tax avoidance level of state-owned enterprises in Vietnam.

1. INTRODUCTION

Tax avoidance is the use of legal methods to modify a financial situation to fewer the amount of corporate income tax owed. It is accomplished by claiming the permissible deductions and credits. According to Desai and Dharmapala (2006) and Lisowsky (2010), tax avoidance forms a part of the

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corporate strategy which relates to the contract or transaction structure by availing the shortcomings of the tax law and the legal provisions to decrease the level of the corporate payable income tax. The concept of tax avoidance is understood as the legal exploitation of taxation mechanisms to reduce the tax payable by means within the framework of legislation and the disclosure of material information to the tax authorities. Tax avoidance is legal in comparing with tax evasion which is law violations, and it could be punished by administrative sanctions or prosecution.

State-owned corporates have an important role in the economy, and the question about relationship between state ownership and corporate tax avoidance behavior is an important issue. However, it has no clear answer. There were prior studies about the relationship between the proportion of state ownership and the tax avoidance on the different perspectives such as Mahenthrian and Kasipillai (2012), Chan *et al.* (2013), Salihu *et al.* (2014) or Huai *et al.* (2013). However, the research results are divergent and depend on the economic and political features of the nation in which studies examined. For example, some studies showed a positive relationship between state ownership and tax avoidance (Mahenthrian and Kasipillai, 2012; Salihu *et al.*, 2014). Authors suggest that state ownership firms receive preferential treatment from the government, and executives have strong incentives to take advantage of these benefits and evade tax more aggressively than non-state-owned companies. However, the research of Chan *et al.* (2013), Wu *et al.* (2013) and Huai *et al.* (2013) provided empirical evidence of the inverse relationship. Because tax revenue is one of the prospects which helps to determine the effectiveness of state-owned firms and executives receive positive publicity and enjoy greater chances of promotions if their firm pays more tax (Huai *et al.*, 2013). Therefore, state-owned corporates avoid tax to a less extent than non-state-owned firms. Thus, the relationship of state ownership on tax avoidance behavior of corporates is unclear.

Vietnam is one of the Asian developing countries. After the social and economic reforms in the late 1980s until now, the percentage of state ownership has decreased remarkably. In 2011 − 2015, there are more 508 state ownership corporates were privatized in the whole country, sold out 760,774 billion dongs in the market. Only in 2015, the number of the privatized corporates reached 220 and divested over 158,017 billion dongs, higher 6.08 times than 2013. The total authorized capital of 508 enterprises is over 197,217 billion dong, in which the state ownership is 128,031 billion dong (account for over 65%)[1]. Despite the significant decreasing the rate of state ownership in the Vietnamese economy, this rate is still very high and the Government still wholly owns the major industry such as electricity and water (Lý and Bảy, 2015). Beside that the corporate income tax is one of the principal resources of Vietnam state budget, which invades over 50% of the state budget revenues (excludes the crude oil income), in there, the state-owned corporates contributed the large number in tax, account for over 40% on the total corporate income tax[2]. The figures specified that the state-owned corporates have the significant effects on the state budget and the whole Vietnamese economy. Furthermore, there is no study in Viet Nam examining the relationship between state ownership and tax avoidance. With the above research gaps, the authors make this study to find out whether state-ownership influence the tax avoidance behavior of Vietnamese firms.

In this study, we find out whether state-ownership influence the tax avoidance behavior of Vietnamese firms throughout the empirical model. We consider that state-owned firms focus on social objectives of the government, they do not have strong incentives to avoid tax. However, paying more tax helps to achieve the social objectives, it reduces the benefits of shareholders, especially the other controlling shareholders. This is a reason that we also examine this relationship for non-concentrated state ownership firms throughout many different models. Our study answers for how firms' state ownership affects their tax avoidance behavior in concentrated

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[1] Source: Report 436/BC-CP on 17/10/2016 of Government about Capitalization of State-owned Corporates from 2011 − 2015, http://vietnamfinance.vn/upload/news/hoanghung_btv/2016/10/23/Báo cáo của Chính phủ về cổ phần hóa DNNN.pdf.
[2] Source: General Statistics Office of Vietnam

and non-concentrated state ownership. The structure of our paper includes 5 sections. Section 2 discusses prior literature. Section 3 sets up our models and develops hypotheses. Section 4 provides our empirical results, including sample data and descriptive statistics. In section 5, we discuss empirical results and concludes.

2. LITERATURE REVIEW

Performance and financial decisions could be decided by corporate managers. Decisions or choices of executives aim to maximize the value of corporations. The decisions or choices of managers aim to maximize the value of the business by continuously seeking out high-profit projects and minimize operating cost, thereby helping businesses grow, efficiency and increasing their value on the financial markets. However, managers often face with maximizing benefits of shareholders and misconduct in corporate performance. These problems can affect the factors that determine the performance of the business and decisions of managers.

The effective tax has been claimed to be among important factors that help to identify the performance efficiency of an enterprise. Those efforts in reducing effective tax rate would bring benefits to shareholders as they increase after-tax income and consequently the bonus which shareholders receive from dividend payout. However, according to Desai and Dharmapala (2006), managing the tax rate of a firm could be costly to shareholders since the administrators may hide their asset purchase for personal benefits with the objective of reducing effective tax rate. The researchers claimed that tax avoidance is a part of an enterprise's strategy, relating to contract design or transaction to take advantage of deficiencies in tax law and related legal regulations to decrease obligatory income taxes. Thus, there are a lot of research papers to examine the effects of corporate governance on effective tax rates (Chen et al., 2010; Minnick and Noga, 2010; Armstrong et al., 2012; Wahab and Holland, 2012; Badertscher et al., 2013) in which corporate governance can be represented by the level of state ownership, foreign ownership levels, ownership levels of managers, number of board members.

Prior papers show that state-owned firms receive preferential treatment in dealing with the government because they have a strong form of political connection. Thus, they are more likely to obtain loans from state-owned banks or be bailed out by the government in the event of financial difficulty (Johnson and Mitton, 2003; Cull and Xu, 2005 and Faccio et al., 2006). The executives of state-owned firms who often are pointed and evaluated by the government must have convinced the government that their firms bring a lot of tax benefits. It concerns with their chances of promotions. Moreover, tax payment of state-owned firms often presents for the effectiveness of state investment as well as performance. However, there are is an argument that firms' political relationships may also help to reduce the likelihood of tax audits and limit the penalties imposed if their firms are convicted of tax evasion. Therefore, state-owned firms' executives have incentives to take advantage of evading taxes to a greater extent because the tax saving may be used as cash for personal perks and it may increase managerial earning (Huai et al., 2013).

This debate is evidenced by many studies which examined the impact of the state ownership on the tax avoidance. The research studies showed the contradictory results. According to Adhikari et al. (2006), the relationship between state ownership and the degree of tax avoidance can be explained through political alignment. Authors used a data regression method to examine how political affiliations affected the effective tax rate of Malaysian firms between 1990 and 1999. There were two quantities to represent the political affiliation; the first is the proportion of state ownership in the enterprise and the second is the dummy showing whether or not a director or major shareholder of businesses have relationships with senior politicians. Experimental results indicate that there is a negative correlation between the political association and the effective tax rate for both methods of measurement, while the effective tax rate is also the measure of the tax avoidance of joint industry. As a result, there appears to be a positive relationship between state ownership and level of tax avoidance.

This view was supported by research of Mahenthrian and Kasipillai (2012). They used the data sample of Malaysian corporates, which showed the direct relationship between the state ownership and the tax avoidance level. The empirical results showed that the positive correlation between state ownership and tax avoidance level of Malaysian firms, using the effective tax rate (ETR). The authors believe that the state-owned corporates usually have the less motivation to reveal the detailed information because these corporates have been prioritized the capital supply easily through the banks in association with the state. Therefore, the level of motivation in availing the tax priorities grew up and encourages the plan of taxes as well as reduce tax avoidance motivation. Continuously, Salihu et al. (2014) used regression methods for panel data to investigate the impact of state on level of tax avoidance of firms in Malaysia. The author used the effective tax rate (ETR) in four different calculating methods to measure tax avoidance level. The experimental result specified the positive correlation between the state ownership and the tax avoidance level which has been explained that the less risk of the state-owned corporates and the punishment applied on tax avoidance encouraged the tax avoidance methods. The author argues that state-owned firms are routinely intervened by the government, so they will not be subjected to oversight by the capital market, thereby causing information asymmetries. Perhaps this is because state-owned firms have little incentive to disclose information, including tax information (Mohd and Weetman, 2006). In addition, state-owned enterprises often have less risk involved in detecting tax avoidance and penalties for avoiding taxation, thus promoting tax avoidance behaviors.

On the contrary, Chan et al. (2013) used the data of the corporates listed on the Chinese stock exchange to investigate the effect of the state ownership level on the tax avoidance strategy. The author found out that the corporates with the state as the major shareholder had the less tax avoidance strategy than other corporates. The authors supposed that, in China, the corporates operate in the strategic industries and the major shareholder belongs government usually concentrate in the political and social strategies and not imperatively focus on maximizing the corporate value. For that reason, they paid less attention to the policies of tax avoidance. The research of Chan et al. (2013) indicated that the level of the tax avoidance of the state-owned corporates was lesser than the private corporates, due to the local government usually applied the provincial policies in supporting the private corporates and those policies frequently relate to the tax. Hence, the private corporates own the more motivation and the tools for tax avoidance.

Evidence from Wu et al. (2013) also supports the results of Chan et al. (2013). The author regressed the table data to find out the relationship between ownership structure and corporate taxation of listed firms on the Chinese stock exchange between 1999 - 2006. The results indicate that state-owned firms have a higher effective tax rate than private firms, so the tax avoidance by state-owned enterprises is lower than that of private firms. To explain this, the author argues that in China, private companies often operate more efficiently and contribute more to local GDP, while the economic and political environment Treatment is more beneficial to state-owned enterprises. Therefore, local governments often use local policies to support private companies. Moreover, those policies are usually tax related. So, private businesses have more incentives and tools to avoid taxation.

Recently, Huai et al. (2013) studied state ownership affects firms' tax avoidance. They used a proprietary dataset of actual tax filings of companies in China and found strong evidence that state-owned enterprises avoided tax to a less extent than non-state-owned enterprises. Especially, they found that the negative relationship between state ownership and tax avoidance was stronger with concentrated state-owned firms and was weaker with non-concentrated state ownership. They concluded that the managers at state-owned firms have incentives to please the government through larger tax payments. It effects on the benefit of other shareholders; wherefore these motivate are curbed by the monitoring of concentrated non-state ownership.

Therefore, it may be concluded that the relationship between the state ownership and the tax avoidance is not obviously cleared. This relationship depends much on the economic and political features of each country.

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3. METHODOLOGY AND DATA SOURCES

In order to observe the on the relationship between the state ownership and tax avoidance level, the authors estimate the following functions which are based on the previous experimental studies (Chan *et al.*, 2013; Salihu *et al.*, 2014; Richardson *et al.*, 2015):

$$LTA_{it} = f(STATE_{it}, SIZE_{it}, ROA_{it}, DEBT_{it}, PP\&E_{it}) \qquad\qquad \dots\dots\dots\dots\dots (1)$$

The formation (1) is explained as follows:

$$LTA_{it} = \alpha_i + \beta_1 STATEit + \beta_2 * SIZE_{it} + \beta_3 * ROA_{it} + \beta_4 * DEBT_{it} + \beta_5 * PP\&E_{it} + \varepsilon_{it} \ \dots\dots (2)$$

To estimate the relationship in the equation (2); first, authors check unit root test to avoid spurious regression (Hansen, 1999). Authors applied tests of Levin-Lin-Chu (LLC) and Im-Pesaran-Shin (IPS) with root level for panel data, including trend and without trend. Second, authors use the Pooled Ordinary Least Squares model (Pooled OLS), Fixed Effect (FEM) and Random Effect model (REM) as references from the previous research. However, the Lagrange Multiplier (LM) test indicates there is heteroskedasticity in the Fixed Effect model[3]. Therefore, the authors use the Feasible Generalized Least Squares (FGLS) to overcome heteroskedasticity between groups in panel data. For judging the compliance of FGLS, the authors rely on Wald test with hypothesis H_0: the null is homoskedasticity. If the hypothesis H_0 is rejected, the authors can conclude that FGLS method is more compatible than the fixed effect model.

In equation (2), LTA_{it} is the effective tax rate has been used by prior literature as a tax avoidance level. It means the higher LTA_{it} the lower tax avoidance behavior. In this research, the authors used 4 calculated methods of corporate tax avoidance in the previous researches. In the 1st calculated method, $LTA1$ is measured by the ratio of the corporate income tax on the corporate earnings before tax (Zimmerman, 1983; Chen *et al.*, 2010; Dyreng *et al.*, 2010; Minnick and Noga, 2010; Huseynov and Klamm, 2012; Armstrong *et al.*, 2012; Salihu *et al.*, 2014 and Ribeiro *et al.*, 2015); LTA2 is the ratio of current corporate income tax on the corporate earnings before tax (Chen *et al.*, 2010; Dyreng *et al.*, 2010; Huseynov and Klamm, 2012; Armstrong *et al.*, 2012; Hope *et al.*, 2013 and Salihu *et al.*, 2014); LTA3 is the ratio of the corporate income tax on the corporate cash flow (Zimmerman, 1983; Richardson and Lanis, 2007; Richardson *et al.*, 2015; Salihu *et al.*, 2014; and Ribeiro *et al.*, 2015) and $LTA4$ is the ratio of the current corporate income tax on the corporate cash flow (Salihu *et al.*, 2014).

In there, $STATE_{it}$ is presented by 3 variables $STATE1_{it}$, $STATE2_{it}$ and $STATE3_{it}$. While $STATE1_{it}$ is presented the state ownership level of the corporate which is measure by the number of common stocks of state divide total common stocks of firms, $STATE2_{it}$ and $STATE3_{it}$ are dummy variables represent the concentration of state ownership level (over 50%) and the non-concentration of state ownership (under 30%).

The used control variables include the variable $SIZE_{it}$ is calculated by the natural logarithm of the total assets; $DEBT_{it}$ is measured with the total debt on the total assets to appraise the affected level of the tax shield on the tax avoidance level; $PP\&E_{it}$ used to indicate the affected level of the assets structure on the tax avoidance level, is calculated by the ratio of the tangible assets on the total assets; and ROA_{it} is the variable used to explain the change of tax avoidance level (Chen *et al.*, 2010; Chan *et al.*, 2013; Salihu *et al.*, 2014; Richardson *et al.*, 2015).

We continue to hypothesize that there is a negative relationship between state ownership and tax avoidance level. First, executives of state-owned firms who often are pointed and controlled by the

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[3] The Wald and Hausman tests shall be presented in the research results.

government. Because of their chances of promotions, they must have shown that their firms bring a lot of tax benefits. Second, the state-owned firms often receive much preferential treatment and concentrate on the political and social strategies and not imperatively focus on maximizing the corporate value.

While contributing more tax helps to achieve the government's objectives, shareholders' value other could be a reduction, since wealth could be transferred from shareholders to the government under tax form. Thus, authors examine whether concentrated non-state ownership destroys tax avoidance behavior. As argued by Shleifer and Vishny (1986) showed that block shareholders play a major role in monitoring deciding executives. Authors, therefore, hypothesize that the adverse effect of non-concentrated state ownership on tax avoidance is weaker than more concentrated state ownership.

According to prior studies, we hypothesize that size, debt ratio, and firm performance have a positive relationship with tax avoidance behavior (see Dunbar et al., 2010; Salihu et al., 2014; Kraft, 2014; Richardson et al., 2015). It means control variables' coefficients are negative. They are expected to explain tax avoidance behaviors of firms.

Table-1. Description variables and hypothesis

Variables	Description	Hypothesis
Tax avoidance by method 1 (*LTA1*)	Corporate Income Tax/Income before Tax	
Tax avoidance by method 2 (*LTA1*)	Current Corporate Income Tax/Income before Tax	
Tax avoidance by method 2 (*LTA3*)	Corporate Income Tax/Corporate Cash Flow	
Tax avoidance by method 2 (*LTA4*)	Current Corporate Income Tax/Corporate Cash Flow	
State ownership (*STATE1*)	The number of Common Stocks of State/Total Common Stocks	+
Dummy variable of Concentration of State ownership (*STATE2*)	Equal 1 if State ownership ≥ 50% and 0 otherwise	+
Dummy variable of Concentration of State ownership (*STATE3*)	Equal 1 if State ownership ≤ 30% and 0 otherwise	-
Size of Corporate (*SIZE*)	Logarithmic transformation of Total Assets	-
Return on Assets (*ROA*)	Net Income/Total Assets	-
Financial Leverage (*DEBT*)	Total Debt/Total Assets	-
Fixed Assets Ratio (*PP&E*)	Sum of property, plant and equipment/Total Assets	-

After gathering the data in the corporate financial reports which is posted up on the Vietnam Stock Exchange market in the period of 2009 − 2015, the authors eliminated the corporate has no data continuously in 7 years, simultaneously, deduct the corporate with values of *LTA1*, *LTA2*, *LTA3* and *LTA4* lower than 0 or higher than 1 as the suggestion of Salihu et al. (2014). Hence, the number of corporates lastly used in this research is 460 corporates. All data make up a strongly balanced panel.

4. THE RESEARCH RESULT

Table 2 presents statistics describing variables in the study. The results show that the mean value of state ownership is 27.83% and the average value of tax avoidance through the four measurement methods is 23.61%, 23.57%, 15.09% and 15.01%. This shows that firms in Vietnam have higher tax avoidance than some countries in the region, for example, in the Salihu et al. (2014) study using

data from Malaysian firms from 2009 to 2011, the average tax payment was about 20.68%; Specifically, Richardson *et al.* (2015) use financial information from 203 firms in Australia for the period 2006 - 2010, showing tax rates indeed, businesses pay for the government about 15%.

The descriptive statistic also shows that the size of Vietnamese firms is large by logarithm of total asset gets a mean 26.67, similarly sample of Salihu *et al.* (2014) study. However, the firm performance and debt ratio are lower with a value of 0.069 and 0.068 respectively, are recorded as the mean.

Table-2. Descriptive statistics

Variables	Obs	Mean	Std	Minimum	Maximum
LTA1	3,220	0.2361	0.2003	0.0000	1.0000
LTA2	3,220	0.2357	0.1998	0.0000	1.0000
LTA3	3,220	0.1500	0.1633	0.0000	1.0000
LTA4	3,220	0.1500	0.1635	0.0000	1.0000
STATE1	3,220	0.2783	0.2393	0.0000	0.9672
SIZE	3,220	26.6658	1.4030	20.9746	31.9056
ROA	3,220	0.0699	0.0853	(0.6571)	0.7837
DEBT	3,220	0.0680	0.1164	0.0000	0.7459
PP&E	3,220	0.2746	0.2112	0.0000	0.9697

Source: The authors calculated with Stata 14

First, this paper uses the results of a correlation matrix to explore the relationship between tax avoidance and state ownership. The correlation matrix in Table 3 shows the correlation between variables in the study. Based on the results in Table 3 it can be seen that the correlation between the independent variables in the regression model is rather low and it can be seen that there is a relationship between the level of government ownership (*STATE1*) and four methods of measuring the level of tax avoidance. Moreover, the absolute value of the correlation coefficients between the independent variables is less than 0.8, so the author can determine the hyperbolic multiplicity that does not exist in the author's model.

Table-3. Matrix correlates variables in research article.

	LTA1	LTA2	LTA3	LTA4	STATE1	SIZE	ROA	DEBT	PP&E
LTA1	1								
LTA2	0.9909	1							
LTA3	0.5807	0.5762	1						
LTA4	0.578	0.5816	0.9942	1					
STATE1	–0.0409	–0.0355	–0.0256	–0.0247	1				
SIZE	–0.0031	–0.0061	–0.1009	–0.1035	0.039	1			
ROA	–0.4521	–0.4552	–0.1889	–0.1938	0.0899	–0.0171	1		
DEBT	0.0418	0.0425	–0.1567	–0.1565	0.0704	0.322	–0.1775	1	
PP&E	–0.0255	–0.0246	–0.1842	–0.1834	0.0775	0.086	–0.0204	0.56	1

Source: The authors calculated with Stata 14.

Table 4 present results of unit root test of variables. Research applied the unit root tests of Levin-Lin-Chu (LLC) and Im-Pesaran-Shin (IPS) with root level, including trend and without trend. The hypothesis is H_o: Panels contain unit roots and H_a: Panels are stationary. As the results, all variables are stationary variables at the root level.

Table-4. Unit root test

Variable	LLC (t-statistic)		IPS (t-statistic)	
	Trend	**Without trend**	**Trend**	**Without trend**
LTA1	−1.0e+02***	−84.1063***	−1.1e+02***	−33.6087***
LTA2	−1.4e+02***	−65.1095***	−97.8681***	−35.8781***
LTA3	−86.0506***	−1.7e+02***	−53.2486***	−38.4459***
STATE	−1.1e+04***	−1.4e+04***	−16.4556***	−9.4214***
SIZE	−82.4286***	−54.7280***	−87.3418***	−19.8178***
ROA	−3.7e+02***	−1.1e+02***	−1.0e+02***	−27.0550***
DEBT	−6.7e+02***	−3.9e+03***	−13.1814***	−5.9128***
PP&E	−8.6e+02***	−3.4e+03***	−13.9555***	−13.6539***

*, **, *** indicate significant at 10%, 5%, 1%
Source: The authors calculated with Stata 14

The estimated results of the affected level of the state ownership on the tax avoidance of the corporates are presented in Table 5. The Hausman, LM, and Wald test results indicated that (i) the fixed effect model (FEM) is more compatible than the random effect model (REM); (ii) there is heteroskedasticity in the FEM; (iii) the result of FGLS model is more compatible than the result of FEM. Therefore, the result that the authors analyzed in this research is the regression result by the Feasible Generalized Least Squares model.

Table 5 also presents the estimated result on the impact of state ownership and the corporate features on the tax avoidance level of the corporate in the research sample. Simultaneously, the coefficients of the state-owned variables (*STATE*) all positive in four calculated methods to measure tax avoidance level (*LTA*) and they have significant statistic at 1% level, excluding LTA1 model has significant statistic at 10% level. This means the corporates with the state ownership level tends to pay more the tax.

Table-5. Panel data regression results.

Variables	Model 1				Model 2				Model 3			
	LTA1	LTA2	LTA3	LTA4	LTA1	LTA2	LTA3	LTA4	LTA1	LTA2	LTA3	LTA4
STATE1	0.0088* (1.73)	0.0142*** (2.87)	0.0260*** (5.56)	0.0290*** (6.19)								
STATE2					0.0031* (1.24)	0.0057** (2.38)	0.0067*** (2.96)	0.0076*** (3.32)				
STATE3									-0.0032 (-1.36)	-0.0048** (-2.10)	-0.0103*** (-5.09)	-0.0115*** (-5.09)
SIZE	0.0007 (0.81)	0.0007 (0.75)	-0.0048*** (-5.13)	-0.0050*** (-5.36)	0.0006 (0.66)	0.0005 (0.54)	-0.0049*** (-5.32)	-0.0051*** (-5.52)	0.0007 (0.76)	0.0006*** (0.71)	-0.0046*** (-5.17)	-0.0048*** (-5.17)
ROA	-0.7145*** (-32.58)	-0.7187*** (-32.77)	-0.1551*** (-9.45)	-0.1637*** (-9.99)	-0.7152*** (-32.61)	-0.7191*** (-32.82)	-0.1388*** (-8.11)	-0.1489*** (-8.72)	-0.7153*** (-32.62)	-0.7208*** (-32.89)	-0.1556*** (-9.91)	-0.1636*** (-9.91)
DEBT	-0.0368*** (-2.80)	-0.0392*** (-2.99)	-0.1323*** (-12.10)	-0.1335*** (-12.17)	-0.0353*** (-2.70)	-0.0372** (-2.86)	-0.1258*** (-11.52)	-0.1270*** (-11.62)	-0.0346*** (-2.65)	-0.0357*** (-2.75)	-0.1305*** (-11.97)	-0.1311*** (-11.97)
PP&E	-0.0165** (-2.21)	-0.0164** (-2.21)	-0.1092*** (-17.43)	-0.1110*** (-17.18)	-0.0171** (-2.29)	-0.0171*** (-2.32)	-0.1096*** (-17.65)	-0.1110*** (-17.93)	-0.0168*** (-2.25)	-0.0168*** (-2.72)	-0.1090*** (-17.72)	-0.1108*** (-17.72)
Cons.	0.2556*** (10.66)	0.2565*** (10.92)	0.3062*** (12.27)	0.3118*** (12.52)	0.2607*** (10.98)	0.2639*** (11.30)	0.3124*** (12.54)	0.3197*** (12.90)	0.2608*** (10.97)	0.2640*** (11.30)	0.3142*** (12.90)	0.3207*** (12.90)
Hausman test	104.30***	104.92***	241.06***	239.14***	103.01***	104.12***	238.18***	236.52***	103.19***	104.13***	238.10***	236.47***
LM test	1.1e+06***	1.1e+06***	1.2e+06***	8.2e+05***	1.1e+06***	1.1e+06***	1.1e+06***	8.0e+05***	1.0e+06***	1.1e+06***	8.0e+05***	8.0e+05***
Wald test	1149.73***	1181.46***	1526.25***	1591.39***	1150.82***	1185.45***	1461.57***	1512.21***	1142.97***	1175.92***	1501.48***	1558.11***

*, **, *** indicate significant at 10%, 5%, 1%. The value statistic in ( )
Source: The authors calculated with Stata 14

More details, the authors also estimated the affected level of the dummy variables of the state ownership on the corporate tax avoidance level. *STATE2* and *STATE3* present respectively the concentrated of state ownership with over 50% and under 30%. The empirical results are exciting. In Model 2, regression results show that the coefficient on *STATE2* is from 0.003 to 0.007 and has signed at the 1% or 10% level. By contrast, regression results in Model 2 show that the coefficient on *STATE3* is negative, significant at the 1% or 5% level. This means the corporates with the lower concentrated state ownership level tends to avoid the tax more than the higher concentrated state ownership level. This finding suggests that the adverse effect of state ownership on tax avoidance is more pronounced in firms which government is not a controlled shareholder. This result is similar to the findings of the previous research of Wu *et al.* (2013) and Chan *et al.* (2013).

Upon the control variables, the corporate profits, leverage and tangible assets showed the inverse relationship in four calculated methods of tax avoidance with significant statistic at 1%, only the *SIZE* of corporate has the inverted relationship and meaningful statistic in *LTA3* and *LTA4*. It means that the larger size of the corporates, the more frequent of avoiding tax than the small size corporates. This implies that businesses will shun more taxes as the more significant the scale of the firm, the higher the profit, the more debt and the purchase of machinery and equipment. This result is consistent with the author's original expectations and is similar to the findings of previous studies such as Stickney and McGee (1982), Richardson *et al.* (2015), Salihu *et al.* (2014) and other research articles. The larger the firms, the more tax avoidance behaviors are compared to the smaller firms (Dyreng *et al.*, 2010, Richardson and Lanis, 2007).

With the performance of firms; *ROA* has negative effect on tax avoidance level, significant at the 1% on all models. It means the more profit the corporates earn, the stronger motivation of tax avoidance than the corporates earn the fewer profits (Derashid and Zhang, 2003; Dunbar *et al.*, 2010; Kraft, 2014). It explains that shareholders are beginning to pay attention their benefits as firms become efficient and promote tax avoidance behaviors. Besides that, the empirical results also show that there is an antagonistic relationship between debt level (DEBT) and tax avoidance level in all models with 1% significant. It means the corporates with the high financial leverage usually tend to avoid tax highly because they get benefits from the tax shield (Chen *et al.*, 2010; Richardson *et al.*, 2015); and the corporates often buy the machinery and equipment in order to increase the legal cost and decrease the corporate income tax (Salihu *et al.*, 2014; Richardson *et al.*, 2015) as well as increasing tax avoidance level.

5. CONCLUSION

As China case, our study results in Vietnam show that the corporate with the higher state ownership proportion have the lower tax avoidance level because these corporates are directed to social and political objects in order to contribute to the economic growth, and not focus on maximizing the corporate value. Therefore, they have less tax avoidance policy than the corporates with the lower rate of state ownership. By dummy variables, authors find that the tax avoidance behavior intensive to increase when the state ownership level decrease under 30%. Therefore, the government may consider to audit firms which state-owned shares is lower than 30% because these corporates shall avoid tax which leads to decrease the amount of income tax for the State budget.

Moreover, the authors also find that the corporate with large size, high profits, high leverage, and more tangible assets shall reduce the tax avoidance. It helps to show the corporates features also be the crucial elements in determining the tax avoidance of the corporates in Vietnam.

It may conclude that for improving law on enterprise income tax, the government should consider the structure of the corporate ownership, earnings, leverage and tangible assets in controlling the corporate tax avoidance in Vietnam.

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