



The Impact Of E-Commerce On Tax Avoidance In Indonesia: Empirical Study On Companies Registered In Indonesia Stock Exchange

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ABSTRACT

This paper examines the influence of e-commerce on tax avoidance for companies listed on the Indonesia Stock Exchange (IDX). The research will use quantitative and qualitative methods. The determinants consist of e-commerce, year, the moderation of e-commerce and year, multi-nationality, and intangible assets to tax avoidance aggressiveness with some control variables. The analysis is based on samples of 624 Indonesian firms listed on the Indonesian Stock Exchange (IDX) over 2019-2022 (2472 firm-years). Tax avoidance aggressiveness will be measured using Effective Tax Rates. All models will be processed using panel EGLS (cross-section weights). Regression results show that e-commerce, the moderation of e-commerce and year, multi-nationality, and intangible assets significantly affect tax avoidance aggressiveness. Meanwhile, the year variable does not affect tax avoidance aggressiveness. The qualitative method uses the literature study regarding the effectiveness of Base Erosion Profit Shifting 2.0 regarding the two-pillar approach to tackle challenges arising from the taxation of the digital economy. The research suggests utilizing its insights to enhance tax authorities' risk analysis, focus on audit processes, and advocate adopting BEPS 2.0 guidelines in Indonesia.

Index Terms— tax avoidance; e-commerce, multi-nationality, intangible assets

INTRODUCTION

INDONESIA'S tax ratio was 10.9% in 2021, 10.39% in 2022, and 10.21% in 2023 (Kompas, 2023). The number is below the Asia and Pacific average of 19.8% and the OECD average of 34.1% (OECD, 2023a). The low tax ratio is caused by low revenue performance (Handelwang and Bonn, 2010). In developing countries, the main factor causing the low performance of tax revenue is tax avoidance (Besley & Persson, 2014).

Hanlon and Heitzman (2010) introduced the term tax avoidance, in which companies use tax regulations to minimize the tax burden. In the digital era, the pattern of tax avoidance is increasingly varied following business developments (Kudrle, 2021). Meanwhile, year after year, the wave of information technology (IT) has created a new business phenomenon called e-business (Rafiah, 2022). Using IT development, various digital instruments such as e-payment and e-commerce have made cross-border transactions feasible (Dong He, 2021).

The development of e-commerce has rocketed over the past decade. E-commerce sales worldwide increased by 473% from 2014 (US\$1.336 billion) to 2024 (US\$6.330 billion) (Statista, 2024). Meanwhile, total e-commerce sales in Indonesia reached US\$62 billion in 2023 (Statista, 2023). Data from Statista (2024) shows the prospectus of the annual growth rate of e-commerce from 2024 to 2028. Globally, the annual growth of e-commerce is 9,83%. Meanwhile, Indonesia's e-commerce growth rate is 9,46%, above Russia's (9,42%), Italy's (8,8%), and Canada's (8,42%). However, in 2023, Indonesia became one of the top four leading countries based on retail sales e-commerce growth.

The rapid increase of e-commerce has caused tax avoidance globally and in Indonesia. According to the statement, the digital economy has exacerbated the risks of Base Erosion Profit Shifting (BEPS) (OECD/G20, 2015b). The OECD (2023b) indicates an annual loss of around USD 100-\$240 billion from e-commerce. The

Indonesian Directorate General of Taxes (DGT) has lost USD 40 billion from e-commerce transactions for 10 years (Sari, 2018). In 2021, the total income loss from the e-commerce sector reached USD 1 billion or IDR 15.000 billion (Berita Satu, 2021).

Schon (2017) stated three reasons why digitalization increases tax avoidance schemes. Firstly, digitization enables individuals to sell products and services anywhere without the need to create a physical entity (such as a permanent business) or subsidiary under the jurisdiction of the market nation. Second, the intangible asset (patent, algorithm) is the foundation for most successful digital businesses. Thirdly, regarding multinational corporations' economies of scale, these entities prefer a specific jurisdiction as a central to run their economic functions and value chain activities before designing the jurisdiction location.

This study will examine the impact of e-commerce to tax avoidance in Indonesia. In addition, the research also includes other determinants such as year, intangible asset, and the scale of multinationality, which have a tight relation with e-commerce business model extensivity. After identifying the tax avoidance behavior, the determinants can be included as the Compliance Risk Management (CRM) determinant for the Indonesian Directorate General of Taxes. In addition, the determinants could be used as inputs for Indonesia in implementing Base Erosion Profit Shifting 2.0 regarding the two-pillar approach to tackle challenges arising from the taxation of the digital economy.

II. TERM DEFINITION

This research will focus on examining the impact of e-commerce on tax avoidance aggressiveness. As a result, the terms e-commerce and tax avoidance should be defined below.

A. e-Commerce

E-commerce is the trade of goods or services using computer networks such as the Internet or online social networks (Buttner, 2017). Since its debut, e-commerce has allowed businesses to avoid traditional tax stages in many jurisdictions (Frecknall et al., 2001). A permanent establishment is unnecessary since it does not need a physical presence like a traditional business (Yapar et al., 2015). Argiles-Bosch et al. (2020) stated that the online environment allows e-commerce businesses to allocate transactions to the most tax-efficient jurisdiction and minimize costs by avoiding taxes.

B. Tax Avoidance

Atkinson and Stiglitz (1980) defined tax avoidance into three categories: deferring tax responsibilities, utilizing various tax rates, and arbitration alternative tax regimes. According to Kirchler et al. (2002), tax avoidance is an attempt to lower tax payments legitimately, such as by utilizing tax loopholes. In contrast, tax evasion is an unlawful attempt to avoid taxes.

According to Dyreng et al. (2008, 62), tax avoidance is all forms of corporate activity that reduce corporate tax rates. Hanlon and Heitzman (2010, 137) explained that tax avoidance is an activity that aims to explicitly reduce tax obligations. The explicit meaning is the arrangement of transactions to obtain profits, benefits, or tax reduction by utilizing the rules and regulations (Brown, 2012).

Therefore, the measurement of tax avoidance can be seen from two aspects: the imposition of effective tax rates and the determination of taxable income by companies. These measurements can reflect tax planning by reducing corporate tax liability without reducing accounting income (Hanlon & Heitzman, 2010, p. 140).

III. HYPOTHESIS DEVELOPMENT

Argiles-Bosch et al. (2020), through their journal, "An Empirical Examination of the Influence of e-commerce on Tax Avoidance in Europe," has studied the impact of e-commerce using some determinants in financial reports to identify how a corporate avoids taxes by using a robust model with five variables (e-commerce, year, the moderation of e-commerce and year, multi-nationality, and intangible assets). Meanwhile, no similar research has been conducted in Indonesia. Argiles-Bosch et al. (2020) stated that to increase supervision and assess the corporate's tax avoidance aggressiveness, research is needed to determine the most dominant factor affecting tax avoidance related to the digital economy. As a result, the hypothesis development for each variable is explained below.

A. Tax Avoidance Aggressiveness

Tax avoidance aggressiveness as the dependent variable will be measured by Effective Tax Rates (ETR). Hoopes et al. (2011, 1606) stated that ETR could provide a true picture of the tax burden experienced. ETR is derived from the tax a company pays and can be seen in annual reports or financial statements. Cheng et al. (2012, 1501) explained that the cash tax payment should be free from manipulation. Based on this, the ETR measurement is considered capable of showing indications of tax avoidance. ETR with a lower value indicates a greater occurrence of tax avoidance (Dyreng et al., 2008; Cheng et al., 2012). To get the ETR value, the tax cash paid will be divided by profit before tax according to the formulation of Dyreng (2008, 67) as follows:

Cash ETR_{it} = Tax Cash Paid_{it} / Profit Before Tax

B. E-Commerce

The first independent variable is e-commerce (ECOM). Tambunan and Rosdiana (2019) stated that the existence of digital economic activities would increase the possibility of restructuring business operations to eliminate the tax burden in tax countries or optimize profit shifts in tax countries. Klassen, Laplante, and Carnaghan (2014) discover an interaction impact between e-commerce and tax avoidance. Argiles-Bosch (2020) found empirical evidence that e-commerce firms are significantly more tax-avoidant than traditional firms. In this research, e-commerce is a dummy variable, represented by 1 if the corporate conducts e-commerce activities or 0 if the corporate conducts traditional business. As a result, the hypothesis could be stated:

H1: E-commerce business practices have a positive significant effect on tax avoidance.

C. Year

Argiles-Bosch (2020) found that in recent years, firms benefited less from the reductions in corporate tax rates than the previous year due to tax authority control and the exchange of information between countries. Measures against tax avoidance are being considered as part of the OECD/G20 (2015a) BEPS project and within the report prepared by the Indian Government's Committee on Taxation of E-Commerce (2016), among others. Meanwhile, Rafiah stated that the development and the extensivity of e-commerce and tax avoidance also developed significantly in recent years (Rafiah, 2022)

As a result, year (YEAR) will be considered the two-tailed independent variable. This research will use financial report data from 624 firms on the Indonesia Stock Exchange from 2019-2022 with an ordinal number of 1 for 2019, 2 for 2020, 3 for 2021, and 4 for 2022. The hypothesis will be stated as:

H2: Recent years have had a significant effect on tax avoidance.

D. The moderation of E-Commerce and Year

Argiles-Bosch (2020) found an interaction between recent years and e-commerce activity. The development and the extensivity of e-commerce have also developed significantly in recent years (Rafiah, 2022). As a result, the moderation of e-commerce and year (ECOMXYEAR) will be tested as a two-tailed independent variable. The hypothesis will be stated as follows:

H3: The moderation of e-commerce business practices and year significantly affects tax avoidance.

E. Multi-nationality

According to Alm (2012), tax avoidance in online commerce is particularly crucial in cross-border transactions. Corporates with extensive foreign operations or who derive income from foreign sources are more incentivized to engage in tax avoidance (Rego, 2003; Hanlon et al., 2005; Dyreng et al., 2008). Multinational firms, for instance, can reduce corporate taxes by locating operations in low-tax jurisdictions, shifting income from high-tax jurisdictions to low-tax jurisdictions, and exploiting the loopholes of tax rules in different countries (Slemrod, 2001).

Argiles-Bosch (2020) used a dummy variable 1 when the corporation has a foreign subsidiary. Meanwhile, to increase the robustness, this research will use a multi-nationality proxy defined by Richardson (2013) and Ramadhan (2017). Richardson (2013) used a total proxy of subsidiaries abroad divided by total subsidiaries as a proxy for multi-nationality because of research from Benvignatti (1985) that transfer pricing positively relates to the number of foreign subsidiaries.

Meanwhile, to adjust to the conditions in Indonesia, the proportion of foreign subsidiaries divided by total subsidiaries is modified to total foreign-related parties divided by total related parties (Ramadhan, 2017). Contrary to Indonesia, with a low wage rate, Indonesia must be the center of operations of multinational firms, so if this research use a proxy made by Richardson et al. (2013), multinational proxy becomes less relevant because the majority of multinational companies in Indonesia are subsidiaries (Ramadhan, 2017). Therefore, foreign-related parties divided by total related parties are used.

To test the effect of multi-nationality (MULTI) on tax avoidance, here is the hypothesis:

H4: Multi-nationality has a significant positive effect on the tax avoidance

F. Intangible Assets

Tax authorities are concerned about transfers of intangible assets (e.g., research and development expenditures, intellectual property, trademarks, and trade names) between group entities located in variably taxed jurisdictions (Grubert, 2003; Grubert & Mutti, 2006; Gravelle, 2009). Intangible assets are difficult to value at arm-length prices because they are difficult to assess (Gravelle, 2009).

Richardson et al. (2013) stated that intangible assets have unique value due to the lack of established markets and subjective valuations that firms can exploit in several jurisdictions. Hence, there is a substantive scope to engage in tax avoidance by transferring intangible assets to low-tax jurisdictions, such as tax havens (Dyreng et al., 2008). Intangible assets became more widespread and constitute an increasing share of total assets in both e-commerce and traditional firms (OECD, 2006).

To formally test intangible asset (INTANGIBLE_TO_TOTAL_ASSET) on tax avoidance, here is the hypothesis:

H5: Intangible assets have a significant positive effect on tax avoidance.

F. Control Variable

To increase robustness, this study will use some of the control variables. Argiles-Bosch (2020) also uses those control variables, which consist of inventory to the total assets. (INVENTORY_TO_TOTAL_ASSET), long-term debt to total asset (LDEBT), size logarithm of revenues (LOGREV), sum of profits in the last four years scaled by revenues in the current year (NOLREV), firm growth revenues at year t to revenues at year t-1 (REVENUE_GROWTH), return of profit on assets (ROA), tangible fixed asset to total asset (TANGIBLE_ASSET_TOTAL_ASSET), change in intangible fixed asset (VINTFA).

IV. RESEARCH METHOD

A. Sample Selection and Data Source

This research object is the secondary data obtained from the Indonesia Stock Exchange (IDX) from 2019 until 2022. The selection of the years 2019 to 2022 is based on consideration of the recent years that are available on the IDX website. The range does not include years 2023 and 2024 because the requirement for submitting audited financial reports for every firm in Indonesia is on the ninth month of the subsequent year. As a result, data from 2023 and 2024 are not yet available in the Indonesian Stock Exchange until September 2023 and September 2024. However, the study also does not use 2018 or below because the documentation requirement in the Indonesian Directorate General of Taxation and on the Indonesian Stock Exchange website is limited to 5 years (2019-2024).

This study used purposive sampling. This sampling data will then be processed and analyzed. In sampling, an unqualified population will be excluded from the sample. After that, a representative sample will be processed and analyzed. The sample is a part of the population (Sugiyono, 2010). The sample selection is done by eliminating the population members who have the following criteria:

Table 1. Purposive Sampling Result

No	Criteria	Total	Measurement
1	The corporate listed on the IDX in December 2022	807	Companies
2	Corporate did IPOs between 2020-2022	-147	Companies
3	Corporate did not submit the financial report	-36	Companies
	Total	624	Companies

Source: Processed from IDX

B. Research Model

Based on the hypotheses built on the theoretical foundation and the variables mentioned in the previous section, the author propose the initial research model as follows:

$$ETR_{i,t} = \alpha_{0i,t} + \beta_1 ECOM_{i,t} + \beta_2 YEAR_{i,t} + \beta_3 ECOMXYEAR_{i,t} + \beta_4 INTANG_{i,t} + \beta_5 MULTI_{i,t} + \beta_6 INVENTORY_{i,t} + \beta_7 LDEBT_{i,t} + \beta_8 LOGREV_{i,t} + \beta_9 NOLREV_{i,t} + \beta_{10} REVENUE_GROWTH_{i,t} + \beta_{11} ROA_{i,t} + \beta_{12} TANGIBLE_{i,t} + \beta_{13} VINTFA_{i,t} + \varepsilon_{it}$$

C. How to Test Hypothesis

The first step is to carry out descriptive statistical procedures. Descriptive statistics describe data collected without concluding from that data (Sugiyono, 2010). The second step is classic assumptions tests. The classic assumption tests include the autocorrelation test, the normality test, the multicollinearity test, and the heteroscedasticity test. Finally, the chosen model approach will be performed using multiple linear regression testing to see the results of F and t values. The significance test F is useful to see whether the model can explain the effect of the independent variables on the dependent variable simultaneously, while the significance test t is to see the effect of the independent variables individually on the research dependent variables.

Direct interpretation of the statistical test t results through the probability number based on the two-tailed test can lead to a mistake in making conclusions. Dividing the outputs into two-tailed probability values with number 2 has changed the two-tailed principle to one-tailed (Field, 2009).

V. RESULT AND DISCUSSION

A. Descriptive Statistic

According to Sumintono and Widhiarso (2013: 10–14), the ratio scale is an interval scale with an absolute zero value, while the nominal scale is a discrete measurement scale (not continuous) that states the category or group of an object. Data in the ratio scale are obtained from all types of calculations, such as probability numbers, numbers between 0 and 1, or numbers representing opportunities (Sumintono and Widhiarso, 2013, 14). Descriptive statistics of ratio scale variables in this study can be seen in Table II.

Table II. Descriptive Statistics

	ETR	ECOM	YEAR1	ECOMXYEAR	MULTI	INTANGBL	INVENTN	LODEBT	LODREV	INCLREV	REVENUE	ROA	TANGIBLE	INTTFA
Mean	0.381952	0.461165	2.500809	1.153722	0.258658	0.17381	0.13818	1.97932	4.51382	226.8192	39.29164	0.019787	0.294872	4.888971
Median	0.190217	0.000000	3.000000	0.000000	0.142667	2.388205	0.057058	0.186938	4.107746	4.202873	-0.246878	0.020885	0.234338	0.000000
Maximum	0.934602	1.000000	4.000000	4.000000	0.000000	0.803484	0.891818	3762.172	8.478113	166008.3	74418.87	4.978885	0.964328	8368.179
Minimum	-16.28126	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-7.474844	-1895.508	-33.19162	0.000000	-1.000000	-1.000000
Std. Dev.	2.721017	0.488890	1.118266	1.468610	0.399718	0.381976	0.158481	64.846488	0.965112	3826.262	1005.708	0.702761	0.205148	175.3627
Skewness	27.24713	0.158110	-0.020228	0.848188	0.889280	6.703848	1.478480	48.29321	-0.583683	34.38146	49.29868	-0.822118	0.822181	48.29178
Kurtosis	618.9483	1.024277	1.640004	0.187181	2.482267	61.61938	3.284148	2372.788	3.870668	1368.892	2445.028	-1411.080	2.022758	228.807

Source: Processed with Eviews 12

Table II shows that the ECOM variable has a minimum value of 0 and a maximum of 1 with an average of 0.461165. This number shows that the e-Commerce is carried out on more than 40% of the sample for 4 sample years. Secondly, the YEAR variable has a minimum value of 1 and a maximum value of 4 with an average of 2.500809 and a standard deviation of 1.18260. Meanwhile, the moderation between e-Commerce and Year (ECOMXYEAR), has a minimum value of 0 and a maximum of 1 with an average of 1.153722. MULTI variable has a minimum value of 0 and a maximum value of 1 with an average of 0,258658, which means that the degree of multinationality is reaching 25,86% of the total related party. Lastly, the intangible asset to total asset variable (INTANG) has a minimum value of 0 and a maximum value of 0,803044 with a median of 0.017381. This number shows that the intangible assets only represent 1,738% of the firm's total assets.

B. Overall Fit of the Model Test

The overall fit of the model test is used to determine whether the model being tested fits the data (Ghozali, 2016, p. 328). This test uses the Likelihood L function. Likelihood L is the probability that the hypothesized model describes the input data by transforming L into -2LogL (Ghozali, 2016, p. 328).

Likelihood Ratio Test is the difference of -2LogL in Iteration History Block 0=Beginning Block for constants only with -2LogL in Iteration History Block 1: Method=Enter for models with independent variables including constants distributed as x2 with df (difference in df of both models) (Ghozali, 2016, p. 329). This -2LogL difference will be compared with the Chi-Square table to test the hypothesis. If -2LogL count > X2 (p) (Chi-square table), then Ho is rejected. However, if -2LogL count < X2 (p) (Chi-square table), then Ho is accepted (Ghozali, 2016, p. 329).

This result will be comparable to the Chi-Square value in the Omnibus Test of Model Coefficients table. The hypotheses to assess the fit mode in the Likelihood Ratio

Test are:

Ho: The independent variable does not affect the dependent variable.

H1: The independent variable simultaneously affects the dependent variable, or at least one independent variable affects the dependent variable.

The Chi-square result is equivalent to the Chi-square value of the Omnibus Test of Model Coefficients. At 5% alpha and degree of freedom (df) = k = 14. K is the number of predictor variables consisting of the total independent variables, and the Chi-square table value is 23.685 for the dependent variable.

Based on Table III, the summary of the results of the iteration history block is -2 LogL, the value of Chi-square count, or the value of -2 Log Likelihood count for the ETR variable. Because 884.6784 > 23.6854 or -2 Log Likelihood count > X2(p) (ChiSquare table), then Ho is rejected. In conclusion, the model significantly affects the ETR variable.

Table III. Log Likelihood Table

S.E. of regression	3.730252	Akaike info criterion	-0.705241
Sum squared resid	34216.45	Schwarz criterion	-0.674673
Log likelihood	884.6784	Hannan-Quinn criter.	-0.694137
Durbin-Watson stat	1.350233		

Source: Processed with Eviews 12

C. Classic Assumption Test

1. Normality Test

The normality test aims to evaluate whether, in the regression model, the confounding variable (residual) has a normal distribution (Ghozali, 2013, p. 160). Gujarati (2004, 147) states that there are several ways to test for normality, including a histogram of residuals, a normal probability plot (NPP), a graphical device, and the Jarque-Bera test.

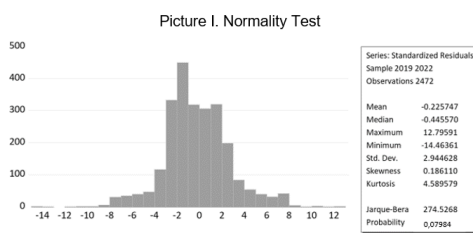
Normality testing in this study will be tested using the Jarque-Bera test model. The Jarque-Bera method will be run with the Eviews 12 program. The Jarque-Bera test model is suitable for testing large asymptotic samples (Widarjono, 2010, p. 49). Testing for normality in the Jarque-Bera test uses the calculation of skewness, kurtosis, and probability. Skewness value describes the level of asymmetry in the distribution of data around the average, while kurtosis describes the level of sharpness and evenness of data distribution (Gujarati, 2004, p. 886). The hypothesis for the normality test is as follows:

Ho : Residual value is normally distributed

H1 : Residual value is not normally distributed

Suppose the Jarque-Bera probability test produces a value of more than 0.05 at an alpha level of 0.05. In that case, Ho is accepted, so it can be concluded that the residual value is normally distributed. However, suppose the Jarque-Bera probability test produces a value of less than 0.05 at an alpha level of 0.05. In that case, Ho is rejected, so it can be concluded that the residual value is not normally distributed.

The results of the normality test using the Jarque-Bera model in Picture I show that the Skewness value is 0.186110, the Kurtosis value is 4.589479, and the Jarque-Berra value is 274.5268 with a probability of 0.07894. Because the test results show that the Jarque-Berra value and probability are more than 0.05, H_0 is accepted, so it can be concluded that the residual value is normally distributed.



Source: Processed with Eviews 12

2. Heteroscedasticity Test

The heteroscedasticity test aims to evaluate whether, in the regression model, there is an inequality of variance from the residual of one observation to another observation (Ghozali, 2013, p. 139). Furthermore, according to Ghozali (2013, 139), there are several ways to detect the presence or absence of heteroscedasticity, including through Breusch-Pagan-Godfrey. The hypotheses used in the Heteroscedasticity test are:

H_0 : Non-Heteroscedasticity (Homoscedasticity)

H_1 : Heteroscedasticity

The following table IV shows the results of the heteroscedasticity test.

The chi-squared test's null hypothesis (H_0) shows no heteroscedasticity in the regression model. Based on the p-value (0,0308), which is less than (0.05), it means that H_0 is not rejected, and there are no heteroscedasticity symptoms in the tested regression model. Thus, based on the residual heteroscedasticity test results, the regression model assumptions that do not allow for heteroscedasticity are met and the regression model is homoskedastic.

Table IV. Heteroscedasticity Test Table

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	3.052751 (0.0806)	1.613035 (0.2041)	4.665785 (0.0308)
Honda	-1.747212 (0.9597)	-1.270053 (0.8980)	-2.133529 (0.9836)
King-Wu	-1.747212 (0.9597)	-1.270053 (0.8980)	-1.388126 (0.9175)
Standardized Honda	-1.574975 (0.9424)	-0.995431 (0.8402)	-19.42277 (1.0000)
Standardized King-Wu	-1.574975 (0.9424)	-0.995431 (0.8402)	-4.864968 (1.0000)
Gourieroux et al.	--	--	0.000000 (1.0000)

Panel Cross-section Heteroskedasticity LR Test			
Equation: UNTITLED			
Specification: ETR ECOM YEAR ECOMXYEAR MULTI			
NTANGIBLE TO TOTAL ASSET INVENTORY TO TOTAL ASS			
ET LDEBT LOGREV/NOLREV REVENUE_GROWTH ROA			
TANGIBLE_ASSET_TO_TOTAL_ASSET VINTFA			
Null hypothesis: Residuals are homoskedastic			
	Value	df	Probability
Likelihood ratio	15266.26	624	0.0000
LR test summary:			
	Value	df	
Restricted LogL	-6748.451	2459	
Unrestricted LogL	694.8784	2459	

Source: Processed with Eviews 12

3. Auto-Correlation Test

The autocorrelation test aims to evaluate whether, in the linear regression model, there is a correlation between the confounding error in period t and the confounding error in period t-1 (previous period) (Ghozali, 2013, p. 110). Autocorrelation arises because consecutive observations over time are related (Ghozali, 2013, p. 110). The hypotheses for autocorrelation testing are:

H_0 : Non-Autocorrelation

H_1 : Autocorrelation

Furthermore, Ghozali (2013, 110) states that several ways can be used to detect autocorrelation problems, including the Durbin-Watson test, the Lagrange Multiplier (LM) test, the Statistic Q: Box-Pierce and Ljung Box test, and the Run Test. The following are the results of the Durbin-Watson test, as shown in Table V.

The table shows that the Durbin-Watson stat is $D=1.390072$. Meanwhile, the DL value with $k=14$ is 1.368,

while the DU is 1.640. There is no positive or negative autocorrelation because $D > DL$ and $D < DU$.

Table V. Auto-Correlation Test Table

R-squared	0.495625	Mean dependent var	2.504461
Adjusted R-squared	0.492957	S.D. dependent var	4.172897
S.E. of regression	2.862304	Sumsquared resid	20137.86
F-statistic	185.7967	Durbin-Watson stat	1.390072
Prob(F-statistic)	0.000000		

Source: Processed with Eviews

4. Multicollinearity Test

The multicollinearity test aims to test whether the regression model found a correlation between the independent variables (independent) (Ghozali, 2013, p. 105). Furthermore, Ghozali (2013, 105) also states that a good regression model should not correlate with independent variables. Because if the independent variables are correlated, then these variables are not orthogonal, or the correlation is equal to zero. Multicollinearity testing, according to Ghozali (2013, 105), is carried out in several ways as follows:

- 1) The value of R² generated by an empirical regression model estimation is very high, but it is possible that many independent variables do not significantly affect the dependent variable.
- 2) Analyse the correlation matrix of the independent variables. If the correlation between independent variables is fairly high (generally above 0.90), this indicates a multicollinearity problem.
- 3) See the tolerance value and the Variance Inflation Factor (VIF) value. These two values indicate which independent variables are explained by other independent variables.

The cut-off value generally used to assess the presence of multicollinearity is 0.10 for the tolerance value and 10 for the VIF value. If the results of the multicollinearity test show the tolerance value = 0.10 or the VIF value = 10, then there is a multicollinearity problem in the regression model. The following research uses the multicollinearity test in the third method, Variance Inflation Factors, as shown in Table VI Multicollinearity Test.

Table VI. Multicollinearity Test

Variance Inflation Factors			
Date: 03/16/24 Time: 03:19			
Sample: 2019 2022			
Included observations: 2472			
Variable	Coefficient Variance	Uncentered VIF	Centered MF
C	0.000186	48.00476	NA
ECOM	0.000293	7.387891	6.666631
YEAR01	3.37E-06	7.338691	1.111790
ECOMXYEAR	3.46E-05	7.332872	6.725899
MULTI	0.000230	1.691614	1.319533
INTANGIBLE_TO_...	0.005099	1.152367	1.089369
INVENTORY_TO_...	0.000285	2.512218	1.259812
LDEBT	3.41E-08	2.749913	2.749245
LOGREV	6.79E-06	55.84319	1.962412
NOLREV	2.07E-12	1.042284	1.039934
REVENUE_GROWTH	7.19E-11	1.002825	1.002220
ROA	0.000199	2.983281	2.905013
TANGIBLE_ASSET...	0.000102	1.911847	1.249789
VINTFA	1.74E-10	1.014473	1.014044

Source : Processed with Eviews 12

The table above shows that the value of Centered VIF for all of the variables is less than 10, so there is no multicollinearity problem in the prediction model.

D. Testing the Main Research Model

The main research model testing will evaluate the Goodness of Fit of this research model. The regression equation for ETR in this study can be written as follows:

$$\begin{aligned}
 ETR_{i,t} = & \alpha_{0,i,t} + \beta_1 ECOM_{i,t} + \beta_2 YEAR_{i,t} + \beta_3 ECOMXYEAR_{i,t} + \beta_4 INTANG_{i,t} + \beta_5 MULTI_{i,t} + \beta_6 INVENTORY_{i,t} \\
 & + \beta_7 LDEBT_{i,t} + \beta_8 LOGREV_{i,t} + \beta_9 NOLREV_{i,t} \\
 & + \beta_{10} REVENUE_GROWTH_{i,t} + \beta_{11} ROA_{i,t} + \beta_{12} TANGIBLE_{i,t} + \beta_{13} VINTFA_{i,t} + \varepsilon_{it}
 \end{aligned}$$

Statistically, the fit model test can be measured from the value of the coefficient of determination, the value of the F-statistic, and the value of the t-statistic (Ghozali, 2013, p. 97).

1. Coefficient of Determination (R)

According to Ghozali (2013, 97), the Coefficient of Determination (R²) essentially measures how far the model can explain variations in the dependent variable. Furthermore, Ghozali (2013, 97) states that the value of the coefficient of determination is 0 to 1. The value of the coefficient of determination for this study is shown in Table VII. Results of R-squared.

Table VII. Result of R-Squared

R-squared	0.495625	Mean dependent var	2.504461
Adjusted R-squared	0.492957	S.D. dependent var	4.172897
S.E. of regression	2.862304	Sum squared resid	20137.86
F-statistic	185.7967	Durbin-Watson stat	1.390072
Prob(F-statistic)	0.000000		

Source: Processed by Eviews 12

It can be interpreted that the greater the coefficient of determination value, the greater the determination of the independent variable in predicting the variation of the dependent variable. The coefficient of determination (R) value is shown in the Adjusted R-squared value, which is 0.492957. So, it can be concluded that the independent and control variables used in the research model can explain 49,29% of the variation of the dependent variable. Meanwhile, 50,71% of the variation in the dependent variable is explained by other variables not examined in this research model.

2. Simultaneous Significance Test (F Statistics Test)

When included in the model, the F-statistic test shows whether all independent or independent variables will produce a joint effect on the dependent or dependent variable (Ghozali, 2013, p. 98). The hypothesis in the Simultaneous Significance test (Statistical Test F) is as follows:

Ho : The independent variable has no significant effect on the dependent variable

H1 : The independent variable has a simultaneous effect on the dependent variable, or at least one independent variable affects the dependent variable.

Table VIII. Regression Result

Dependent Variable: ETR				
Method: Panel EGLS (Cross-section weights)				
Date: 03/16/24 Time: 03:14				
Sample: 2019 2022				
Periods included: 4				
Cross-sections included: 624				
Total panel (unbalanced) observations: 2472				
Linear estimation after one-step weighting matrix				
Period weights (PCSE) standard errors & covariance (d.f. corrected)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.109951	0.013641	-8.060596	0.0000
ECOM	0.094878	0.017128	5.538515	0.0000
YEAR01	-0.001449	0.001836	-0.789607	0.4298
ECOMYEAR	-0.025441	0.005881	-4.326037	0.0000
MULTI	0.280198	0.015156	18.48749	0.0000
INTANGIBLE_TO_TOTAL_ASSET	0.170760	0.071407	2.391341	0.0169
INVENTORY_TO_TOTAL_ASSET	0.078318	0.016880	4.639652	0.0000
LDEBT	0.001193	0.000185	6.459531	0.0000
LOGREV	0.023325	0.002606	8.948866	0.0000
NOLREV	-5.63E-07	1.44E-06	-0.391226	0.6957
REVENUE_GROWTH	-2.48E-08	8.48E-06	-0.002930	0.9977
ROA	0.116562	0.014121	8.254735	0.0000
TANGIBLE_ASSET_TO_TOTAL_ASSET	0.235467	0.010091	23.33405	0.0000
VINTFA	-5.13E-06	1.32E-05	-0.389216	0.6971
Weighted Statistics				
R-squared	0.495625	Mean dependent var	2.504461	
Adjusted R-squared	0.492957	S.D. dependent var	4.172897	
S.E. of regression	2.862304	Sum squared resid	20137.86	
F-statistic	185.7967	Durbin-Watson stat	1.390072	
Prob(F-statistic)	0.000000			

Source: Processed with Eviews 12

Ghozali (2013, 98) states that two criteria can be used: direct statistics to see the value of the F-quick test and t-statistic. The F-quick test compares the calculated F-statistical value with the F-table. The Quick Look F-statistical value criteria are based on the calculated F-probability value at the alpha confidence level. If the value of Prob. (F-statistic) is smaller than the 5% alpha confidence level, then Ho is rejected so that the independent variable simultaneously affects the dependent variable, or at least one independent variable affects the dependent variable. Meanwhile, if the value of Prob. (F-statistic) the count is greater than the 5% alpha confidence level, then Ho cannot be rejected.

Based on Table VIII, it is known that the value of Prob. (F-statistic) in this study is 0.00000. This study's probability value of F is less than 0.05 at the 5% alpha level. Because the probability value of F is less than 0.05, the decision taken is that Ho is rejected. So, it can be concluded that this study's independent and control variables simultaneously affect the dependent variable, or at least one independent variable affects the dependent variable.

3. Individual Parameter Significance Test (Test Statistical t)

The individual parameter significance test (Test Statistics t) shows how significant each independent variable individually explains the variation of the dependent variable (Ghozali, 2013, p. 98). The hypothesis used to test the significance of individual parameters (Test Statistical t) is as follows:

Ho: The independent variable individually does not affect the variable dependent

H1: Independent variables individually affect the dependent variable

Ghozali (2013, 99) states that the F-statistic is used with two criteria: looking directly at the Quick Look value or comparing the statistical value of the t-count with the t-table. The first criterion is to see the Quick Look value directly based on the alpha confidence level's probability value (p-value). If the probability value (p-value) is smaller than the confidence level, the decision is to reject H_0 and vice versa. Meanwhile, the second criterion is done by comparing the t-value of the regression results (t-count) with the t-table value; if the t-count value is greater than the t-table value, the decision taken is to reject H_0 .

Based on Table IX, F-statistics, and t-statistics, the probability of the t-statistical test can be seen from the probability value of the t-statistics. However, by default, this statistical processing program is based on the assumption of a two-tailed test so that to obtain the probability value for the one-tailed test, it must be divided by 2 (Field, 2009, 332).

Table IX. Probability Value Conversion Result

Variable	Approximate Sign	Two-Tailed Probability	One Tailed Probability	Coefficient Sign
C	?	0.0000	0.0000	-
ECOM	+	0.0000	0.0000	+
YEAR	?	0.4298	0.2149	-
ECOMXYEAR	?	0.0000	0.0000	-
MULTI	+	0.0000	0.0000	+
INTANGIBLE	+	0.0169	0.00845	+

Source: Processed with EViews 12

Table IX of the Conversion Results of the One-tailed Test Probability Value shows that two variables have a value (Sig.) based on the one-tailed test below 0.05. These are the independent variables ECOM, ECOMXYEAR, MULTI, and INTANGIBLE. Meanwhile, YEAR is above 0.05. The model shows that all independent variables except YEAR affect the dependent variable.

Therefore, the logistic regression model for ETR is obtained as follows:

$$\text{ETRit} = -0.109951 + 0.094878 \text{ ECOMit} - 0.001449 \text{ YEARit} - 0.025441 \text{ ECOMXYEARit} + 0.280198 \text{ MULTIit} + 0.170760 \text{ INTANGIBLEit} + 0.078318 \text{ INVENTORYit} + 0.001193 \text{ LDEBTit} + 0.023325 \text{ LOGREVit} - 5.63e-07 \text{ NOLREVit} - 2.48E-08 \text{ REVENUE_GROWTHit} + 0.116562 \text{ ROAit} + 0.235467 \text{ TANGIBLEit} - 5.13E-06 \text{ VINTFA}$$

The model for independent variables can be explained below. The greater the ecommerce business value, the greater the value of effective tax rate (tax avoidance aggressiveness). When the increase in e-commerce business increases by one basis, the value of the effective tax rate (tax avoidance aggressiveness) will increase by 0.094878 basis points, assuming other variables are constant (ceteris Paribus). YEAR = - 0.001449 means that the recent year will reduce the value of the effective tax rate (tax avoidance aggressiveness) by 0.001449 basis points with the assumption that other variables are constant (ceteris Paribus). ECOMXYEAR = - 0.025441 means that e-commerce business in recent years will reduce the value of effective tax rate (tax avoidance aggressiveness) by 0.025441 basis points with the assumption that other variables are constant (ceteris Paribus). MULTI = 0.280198 means that the multi-nationality level will increase the value of the effective tax rate (tax avoidance aggressiveness) by 0.280198 basis points with the assumption that other variables are constant (ceteris paribus). Finally, INTANGIBLE = 0.170760 means that a larger proportion of intangible assets will increase the value of the effective tax rate (tax avoidance aggressiveness) by 0.170760 basis points with the assumption that other variables are constant (ceteris Paribus).

E. Hypothesis test

The hypothesis will be tested in one stage of analysis. The analysis was conducted to determine the effective tax rate (tax avoidance aggressiveness) or ETR using the independent variables ECOM, YEAR, ECOMXYEAR, MULTI, and INTANGIBLE. Table X, Summary of Regression Results, summarizes the overall regression results. It presents the estimated coefficient value and the probability of the f-statistic value of the individual parameter significance regression test (t-test statistic).

Table X. Summary of Regression Results

Variable	Coefficient Sign	Koef.	Significance
C	-	-0.109951	0.0000
ECOM	+	0.094878	0.0000
YEAR	-	-0.001449	0.2149
ECOMXYEAR	-	-0.025441	0.0000
MULTI	+	0.280198	0.0000
INTANGIBLE	+	0.170760	0.0084
INVENTORY	+	0.078318	0.0000
LDEBT	+	0.001193	0.0000
LOGREV	+	0.023325	0.0000
NOLREV	-	-5.63E-07	0.3478
REVENUE_GROWTH	-	-2.48E-08	0.4988
ROA	+	0.116562	0.0000
TANGIBLE	+	0.235467	0.0000
VINTFA	-	-5.13E-06	0.3485
Significance		49.29%	

Source: Processed from Eviews 12

a. Ecommerce business firms has a positive effect on tax avoidance aggressiveness. Based on the output of the regression results in Table X Summary of Regression Results, ECOM variable has a positive sign Sig. 0.00000.

This means that e-commerce business have a significant positive effect on tax avoidance aggressiveness, and the hypothesis is accepted. The results of proving the hypothesis are in line with the research of et al. (Argiles-Bosch, 2020), which found empirical evidence that e-commerce firms are significantly more tax avoidant than traditional firms. According to Tambunan and Rosdiana (2019), the advent of digital economic activities would improve the possibilities of corporate operation restructuring in order to minimise the tax burden in a high-tax nation or maximise profits relocated to a low-tax country.

b. Year does not has significant effect on tax avoidance aggressiveness. Based on the output of the regression results in Table X Summary of Regression Results, YEAR variable has a negative sign Sig. 0.2149. This means that year does not have a significant effect on tax avoidance aggressiveness, and the hypothesis is rejected. The results of proving the hypothesis differ with the research of et al. (Argiles-Bosch, 2020), which found empirical evidence that Uni European corporations have been less tax avoidant in recent years than in earlier years because governments have been researching and adopting methods and regulations to target and manage tax avoidance. The European Commission's anti-tax avoidance package, as well as the shared consolidated corporate tax base being studied (Roggeman, 2015), are examples of the EU's present preoccupation with this issue. Meanwhile, there are no differences between previous and recent years in Indonesia because, while the Directorate General of Taxation has attempted to implement transfer pricing supervision to reduce profit shifting and tax avoidance, as well as to increase the use of Automatic Exchange of Information, the schemes are only applied to some large taxpayers and do not cover all firms. As a result, there will be no differences between previous and recent year schemes in tax avoidance for all of the firms registered in the IDX.

c. The moderation of e-commerce business and year significantly negatively affects tax avoidance aggressiveness. Based on the output of the regression results in Table X Summary of Regression Results, the ECOMXYEAR variable has a negative sign Sig. 0.0000. This means that e-commerce firms have had a negative significant effect on tax avoidance aggressiveness in recent years, and the hypothesis is accepted. The results of proving the hypothesis align with the research of et al. (Argiles-Bosch, 2020), which found empirical evidence that e-commerce Uni European corporations have been less tax avoidant in recent years than in earlier years. For example, in the EU, transfer pricing regulation has gradually been enacted (Lohse & Riedel, 2012), eroding e-commerce enterprises' previous overall advantage over traditional trade. Measures against tax avoidance are being considered as part of the OECD/G20 (2015a) BEPS project and within the report prepared by the Indian Government's Committee on Taxation of E-Commerce (2016), among others. Indonesia has also endeavored to implement the guidance of the BEPS project on the taxation of e-commerce by focusing on e-commerce firms. Although tax avoidance aggressiveness by e-commerce firms still occurs, the number has decreased in recent years. Consequently, the government still needs to set a strategy to reduce and eliminate tax avoidance in e-commerce firms.

d. Multinationality has a significant positive effect on tax avoidance aggressiveness. Based on the output of the regression results in Table X Summary of Regression Results, the MULTI variable has a positive sign Sig. 0.0000. This means that multinational firms positively affect tax avoidance aggressiveness, and the hypothesis is accepted. The results of proving the hypothesis are in line with the research of et al. (Argiles-Bosch, 2020), which found empirical evidence that multinational corporations have been more tax avoidant. Multinational firms, for instance, have the opportunity to reduce corporate taxes by locating operations in low-tax jurisdictions, by shifting income from high-tax jurisdiction to low tax jurisdictions, and by exploiting the loopholes of tax rules in different countries (Slemrod, 2001).

e. Intangible asset has significant positive effect on tax avoidance aggressiveness. Based on the output of the regression results in Table X Summary of Regression Results, ECOMXYEAR variable has a negative sign Sig. 0.0084. This means that intangible asset has a positive significant effect on tax avoidance aggressiveness, and the hypothesis is accepted. The results of proving the hypothesis are in line with the research of et al. (Argiles-Bosch, 2020), which found empirical evidence that intangible assets have increased the tax avoidance aggressiveness. Richardson et al. (2013) stated that intangible assets have unique value due to the lack of established markets and subjective valuations that firms can exploit in several jurisdictions.

VI. SOLUTION TO REDUCE TAX AVOIDANCE ON E-COMMERCE FIRMS

Based on the result above, e-commerce firms in Indonesia tend to avoid tax avoidance by utilizing multinational-level and intangible assets. Meanwhile, Indonesia currently does not have special tax regulations for digital firms. Furthermore, the discussion on tax avoidance in e-commerce firms could not be separated from international taxation. OECD is currently working on Base Erosion Profit Shifting 2.0, which consists of Two Pillars to address challenges arising from digital taxation. Pillar One and Pillar Two could increase global corporate income tax (CIT) revenues by about USD 50-80 billion per year or up to around 4% of global CIT revenue (OECD, 2020a).

OECD stated that pillar One means a significant change in how taxing rights are shared among jurisdictions and market jurisdictions can get an extra \$100 billion in profits. However, pillar Two is expected to bring in a lot more Corporate Income Tax (CIT) because it would make multinational corporations much less appealing to shift profit to low-income tax countries. The research from Eden (2020) stated that the Caribbean islands are likely to suffer the largest relative losses of taxation. However, middle-income jurisdictions in East Asia and the Pacific will get the largest gains from the imposition of pillar One.

In addition, the OECD (2020a) also stated that Pillar One and Pillar Two are expected to have little effect on the average investment costs of multinational enterprises (MNEs). This will have a small negative effect on global investment, mostly affecting MNEs that are very profitable in digitalized and intangible-intensive sectors under Pillar One and those that shift their profits under Pillar Two.

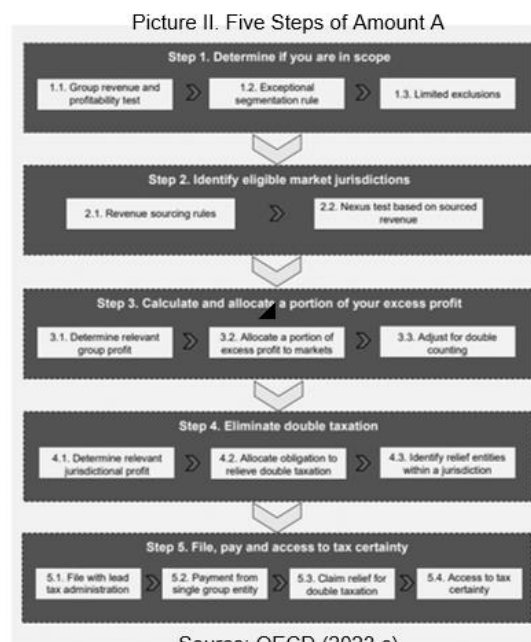
Pillar, one of the OECD's frameworks, tries to accommodate new business models by revising profit allocation and nexus regulations (OECD, 2020a). OECD (2020a) stated that it aims to broaden taxing powers for market jurisdictions, particularly those where enterprises actively participate in the local economy. Meanwhile, pillar two of the OECD seeks to ensure that major multinational corporations pay a minimum amount of tax, regardless of their headquarters or operational locations (OECD, 2020a).

A. Pillar I OECD

Pillar I OECD consists of Amount A and Amount B. Amount A aims to co-ordinate and reallocate taxing rights of market jurisdictions over a portion of the excess profit (i.e. profit over 10% of revenue) of the largest and most profitable multinational enterprises (MNEs) operating in their market, with a corresponding obligation to relieve double taxation (OECD, 2023 c). Meanwhile, Amount B improved tax certainty processes to improve tax certainty through innovative dispute prevention and dispute resolution mechanisms (OECD, 2024).

1. Amount A

OECD (2023, a) describes the concept system for Amount A. Amount A only applies to multinational enterprises (MNEs) making over EUR 20 billion in global revenue and having profits exceeding 10% of their global revenue. If successfully implemented after a 7-year review, this threshold will drop to EUR 10 billion. It redistributes 25% of the MNE's extra profit (profits exceeding 10% of its revenue) to the jurisdictions where the MNE earns its revenue (market jurisdictions). Certain exclusions apply for extractives, regulated financial services, defence and certain domestically oriented businesses. This allocation is adjusted or canceled if the market jurisdiction already taxes the MNE's extra profit outside the multinational consolidated group (MLC). Jurisdictions are then required to provide relief for double taxation. The diagram for the Amount A system is shown in Picture II below:



The diagram above can be explained below. Firstly, to navigate the OECD's international tax framework, businesses must determine their eligibility within the scope of the regulations. This involves assessing whether they meet specific criteria, notably being very large and highly profitable, with revenue exceeding EUR 20 billion and profitability surpassing 10%. However, even if these thresholds aren't met, specific segments reported in financial statements may still be considered. It's essential to note that specific industries, such as extractives, regulated financial services, defense, and purely domestic-oriented businesses, are excluded from these regulations.

Once eligibility is established, the next step is identifying eligible market jurisdictions. This requires companies to pinpoint their customers' locations and allocate revenues accordingly. Additionally, companies must ascertain whether a market jurisdiction can tax their profits based on specific thresholds, irrespective of physical presence.

Following this, companies must calculate and allocate a portion of their excess profit. This entails starting with the profit reported in financial accounts and using a formula to allocate a defined portion to market

jurisdictions. Adjustments are made to avoid double taxation, incorporating mechanisms such as the Marketing and Distribution Safe Harbour Adjustment.

Companies comprehensively assess their profits in each jurisdiction to eliminate double taxation, considering factors like depreciation and payroll. Obligations to relieve double taxation are then allocated using a tiered approach based on return on depreciation and payroll, focusing on entities entitled to claim relief within each jurisdiction.

Finally, companies must file tax returns, make payments, and access tax certainty. This involves filing a consolidated tax return covering all liabilities worldwide, with a designated payment entity managing payments. Relief entities within the corporate make compensating payments with provisions for double tax relief. Access to mechanisms ensuring certainty over tax rules and dispute resolution processes for tax-related issues adds a layer of assurance and compliance within the OECD's international tax framework.

The most important step of Amount A above is in step 2 about the revenue sourcing rules. The revenue sourcing rule will determine the portion of allocation in a country. OECD (2022) explained the revenue sourcing rules as an outline s how revenues earned by a Covered Group are attributed to specific jurisdictions. Revenues should reflect differences in products, quantities, and prices across jurisdictions. Revenues are categorized, and if they fit into multiple categories, they're assigned based on their primary nature.

These revenue sourcing rules can be categorized as Table XI below.

Table XI. Revenue Sourcing Rules

No	Transaction	Attributed to Jurisdiction
1	Sale of Goods	the place of delivery
2	Sale of Digital Content	the place of use of the service on
3	Sale of Components	the place of delivery of the finished goods
4	Location-Specific Services	where the service is performed
5	Advertising services	location of the viewer or the place of display of advertisement
6	Online Intermediation Services	the location of the purchaser and seller or the location of the service
7	Transport Services	the destination or origin of the service
8	Customer Reward Programs	the location of active members
9	Other services	the location of service usage
10	Intangible property	the place of delivery of associated goods, the use of the service or digital content, or the location of the property's use
11	User data	the location of the user associated with the data
12	Real property	the location of the property
13	Government grants	the jurisdiction where the grant was made or funded

▲ Source: OECD (2022)

2. Amount B

Amount B addresses the importance of distribution functions for multinational enterprises (MNEs) and the potential transfer pricing disputes related to marketing and distribution arrangements. It proposes a simplified approach based on existing guidelines to approximate fair pricing for these arrangements. The aim is to ease compliance, prevent disputes, and resolve them efficiently. However, it emphasizes that this approach is a simplification measure and should not override the general principles outlined in the existing guidelines or be applied to interpret other transactions.

OECD (2024) explained that Amount B outlines the process for determining the return on sales percentage for a tested party involved in in-scope transactions using a simplified and streamlined approach. Amount B using pricing matrix which is a global dataset of companies involved in marketing and distribution activities based on net operating asset intensity (OAS), operating expense intensity (OES), and industry groupings. After determine pricing, firms can calculate a weighted average return if necessary. To demonstrates compliance, the acceptable range is plus or minus 0.5% of the return on sales percentage from the pricing matrix shown in Table XII below.

Table XII. Pricing Matrix

Industry Grouping	Industry Grouping 1	Industry Grouping 2	Industry Grouping 3
Factor Intensity			
(A) OAS 45% or more, any level of OES	3.50%	5.00%	5.50%
(B) OAS 30% to 44.99%, any level of OES	3.00%	3.75%	4.50%
(C) OAS 15% to 29.99%, any level of OES	2.50%	3.00%	4.50%
(D) OAS less than 15%, OES 10% or more	1.75%	2.00%	3.00%
(E) OAS less than 15%, OES less than 10%	1.50%	1.75%	2.25%

Source : OECD (2024)

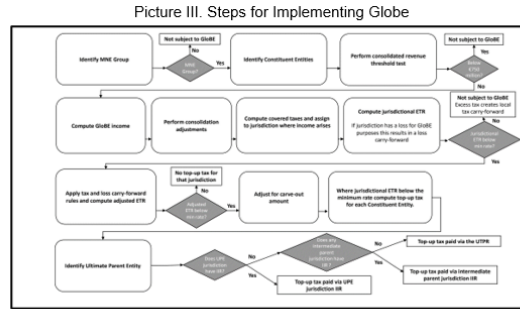
B. Pillar Two OECD

OECD (2020 b) stated that Pillar Two aims to ensure that large MNEs pay a minimum level of tax by implementing rules that address various tax challenges and prevent profit shifting. It seeks to ensure minimum taxation, cope with different tax system designs and business models, ensure transparency, and minimize administrative costs. The minimum tax in pillar II is also called Global Anti-Base Erosion (Globe).

The principal mechanism of Globe is the Income Inclusion Rule (IIR), Undertaxed Payments Rule (UTPR), and Subject to Tax Rule (STTR). The IIR triggers taxation at the shareholder level if income of a controlled foreign entity is taxed below the minimum rate. The UTPR acts as a backstop. Additionally, STTR denies treaty benefits

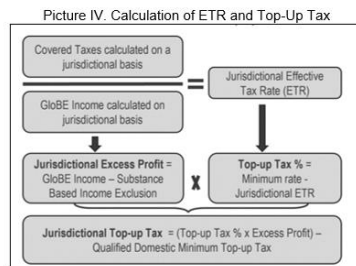
for certain deductible intra-group payments made to low-tax jurisdictions. While the IIR and UTPR can be implemented through domestic law changes, the STTR and Switch-Over Rule require changes to bilateral tax treaties or multilateral conventions like the MLI.

The rules apply to MNE Groups meeting a EUR 750 million annual gross revenue threshold OECD (2020 b). This threshold aligns with BEPS Action 13 Country by Country Reporting (CbCR) rules, reducing compliance costs and ensuring that impactful MNE Groups are covered (OECD, 2016). OECD (2020 b) used ETR to know whether the tax is below the minimum rate. The ETR is calculated on a jurisdictional basis, ensuring that MNEs pay the minimum rate in each jurisdiction where they operate. It involves adjustments for covered taxes and income to determine the top-up tax. The picture III below shows the steps for implementing Globe.



Source: OECD (2022 b)

The computation for ETR and calculation of the top-up tax is shown in picture VI below. The jurisdictional effective tax rate (ETR) is the calculated covered tax divided by Globe Income, calculated on a jurisdictional basis. Subsequently, the top tax is counted from the minimum rate deducted by jurisdictional ETR. Meanwhile, the jurisdictional excess profit is counted from Globe Income, deducted by substance-based income exclusion. The jurisdictional top-up tax is counted from the multiplication of top-up tax % with excess profit and then deducted by the qualified domestic minimum top-up tax.



Source: OECD (2022 b)

OECD (2022 b) stated that Globe and Global Intangible Low Taxed Income (GILTI) have a similar purpose and overlapping scene. The GILTI regime, influenced by aspects of the BEPS Action 3 Report, establishes a minimum tax requirement for the overseas earnings of a multinational enterprise (MNE) group. In 2017, the United States introduced the Global Intangible Low-Taxed Income (GILTI) regime as a significant overhaul of its international tax regulations. However, the design of GILTI differs from GloBE in several important respects, as shown in Table XIII.

Aspect	Globe	GILTI
Purpose	Establish a minimum level of taxation for multinational enterprises globally to prevent profit shifting and erosion of tax bases.	Discouraging profit shifting by U.S. multinational corporations to low-tax jurisdictions.
Scope	Apply globally and requires countries to enact domestic legislation to ensure multinational companies pay a minimum level of tax on their profits.	Applicable to U.S.-based multinational corporations and their foreign subsidiaries.
Mechanism	Proposes a top-down approach including income inclusion rules and undetaxed payment rules to tax income earned in low-tax jurisdictions and deny deductions or impose withholding taxes on certain payments made to related parties.	Operates through immediate U.S. taxation on certain types of income earned by foreign subsidiaries of U.S. multinational corporations.
Legal Framework	A proposal put forward by the OECD and subject to negotiation among OECD member countries and stakeholders.	A provision under U.S. tax law (U.S. Code §951A).
Implementation	It has not yet been implemented but is under negotiation among OECD member countries.	Already implemented as part of the U.S. Tax Cuts and Jobs Act of 2017.
Applicability	Intended to apply to multinational enterprises operating globally, subject to domestic legislation enacted by individual countries.	Applicable to U.S. taxpayers, including U.S.-based multinational corporations.
Permissiveness	It is more permissive than GILTI in terms of carrying forward losses and excess taxes, a broader definition of covered taxes, and a carry-over based on a broader range of tangible assets and royalties.	Allows for a global blending of foreign income and taxes but is less permissive in certain aspects compared to Globe.
Limitation	Applies without threshold limitations and incorporates expense allocation rules.	Applies without threshold limitations and incorporates expense allocation rules in calculating foreign tax credits, potentially resulting in effective tax rates above the minimum rate.
Rate	The minimum rate is set at 12%.	The effective rate is set to increase from 13.125% to 16.4% in 2028.

Source: OECD (2022 b) and §951A(a)

VII. CONCLUSION

The regression analysis results indicate several significant findings regarding the factors affecting tax avoidance aggressiveness within firms:

- a. E-commerce firms exhibit a significant positive effect on tax avoidance aggressiveness, indicating that these businesses are more inclined to engage in tax avoidance strategies. This aligns with prior research suggesting that e-commerce firms tend to be more tax-avoidant than traditional ones.
- b. The year variable does not significantly affect tax avoidance aggressiveness. This contradicts previous research findings that suggest changes in tax regulations and enforcement practices over time may influence firms' tax avoidance behavior. For example, European corporations have become less tax avoidant in recent years due to increased regulatory scrutiny following the BEPS project and within the report prepared by the Indian Government's Committee on Taxation of E-Commerce (2016). The Indonesia Directorate General of Taxation has also endeavored to enforce transfer pricing oversight to mitigate profit shifting and tax avoidance, alongside promoting the utilization of Automatic Exchange of Information. However, these measures have been selectively applied, targeting primarily large taxpayers and leaving many firms uncovered. Consequently, there is a lack of disparity in tax avoidance between previous and recent years for all firms registered in the IDX.
- c. The interaction between e-commerce business and year significantly affects tax avoidance aggressiveness, showing a negative effect. This suggests recent years have decreased tax avoidance aggressiveness among e-commerce firms, possibly due to regulatory changes and increased enforcement efforts focusing on digital companies, similar to trends observed in European corporations.
- d. Multinational firms demonstrate a significant positive effect on tax avoidance aggressiveness. This finding is consistent with previous research indicating that multinational corporations tend to engage in more aggressive tax planning strategies, such as profit shifting and exploiting tax loopholes across different jurisdictions.
- e. Intangible assets also have a significant positive effect on tax avoidance aggressiveness. This suggests that firms with substantial intangible assets are more likely to engage in tax avoidance practices, possibly due to the ease of manipulating valuation and transfer pricing related to these assets.

VIII. IMPLICATION/LIMITATION AND SUGGESTIONS

Based on the results, the author proposes some implications/limitations and suggestions, as follows.

A. Implications

- a. This research provides insight into the criteria of companies listed on the IDX that tend to avoid corporate tax based on firms' business models (e-commerce), year, and the moderation of e-commerce business models with year, multinational level, and intangible asset.
- b. The tax authority can use this research as a risk analysis criterion to oversee the fulfillment of tax obligations. For instance, Indonesian DGT has a Compliance Risk Management system, which ranks the risk of tax avoidance from the taxpayers by considering some determinants. In addition, the audit process could focus more on firms with significant tax avoidance criteria.
- c. This research will urge the needs suggest that the Indonesian Directorate General of Taxes should regulate the tax aspect for digital companies following the BEPS 2.0 guidelines by implementing the Two Pillar solution to tackle challenges arising from digital companies. The Two Pillar solution is crucial because transfer pricing, which applies the value creation concept and the needs of physical presence, as well as Automatic Exchange of Information, is not enough to eliminate the tax avoidance potential arising from digital companies.

B. Limitation

The limitation of this research was the purposive sampling of companies listed on the IDX. The author suggest using wider sample for future research. In addition, the 2023 data has not yet provided until September 2024. Future research can include the data ranges from 2019 to 2024.

C. Suggestion

- a) Further research can exclude samples from mining companies and financing companies as conducted by Fontanella and Martani (2015) and Richardson (2014). The finance and mining industry sector has some differences in reporting such as regarding the long term debt and inventory and can make results biased. However, because in this research the long term debt and inventory act as control variable, the potential for biased will not significantly affecting the result.
- b) Further research can use other measurement methods on the dependent variable for tax avoidance. The use of other proxies such as long-run ETR can be used to measure the effect of a variable on long-term tax avoidance, such as research conducted by several referral journals. The long-run ETR is computed as the sum of cash tax paid over a long period of 5 or 10 years divided by the sum of pre-tax income over the same period.

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