The Effect of The COVID-19 Pandemic on The Tax Compliance of Digital Economy Business

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ABSTRACT

Purpose: Tax authority have faced one of the challenges collecting tax revenue during the Covid-19 pandemic in decreasing of the economy will potentially leads firms in financial distress. Financial distress motivated firms to engage tax avoidance. Moreover, activities in the digital economy that are growing rapidly could be a challenge to prevent tax avoidance. Thus, this research intends to investigate how the Covid-19 pandemic affects associations between businesses that engage in digital economy activities and tax avoidance on Indonesian public enterprises.

Method: The study used sample of 250 firms which are listed on Indonesia Stock Exchange (BEI) in 2018-2021 and conducted using difference-in-difference method.

Findings: The study finds empirical evidence that digital economy activities positively associated with effective tax rate. Nevertheless, the Covid-19 pandemic weakened this association.

Novelty: Previous studies partially examined the relationship between the COVID-19 pandemic on tax avoidance and the digital economy on tax avoidance. Quantitative researches about digital business are also mainly carried out in developed countries considering that digital economic activities have been massively carried out in developed countries. This study will complement previous studies where the Covid-19 pandemic and economic activity will be interacted with and linked to corporate tax avoidance behaviour, especially in Indonesia.

INTRODUCTION

COVID-19, which first appeared in Wuhan, China, in December 2019, spread quickly to 178 countries. The immense scale of the spread of COVID-19, World Health Organization (WHO) had made a declaration as a global pandemic in March 2020. This health and humanitarian crisis have caused contractionary economic growth that is evenly distributed worldwide (BI, 2020). The IMF projects that world economic growth 2020 will contract by 4.9 percent. The IMF statement is in line with the conditions experienced by Indonesia. In the first quarter of 2020, Indonesia’s economic growth contracted by 2.41 percent (BPS, 2020). Many companies were suddenly in a position where they were unable to produce and sell the goods and services they usually did because their production and sales activities were blocked by social distancing rules, one of which was limiting the number of employees working at one time (BPS, 2020).

The shock caused by the COVID-19 pandemic caused a temporary decrease in revenue for many companies (Fahlenbrach et al., 2021). Due to deteriorating financial conditions, companies facing increased bankruptcy risk and prefer to accept the risk of tax evasion (such as penalties and reputational damage) compared to potential profits (e.g., ability to continue business / going concerned) (Brondolo, 2009). Companies experiencing financial distress have little choice but to adopt higher risks and become more tax aggressive because the need to have cash becomes essential, mainly because the tax burden is a significant cash outflow even for companies which experience financial distress, even though it will eventually have a negative reputation effect for the company (Richardson et al., 2015).

Previous study that was conducted in Indonesia by Barid & Wulandari (2021) found out how companies compared practicing tax avoidance before and during the COVID-19 pandemic, concluded that there were differences in tax avoidance practices before and during the COVID-19 pandemic. These differences resulted in increasing...
tax avoidance practices carried out by companies during the COVID-19 pandemic. In line with the results found by Barid & Wulandari (2021), Suhaidar et al. (2020) also concluded that there were differences in tax evasion before COVID-19 and tax evasion during COVID-19, where there was an increase in tax evasion during COVID-19.

The next challenge for the tax authorities is the digital economy activities that are now massively carried out by companies. Cowan et al. (2021) found that the COVID-19 pandemic caused a spike in technology use and a decline in government finances. Research conducted by Abdul Wahab et al. (2021) shows that the relationship between involvement in digital economy activities and tax avoidance is found to be positive and significant. In line with Abdul Wahab et al. (2021) research, Argilés-Bosch et al. (2020) also concluded that there was substantial evidence that e-commerce resulted in a higher level of tax avoidance than traditional retail firms.

Previous studies partially examined the relationship between the COVID-19 pandemic on tax avoidance and the digital economy on tax avoidance. Quantitative research is also mainly carried out in developed countries considering that digital economic activities have been massively carried out in developed countries. Thus, it is essential to conduct research in Indonesia as a developing country and examine the effect of digital economy on tax avoidance during COVID-19 pandemic. This research will complement previous studies by explaining the effect of digital economy on tax avoidance during COVID-19 pandemic in Indonesia. This research contributes to taxation-related reference studies on tax compliance, particularly tax avoidance behavior. The findings of this study can also be used as recommendations for tax authorities to be able to supervise companies engaged in digital business, mainly if another economic crisis of a similar nature, such as the Covid-19 pandemic, occurs in the future.

Directorate General of Taxes (DGT), in its 2020 annual report, stated that collecting tax revenues faces increasingly difficult challenges. Global economic uncertainty, such as the Covid-19 pandemic, has triggered a slowdown in global demand and a decline in economic performance. Hence, the taxation and tax revenue growth ratio show a downward trend (DGT, 2020). In the report, tax revenue also decreased 2020 by 19.55 per cent compared to the previous year.

This decrease in revenue is understandable because economic conditions have also declined due to activity restrictions (lockdown) aimed at preventing the spread of the corona virus disease. Lockdown is also cited as the reason for the decline in GDP value in various countries (Engler et al., 2020). Researchers predict that if the Covid-19 pandemic is not taken seriously, it will create a health and economic crisis (Gourinchas, 2020). Micropically, the Covid-19 pandemic can cause financial hardship for businesses due to a decline in company turnover. When a company faces challenging financial conditions, it will take several measures, including increasing the cost of capital and limiting access to external funding sources, especially debt (Edwards et al., 2013).

In addition, Edwards et al. (2013) also found evidence that matches their prediction that companies with financial constraints will take action to increase internally generated funds through tax planning. According to deterrence theory, companies will consider tax evasion as long as the marginal profit exceeds the marginal cost (Chen et al., 2010). A study conducted by Richardson et al. (2015) also concluded that companies experiencing financial distress increase incentives to transfer risks that occur by shareholders and agents, encouraging managers to accept more risks through more aggressive tax policies. Therefore, the following formulation of the hypothesis is as follows:

**H₁: The Covid-19 pandemic is likely to increase tax evasion**

The digital economy must be expanded as the economy grows (OECD, 2015). With the increasing number of new business models and economic entities, corporate taxation faces tough challenges (Zhang & Gao, 2021). Zhang & Gao (2021) also stated that most business models are digital companies that interact with consumers in other countries or remote areas through networks or other digital media (such as electronic payments, apps, and so on) to provide digital products and services. With high liquidity, high data dependency, and high interactivity, the transaction process lacks "physical existence," which is inconsistent with the traditional tax definition of "permanent institution." So a series of problems occur, including base erosion, profit transfer, and double taxation.

A further related problem is the characterization of income; based on international tax rules, different types of income have different ways of being taxed (Argilés-Bosch et al., 2020). Meanwhile, Zhang & Gao (2021) say that differences in tax bases and tax rates between countries are the main reasons for tax avoidance. With the rapid development of digital multinational companies, they have more ability and resources to select low-tax countries worldwide and lower their tax burden by setting up subsidiaries, offshore institutions, trusts, and other means. In addition, the basis for forming digital companies is often intangible assets such as technology, information, and concessions with a high liquidity category and dependence on data. The concealment of this economic model makes it easy to determine transfer pricing for intangible assets. Economic and legal ownership of intangible assets in the digital economy is not strictly tied. Separating the two holdings through transfer pricing, cost-sharing agreements, and other means can easily result in a redistribution of value, allowing corporate profits to flow between countries with varying tax burdens and eroding the tax base and profits. The ease of transfer pricing for digital companies creates incentives for tax noncompliance, thereby substantially increasing tax risk (Zhang & Gao, 2021).

Wahab et al. (2021) examined the effect of involvement on tax planning (tax planning). Wahab et al. (2021) use the book-tax difference as a proxy for tax planning and earnings management because the differences can capture tax preferences and company accounting choices. Wahab et al. (2021) found the relationship between engagement with temporal differences and tax rates was positive and statistically significant. Another related research
was also conducted by Argilés-Bosch et al. (2020) also conducted similar research that explores how the influence of e-commerce business practices on tax evasion. This study concluded that there was substantial evidence that e-commerce resulted in higher tax avoidance than traditional retail firms. In their research, Bruce & Fox (2000) also concluded that e-commerce would cause additional tax revenue losses of around $10.8 billion nationally.

However, other studies conclude that there is no evidence that the digital economy can affect tax gaps. Ali-Yrkkö et al. (2020) state that it is undeniable that digitalization enables thorough tax planning to occur and impacts reducing tax revenues, but in their research Ali-Yrkkö et al. (2020) cannot verify this.

According to deterrence theory, taxpayers are motivated to cheat in reporting their income taxes. It is because keeping the money more profitable than to give it to the government (J. Scott & Grasmick, 1981). J. Scott & Grasmick (1981) found that the motivation to commit fraud is greater when the inhibition is low than when the barrier is high. The inhibitory variables J. Scott & Grasmick (1981) used in their research are stigma and legal punishment. With the current conditions, which are cross-border in nature and can be free from physical existence, this can cause difficulties in taxation, considering that there are still possibilities for digital business profits in the gaps in the taxation system. Thus, the proposed hypothesis is as follows:

**H$_2$: Businesses that engage in digital economic activities are likely to tax evasion**

Due to the Covid-19 pandemic, face-to-face activities are restricted, resulting in a tremendous increase in the use of technology for communication. According to Cowan et al. (2021), the Covid-19 pandemic led to increased technology use and decreased government finances. Due to the non-cash nature of recent transactions, the federal and state tax bases in the United States (US) need to be corrected. In addition, while many nations are increasing their expenditures and experiencing a decline in revenue, the pandemic benefits large technology companies. With the increasing use of information and communication technologies, identifying sources of income is becoming increasingly complex, and sources of income are becoming increasingly susceptible to manipulation or obfuscation (Schäfer & Spengel, 2002).

During the crisis caused by the Covid-19 pandemic, tax evasion has extended to all industries. Large companies, not just digital companies, employ various tax avoidance strategies (Laffitte et al., 2020). These acts occurred because the shock induced by the Covid-19 pandemic resulted in a temporary decline in income for many businesses (Fahlenbrach et al., 2021). The company's financial distress was a direct result of the decline in revenue.

Companies in financial distress have no choice but to adopt a higher risk appetite and become more tax aggressive as the need for cash becomes crucial, particularly as the tax burden is a significant cash outflow for companies in financial distress, even for companies that are experiencing financial distress, even though it will later have a negative reputation effect. Thus, when facing financial difficulties, strategies previously seen as more risky or expensive for companies to carry out become more attractive and feasible because the potential benefits of tax avoidance increase (Richardson et al., 2015).

From the description above, we predict that during the Covid-19 pandemic, technology companies increasingly manipulated or obscured the income they received, so we formulated the following hypothesis:

**H$_3$: The pandemic increases the negative impact of digital economic activity on tax avoidance by companies**

**RESEARCH METHODS**

The research samples used in this study are domestic company listed on the Indonesia Stock Exchange (IDX). The research year taken was 2018-2021, which made it possible to compare company behavior before and after the pandemic. IDX’s data shows that there are 786 registered companies. However, out of 786 companies, only 64 were selected as a sample of companies carrying out digital business according to the OECD (2020) digital economy definition in the first tier, namely Digital Content, Information, and Communication Technology Goods and Services. Then from this number, companies with digital revenue were sorted according to the revenue model criteria in the explanation (OECD, 2014), and 49 companies were selected. The research sample was then added to non-digital companies from the retail business sector, according to research by Argilés-Bosch et al., (2020). Research data in the form of financial information was obtained from Eikon Refinitiv and the https://www.idx.co.id/.

The dependent variable used in this study is tax avoidance, represented by effective tax rates (ETR). The Effective Tax Rate (ETR) is an effective measure of tax avoidance because it describes corporate tax planning activities (Mills et al., 1998). Dyreng et al. (2008) formulate ETR as total tax expense divided by income before tax which can be widely used to measure corporate tax burden. In line with this, Hanlon & Heitzman (2010) uses the Current ETR proxy to calculate the effective tax rate because it is considered capable of describing a deferred tax strategy. Calculating Current ETR is done by dividing the company’s current tax (current tax) by total profit before tax (Net Income Before Tax). The Current ETR is also used by Gupta & Newberry (1997) and Huang et al (2016), stating that a high Current ETR value indicates low tax avoidance, while a lower Current ETR value indicates high tax avoidance because the effective tax rate is lower.

The independent variable to be tested in this study is the company's Digital Economy which is operationalized with a dummy variable. The theoretical framework mentions the identification of companies with digital
business seen from company sales according to the digital economy revenue model criteria (OECD, 2014). If the company carries out one of the activities according to the OECD (2014) criteria, it will be rated 1. If a company does not meet OECD (2014) criteria, it will be rated 0. Likewise, with the PANDEMIC variable, the company is rated 1 when the sample year the company is in the year affected by the pandemic, namely 2020 and 2021, while the previous year’s sample is rated 0. The pandemic variable is also used as a treatment when conducting tests using difference-in-differences methods.

SIZE is used for the control variable, which is measured from the natural logarithm of total assets at book value. Previous research that tested both concluded that larger companies tend to do tax avoidance because they have the resources to do so (Richardson et al., 2015). LEVERAGE is the following control variable, measured by dividing total debt by equity. The funding strategy is important because funding and investment decisions can affect the taxes owed. High LEVERAGE tends to have a lower ETR (Gupta & Newberry, 1997). In addition, the GROWTH variable is used to control changes in company size which provide opportunities for tax non-compliance and ascertain whether (Edwards et al., 2013). The GROWTH variable is measured by the ratio of income in year t divided by income in t-1. Another control variable used is PPE (Property, Plant, and Equipment) because it can affect the tax burden due to direct tax avoidance (Ramarusad et al., 2021). Meanwhile, the natural logarithm of total fixed assets measures the PPE variable. The research model for hypotheses 1 and 2 are as follows.

\[
ETR_{i,t} = \beta_0 + \beta_1 \text{PANDEMI}_{i,t} + \beta_2 \text{DIGITAL}_{i,t} + \beta_3 \text{SIZE}_{i,t} + \beta_4 \text{GROWTH}_{i,t} + \beta_5 \text{LEV}_{i,t} + \beta_6 \text{PPE}_{i,t} + \epsilon
\]

\[
ETR_{i,t} = \beta_0 + \beta_1 \text{DIGITAL}_{i,t} + \beta_2 \text{PANDEMI}_{i,t} + \beta_3 \text{DIGITAL}_{i,t} \times \text{PANDEMI}_{i,t} + \beta_4 \text{SIZE}_{i,t} + \beta_5 \text{GROWTH}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{PPE}_{i,t} + \epsilon
\]

**RESULTS AND DISCUSSIONS**

Table 1 presents the average value, standard deviation, highest and lowest values in the study. The average ETR value indicates that the effective tax rate of the sample companies is 16.32%. This figure shows that, on average, companies with current ETR calculations are still far below the income taxes rate in Indonesia, which is 25% in 2018-2019 and 22% in 2020-2021. During 2018-2021, there were 200 companies identified as carrying out digital economic activities, while 589 others did not carry out these activities.

The results of the statistical test are reported in Table 2. The R-square in the first research model shows 0.435. This indicates that the independent variables in the model together can explain the dependent variable by 43.5%. In contrast, the remaining 56.5% is explained by other variables not included in the research model. Prob > F in research model 1 shows 0.0005, which means the independent variables altogether have a significant effect on the dependent variable.

Based on the results of the regression with the estimated fixed effect on research model 1, it has been found that the PANDEMI variable had a negative coefficient of -0.0549. The P-value shows a value of 0.044, meaning that the PANDEMI variable significantly negatively affects ETR. Thus, hypothesis 1 is accepted. On the other hand, the DIGITAL variable shows a significant positive effect with a coefficient of 1.09396 with a p-value of 0.002. This result is not in accordance with hypothesis 2, and therefore, even though it has a significant influence because the directions given are different, it can be concluded that hypothesis 2 is rejected. Meanwhile, the control variable with a significant influence is LEV, with a negative coefficient of -0.015908 and a p-value of 0.026, meaning that companies with high debt levels tend to do tax avoidance.

Meanwhile, the results of statistical regression testing for research model 2 show that the R square value is 0.488, which means that 48.8% of the independent variables can explain the dependent variable ETR, and the remaining 51.2% is explained by other variables not included in the research model. The Prob > F value of 0.0003 explains that together the independent variables in the research model have a significant influence on the dependent variable ETR. In this research model, the research focus is on the interaction between the PANDEMI variables multiplied by the DIGITAL variable. It can be seen in Table 2 that the PANDEMI variable as a moderating variable has a significant negative effect on the relationship between DIGITAL and ETR variables. The DIGITAL variable, originally in the first research model, had a positive effect on ETR; after being crossed, it became negative with a negative coefficient of -0.1084 with a p-value of 0.085 which means it is significant at a percentage of 10%. From
these results, hypothesis 3 is accepted. In this test, the control variables that have a significant effect are LEV with a negative coefficient and PPE with a positive coefficient, which means that companies with a high debt composition will tend to do tax avoidance. In contrast, companies with many high fixed assets tend to do low tax avoidance.

Based on the research sample, it was noted that, on average, the company's ETR during the pandemic had decreased. In 2018-2019, the average ETR was 18.48%, while in 2020-2021, the average ETR was 14.16%. The results of statistical regression testing also prove that a pandemic can reduce a company's ETR, or, in other words, it can increase tax avoidance. Even though this test does not test the company's financial distress, when viewed from the sales growth of the sample companies entering 2020-2021, the growth has decreased compared to 2018-2019, from 25.8% to 20.2%. This study's results align with Gourinchas (2020) that a pandemic can trigger an economic crisis. On a micro-scale, these conditions can also lead to financial distress experienced by companies (Reinhart, 2022). Therefore, various countries provide incentives and various tax relaxation facilities to avoid corporate financial distress, which leads to an economic crisis (Collier et al., 2020).

Nevertheless, relaxation is not always right on the target. There are concerns and criticisms that the incentives provided are being used for tax evasion (Giuliani, 2020). The Indonesian government also provides several relaxation facilities like other countries to prevent an economic crisis due to financial distress. These facilities include Government Regulation in Lieu of Law No. 1 of 2020, which was later legislated to become Law No. 2 of 2022, and its derivative regulations, namely Government Regulation Number 29 of 2020 concerning Income Tax Facilities in the Context of Handling Corona Virus Disease (Covid-19). However, the regulation does not regulate the compliance requirements of taxpayers in order to be able to take advantage of this relaxation facility. Thus, the facilities provided can also be used as a way to carry out tax avoidance because, according to deterrence theory, companies will tend to carry out tax avoidance as long as the risk of fishing costs is lower than the profits obtained by carrying out higher tax avoidance (Güth & Sausgruber, 2004).

On the other hand, the results of testing the DIGITAL variable show results contrary to the hypothesis. Although many studies reveal that companies that carry out digital activities have a positive relationship with tax avoidance, the results of this test are quite the opposite. An explanation that can be given for these different results is that, in this test, the determination of digital activity is carried out based on the revenue model (OECD, 2014), which does not require the company to be a multinational company. Meanwhile, from various studies, digital companies tend to practice tax avoidance because these companies are multinational companies or large companies with the resources to practice tax avoidance (Argilés-Bosch et al., 2020; Taylor & Richardson, 2013). In this research sample, only 14% of companies that carry out digital activities are multinational. The OECD revenue model also
Table 2. Regression Results of Hypothesis Testing with Fixed Effect Estimation

| Variable  | Prediction | Koef  | P-Value | | Variable  | Prediction | Koef  | P-Value |
|-----------|------------|-------|---------| |-----------|------------|-------|---------|
| PANDEMI   | -          | -0.0549 | 0.0440** | | PANDEMI   | -          | -0.0305 | 0.320 |
| DIGITAL   | -          | 1.0940  | 0.0020*** | | DIGITAL   | -          | 1.1093  | 0.002*** |
| PANDIG    | -          | 0.0274  | 0.4720  | | PANDIG    | -          | -0.1084 | 0.085* |
| SIZE      | +          | 0.0023  | 0.8570  | | SIZE      | +          | 0.0253  | 0.506 |
| GROWTH    | +          | -0.0159 | 0.0260** | | GROWTH    | +          | 0.0027  | 0.834 |
| LEV       | -          | 0.0551  | 0.1140  | | LEV       | -          | -0.0150 | 0.036** |
| PPE       | +          | -2.898  | 0.0420** | | PPE       | +          | 0.0632* | 0.072* |
| _cons     | -          | 2.4501  | 0.0300** | | _cons     | -          | -2.4501 | 0.0300** |

Prob > F: 0.0005; R² within: 0.435. Number of Observations: 740. Prob > F: 0.0003; R² within: 0.488. Number of Observations: 740.

Significance:
*** significance 1%; ** significance 5%; * significance 10%

ETR: the value of the Effective Tax Rate (ETR) of company i at the end of year t; PANDEMI: Dummy variable 1 if the year of observation is the year the pandemic occurred and 0 if it is not the year the pandemic occurred; DIGITAL: Dummy variable 1 if the company has digital economy characteristics based on the OECD (2014) and a value of 0 if the company does not have these characteristics; SIZE: Natural logarithm of total assets of company i at the end of year t; GROWTH: % increase in total revenue of company i at the end of year t; LEV: Total debt divided by total equity of company i at the end of year t; PPE: Natural logarithm of companies’ total Property, Plant, and Equipment at the end of the year t.

Source: Processed

has an aggregate economic perspective where the digital economy is seen not only from the company’s output but also from the company’s input and business processes. Thus does not describe the company’s economic strength so that it can bear the risk of tax avoidance.

The test results, however, explains the interaction between PANDEMI and DIGITAL variables, it can be concluded that pandemic conditions can reduce compliance from companies carrying out digital economic activities. This is consistent with the hypothesized prediction that the pandemic will have a negative effect; in this case, it will weaken the relationship between digital economic activity and the company’s effective tax rate. According to the study of Cowan et al. (2021), companies affected by the pandemic will use various digital communication alternatives in conducting business activities. At the same time, companies also have to struggle to survive in unfavourable economic conditions. According to Laffitte et al., (2020), tax avoidance efforts can be carried out widely in crisis conditions in all sectors. Not only large companies with large resources do tax avoidance. With a critical financial condition, companies that carry out digital activities also have the potential to do the same thing to save their business from falling due to the Covid-19 pandemic. According to Richardson et al (2015), when facing financial difficulties, strategies previously seen as more risky or expensive for companies to carry out become more attractive and feasible because the potential benefits of tax avoidance increase.

CONCLUSIONS

Researchers believe that the Covid-19 outbreak will lead to a crisis in the world’s economy. Every country offers tax benefits and relaxation to prevent financial difficulties in businesses. Due to the pandemic’s impact on revenue, which has the potential to result in financial difficulties, businesses in Indonesia are also experiencing this. On the other hand, public corporations are seeing an increase in digital economic activity. Some academics think it is simpler for digital businesses to avoid paying taxes. This study investigates if the Covid-19 epidemic and digital economic activity impact tax evasion and how their interactions impact it. Test results on public companies for 2018-2021 in Indonesia show that companies that carry out digital economic activities actually have good tax compliance, while the Covid-19 pandemic has proven to be able to reduce this behavior. In accordance with the deterrence theory which says that companies will consider which is more profitable between the benefits and risks of tax avoidance, during a pandemic, companies with digital activities appear to be more aggressive in carrying out tax avoidance during pandemic conditions compared to non-pandemic conditions.

The implication of this study, from the test results it was found that when the Covid-19 pandemic occurred, companies that carried out digital activities would be more aggressive in carrying out tax avoidance compared to pre-pandemic conditions. This is a signal that the tax relaxation provided by the DGT can actually be used as an opportunity for tax avoidance. For tax authorities, supervision of taxpayers after the relaxation period needs to be improved. The limitations in this study are the short observation period, and only using one type of measurement.
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