Tax Avoidance and Investment Efficiency: Can Competition in Product Markets Mediate?

Retnaningtyas Widuri[1,*] Vanessa Naomi[2] Lovena Cicilia Bumulo[3] Jonathan Bima Wijaya[4]

[1,2,3,4] *Tax Accounting Department, Petra Christian University, Surabaya, Indonesia*
[*]*Corresponding author. Email:* widuri@petra.ac.id

ABSTRACT

This study examines the relationship between tax avoidance and investment efficiency, mediated by product market competition in Indonesian public listed companies. The existence of tax avoidance also depends on how the company's managers make investment decisions. If managers can utilize tax avoidance properly, investment efficiency will increase. The increasing investment in a company is also influenced by competition in the market through product market competition. Indirectly, this competition makes the company take some investments that will support the company's development to survive through the competition. Investment by companies on their product development would ensure the product's adequacy to compete in market competition. A product that competes well in the market would also naturally raise the company's investment efficiency. The result depends on the manager's decision based on their market demands; the investment could still be either efficient or inefficient. The Indonesia's public non-financial companies (Tbk companies) listed in Indonesia Stock Exchange from 2014 to 2018 were used as the samples of the study. The data were processed by the SPSS and Warp PLS program. Research results indicate that there is a positive relationship between tax avoidance and investment inefficiency.

Keywords: Investment Efficiency, Managerial Ability, Product Market Competition, Tax Avoidance

1. INTRODUCTION

Most of the country's largest revenue generally comes from tax revenues. This revenue is used to sustain the country/national development and welfare for civil society. Tax is a very important component in the revenue of "*Anggaran Pendapatan dan Belanja Negara*" as known as APBN [1]. Based on the report from Revenue Statistics in Asian and Pacific Economies [2], the tax revenue that Indonesia relies on comes from corporate tax (taxes on income, profit, and capital gains) and Value Added Tax (VAT).

Taxes are mandatory contributions that must be paid by taxpayers to the country. In fact, there are still so many taxpayers who want to pay the tax as minimum as possible or do not pay it at all. One of the actions taken by taxpayers to reduce the tax that they should pay is tax avoidance. It is a familiar thing to hear in the world of taxation because that is the permitted form of tax avoidance. Tax avoidance is a form of tax management that is legally allowed. This method has been done by so many companies, especially companies in Indonesia.

Higher tax avoidance can make companies with high managerial abilities increase investment efficiency [3]. The more competent managers' performance is, the more capable managers at measuring the timing and size of economic returns from investments and assessing the risks and returns related to the investment [4]. Companies expect that managers with higher abilities will be able to use the results of increasing tax avoidance to increase their investments to be more efficient.

Managers are responsible for strategic decision making and planning the main operations in the company [5]. Also, the manager's ability is an important factor for assessing the investment taken by the company to become under or over-invest [6]. Investment is said to be efficient if the investment that is made by the company does not show under or over investment.

Reference [7] states that companies will do tax avoidance when going through an intense business competition. This aims to reduce the company's

spending so that it can be focused on supporting the company to survive during the competition in the market. Besides that, tax avoidance is also used for financing investments taken by companies. Companies in more competitive industries will take more risks than usual [8]. The risks are being measured by capital expenditures, research and development (R&D) expenditures, and the standard deviation of stock returns from other companies in less competitive industries.

Then, this research also explains that the Product Market Competition (PMC) moderates the relationship between over-investment and positive Free Cash Flow. Reference [8] states that PMC is used as a decision-making tool regarding investment. Companies in a competitive market spend more on R&D and Corporate Venture Capital (CVC). A high level of PMC will make a shift in internal R&D spending to be more focused on CVC [9].

Our research uses a sample of public listed non-financial companies in Indonesia from 2014 to 2018 which are listed on the Indonesia Stock Exchange (IDX). From this study, we assume that there is a relationship between Tax Avoidance (TA) by companies and Investment Efficiency (IE) mediated by the Product Market Competition (PMC). The proxy that is used for Tax Avoidance is Effective Tax Rate (ETR), while the proxy for Investment Efficiency is based on residuals from the regression model. The residual is used to see whether there is a deviation from investment. Our research is using the calculations from the SPSS and Warp PLS program.

Our research makes several contributions. First, our literature contributes to the research about tax avoidance by using samples from public listed companies in Indonesia. Second, our literature contributes to investment efficiency based on the sample used. We also explain how to efficiently invest in companies.

2. LITERATURE REVIEW

2.1. Tax Avoidance and Investment Efficiency

Generally, there are two types of tax avoidance (i.e. tax avoidance and tax evasion). Reference [10] explains the existence of tax avoidance and tax evasion are essential factors to consider because they affect the volume and nature of government finances which are the key to economic national development. Tax avoidance can be defined as the reduction of taxpayers' tax liability and exploit the loopholes in the tax regulations or tax laws. The taxpayer is doing it intending to pay less tax than it should be paid to the tax authorities.

Meanwhile, reference [11] states that tax evasion is dishonest acts attempted by taxpayers to reduce their tax liability over illegal actions. Tax evasion usually involves taxpayers who deliberately commit to doing illegal acts or criminal acts that are breaking the rules (tax law). Tax evasion's activity can be classified as dishonest tax reporting, i.e. understating income, documenting fictitious transactions, and exaggerating expenses. Acceptable tax avoidance (tax avoidance) has characteristics such as (i) has good business objectives, (ii) is not merely to avoid taxes, (iii) is following the spirit and intention of parliament, (iv) does not manipulate the transactions [12]. Meanwhile, unacceptable tax avoidance (tax evasion) has characteristics that are very opposite to the characteristics of acceptable tax avoidance. It can be concluded that acceptable tax avoidance is a tax avoidance that is allowed or legal action in taxation, but unacceptable tax avoidance is classified as tax avoidance that should not be applied because it violates the existing laws and also classified as manipulation activity [13].

Investment is a general activity to obtain positive benefits and develop the company. Reference [14] states that investment is an activity of placing some fund that is expected to be maintaining, increasing value, or providing a positive return for the company itself. In investing, companies must do some investment planning so that the taken investment provides benefits or advantages. Therefore, the company's managers must pay attention to the strategy and plan the best investment plan. Investments that are made without a proper plan can lead to under or over investment.

2.2. Product Market Competition

Nowadays, competition in a business or market is not something new to hear. Competition is a multidimensional construction that comes from companies in an industry and potential entrants [15]. This competition happens due to several factors. According to Porter (Five Forces of Porter), i.e. threats from newcomers, threats from the existence of substituted goods, bargaining power of suppliers, bargaining power of customers, and competitors in the business. Aside from competition between companies in an industry, companies must encounter competition from potential new entrants [16].

The threat from new entrants puts tension on prices, so the existing firms must retain their profits or increase investment to constrain new firms from entering the industry. The threat from new entrants depends on the barricades or costs of entering the market. When the barricades to entry are high and the threats of entry are low, new entrants will need to incur significant resource costs to enter the industry. Then, when the barricades to entry are low, the new company will enter the market immediately. Sooner or later new entrants will lead the market if the existing firms do not do anything to survive during this competition.

2.3. Hypothesis Development

2.3.1. The relationship of Tax Avoidance and Investment Efficiency

Reference [17] states that the investment that the company (manager) takes is funded from tax avoidance activities. Moreover, companies that do tax avoidance have more funds to invest. Based on prior research by [3], companies with good managerial skills or good corporate governance will increase investment efficiency when the level of tax avoidance in the company is high enough.

H1: Tax Avoidance has a positive effect on Investment Inefficiency

2.3.2. The relationship of Tax Avoidance and Investment Efficiency mediated by the Product Market Competition

Reference [8] states that companies that are in a highly competitive environment tend not to waste their resources. If managers waste a considerable amount of resources, then the company will be unable to compete or survive through the competition. Companies that are unable to compete in a competitive market will go through bankruptcy. Prior research also explains that product market competition indirectly affects risk-taking because the results of management decisions are more closely observed. Reference [18] states that monitoring the manager is very important to prevent free cash flow investment under the cost of capital. Many companies with high or positive free cash flow tend to over-invest and it will lead to an investment inefficient.

H2: Product Market Competition mediating the relationship between Tax Avoidance and Investment Inefficiency

3. METHOD

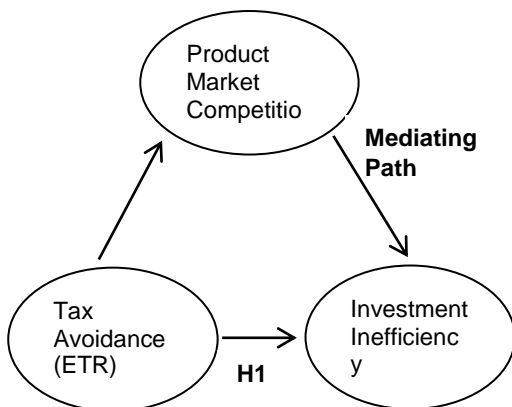#### 3.1. Research Model

Figure 1 Research Model

3.2. Sample Selection

We use a sample of public listed non-financial companies in Indonesia that are listed on the Indonesia Stock Exchange (IDX) from 2014 to 2018. The sample of companies in Indonesia consists of 7 business sectors, i.e. agriculture, basic industry and chemicals, consumer goods industry, infrastructure utilities and transportation, mining, property real estate and building construction, trade services and investments, and miscellaneous industry. All data for measuring the variables were obtained from Bloomberg. There are 394 companies based on the sectors in Indonesia, but we only use companies that have a positive value of ETR, Sales Growth, and HHI/Market Share.

3.3. Regression Model

Investment efficiency occurs when there is no deviation from the expected investment. Companies that invest above optimal (positive deviations from expected investment) will tend to over-invest. Otherwise, companies that do not carry out all profitable projects (negative deviations from expected investment) will become under-invest. Reference [19] states that estimate a firm's specific investment model as a function of growth opportunities (as measured by sales growth) and use residuals as a proxy to see any deviations from investment (investment inefficiency). They identify the over and under-invest using the following model to explain investing at the firm level:

$$\text{Investment}_{i,t} = \beta_0 + \beta_1 * \text{Sales Growth}_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

In this equation (1), $\text{Investment}_{i,t}$ is the total investment of a company i in year t and $\text{Sales Growth}_{i,t-1}$ is the percentage of changes in sales of company i from year $t-1$ to t. Whereas $\varepsilon_{i,t}$ is a residual.

3.4. Variable Measurement

Reference [20] said that investment efficiency means doing all projects with a positive Net Present Value (NPV). For the dependent variable, we use the residual from the regression model Equation (1). The residual from the regression model represent deviations from the expected level of investment. A positive residual implies that the company is investing at a higher rate than expected in accordance with sales growth, so it will lead to an over-investment. Otherwise, negative residual describes when a real investment is less than expected will lead to an under-investment. The negative residual value is multiplied by -1, a higher value means a higher efficiency [20].

Reference [21] we measure tax avoidance using the company's effective tax rate (GAAP ETR). We use the ETR as our measurement tools or proxy for the independent variable (Tax Avoidance). As we know,

ETR is often used to measure the level of tax avoidance in a company. ETR is calculated using the formula for total tax expense divided by income before tax (adjusted for special items). Reference [21] uses this measure to describe several goals that managers may have in terms of tax avoidance. The greater the ETR value, the smaller level of tax avoidance by the company, and vice versa. Therefore, the ETR should be multiplied by -1 so that the ETR value can be equal to show tax avoidance. After the multiplying process, we can imply that greater ETR indicates greater tax avoidance.

Our mediating variable measurement is following [22] by using Herfindahl – Hirschman index (HHI) as a measurement tool. Basically, HHI is a tool to measure the market concentration by summing the squares of the market share of each company in the industry. We use this following formula to measure HHI:

$$HHI = PS_1^2 + PS_2^2 + \ldots + PS_N^2 \qquad (2)$$

PS = sales of a company in a certain year divided by the total sales for that year

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistic

Descriptive statistics are intended to analyze data based on the results obtained from the research data of each variable measuring indicator.

Table 1 shows that the average ETR is 28,8646 and the standard deviation value is 54,3525. The number of ETR data whose value is below the average value is 711 data and the number of ETR data whose value is above the average value is 255 data. Data with an ETR value below the average value shows that most research data illustrates the level of tax avoidance by companies is getting bigger. The residual average for IE is - 0,00000000022 and the standard deviation value is 6.475,4310. Furthermore, the residuals with a positive value are 274 data means that the company is investing at a higher than expected rate, in accordance with sales growth (over-investment). While the residuals with a negative value are 692 data, which means investing at a lower level than expected in accordance with sales growth (under-investment). The average of HHI is 0,1615 and the standard deviation value is 0,5343. The standard deviation value of ETR, IE, and HHI are greater than the average value, which means that the data is not normally distributed. This is the reason for using PLS to test the hypothesis in this study.

4.2. Model Fit

The fit indices and p-value models show in table 2 the results of three fit indicators namely average R-square (ARS), average variance inflation factor (AVIF),

and coefficient average path (APC). The results of the fit model are shown in table 2.

The significant value on the APC is less than 10% and the AVIF value is less than 5. It means the goodness criteria of the fit model have been met. However, its GoF value is categorized as very low.

4.3. Hypothesis Testing

In this section, we explain that our hypothesis is tested by Path Coefficients, P-Value, Indirect Effect, and R-Square. In assessing the structural model with the PLS structure, it can be seen from the R-Square value for each endogenous latent variable as the predictive strength of the structural model. The R-Square value is a goodness fit model test. Changes in the R-Square value are used to explain the effect of certain exogenous latent variables on endogenous latent variables, whether they have a substantive effect. The results of the PLS R-Squares present the total variance of the constructs described by the model. The results of the Warp-PLS regarding the research hypothesis show in table 3.

Table 1. Descriptive statistics

Variables	Min	Max	Mean	SD
TA	0,0002	1.124,5390	28,8646	54,3525
IE	-4,489.7792	31.871,1017	-0,00000000022	6.475,4310
PMC	0,0001	4,9584	0,1615	0,5343

Table 2. Model fit

Indicators	Index	P-Value
APC	0,054	0,022
ARS	0,002	0,237
AARS	0,001	0,246
AVIF	1,002	
AFVIF	1,002	
GoF	0,046	

Table 3. Statistical results

Variable Relationship	Path Coefficients	P-Value
TA → PMC	-0,046	0,077
TA → IE	-0,068	0,016
PMC → IE	-0,049	0,062

The explanation from table 3 is: (1) TA has an insignificant negative effect on PMC, seen from the coefficient value of -0,046 with an insignificant level (p-

value) of less than 10% (should be less than 5%). This means that high TA has an insignificant impact on decreasing PMC; (2) TA has a significant negative effect on IE, seen from the coefficient value of -0,068 with a significant level (p-value) of less than 5%. This means that the high TA has a significant impact on decreasing IE; (3) PMC has an insignificant negative effect on IE, seen from the coefficient value of -0,049 with a significant level (p-value) of less than 10% (should be less than 5%). This means that high PMC has an insignificant impact on decreasing IE.

The R-Square value from the resulting conceptual framework model is shown in Figure 2.

Based on Figure 2 and Table 4, the value of R-Square on the PMC variable is 0,002. It means that the magnitude of the influence of TA on PMC is very low, (i.e. 0,2%). Also, the magnitude of the R-square value on the IE variable is 0,002. From that, we can imply that the influence of TA and PMC is very low, (i.e. 0,2%).
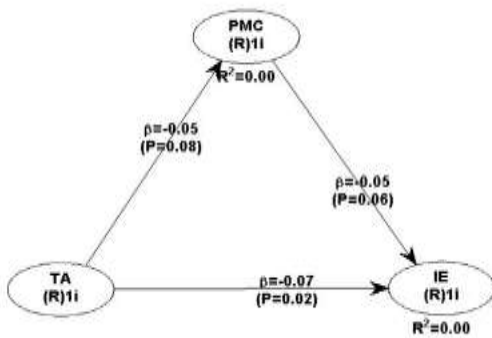

Figure 2 SEM Analysis Model

Table 4. R squared results

Variables	R-square
PMC	0,002
IE	0,002

Table 5. Indirect effects

	TA	IE	PMC
TA			
IE			
PMC	0,002 (0,461)		

Based on Table 5, it can be explained that the magnitude of the indirect effect of TA on IE through PMC is 0,02% and insignificant (sig>5%), which means

that PMC is not proven as a mediating variable between TA and IE.

We can conclude that our hypothesis 1 is proven. It can be seen from the p-value TA to IE is 0,02 which means below 5%, so the TA has a significant impact on IE. Our results supported by the result from [23], that cash from tax avoidance is not efficiently used to invest. It indicates that the relationship between TA and IE is negative. The negative relationship can be seen from path coefficients -0,068. We can also understand it as a higher TA will lead to a lower IE. Therefore, a higher tax avoidance will lead to a higher investment inefficiency.

The mediating variable is not significant because the indirect effect is 0,461 (more than 5%). Therefore, our second hypothesis is not proven. Greater competition does not engage firm cash saving from tax avoidance to fund their investment. This is disagreeing with the research from [23] that greater competition will impact the firm cash tax savings from tax avoidance to fund their investment. We conclude that PMC is not mediating the relationship between TA and IE. The explanation of why PMC is not mediating can be from every aspect. Reference [24] states that industry classification and sample period can significantly affect the performance of industry portfolio. Also, a higher concentration market leads to lower competition in the market [25] and [26]. Lower competition means that product markets competition is not significant enough. Hence, PMC is not mediating the relationship between TA and IE.

5. CONCLUSION

Prior research suggests that the existence of a competent manager's ability can influence decision making in investing to be more efficient. If the results of tax avoidance are used properly, investment efficiency will increase. Our results indicate that there is a positive relationship between tax avoidance and investment inefficiency. This relationship means that if tax avoidance increases, investment inefficiency will also increase, and vice versa. Unfortunately, our results do not imply Product Market Competition as the mediating variable to the relationship between tax avoidance and investment efficiency. Our findings are consistent with the findings from ref [23] about the positive relationship between tax avoidance and investment inefficiency. A higher level of tax avoidance leads to a higher level of investment inefficiency. Future research that uses public listed companies in Indonesia as samples should use more complex data, variables, and maybe different proxies to gain a better result.

REFERENCES

[1] Kemenkeu.go.id, "Menkeu : Pajak merupakan ulang punggung nasional," *29 desember*, 2018. .

[2] Oecd, "Tax revenue trends in Asian and Pacific economies," in *Revenue Statistics in Asian and Pacific Economies*, 2020.

[3] I. K. Khurana, W. J. Moser, and K. K. Raman, "Tax avoidance, managerial ability, and investment efficiency," *Abacus*, vol. 54, no. 4, pp. 547–575, 2018, doi: 10.1111/abac.12142.

[4] P. Demerjian, B. Lev, and S. McVay, "Quantifying managerial ability: A new measure and validity tests," *Manage. Sci.*, vol. 58, no. 7, pp. 1229–1248, 2012, doi: 10.1287/mnsc.1110.1487.

[5] M. Salehi, A. Daemi, and F. Akbari, "The effect of managerial ability on product market competition and corporate investment decisions: Evidence from Iran," *J. Islam. Account. Bus. Res.*, vol. 11, no. 1, pp. 49–69, 2020, doi: 10.1108/JIABR-10-2016-0113.

[6] I. M. García-Sánchez and E. García-Meca, "Do talented managers invest more efficiently? The moderating role of corporate governance mechanisms," *Corp. Gov. An Int. Rev.*, vol. 26, no. 4, pp. 238–254, 2018, doi: 10.1111/corg.12233.

[7] T. Wang, "Product market competition and efficiency of corporate tax management," *Asian Rev. Account.*, vol. 27, no. 2, pp. 247–272, 2019, doi: 10.1108/ARA-07-2018-0136.

[8] I. Laksmana and Y. W. Yang, "Product market competition and corporate investment decisions," *Rev. Account. Financ.*, vol. 14, no. 2, pp. 128–148, 2015, doi: 10.1108/RAF-11-2013-0123.

[9] K. Kim, A. Gopal, and G. Hoberg, "Does product market competition drive CVC investment? Evidence from the U.S. IT industry," *Inf. Syst. Res.*, vol. 27, no. 2, pp. 259–281, 2016, doi: 10.1287/isre.2016.0620.

[10] F. O. F. Jacob, "An empirical study of tax evasion and tax avoidance : A critical issue in Nigeria economic development," *J. Econ. Sustain. Dev.*, vol. 5, no. 18, pp. 22–27, 2014.

[11] O. M. Uadiale, T. O. Fagbemi, and J. O. Ogunleye, "An empirical study of the relationship between culture and personal income tax evasion in Nigeria," *Eur. J. Econ. Financ. Adm. Sci.*, vol. 20, no. 20, pp. 116–126, 2010.

[12] D. Darussalam, "Tax planning, agressive tax planning, tax avoidance, dan anti tax avoidance," *Inside Tax DDTC*, pp. 6–8, 2007.

[13] R. DDTCNews, "Ada Covid-19, DJP Ubah Strategi & Cara Optimalisasi Penerimaan Pajak?," 2020. .

[14] I. P. G. . Suta, *Menuju pasar modal modern*. Jakarta: Yayasan SAD Satria Bhakti, 2000.

[15] J. R. Rakestraw, "International evidence on product market competition and firm value (Doctoral dissertation, Virginia Tech)," Virginia Polytechnic Institute and State University, 2015.

[16] M. E. Porter, *Books by competitive strategy*. New York: The Free Press, 1990.

[17] J. Slemrod, "The economics of corporate tax selfishness," *Natl. Tax J.*, vol. 57, no. 4, pp. 877–899, 2004, doi: 10.17310/ntj.2004.4.06.

[18] S. Richardson, "Over-investment of free cash flow," *Rev. Account. Stud.*, vol. 11, no. 2–3, pp. 159–189, 2006, doi: 10.1007/s11142-006-9012-1.

[19] G. C. Biddle, G. Hilary, and R. S. Verdi, "How does financial reporting quality relate to investment efficiency?," *J. Account. Econ.*, vol. 48, no. 2–3, pp. 112–131, 2009, doi: 10.1016/j.jacceco.2009.09.001.

[20] M. F. Cutillas Gomariz and J. P. Sánchez Ballesta, "Financial reporting quality, debt maturity and investment efficiency," *J. Bank. Financ.*, vol. 40, no. 1, pp. 494–506, 2014, doi: 10.1016/j.jbankfin.2013.07.013.

[21] S. D. Dyreng, M. Hanlon, and E. L. Maydew, "The effects of executives on corporate tax avoidance," *Account. Rev.*, vol. 85, no. 4, pp. 1163–1189, 2010, doi: 10.2308/accr.2010.85.4.1163.

[22] X. Giroud and H. M. Mueller, "Corporate governance, product market competition, and equity prices," *J. Finance*, vol. LXVI, no. 2, pp. 563–600, 2011.

[23] M. Asiri, A. Al-Hadi, G. Taylor, and L. Duong, "Is corporate tax avoidance associated with investment efficiency?," *North Am. J. Econ. Financ.*, vol. 52, p. 101143, 2020, doi: 10.1016/j.najef.2020.101143.

[24] S. Li, Q. Liu, and J. Refalo, "Industry classification, product market competition, and firm characteristics," *Financ. Res. Lett.*, vol. 36, p. 101319, 2020, doi: 10.1016/j.frl.2019.101319.

[25] A. J. I. Wibowo, "Analisis industri makanan tradisional berbasis concentration ratio , herfindahl- hirschman index , dan minimum efficient scale Analysis of traditional food industry based on concentration ratio , herfindahl-hirschman index , and minimum efficient scale," *J. FEB Unmul*, vol. 15, no. 1, pp. 26–43, 2019.

[26] A. and Prasetyo and A. Y. Asmara, "Pengembangan industri kecil menengah sektor makanan melalui pendekatan klaster di Kota Magelang: Perspektif kebijakan iptek," *Din. Tidar*, vol. 40, pp. 194–235, 2014.