

Effects of Earnings Management to Corporate Tax Avoidance

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Received August 18, 2021; Accepted December 02, 2021

ISSN: 1735-188X

DOI: 10.14704/WEB/V19I1/WEB19060

Abstract

Among vital expenses of the company, that affect profits and shareholders value, is corporate income tax (CIT). And among ways to maximize market value, firm management consider to intervene firm profits to save tax costs to cause after tax return rate to go up to attract investment. The study purpose is analyzing effects from earnings management on tax avoidance level of listed firms on Vietnam stock market.

By using multivariate regression analysis, the study results show us that when earnings management higher, the level of corporate income tax avoidance will be higher. One of the earnings management goals is to increase the rate of return after taxes in order to maximize shareholder value and attract investment. Therefore, managers will focus on adjusting profits to the most profitable and maximum income tax saving. This research studies the effect of earnings management to corporate income tax avoidance in Vietnam. To examine this relationship, we examined the impact of discretionary accruals on the effective tax rate with a sample of 496 firm – years in the period of 2016-2018. The research results find a positive relationship between earnings management and corporate income tax avoidance, i.e., the more profit-adjusting behaviors companies have through discretionary actuals, the lower the effective tax rate will be. Last but not least, impact factors on income tax include inventory and capital intensity and firm size whereas non0imapct factors include external auditors type and leverage.

Keywords

Earnings Management, Tax Avoidance, Corporate Tax (CIT).

Introduction

Among vital indicators in the financial statements is CIT. It is the obligation of the company to the State and is an expense of the company. For shareholders, CIT is a significant expense (Khan et al. 2016), so shareholders do not want to pay too much tax to take advantage of cash flow to reinvest, expand business or pay the debts. The traditional theory of tax avoidance is an activity of maximizing value in order to transfer state wealth to the company's shareholders (Kim et al. 2011). Therefore, making an effective tax plan to save taxes should be considered by the managers. Of course, tax avoidance activities must comply with the provisions of the law.

Profitability and other financial items are important for investors to evaluate the performance of the company. Earnings management is the participation of the manager in activities to adjust profits to achieve the goals of the managers and the shareholders. Besides, the general objectives of the listed companies is to maximize value, managers also perform earnings management to minimize the cost of CIT. The benefit of tax avoidance is tax savings by reducing tax costs and increasing earning after tax – this is one of the purposes of earnings management.

In the world, CIT avoidance research has appeared for a long time in various aspects such as ownership, firm size, financial leverage and characteristics of capital,... Effects of earnings management to corporate tax avoidance has been researched by a number of researchers, however, the major researchs are on the subject of the corporate tax rate reduction policy and motivation of the managers to save the CIT expense.

In Vietnam, CIT avoidance has received more attention from researchers. More researches on tax avoidance, tax reduction and non-compliance have been published in recent years. However, there has been no separate study on the effect of earnings management on CIT avoidance. In addition, the Vietnamese government has had many supportive policies for businesses, creating conditions for businesses to develop such as tax incentives, reduction of common tax rates, loss carrying forward, choosing appropriate accounting policies... This creates an opportunity for CIT avoidance to occur.

The study also analyzes the effects of other factors on the CIT avoidance. We expects that companies with more earnings management will have more incentives to reduce effective tax rates. In addition, we also consider the effects of other factors such as firm size, financial leverage, capital intensity, inventory intensity, profitability, net operating loss carry forward and type of external auditors to CIT avoidance. Based on the theoretical

frameworks and previous researches regarding earnings management and CIT avoidance, we build a research model and establish corresponding hypotheses.

Literature Reviews

1. Theoretical Frameworks

a. Agency Theory

Tax avoidance may help to increase profits. However, In addition to shirking, managers may have the opportunity to behave in other ways that are not in the interests of shareholder. Under the traditional view, engaging in tax avoidance clearly raises after-tax shareholder value, regardless of the compensation scheme. However, managers being paid salaries alone will not have any incentive to pursue the tax avoidance strategy as their pay is not a function of shareholder value. Under the traditional view, after-tax shareholder value will increase when managers engage in corporate tax avoidance. However, this is not really an incentive for managers to pursue a tax avoidance strategy when they are only paid salaries without any additional income or bonuses.

In the relationship between the agency theory and earnings management, in particular, if manager only receives the company's salary, managers and shareholders will not be affected by earnings management. However, if managers are facing bonus earnings, manipulating earnings allows managers to receive bonuses based on profits and creates an incentive to participate in the tax shelter strategy. This happens even when the cost of shareholders from compensation increases beyond tax benefits. That means earnings management and tax avoidance reduce the value of shareholders (Desai and Dharmapala 2009).

According to the relationship between creditors and shareholders, creditors always want to increase their interests. Managers can increase the use of debt to take advantage of the tax shield of debt, thereby saving income tax costs. However, when debt financing is needed, managers who represent shareholders will intervene in earnings, including income tax costs, so that financial capacity is optimal. Although the result of this action is that the tax liability is actually not lost, it is carried forward to the next period which may be related to the maturity of the loan. Therefore, a conflict of interest between creditors and shareholders appears.

b. Political Cost Theory

According to the Political cost theory, larger and more successful companies have a higher vision that makes them "victims" of higher legal actions and greater asset transfers than smaller companies (Watts and Zimmerman 1986). Therefore, in order to reduce these political costs, larger businesses choose accounting methods that reduce income more often than small businesses (Zimmerman 1983) or reduce the capacity or size of the transfer (Cahan 1992). "Political expenses are one of the company's most important costs and payments and are considered non-contract expenses" (Hong 2016). Therefore, companies are always looking for ways to reduce expenses.

CIT is a component of political costs and incurs costs by the company, according to political cost theory, larger, more profitable companies will face. with a higher ETR, which means more CIT. Earnings management is measured by discretionary accruals, managers can intervene in these discretionary accruals to reduce the taxable income with the purpose of reducing the CIT expense in the reporting period.

Political cost theory explains the effects of earnings management and firm size on corporate income tax avoidance. Larger firms will have lower levels of CIT avoidance, whereas firms with higher levels of earnings management will have higher levels of CIT avoidance.

2. Literature Review on Measuring Tax Avoidance

Effective tax rate (ETR) is the company's actual income tax rate. This measure of tax avoidance is intended to capture the average tax rate per income or cash flow. This is the most common measure of corporate income tax avoidance, used in most studies on CIT avoidance. The lower the value of the ETR indicates that the company is more involved in CIT avoidance (Frank et al. 2009).

Zimmerman (1983) measures ETR by calculating taxable income divided by cash flow from operations. Taxable income is equal total income tax expense minus the change in the deferred tax liability and deferrals of investment tax credits. Operating cashflows are measure by the diffence between sales and cost of goods sold.

Gupta and Newberry (1997) measures ETR in two ways. First, ETR1 is equal current income tax expenses divided by earnings before interest and taxes. Second, ETR2 is defined as the ratio of current income tax expense to operating cash flows before interest and taxes.

Richardson and Lanis (2007) determines ETR in two ways. ETR1 is measured by dividing total tax expense to pre-tax book income. ETR2 is defined as the ratio of total tax expenses to operating cash flows.

In addition, Dyreng et al. (2008) also uses the long-run effective tax rate to measure tax avoidance. Long – term ETR are of a long-term nature in the calculation, which helps avoid fluctuations in annual ETR. Long-term ETR are estimated by the total cash taxes paid over a ten-year period divided by the total pre – tax income (excluding the effects of special items) in the same period.

3. Literature Review on Effects of Earnings Management and other Factors on Tax Avoidance

Tax research is a broad and multidisciplinary field. Regarding the study of CIT avoidance, many authors around the world have taken advantage of accounting combined with other fields of their research to identify the factors that effect to CIT avoidance.

The Tax Reform Act of 1986 reduced the CIT rate from 46% to 34%. Earnings management is assessed through current accruals based on the Jones (1991) model. Research results show that current accruals are significantly lower than for large companies in the year prior to the reduction of tax rates. The study also supports the hypothesis of income accruals decrease (negative income) in the years before tax rates are reduced. The implications of the study indicate that, managers have implemented earnings management activities to shift profits from high tax years to low tax years to take advantage of the savings tax.

Roubi and Richardson (1998) studied the management of adjustable accruals to reduce income tax rates in Canada, Malaysia and Singapore. The study used data from 1984 to 1986 for companies in Singapore and from 1986 to 1988 for companies in Canada and Malaysia. The data sample includes 102 companies in Canada, 149 companies in Malaysia and 126 companies in Singapore. The results of this study support the prediction that the management of the companies accelerated expenses in the year prior to the change in CIT rate and deferred revenues in the year after the change in CIT rate to benefit from the CIT rate changes. Extensive research also shows that leverage and firm size do not seem to have a significant and consistent impact on earnings management. Research by Roubi and Richardson (1998) also shows that companies have intervened in profits to save the tax payable due to the adjustment of government tax rates..

Desai (2005) with the topic “The Degradation of Reported Corporate Profits” has studied on three high – profile cases, namely Enron, Tyco and Xerox on managerial misreporting of earnings and tax avoidance. The objective of the study is to clarify how the drive to improve reported book profits fosters tax avoidance and how the drive to limit taxes gives rise to the manipulation of accounting profits and managerial malfeasance. The author argues that in essence, the issue of unreliability of book profits is a double issue of tax avoidance. Examples from three specific cases from Enron, Tyco and Xerox show that these companies intervened in profits to reduce and minimize CIT.

Wang and Chen (2012) studies the motivation for tax avoidance in earnings management. The research data is taken from annual reports of Chinese A share non-financial listed companies during 2004-2006. The independent variables are discretionary accruals – representing earnings management and performance – representing long-term business performance indicators, which is the return on assets compared to the industry average.

In Vietnam, there have been many researches on tax avoidance. However, according to our approach, there has not been any specific study on the effect of earnings management on CIT avoidance to the present time. Therefore, we will review some studies related to this topic.

Hoai and Hoa (2015) studies the determinants of income adjustment behavior that reduces the CIT payable in Vietnam. Sample data is collected from 211 companies listed on Hanoi and Ho Chi Minh Stock Exchange in the period of 2009-2013. The research results imply that when a company is entitled to the preferential policy of corporate income tax, the company will adjust its income to increase the CIT payable in the incentive period. Conversely, when a company recognizes deferred revenue, revenue under schedule of construction contract, many provisions, or deferred income tax expenses, the company will adjust its income to reduce CIT.

Another study uses Friedlan's model (1994) to test the trend of profit adjustment when the corporate income tax rate decreases. Research results show that with high income tax rates (in 2013), firms will reduce profits to save taxes, while with lower income tax rates *in 2014), firms tend adjust to increase profits (Ngoc Hung, 2019).

Phuong (2018) showed that firm size, growth, profits, tangible assets and dual board have a positive impact on corporate income tax avoidance. In contrast, inventories, leverage and state ownership have a negative effect on corporate income tax avoidance.

4. Hypothesis

The main purpose of this study is to analyse the effects of earnings management to corporate income tax avoidance, and thus corporate income tax avoidance will take the role of the dependent variable while earnings management will be the independent variable that we are interested in. Control variables in our research model, include Capital intensity, Inventory intensity, Firm size, Profitability, Financial leverage, Type of external auditor and Net operating loss carry forward. (Model in figure 1).

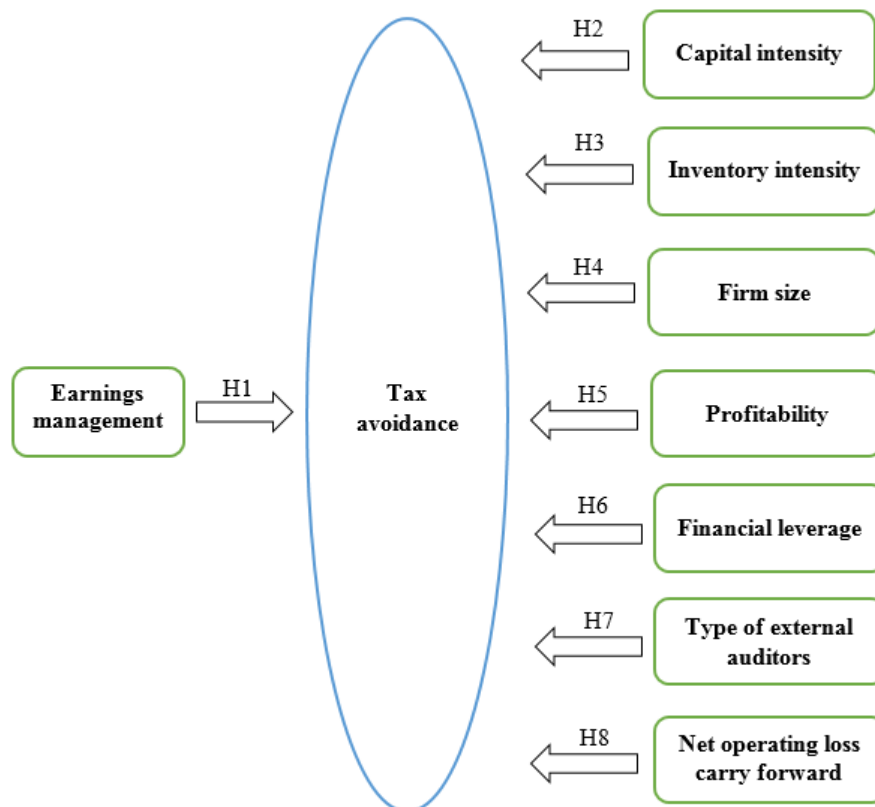


Fig. 1 Research model

i. Earnings Management

Corporate tax shelter will be involved in creating wealth for shareholders in companies with strong earnings management (Kim et al. 2011). The earnings management is implemented by managers to intervene in reducing the effective tax rate at the company, in order to reduce corporate income tax expense. According to the agency theory, participating in corporate income tax avoidance through earnings management is not only beneficial for shareholders but also for managers. Shareholders want managers to take measures to save corporate income tax payable for other purposes such as increasing the rate of return after tax, attracting investment, creating resources for development or

paying debts. Sometimes, to achieve their interests, managers will perform earnings management practices in order to avoid corporate income tax, not for the benefit of shareholders. According to the political cost theory, corporate income tax is part of the political cost. Bigger companies face higher corporate income tax expenses. Therefore, managers will have the ability to use the accounting method reduced net income in the financial statements for the purpose of the minimum cost of income tax on businesses to reduce their tax burden (Cahan 1992). Therefore, we expect that earnings management has a positive impact on the level of corporate income tax avoidance.

H1: The higher level of earnings management the company engages, the higher level of corporate income tax avoidance is.

ii. Capital Intensity

Tangible fixed assets on the balance sheet represent the capital intensity, which may affect the reduction of ETR. Because the depreciation period is less than the useful life, which increases the depreciation cost - this is one of the tax deductions (Derashid and Zhang 2003). Taking advantage of the tax shield from depreciation, managers will consider investing in fixed assets to increase depreciation costs, thereby reducing corporate income tax expenses in the reporting period. To control the difference of depreciation expense between book value and depreciation for tax purposes, we use CINT as control variable in the model. We expects that capital intensity has a positive effect on corporate income tax avoidance.

H2: The higher the capital intensity of company is, the higher level of corporate income tax avoidance is.

iii. Inventory Intensity

The inventory intensity is one of the factors in the asset mix and a control variable in many tax avoidance research models. (Lanis and Richardson 2012; Richardson et al. 2013). In contrast to the case of companies with a high capital intensity in investing in fixed assets, companies with more inventories will have less tax avoidance, which means a relatively higher ETR. Evidence shows that firms in the observed manufacturing sector have lower ETR than companies in the wholesale and retail sectors (Gupta and Newberry 1997). We expect that the inventory intensity has a negative impact on the level of corporate income tax avoidance.

H3: The higher the inventory intensity of company is, the less level of corporate income tax avoidance is.

iv. Firm Size

Firm size is one of the factors of firm characteristics and is often used as a control variable in the study of corporate income tax avoidance. Along with leverage, return on asset and capital intensity, firm size is one of the variables that affect the tax burden of the company (Annur et al. 2014).

H4: The bigger the company is, the less level of corporate income tax avoidance is.

v. Profitability

The profitability expressed through return on assets (ROA) is one of the factors affecting ETR. A high ROA proves that the company is efficient and competitive, paying significantly less effective tax (Derashid and Zhang 2003) i.e. the higher the ROA is, the higher the level of corporate income tax avoidance. Similar to the results of Derashid and Zhang (2003) research, Ha and Quyen (2017), Thi (2018) and Phuong (2018) show that ROA has a positive impact on the level of corporate income tax avoidance. On the other hand Nam (2017) argued that ROA has a positive effect to ETR, meaning that companies with high ROA will have a lower level of corporate income tax avoidance.

The company activities can also affect ETR, ETR may be changed due to the change of accounting profit. Therefore, the ROA is used in the research model as a control variable to control the operation and fluctuations in the operations of the company (Richardson and Lanis 2007).

H5: The higher ROA is, the higher level of corporate income tax avoidance is.

vi. Financial Leverage

Leverage is one of the firm's characteristics and is used in most research models as a control variable. Leverage represents the firm's capital structure, which is included in the model to capture the range of the tax shield of debt. A company can take advantage of debt to supplement capital instead of using equity funding through shareholder capital contribution to reduce income tax expenses because interest expenses are deducted from taxable income.

H6: The higher the leverage is, the higher level of corporate income tax avoidance is.

vii. Type of External Auditors

Auditing firms under Big 4 can help reduce activities aimed at avoiding corporate income tax through enhanced monitoring and higher audit quality.

H7: The financial statements of companies audited by Big4 will have a higher level of corporate income tax avoidance than those audited by non-big4.

viii. Net Operating Loss Carry Forward

The studies of Rego (2003), Chen et al. (2010), Khurana and Moser (2010), Khurana and Moser (2012) and McGuire et al. (2012) used net operating loss carry forward (NOL) as a control variable in the research model. Using net operating loss carry forward is one of the ways to use the tax shield to reduce corporate income tax in the year. We assume that companies that receive a loss transfer from previous years will have lower ETR, which means NOL will have the a negative impact on avoiding income tax.

H8: Companies that receive net operating loss carry forward have a higher level of corporate income tax avoidance.

2. Methodology

i. Regression Model

We conduct a multivariate linear regression analysis to examine the relationship between earnings management and level of corporate income tax avoidance, as well as other factors affecting level of corporate income tax avoidance. Specifically, the following regression model is estimated:

$$ETR_{it} = \alpha_0 + \beta_1 ABS_DA_{it} + \beta_2 CINT_{it} + \beta_3 INVINT_{it} + \beta_4 SIZE_{it} + \beta_5 ROA_{it} + \beta_6 LEV_{it} + \beta_7 BIG4_{it} + \beta_8 NOL_{it} + \varepsilon_{it} \quad (1)$$

Where, ETR: effective tax rate; ABS_DA: discretionary accruals; CINT: capital intensity; INVINT: inventory intensity; SIZE: firm size; ROA: return on assets; LEV: financial leverage; BIG4: type of external auditor; NOL: net operating loss carry forward.

ii. Variable Measurements

The effective tax rate (ETR) is used to measure the level of corporate income tax avoidance base on Rego (2003) model. ETR is defined as current income tax expenses divided by pre – tax book income. ETR will reflect the actual tax rates paid by companies. With this measure, if a company has a lower effective tax rate than the statutory tax rate, it is using intervention tools that reduce corporate income tax payable, i.e., which are engaged in corporate income tax avoidance activities.

Total Accruals (TA) includes Discretionary accruals (DA) and Nondiscretionary accruals (NDA) (Jones 1991). Therefore, the higher the discretionary is, the higher earnings management the company engages.

Model of Dechow et al. (1995) with variables divided by lagged total assets as follows:

$$\frac{TA_{it}}{A_{t-1}} = \frac{\alpha_1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{t-1}} + \alpha_3 \frac{PPE_{it}}{A_{t-1}} + \varepsilon_{it}$$

Then, NDA is determined by the equation:

$$\frac{NDA_{it}}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{t-1}} + \alpha_3 \frac{PPE_{it}}{A_{t-1}}$$

The estimated of α_1 , α_2 and α_3 are determined by result of OLS regression of TA measurement from Jones (1991) model as follows:

$$\frac{TA_{it}}{A_{t-1}} = \frac{\alpha_1}{A_{t-1}} + \alpha_2 \frac{\Delta REV_{it}}{A_{t-1}} + \alpha_3 \frac{PPE_{it}}{A_{t-1}} + \varepsilon_{it}$$

Accordingly, TA is determined by the difference between net operating income (NI) and operating cash flow (CFO) (Hribar and Collins 2002); ΔREV_{it} : revenues in year t less revenues in year t-1 for firm i; ΔREC_{it} : net receivables in year t less net receivable in year t-1 for firm i; PPE_{it} : gross property plant and equipment for firm i in year t; A_{t-1} : logarithm of lagged total assets.

The discretionary accruals our research model is taken to the absolute value $|DA_{it} / A_{t-1}|$ according to Lai (2010) because the earnings management behavior is the profit-adjusted activities, whether an increased or decreased (equivalent to discretionary accruals as a positive or negative value) is an earnings management activities (Hong 2016). Therefore, in our study, we use the absolute value of discretionary accruals as a proxy for earnings management: $ABS_DA = |DA_{it} / A_{t-1}|$.

Next, Control variables in our regression model capital intensity (CINT), inventory intensity (INVINT), firm size (SIZE), profitability (ROA), financial leverage (LEV), type of external auditors (BIG4) and net operating loss carry forward (NOL).

Table 1 Measuring variables

No.	Variable name	Symbol	Measurement
Dependent variable			
1	Effective tax rate	ETR	Current income tax expenses divided by pre – tax book income
Independent variable			
1	Earnings management	ABS_DA	Modified Jones model of Dechow et al. (1995)
Control variables			
1	Capital intensity	CINT	The ratio of net intangible assets to total assets
2	Inventory intensity	INVINT	The ratio of inventories to total assets
3	Firm size	SIZE	The logarithm of total assets
4	Profitability	ROA	Pre-tax book income on total assets
5	Financial leverage	LEV	The ratio of long – term debts to total assets
6	Type of external auditors	BIG4	Equals to 1 if the company’s financial statements are audited by One of the Big4 auditors in Vietnam
7	Net operating loss carry forward	NOL	Equals to 1 if there is a tax loss carryforward during year t; 0 otherwise

iii. Sample Selection and Data Collection

This study focuses on non – financial companies, which except parent companies and corporations, listed on stock market. The sample excludes all banks, insurance and securities companies due to their unique structures of financial statements. To avoid survivorship bias, the sample includes all listed companies from 2016 to 2018 even if they were subsequently delisted. In addition, the research sample must exclude the observations with an unusually effective tax rate including negative pre-tax book income, negative ETR, or ETR greater than or equal to 1 (Zimmerman 1983).

The final dataset consists of 496 firm-year observations from 184 companies listed on the HNX and HOSE during 2016 – 2018, forming unbalanced table data.

Research Results

1. Descriptive Statistics

We see (1) full sample of 496 firm-year observations (table 2). ETR has mean of 0.1874 (equal to 18.74%), i.e. the current average income tax expense is equal to 18.74% of pre – tax book income. The maximum value of the ETR of 0.9438 (or 94.38%), the current income tax expense includes the income tax expense incurred during the period and some offset income taxes for previous periods. Due to the lack of or incorrect recognition of some items such as depreciation, revenues and other expenses that do not meet the

condition of deductible expenses, the company need to pay extra corporate income tax. Therefore, ETR has increased significantly.

The mean of absolute discretionary accruals is 8.6% of total assets at the beginning of the year. ABS_DA also has a significant difference between the minimum 0.0001 (0.01%) and the maximum 1.0536 (105%).

CINT has an average value of 0.22 (22%), which means the proportion of investment in tangible fixed assets accounts for 22% of the total assets. The minimum value of 0 indicates that there is no balance of tangible fixed assets on the balance sheet, fixed assets have been fully depreciated or the company has not invested in new fixed assets. The maximum value of 0.92 (92%) means that tangible fixed assets account for 92% of total assets.

The mean of inventories is 19% of total assets at the end of the year with a minimum of 0 and a maximum of 83%.

The SIZE variable has a mean of 5.55 with a minimum of 4.18 and a maximum of 7.11. It proves that the firm size in the sample has significant differences that can be explained by the difference in industries and businesses.

Average return on asset of the companies in the sample is 8.7%. The mean of long – term is 8% of total assets at the end of the year. The minimum leverage is 0, the maximum leverage is 78%. So there is a significant difference in the use of debt as a financial leverage and the ability to accept risks of the company.

NOL and BIG4 are dummy variables that receive values of 0 and 1, so it is necessary to do frequency statistics, the results are shown in tables 2 and 3. There are 36 out of 496 observations (7.26%) receiving operating loss carry forward from previous years. There are 98 out of 496 observations (19.76%) having financial statements audited by the Big4 auditors.

Table 2 Variables statistics in the sample

Variable	Obs	Mean	Std. Dev.	Min	Max
ETR	496	.1874204	.1003552	0	.9438085
ABS_DA	496	.0860151	.0977219	.0001352	1.053608
CINT	496	.223456	.2148757	0	.9232706
INVINT	496	.1917875	.1594827	0	.834702
SIZE	496	5.54763	.5555179	4.180126	7.113272
ROA	496	.0867903	.09502	.0000753	.692248
LEV	496	.0757181	.1311137	0	.7872828

Table 3 Frequency statistics of NOL in the sample

NOL	Freq.	Percent	Cum.
0	460	92.74	92.74
1	36	7.26	100.00
Total	496	100.00	

Table 4 Frequency statistics of BIG4 in the sample

BIG 4	Freq.	Percent	Cum.
0	398	80.24	80.24
1	98	19.76	100.00
Total	496	100.00	

2. Correlation Results

Based on the results of correlation analysis, it is possible to determine whether the research model has multicollinearity before regression analysis. Therefore, the results of correlation analysis are the basis for regression analysis. In this research, we perform correlation analysis to determine the linear relationship between the independent variables and control variables; between the dependent variable and the explanatory variables in the research model.

Table 5 shows the results of correlation analysis of the research model with Pearson correlation coefficient (r). Because all correlation coefficients among variables are at low level and much less than 0.8, we found no threat of multicollinearity.

Table 5 Correlation matrix

	ETR	ABS_DA	CINT	INVINT	SIZE	ROA	LEV	BIG4	NOL
ETR	1.0000								
ABS_DA	-0.1882	1.0000							
CINT	-0.0733	-0.1946	1.0000						
INVINT	0.1148	0.0107	-0.3108	1.0000					
SIZE	-0.0067	-0.0418	0.2228	0.0264	1.0000				
ROA	-0.1010	0.1284	-0.0002	-0.1956	-0.0945	1.0000			
LEV	-0.0327	-0.1192	0.4813	-0.2686	0.3655	-0.1662	1.0000		
BIG4	-0.0327	-0.0278	0.0697	0.0521	0.4007	-0.0875	0.0418	1.0000	
NOL	-0.3818	0.1352	-0.0186	0.0585	-0.0373	-0.1520	-0.0160	0.0759	1.0000

3. Regression Results

Before regression analysis for the research model, we regression analysis using Pooled OLS on the original model of Jones (1991) to determine the coefficients α_1 , α_2 and α_3 . Then we calculate discretionary accruals according to the modified Jones model of Dechow et al. (1995).

As the sample is unbalanced panel data, we estimate the regression model (1) using three methods: Pooled OLS, Fixed effect model (FEM) and Random effect model (REM) to choose the most appropriate model. According to the results of the Pooled OLS model shown in Table 6, the adjusted R squared (Adj R-squared) is equal to 19.06%, and the Prob> F = 0.0000 (statistically significant at 1% level). This suggests that the Pooled OLS method may be an appropriate model. According to the results of the F - statistic test in Table 7, the statistical value $F(183,304) = 2.36$ and Prob> F = 0.0000 is less than 0.05 (statistically significant at 5%) so we reject the null hypothesis. Therefore, FEM is more appropriate than Pooled OLS. The reason is explained by the existence of fixed effects in each company over time. Based on Table 9 – Breusch - Pagan Lagrangian Multiplier test results, the value of Chibar2 (01) = 43.88 and Prob> Chibar2 = 0.0000 is less than 0.05 (statistically significant at 5%), so it can reject the null hypothesis. Therefore, this result shows that the REM model is more appropriate than the Pooled OLS model.

Next, We choose Hausman test with the null hypothesis $Cov(X_{it}, u_i) = 0$. Hypothesis H0 is understood to be no correlation between explanatory variables and random components (REM is a appropriate model). Hypothesis H1: there is a correlation between random components and explanatory variables (FEM is appropriate model). The result of the Hausman test shown in Table 10 shows that Prob> chi2 = 0.0469 is less than 0.05 (statistically significant at 5%), that is to reject the null hypothesis, so FEM is more appropriate than REM.

Table 6 Regression result using Pooled OLS method

Source	SS	df	MS		Number of obs	=	496
					F (8, 487)	=	15.57
Model	1.01524808	8	.12690601		Prob > F	=	0.0000
Residual	3.96997583	487	.008151901		R-squared	=	0.2037
					Adj R-squared	=	0.1906
Total	4.98522391	495	.010071159		Root MSE	=	.09029
ETR	Coef.	Std. Err.	t	p> t	[95% Conf. Interval]		
ABS_DA	-.1392137	.0432962	-3.22	0.001	-.2242842		-.0541433
CINT	-.0318535	.0225404	-1.41	0.158	-.076142		.012435
INVINT	.0565693	.0282045	2.01	0.045	.0011517		.1119869
SIZE	-.0031308	.0087427	-0.36	0.720	-.0203088		.0140473
ROA	-.1373144	.0458332	-3.00	0.003	-.2273696		-.0442592
LEV	-.0099289	.0389236	-0.26	0.799	-.0864078		.0665499
BIG4	-.0026972	.0112867	-0.24	0.811	-.0248738		.0194795
NOL	-.1506107	.0161138	-9.35	0.000	-.1822718		-.1189496
_cons	.2371654	.0468245	5.06	0.000	.1451625		.3291684

Table 7 Regression result using FEM with crosssectional and period fixed effects and result of F-statistic test

Fixed-effects (within) regression				Number of obs		=	496
Group variable:		firm		Number of groups		=	184
R-sq:	within	=	0.2322	Obs per group:		min	= 2
	between	=	0.0727			avg	= 2.7
	overall	=	0.0820			max	= 3
				F (8, 304)		=	11.49
corr (u _i , X _b)		=	-0.6429	Prob > F		=	0.0000
	ETR	Coef.	Std. Err.	t	p> t 	[95% Conf. Interval]	
	ABS_DA	-.2233786	.0501399	-4.46	0.000	-.3220438	-.1247134
	CINT	-.1143643	.0875172	-1.31	0.192	-.2865804	.0578518
	INVINT	.1929073	.0844936	2.28	0.023	.026641	.3591737
	SIZE	.054035	.0865517	0.62	0.533	-.1162812	.2243512
	ROA	-.059132	.1096567	-0.54	0.590	-.2749142	.1566502
	LEV	-.0280355	.1193297	-0.23	0.814	-.2628523	.2067814
	BIG4	.1196013	.0525619	2.28	0.024	.0161701	.2230324
	NOL	-.1851937	.0262798	-7.05	0.000	-.2369071	-.1334802
	_cons	-.1075081	.4833656	-0.22	0.824	-1.058674	.8436578
	sigma_u	.10066388					
	sigma_e	.07345846					
	rho	.65251981	(fraction of variance due to u _i)				
F test that all u _i =0:		F (183,304) = 2.36		Prob > F = 0.0000			

Table 8 Regression result using REM with crosssectional random effects

Random-effects GLS regression				Number of obs		=	496
Group variable:		firm		Number of groups		=	184
R-sq:	within	=	0.2078	Obs per group:		min	= 2
	between	=	0.2167			avg	= 2.7
	overall	=	0.2027			max	= 3
				Wald chi2 (8)		=	123.94
corr (u _i , X)		=	0 (assumed)	Prob > chi2		=	0.0000
	ETR	Coef.	Std. Err.	z	p> z 	[95% Conf. Interval]	
	ABS_DA	-.1643865	.0419796	-3.92	0.000	-.2466651	-.0821079
	CINT	-.0405901	.0273778	-1.48	0.138	-.0942495	.0130694
	INVINT	.0656861	.0336166	1.95	0.051	-.0002011	.1315734
	SIZE	-.0022198	.0108409	-0.20	0.838	-.0234676	.0190279
	ROA	-.1210104	.0529611	-2.28	0.022	-.2248122	-.0172086
	LEV	-.0032457	.0468819	-0.07	0.945	-.0951325	.0886411
	BIG4	.0009595	.0139349	0.07	0.945	-.0263525	.0282714
	NOL	-.1575556	.0171005	-9.21	0.000	-.1910719	-.1240392
	_cons	.2331855	.0582098	4.01	0.000	.1190964	.3472746
	sigma_u	.05180941					
	sigma_e	.07345846					
	rho	.33219001	(fraction of variance due to u _i)				

Table 9 Result of Breusch – Pagan Lagrangian Multiplier test

Breusch and Pagan Lagrangian multiplier test for random effects				
ETR [firm, t] = Xb + u[firm] + e[firm, t]				
Estimated results:				
		Var		Sd = sqrt (Var)
	ETR	.0100712		.1003552
	e	.0053961		.0734585
	u	.0026842		.0518094
Test:	Var (u) = 0			
		chibar2 (01)	=	43.88
	Prob > chibar2		=	0.0000

Table 10 Result of Hausman test

	Coefficients		(b – B) Difference	sqrt (diag (V_b-V_B)) S.E.
	(b) fem	(B) rem		
ABS_DA	-.2233786	-.1643865	-.0589921	.0274175
CINT	-.1143643	-.0405901	-.0737742	.0831247
INVINT	.1929073	.0656861	.1272212	.0775184
SIZE	.054035	-.0022198	.0562548	.08587
ROA	-.059132	-.1210104	.0618784	.0960193
LEV	-.0280355	-.0032457	-.0247898	.1097346
BIG4	.1196013	.0009595	.1186418	.050681
NOL	-.1851937	-.1575556	-.0276381	.019955
b = consistent under Ho and Ha; obtained from xtreg				
B = inconsistent under Ha, efficient under Ho; obtained from xtreg				
Test: Ho: difference in coefficients not systematic				
	Chi2 (8)	=	(b – B) ' [(V b – V_B) ^ (-1)] (b – B)	
		=	15.70	
	Prob>chi2	=	0.0469	

In summary, after conducting the F-statistic test, LM tests and Hausman test, the FEM is the most preferred model among three approaches.

Table 11 Suitable tests for regression model

	Pooled OLS and FEM	Pooled OLS and REM	FEM and REM
F-statistic test	F (183,304) = 2.36; Prob > F = 0.0000		
LM test		Chibar2(01) = 43.88; Prob > Chibar2 = 0.0000	
Hausman test			Chi2(8)= 15.70; Prob>chi2=0.0469
Null hypothesis	Reject H0	Reject H0	Reject H0
Conclusion	Choose FEM	Choose REM	Choose FEM

Authors then conducted 4 assumptions of FEM model by test. Next, FGLS analysis results are shown in Table 12. According to FGLS analysis result, ABS_DA has a negative effect on ETR, i.e. earnings management has a positive effect on corporate income tax avoidance with beta coefficient of -0.0942584 and significant level of p-value = 0.000 less than 0.05. The results of this study support our hypothesis H1 and have the same results with the studies of Wilson (2009), Kim et al. (2011), Wang and Chen (2012) and Nam (2017). The research results imply that companies involved in earnings

management activities expect to pay lower corporate income taxes to save the amount of current income tax payable to the state, which can be used for other purposes of managers. For joint stock companies, optimizing market value and optimizing profits are the top priorities of managers. However, when managers find out the opportunities to help them legally save the corporate income tax expenses, they will take earnings management activities to save this costs within the law.

Combined with the implications of previous studies regarding earnings management behavior and tax rate changes in the world and in Vietnam, companies that are entitled to preferential tax rates, or changing tax rates according to current regulations, managers will focus on adjusting profits to the most profitable and maximum income tax saving (Ngoc Hung 2019).

Among control variables, Table 12 shows that there is positive relation between capital intensity and corporate income tax avoidance. CINT negatively influences the ETR tax avoidance measure. This result supports our hypothesis H2 with a beta coefficient of -0.0244155, significance level $p\text{-value} = 0.000 < 0.01$. Similar to the findings of Richardson et al. (2016), Ha and Quyen (2017) and Phuong (2018), companies that invest heavily in fixed assets will take advantage of the depreciation tax shield. Therefore, promoting investment in fixed assets and choosing a suitable depreciation method will increase the depreciation cost, reduce the corporate income tax payable.

Similar to CINT, SIZE has negative and statistically significant coefficient at the level of 1%. It makes sense that the bigger the company is, the higher the level of corporate income tax avoidance. This result does not support the hypothesis H4 and political cost theory. According to Richardson and Lanis (2007), Dyreng et al. (2008), Ha and Quyen (2017) and Phuong (2018), large companies will be more likely to avoid corporate income tax because they benefit more from tax plans, receiving more incentives from tax incentives. Besides economic power, political power is also superior to small companies, so big companies have more opportunities to reduce the tax burden (Richardson and Lanis 2007).

We also find that the coefficient of the ROA variable is negative and statistically significant at the level of 1%. The regression result confirms the conclusion from our previous correlation analysis and supports hypothesis H5: ROA will have a positive impact on the level of corporate income tax avoidance, i.e. companies with a higher return on assets, the higher the level of corporate income tax avoidance. These results can be explained as follows: companies that are operating effectively or are highly competitive,

the tendency of these companies to be for profit, so managers can invest a lot in fixed assets, use more debt to enjoy incentives from the tax shield to reduce corporate income tax rate.

Findings presented companies that receive net operating loss carry forward have a higher level of corporate income tax avoidance. This result supports the hypothesis H8 and are similar to those of Rego (2003), Khurana and Moser (2010) and Khurana and Moser (2012). Because losses will be deducted when calculating taxable income, this will reduce the current corporate income tax expense for the tax year. Therefore, the actual tax rate that the company incurs will be lower than the current tax rate.

In contrast, INVINT with a positive of 0.0486514, p-value = 0.000 <0.05 shows that the more inventory companies have, the lower the level of tax avoidance. This study is similar to the results of Gupta and Newberry (1997), Richardson and Lanis (2007), Nam (2017) and Phuong (2018).

Other regressors LEV and BIG4 do not have statistically significant impact on ABS_DA, or corporate income tax avoidance is not significantly affected by financial leverage and type of external auditors. For companies, the use of debt is an advantage when having the benefits from the interest tax shield, but this is also a “double-edged sword” because using too much debt will increase financial risks. Therefore, managers can consider other more optimal options to reduce income tax rates instead of taking advantage of leverage. Our BIG4 result is similar to that of McGuire et al. (2012).

Table 12 Results of regression analysis FGLS

Cross – sectional time – series FGLS regression							
Coefficients:		generalized least square					
Panels:		heteroskedastic					
Correlation:		common AR(1) coefficient for all panels (0.4309)					
Estimated covariances	=	184			Number of obs	=	496
Estimated autocorrelations	=	1			Number of groups	=	184
Estimated coefficients	=	9			Obs per group:	min	= 2
						avg	= 2.695652
						max	= 3
					Wald chi2 (8)	=	773.75
					Prob > chi2	=	0.0000
	ETR	Coef.	Std. Err.	z	p> z	[95% Conf. Interval]	
	ABS_DA	-.0942584	.0135844	-6.94	0.000	-.1208833	-.0676335
	CINT	-.0244155	.0062035	-3.94	0.000	-.0365742	-.0122568
	INVINT	.0486514	.006674	7.29	0.000	.0355706	.0617323
	SIZE	-.0060266	.0019476	-3.09	0.002	-.0098437	-.0022094
	ROA	-.0710436	.0166501	-4.27	0.000	-.1036771	-.0384101
	LEV	.0071833	.0070461	1.02	0.308	-.0066269	.0209935
	BIG4	.00278	.0028686	0.97	0.332	-.0028422	.0084023
	NOL	-.1763143	.0077326	-22.80	0.000	-.1914699	-.1611587
	_cons	.2425817	.0106658	22.74	0.000	.221677	.2634863

Conclusion and Policy Suggestion

Research on avoiding corporate income tax is one of the topics that attracts the attention of researchers around the world and in Vietnam. However, a separate study on the effects of earnings management on the corporate income tax avoidance of listed companies is still a topic that has not been explored by researchers in Vietnam.

Then Earnings management is measured by discretionary accruals according to Dechow et al. (1995) model while CIT avoidance is measured by effective tax rate. Control variables are added to the model, including capital intensity (CINT), inventory intensity (INVINT), firm size (SIZE), profitability (ROA), financial leverage (LEV), type of external auditor (BIG4) and net operating loss carry forward (NOL). The empirical study reveals that earnings management has a positive and statistically significant correlation with CIT avoidance (i.e. the higher level of earnings management the company engages, the higher level of corporate income tax avoidance is). Besides, we also find out that companies with high capital intensity, large firm size, high ROA, and receiving operating loss carry forward from the previous year will have a high level of CIT avoidance. In contrast, the company with higher inventory intensity will have less level of CIT avoidance, whereas financial leverage and whether auditor is the Big4 do not affect CIT avoidance.

Based on research results, we may offer some recommendations in light of these findings. According to the company's performance and development goals, managers can choose an appropriate time to make decisions to reduce the company effective tax rate such as adjusted profits through discretionary accruals, investments in tangible assets, carrying operating losses from previous years into profitable years. These activities are all within the framework Vietnamese government policies to support business development. For shareholders, there should be measures to control tax avoidance activities of managers if they perceive risks from these activities, especially large firm and high-ROA companies because these firms have a high level of CIT avoidance. According to the agency theory, shareholders can allow managers to hold a part of stock or directly benefit from the business results, instead of just receiving a salary. For others, companies that are more engaged in earnings management will have a higher level of CIT avoidance, so there is higher risk of tax evasion and non – compliance. In addition, other factors such as capital intensity, firm size, profitability, whether there is a net operating loss carry forward should also be noted in order to make suitable decisions.

Finally, some limitations need to be considered. First, we measure the level of CIT avoidance based on the effective tax rate, data taken from the financial statements. This is

one of the methods of measurement that is easily accessible in terms of data, but it still does not show the level of tax avoidance of companies most clearly. Second, we limit the research data taken from the financial statements of non – financial companies listed on the Vietnam stock market. These companies are not the parent company and corporation. Third, we only consider the impact of earnings management on the level of CIT avoidance, ignoring the determination of any factors affecting the relationship between these two factors.

Future research can access corporate tax reporting to measure level of CIT avoidance more exactly. Further researches may expand the research data taken from the consolidated financial statements and compare the results of our study. In addition, further researches can expand the research model, considering whether or not the factors affect the relationship between earnings management and the level of CIT-corporate income tax avoidance.

Acknowledgement

“This research is funded by University of Economics Ho Chi Minh City, Vietnam”

References

- Annur, H.A., Salihu, I.A. & Obid, S.N.S. (2014). Corporate ownership, governance and tax avoidance: An interactive effects. *Procedia-Social and Behavioral Sciences*, 164, 150-160.
- Cahan, S.F. (1992). The effect of antitrust investigations on discretionary accruals: A refined test of the political-cost hypothesis. *Accounting Review*, 77-95.
- Ngu, D.T., Huy, D.T.N., Thanh, P.T., & Döngül, E.S. (2021). Language Teaching Application to English Students at Master's Grade Levels on History and Macroeconomic-Banking Management Courses in Universities and Colleges. *Journal of Language and Linguistic Studies*, 17(3), 1457-1468.
- Dyreg, S.D., Hanlon, M. & Maydew, E.L. (2008). Long-run corporate tax avoidance. *The accounting review*, 83(1), 61-82.
- Hac, L.D., Huy, D.T.N., Thach, N.N., Chuyen, B.M., Nhung, P.T.H., Tran, D.T., & Tran, T.A. (2021). Enhancing risk management culture for sustainable growth of Asia commercial bank-ACB in Vietnam under mixed effects of macro factors. *Entrepreneurship and Sustainability Issues*, 8(3), 291-307.
- Hanh, H.T., & Huy, D.T.N. (2021). Improving Accounting Management VIA Measuring Effects of Cost and Revenue Factors on Accounting Net Profit-A Case Study in Hoi An Tourism Company In Vietnam. *Revista Geintec-gestao Inovacao E Tecnologias*, 11(3), 35-48.

- Hoai, B.T.M., & Hoa, N.T.T. (2015). Factors determining income adjustment behaviors that reduce the payable enterprise income tax: The case of Vietnam. *Journal of Development and Integration*, 22, 41-49.
- Hanh, H.T., & Huy, D.T.N. (2021). Educational Issues for Accounting Major Students in Colleges and Universities in Emerging Markets Including Vietnam. *Psychology and Education Journal*, 58(5), 2774-2783.
- Hanh, H.T., & Huy, D.T.N. (2021). Impacts of internal cost and revenue elements on accounting profit via ols regression model-a case in Vietnam. *Laplace em Revista*, 7(Extra-B), 384-395.
- HONG, N. T. P. 2016. *The determinants of financial statement quality of companies listed on stock market evidence in Vietnam*. PhD Thesis. University of Economics Ho Chi Minh City.
- Huy, D.T.N., & Hien, D.T.N. (2010). The backbone of European corporate governance standards after financial crisis, corporate scandals and manipulation. *Economic and Business Review*, 12(4), 215-240.
- Huy, D.T.N. (2015). The Critical Analysis of Limited South Asian Corporate Governance Standards after Financial Crisis. *International Journal for Quality Research*, 9(4), 741-764.
- Huy, D.T. (2012). Estimating Beta of Viet Nam listed construction companies groups during the crisis. *Journal of Integration and Development*, 15(1), 57-71.
- Hribar, P., & Collins, D. W. (2002). Errors in estimating accruals: Implications for empirical research. *Journal of Accounting research*, 40(1), 105-134.
- Jones, J.J. (1991). Earnings management during import relief investigations. *Journal of accounting research*, 29(2), 193-228.
- Khan, M., Srinivasan, S., & Tan, L. (2017). Institutional ownership and corporate tax avoidance: New evidence. *The Accounting Review*, 92(2), 101-122.
- Landry, S., Deslandes, M., & Fortin, A. (2013). Tax aggressiveness, corporate social responsibility, and ownership structure. *Journal of Accounting, Ethics & Public Policy*, 14(3), 611-645.
- McGuire, S.T., Omer, T.C., & Wang, D. (2012). Tax avoidance: Does tax-specific industry expertise make a difference? *The Accounting Review*, 87(3), 975-1003.
- Nam, H.T. (2017). *Ownership structure and empirical tax avoidance behavior in researching companies listed in Vietnam stock market*. Master Thesis. University of Economics Ho Chi Minh City.
- Ngoc Hung, D. (2019). Investigating the Trends of Profit Management Following the Change of Corporate Income Tax Rate–The Case of Listed Firms in Vietnam Stock Exchange. *Journal of Economics and Development*, 219, 46-54.
- Lan, N.T.H., & Huy, D.T.N. (2021). Developing students' mathematical competence through equipping them with necessary knowledge about metacognition-and activities in teaching mathematics in secondary school. *Laplace em Revista*, 7(3B), 24-35.
- Hoa, N.T., Huy, D.T.N., Le Thi Thanh Huong, N.D., & Trung, N.T.D. (2021). Analysis of Case Teaching Method in Universities-An Economic Case Study in Pyrolysis Project. *Design Engineering*, 12108-12119.

- Omer, T.C., Molloy, K.H. & Ziebart, D.A. (1993). An investigation of the firm size—effective tax rate relation in the 1980s. *Journal of Accounting, Auditing & Finance*, 8, 167-182.
- Anh, P., Trung, N.D., & Huy, D.T.N. (2021). What are effects of tax changes on market risk?-a case in listed Viet Nam investment and financial service companies. *Laplace em Revista*, 7(Extra-E), 497-504.
- Phuong, N.H.K. (2018). *Analysis of factors affecting tax avoidance behavior of enterprises listed on Ho Chi Minh City Stock Exchange*. Master Thesis. University of Economics Ho Chi Minh City.
- Rego, S.O. (2003). Tax-avoidance activities of US multinational corporations. *Contemporary Accounting Research*, 20, 805-833.
- Richardson, G., & Lanis, R. (2007). Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. *Journal of accounting and public policy*, 26, 689-704.
- Richardson, G., Taylor, G., & Lanis, R. (2013). The impact of board of director oversight characteristics on corporate tax aggressiveness: An empirical analysis. *Journal of Accounting and Public Policy*, 32, 68-88.
- Taylor, G., & Richardson, G. (2013). The determinants of thinly capitalized tax avoidance structures: Evidence from Australian firms. *Journal of International Accounting, Auditing and Taxation*, 22, 12-25.
- Thi, N.D. (2018). *Factors affecting corporate income tax avoidance: An empirical study in Vietnam*. Master Thesis. University of Economics Ho Chi Minh City.
- Zimmerman, J.L. (1983). Taxes and firm size. *Journal of accounting and economics*, 5, 119-149.