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*Research Article*

# Did COVID-19–Era Tax Incentives Coincide with Changes in Corporate Tax Avoidance? Evidence from Indonesia (2019–2020)

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**Abstract:** This study aims to analyze the differences in corporate tax avoidance practices in Indonesia before and after the COVID-19 pandemic, with a focus on 2019 and 2020. The background of this study is the low tax ratio in Indonesia, which is mostly caused by the high rate of tax evasion, which was recorded at Rp 67.6 trillion in 2020. The research method used is quantitative with purposive sampling techniques. The study population consisted of 206 companies listed on the Indonesia Stock Exchange (IDX), with 91 companies selected as samples. The study variable was the rate of tax avoidance in 2019 and 2020, which was analyzed using a statistical test paired sample t-test. The results of the study show that there are significant differences in tax avoidance practices before and during the pandemic. These findings indicate that the global health crisis conditions also affect the company's strategy in managing tax liabilities, both through internal policy adjustments and responses to government regulations. This research contributes to academic and practical understanding of the dynamics of tax avoidance in times of crisis, and can be a reference for policymakers in formulating strategies to improve tax compliance in Indonesia.

**Keywords:** Covid Pandemics; Financial Statements; Paired Test; Stock Exchange; Tax Avoidance

## 1. Introduction

The pandemic that has been going on since 2019 has changed many aspects of life. This is confirmed by the views of Marteleto, Guedes, Coutinho, and Weitzman (2020). During the pandemic, more than 512,000 people were killed, and the economies of billions of people were damaged. Asmara (2020) also experienced the same thing as the COVID-19 pandemic, which led to an economic crisis as well. One of the ways to overcome this problem is by providing tax incentives. The taxes included in this tax incentive programme are final income (PPh) borne by the government (DTP), a reduction in the Article 5 paragraph (1) corporate income tax rate, and the exemption of import PPh 22 (Indonesia Ministry of Finance, 2020a). Firmansyah & Ardiansyah (2020) added that the reduction in PPh 25 installments also became another tax incentive.

The provision of tax incentives will certainly affect tax revenue. According to the target data and the realization of tax revenues from 2012 to 2020, the realization of tax revenues at the achievement of the target has not yet occurred.

Beyond the temporary shock of the pandemic, Indonesia's tax ratio has long reflected structural challenges in broadening the tax base and strengthening compliance. Under a self-assessment system, corporate taxpayers have discretion in selecting tax positions and in timing or structuring transactions, while the tax authority must rely on risk assessment, documentation requirements, and audits to ensure accurate reporting. In this environment, gaps

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between statutory rates and the effective tax burden can arise not only from incentives explicitly granted by the government but also from managerial tax planning and the use of legal "gray areas" in tax rules (Hanlon & Heitzman, 2010). Prior discussion in Indonesia highlights that persistent shortfalls in achieving revenue targets can be linked to compliance frictions and tax avoidance behavior (Dewan Perwakilan Rakyat Republik Indonesia, 2014; Rosadi, 2019). International comparisons also suggest Indonesia's tax ratio is relatively low, reinforcing the policy salience of understanding corporate tax behavior during periods of economic stress (Organisation for Economic Co-operation and Development, 2020).

COVID-19–era tax incentives provide a handy setting to study corporate tax avoidance because they act as a policy shock to firms' cash flows. Incentives such as government-borne Article 21 income tax (DTP), reductions in Article 25 installments, corporate income tax rate reductions, and exemptions of import Article 22 were designed to maintain business continuity and preserve employment during a sudden decline in demand (Firmansyah & Ardiansyah, 2020; Kementerian Keuangan Republik Indonesia, 2020a). Conceptually, these policies can change a firm's reported effective tax rate through two channels. First, incentives can mechanically reduce current tax expense (for example, through rate reductions or installment relief). Second, the crisis environment may increase the perceived benefits of additional tax planning, because preserving cash becomes a primary managerial objective. Distinguishing these channels is important for policy evaluation: if lower practical tax burdens largely reflect intended incentives, they may support stabilization, but if they also coincide with more aggressive tax planning, the government may face a longer-run erosion of the tax base and additional compliance risks (Desai & Dharmapala, 2006).

From the perspective of corporate decision-making, the pandemic intensified liquidity constraints and heightened uncertainty about future cash flows. When sales decline and operating margins compress, managers may seek to preserve cash by postponing expenditures, renegotiating financing, or optimizing tax payments. Agency theory suggests that such decisions can reflect both efficient responses to protect firm value and opportunistic behavior when monitoring is weaker or information asymmetry increases (Jensen & Meckling, 1976; Chen, Xu, & Jebran, 2021). Tax avoidance is often discussed as a trade-off between cash savings and non-tax costs, including regulatory scrutiny, reputational concerns, and potential future penalties (Hanlon & Heitzman, 2010). During a shock such as COVID-19, that trade-off may shift, because the short-term value of cash can rise relative to the perceived probability of enforcement. As a result, changes in effective tax rates between 2019 and 2020 can provide indirect evidence of whether firms' reported tax burdens moved in a direction consistent with more substantial tax planning incentives during the crisis.

This study contributes by documenting whether corporate tax avoidance, proxied by the effective tax burden reported in financial statements, differs between the pre-pandemic year (2019) and the first pandemic year (2020) for manufacturing firms listed on the Indonesia Stock Exchange. The within-firm comparison helps reduce bias from time-invariant firm characteristics, allowing the analysis to focus on year-to-year shifts for the same firms. The findings are relevant for policymakers evaluating the tax incentive programme and for stakeholders assessing how firms responded to the pandemic. The remainder of the paper reviews theoretical perspectives and prior evidence, explains the research design and variable measurement, presents empirical results, and discusses implications and limitations.

**Table 1.** Target and Realization of Annual Tax Revenue 2012-2020.

| Years | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|
| Target | 743.3 | 878.7 | 1,016.2 | 1,148.4 | 1,246.1 | 1,489.3 | 1,539.2 | 1,472.7 | 1,404.5 |
| Realization | 723.3 | 873.9 | 980.5 | 1,077.3 | 1,146.9 | 1,240.4 | 1,285.0 | 1,343.5 | 1,285.1 |
| Achievements (%) | 97.31 | 99.45 | 96.49 | 93.81 | 92.04 | 83.29 | 83.48 | 91.23 | 91.5 |

Source: Central Government Financial Report (2020), (in Trillion Rupiah).

The data shows that during the COVID-19 pandemic, the realisation of tax revenues was also not on target. This will undoubtedly affect the tax ratio. The smaller the tax revenue, the lower the tax ratio. This is because the definition of the tax ratio itself is to examine the government's capability in collecting tax revenues. Data from 2012 to 2020 show that the tax ratio is between 10 and 12% (DPR, 2014). OECD data (2020) shows that Indonesia has a low ratio due to tax avoidance. This is supported by observations from Rosadi (2019), which states that tax avoidance and tax collection do not maximally affect Indonesia's low tax revenue. The Tax Justice Network (2020) data shows that Indonesian tax avoidance results in as much as Rp 67,6 trillion, while for tax evasion by individuals it is Rp. 1.1 trillion.

For listed manufacturing firms, the pandemic also interacted with operational factors such as disruptions to supply chains, changes in input prices, and shifts in export-import activity. These operational changes can affect profitability and the composition of taxable income, and they may also alter the feasibility of tax planning techniques that depend on cross-border transactions or financing arrangements. At the same time, manufacturing remains a major contributor to the real economy. It is often a priority sector in policy packages, making it a relevant setting to observe how tax incentives and economic pressure coincide with firms' tax outcomes.

Throughout this paper, tax avoidance is proxied using GAAP effective tax rates (GAAP ETR), calculated as tax expense divided by profit before tax (Dyreng, Hanlon, & Maydew, 2010). Because this proxy reflects the proportion of accounting profit recognized as tax expense, a lower GAAP ETR is typically interpreted as a lower effective tax burden and, in many studies, as indicating more intensive tax avoidance, holding other factors constant (Hanlon & Heitzman, 2010). This interpretation is important when comparing years: a decline in the average GAAP ETR from 2019 to 2020 can be consistent with either (i) intended policy relief that reduces taxes, (ii) increased tax planning activity, or (iii) changes in the mix of income and deductions. Accordingly, the discussion emphasizes that observed differences reflect a combination of policy design and corporate responses.

This is what motivates researchers in studies related to corporate tax avoidance. In more detail, corporate tax avoidance in the sector of manufacturers that are listed on the IDX from 2019 to 2020. This study analyzes empirically different tests regarding tax avoidance that occurred before and after the pandemic.

## 2. Literature Review

### Agency Theory

The view of Jensen & Meckling (1976) illustrates that agency theory is an explanation of the relationship between the owner of the interest (principal) and the manager (agent). These two parties have different interests. This is explained by Chen, XU, and Jebran (2021), who explain that agents do work for personal gain. He continued that this is contrary to the interests of the principal, who has an interest in maximising the return on resources. Differences in interests in this relationship encourage the creation of differences in the information obtained by the two. This also triggers the company's performance, which includes company policies regarding corporate tax obligations.

### Stakeholder Theory

Stakeholder theory provides the view that transparency must be increased in a relationship in order to take advantage of regulatory loopholes so that tax evasion does not occur. This stakeholder theory accommodates the issue of the relationship between stakeholders. In this theory, there is an approach that can explain the rights of stakeholders, which are categorised into two, namely normative and positive (Deegan, 2001). The normative approach explains that all stakeholders have the same rights. At the same time, the positive approach emphasises the interests of the main principle (Gunawan, 2015).

The explanation above shows that the normative approach is more suitable for taxation. It can be seen that the government is also a stakeholder that has an influence on the company. Cooper (2004) explains that although the government is the second stakeholder, it still has a significant influence on the company. Furthermore, because the government has the authority over regulations, it requires companies to comply.

### Tax Avoidance

The view of Ngadiman et al. (2014): Prasetyo (2017) explains that the activities of taxpayers to reduce the tax burden through the use of loopholes in laws and regulations constitute tax avoidance. However, Pohan (2017) explains that tax evasion is a legal activity because it does not violate taxes through methods and techniques in using the grey area of taxation rules in order to reduce the amount of taxes. So, it can be concluded that tax avoidance is a legal taxpayer tactic because it does not violate tax laws in order to reduce the tax burden.

Self-assessment as a taxation system has opportunities for taxpayers to reduce their tax burden. The view of Hanlon & Heitzman (2010) describes how tax avoidance is carried out, namely through deducting tax figures directly from pre-tax income.

### COVID-19 Tax Incentives as a Policy Shock

In public finance, temporary tax incentives are often justified as countercyclical tools that provide short-term liquidity to firms and stabilize employment. In the Indonesian context, the COVID-19 incentive package was introduced as an effort to support business continuity and household purchasing power during the contraction, including relief on income

tax installments and certain withholding obligations (Kementerian Keuangan Republik Indonesia, 2020a). From a research perspective, such incentives create a relatively straightforward before-and-after comparison window, because they alter statutory obligations and administrative procedures within a short period. If incentives are effective as designed, one would expect a reduction in current tax burdens and fewer incentives for firms to search for additional loopholes to manage cash flow, because policy relief already reduces immediate pressure.

At the same time, incentive programmes can introduce new compliance trade-offs. Relief is commonly administered through eligibility criteria, reporting requirements, and post-audit verification, all of which can change the perceived enforcement environment. Stakeholder theory suggests that when firms receive government support, expectations for transparency and responsible behavior may increase, especially in a period when public budgets are under pressure (Deegan, 2001; Gunawan, 2015). However, in practice, temporary relaxation of administrative processes can widen the space for discretionary reporting and tax planning. Firms may interpret incentives as a signal that the state prioritizes economic survival, potentially lowering perceived enforcement intensity in the short run. This tension makes the pandemic period suitable for examining whether practical tax burdens shifted in a way consistent with the policy intent or whether they coincided with broader changes in avoidance behavior.

**Crisis Conditions, Financial Constraints, and Tax Planning**

Prior literature suggests that firms facing tighter financing constraints tend to value internal cash generation more strongly. Because taxes represent a significant cash outflow, managers may pursue strategies that reduce tax payments when external financing becomes more expensive or uncertain. Empirical evidence links financial constraints to greater incentives for cash tax savings, although the relationship can depend on enforcement risk, profitability, and governance (Edwards, Schwab, & Shevlin, 2016). During the COVID-19 period, constraints may have intensified even for large listed firms due to lower sales, disruptions in production schedules, and changes in credit conditions. In such circumstances, tax planning can be viewed as part of a broader liquidity management strategy, alongside working-capital adjustments and cost reductions.

Studies in Indonesia also discuss how financial constraints and reporting aggressiveness can be associated with tax aggressiveness, particularly when firms balance performance targets and liquidity needs (Firmansyah & Bayuaji, 2019; Rachmawati & Fitriana, 2021). From an agency perspective, pressure to meet performance metrics can push managers toward decisions that improve after-tax cash flows, including aggressive tax positions, even if such positions increase longer-term regulatory and reputational risk (Jensen & Meckling, 1976; Desai & Dharmapala, 2006). Importantly, measures of effective tax rates in financial statements may capture both cash tax strategies and accounting accrual effects, so observed changes across years should be interpreted as a composite outcome. These arguments imply that the pandemic could coincide with shifts in the effective tax burden not only due to explicit incentives but also because underlying motives for tax planning strengthened.

**Transfer Pricing and Thin Capitalization as Common Tax Avoidance Channels**

Two commonly discussed corporate tax planning channels are transfer pricing and thin capitalization. Transfer pricing refers to the pricing of related-party transactions, which can affect where profits are reported across entities within a corporate group. Thin capitalization generally refers to the use of debt financing (often within a group) to generate interest deductions that reduce taxable income. International evidence suggests that multinational firms can employ these mechanisms to reduce effective tax rates, especially when there are differences in tax rates across jurisdictions (Taylor & Richardson, 2012). Because these strategies involve transactions that are observable in accounting records, they are also central to tax authority enforcement tools such as documentation requirements and risk-based audits.

In the Indonesian setting, prior studies examine transfer pricing aggressiveness and thin capitalization as determinants of tax avoidance or tax aggressiveness, with mixed findings depending on sample periods, sector focus, and measurement choices (Amidu, Coffie, & Acquah, 2019; Falbo & Firmansyah, 2018; Nainggolan & Sari, 2019; Panjalusman, Nugraha, & Setiawan, 2018). These mixed results suggest that tax planning may respond to institutional conditions, including enforcement intensity and macroeconomic shocks. During COVID-19, disruptions to trade and financing may have changed the feasibility or attractiveness of cross-border pricing and intra-group funding strategies. While the present study does not decompose tax avoidance into specific channels, changes in a broad effective tax burden measure (GAAP ETR) can reflect the net outcome of multiple strategies, including pricing, financing,

and timing decisions. Therefore, the discussion considers whether the overall direction of changes from 2019 to 2020 is consistent with more substantial liquidity-driven incentives for tax planning during the crisis.

**Summary of Empirical Evidence and Research Gap**

Empirical research on corporate tax avoidance spans multiple contexts and commonly documents that both firm-level incentives and institutional constraints shape tax planning. For example, studies highlight the role of managerial incentives and governance in explaining variation in effective tax rates across firms (Dyreng, Hanlon, & Maydew, 2010), and others discuss how tax avoidance can be linked to agency problems and high-powered incentives (Desai & Dharmapala, 2006). Research also suggests that multinational structures and subsidiary operations can facilitate profit shifting and affect reported tax burdens, which motivates attention to related-party transactions and transfer pricing in cross-country settings (Chen & Lai, 2012; Taylor & Richardson, 2012).

In Indonesia, evidence is still developing regarding how macroeconomic shocks and policy responses translate into changes in firms' practical tax burdens. Prior work often focuses on specific determinants (such as thin capitalization, transfer pricing, or financial constraints) within a given period. However, fewer studies explicitly compare the same firms before and during a large-scale shock such as COVID-19. A direct year-to-year comparison helps clarify whether the pandemic era coincided with a statistically meaningful shift in practical tax burdens for listed firms. This comparison is also valuable for policy evaluation, because incentives were implemented rapidly and at scale, and policymakers must balance short-term relief with the longer-term goal of protecting revenue capacity (Organisation for Economic Co-operation and Development, 2020).

**Hypothesis Development**

Research on tax avoidance has been conducted, and a previous study examined the relationship among financial constraints, tax avoidance, transfer pricing aggressiveness, and thin capitalization. The research of Amidu et al. (2019) had a similar result, namely that tax avoidance was positively affected by transfer pricing aggressiveness. This research was conducted on 40 multinational companies in Ghana in the financial and non-financial sectors in the period 2008 to 2015. This research uses a sumscore index through five indicators in the measurement of transfer pricing. Meanwhile, the ETR proxy is used as a measure of tax avoidance.

Similar research has also been carried out in Indonesia. Falbo & Firmansyah (2018) conducted a test on transfer pricing aggressiveness as well as thin capitalization, and there is an impact on tax avoidance. 90 manufacturing companies from 2013 to 2015 are used as a sample in this study. The MAD ratio is used to measure thin capitalization in the study. This study's results show that tax avoidance is positively affected by thin capitalization. However, tax avoidance is not affected by transfer pricing aggressiveness. Similar results were obtained from the research of Panjalusman et al. (2018) in testing the tax evasion affected by transfer pricing. This research uses nine manufacturing companies during the period from 2014 to 2017 as samples.

Government policies and systems, such as tax amnesty, are factors that influence the results of this research. Research that tests tax evasion that is affected by thin capitalization and transfer pricing aggressiveness is also carried out by Nadhifah and Arif. This study used 32 manufacturing firms registered on the IDX from 2016 to 2018 as the sample. This research shows that tax avoidance is positively affected by thin capitalization. However, tax avoidance is negatively affected by transfer pricing. Nainggolan and Sari's (2019) research had different results. This research examines the effect of the characteristics of multinational companies on tax aggressiveness.

On the basis of the literature review and previous research, the objective of this study is to find out the difference between tax avoidance before the pandemic, in 2019, and after the pandemic in 2020. The research hypothesis is:

H0: There is no average difference between 2019 Tax Avoidance and 2020 Tax Avoidance

Ha: There is an average difference between 2019 Tax Avoidance and 2020 Tax Avoidance.

## 3. Research Methods

Quantitative methods are the approach of choice in this study. This study subject is registered firms on IDX (2019-2020). Next, the researcher will sample data from the population through a purposive sampling method. This research covers 206 populations, and 91 companies are chosen as samples through specified criteria. The sample selection process is shown in the table below:

**Research Design and Statistical Procedure**

This research applies a pre–post (within-firm) comparison design by examining the same companies in two consecutive years, 2019 and 2020. A paired design is appropriate when observations are naturally matched (the same firm measured twice), because it reduces noise from time-invariant firm characteristics and focuses the statistical test on changes over time. Conceptually, this approach helps separate year-to-year movements from cross-sectional differences across firms.

To test whether the mean tax avoidance proxy differs between 2019 and 2020, the study uses a Paired Sample T-Test. The test evaluates whether the average of the within-firm differences (Tax Avoidance 2019 minus Tax Avoidance 2020) is statistically different from zero. In addition to statistical significance, it is helpful to consider the magnitude of the difference relative to the baseline mean, because small but statistically significant differences may have limited economic relevance. Where possible, researchers also report confidence intervals for the mean difference to communicate the range of plausible effect sizes.

A key assumption of the paired t-test is that the distribution of within-firm differences is approximately normal. The paper therefore reports a normality check using the Kolmogorov–Smirnov framework before proceeding with the parametric test. When normality is questionable, a nonparametric alternative such as the Wilcoxon signed-rank test can be used as a robustness check; however, the primary analysis in this paper follows the parametric paired t-test to maintain comparability with prior applied studies in taxation and accounting research (Widiyanto, 2013).

**Variable Measurement and Interpretation**

Tax avoidance is operationalized using GAAP ETR, calculated as total tax expense divided by profit before tax (Dyreng, Hanlon, & Maydew, 2010). This proxy captures the tax burden reflected in financial reporting, which includes both current tax expense and deferred tax expense. Accordingly, GAAP ETR can move due to changes in statutory tax rates, temporary differences, loss carryforwards, and accounting policy choices. To reduce mechanical distortions, firms with losses (negative profit before tax) are excluded, because effective tax rate measures can become undefined or economically challenging to interpret when the denominator is negative.

In interpreting GAAP ETR, many studies treat lower effective tax rates as indicating greater tax avoidance, conditional on profitability and other factors (Hanlon & Heitzman, 2010). Nevertheless, this interpretation should be applied carefully in a COVID-19 setting. For example, if the government reduces statutory rates or provides relief that directly reduces current tax expense, GAAP ETR may decline even without an increase in aggressive planning. Therefore, observed differences in GAAP ETR between 2019 and 2020 should be interpreted as reflecting both policy design and firms' behavioral responses to the crisis environment.

**Validity Considerations**

Several validity considerations follow from this design choice. First, the analysis period is limited to two years, which strengthens the focus on the immediate policy shock but limits the ability to observe longer-run adjustment dynamics. Second, because the analysis does not include control variables, differences in profitability, industry subsegments, or incentive eligibility across firms could influence the measured change in GAAP ETR. Third, the sample is restricted to manufacturing firms listed on the IDX, so results may not generalize to other sectors with different business models or tax planning opportunities. These limitations motivate future work that combines longer panels with multivariate models and more granular measures of tax planning channels.

**Table 2.** Sample and Research Sample Selection Process.

| Information | Total |
|---|---|
| **Total Population** | **206** |
| Manufacturing firms that are not consecutively registered from 2018 to 2020 | (27) |
| Manufacturing firm registered on IDX that does not use the rupiah currency in its financial statements. | (31) |
| Manufacturing firms that do not complete their financial data | (5) |
| Manufacturing firms registered on IDX 2017 - 2020 that did not experience profit (earnings before tax). | (52) |
| **Total sample** | **91** |

Source: Results of data processing.

This study used tax avoidance as the dependent variable. Dyreng et al. (2010) use a tax avoidance proxy, namely, GAAPETR. Researchers also used GAAPETR in this research.

$$GAAPETR = \frac{\text{Tax Expense}}{\text{Profit Before Tax}}$$

## 4. Results and Discussion

### Result

To provide a description of a dataset, descriptive statistics are used in the study. This descriptive statistic is examined from the mean, standard deviation, maximum, and minimum values. Each variable will be described in descriptive statistics. These variables are 2019 Tax Avoidance and 2020 Tax Avoidance. The results of variable descriptive statistics are:

**Table 3.** Tax Avoidance Calculation Results for 2019 (Before Covid-19).

| Descriptive Statistics | | | | | |
|---|---|---|---|---|---|
| | **N** | **Minimun** | **Maximum** | **Mean** | **Std. Deviation** |
| **Tax Avoidance 2019** | **91** | **.14** | **.39** | **.2674** | **.05304** |
| **Tax Avoidance 2020** | **91** | **.10** | **.40** | **.2424** | **.06791** |
| **Valid N (listwise)** | **91** | | | | |

Source: SPSS data processing results (2022).

Explanation of the result above:

a. Tax Avoidance in 2019

Based on the result in Table 4.1, 0.14 is the minimum value, and 0.39 is the maximum value. The mean is 0.2674, and the standard deviation is 0.05304.

b. Tax Avoidance in 2020

Based on the result in Table 4.1, 0.10 is the minimum value, while 0.40 is the maximum. The mean is 0.2424, and the standard deviation is 0.06791.

### Normality test

**Table 4.** Normality Test Results.

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | **Unstandardized Residual** |
| **N** | | **91** |
| Normal Parameters[a,b] | Mean | .0000000 |
| | Std. Deviation | .06555836 |
| Most Extreme Differences | Absolute | .101 |
| | Positive | .101 |
| | Negative | -.051 |
| Test Statistic | | .101 |
| Asymp. Sig. (2-tailed) | | .024[c] |
| Exact Sig. (2-tailed) | | .297 |

| | |
|---|---|
| Point Probability | .000 |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: SPSS results (2022).

From the results above in the Kolmogorov-Smirnov table, the value of exact sig (2-tailed) is 0.297. The basis for making the decision on the normality test using the Kolmogorov-Smirnov is as follows: "If the value of Sig < Alpha Research (0.05), the data is not normally distributed, and vice versa."

So it can be decided that the significance value of this research is 0.297, which is greater than 0.05. This means that the two variables in this research are typically distributed.

## Hypothesis Test Results

After the prerequisite test with a normality test, the hypothesis test was carried out. Parametric statistical test as a hypothesis test, namely the Paired Sample T-Test, because it comes from two interrelated variables. According to Widiyanto (2013:35), one of the testing methods used to assess treatment effectiveness is the Paired Sample T-Test, marked by differences in the average before and after treatment. There are 3 tables of T-Test results, namely Paired Sample Tests, Paired Sample Correlations, and Paired Sample Statistics.

**Table 4.** Descriptive Statistics Paired Sample T-Test.

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Tax Avoidance 2019 | .2674 | 91 | .05304 | .00556 |
| | Tax Avoidance 2020 | .2424 | 91 | .06791 | .00712 |

Source: SPSS data processing results (2022).

This table describes the descriptive analysis of the processed data. The amount of data that has been processed is (N) for 91 companies. Furthermore, it can be examined as the mean value of the above results. The mean is the average value of each variable. From the results of the analysis above, the 2019 tax evasion has an average value greater than the 2020 tax evasion, which is 0.2674 > 0.2424. So, it can be stated that there is a difference between 2019 tax avoidance and 2020 tax avoidance.

**Table 5.** Table Correlation.

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Tax Avoidance 2019 & Tax Avoidance 2020 | 91 | .261 | .012 |

Source: SPSS data processing results (2022).

This Paired Sample Correlations table explains the correlation or relationship between the two variables, namely the 2019 tax avoidance and 2020 tax avoidance variables. This table has an alpha significance value of 0.012. The basis for taking the correlation value of the two variables is as follows:

a. If the Sig Research Alpha value is (0.05), the data is correlated.
b. If the value of Sig > Alpha Research (0.05), then the data is not correlated.

So it can be decided that the correlation significance value of 0.012 < 0.05. This means that the two data variables are correlated.

**Table 6.** Test Results Paired Sample T-Test.

| Paired Samples Test | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | t | df | Sig. (2-tailed) |
| Pair 1 | Tax Avoidance 2019 – Tax Avoidance 2020 | .02495 | .07447 | .00781 | .00944 | .04045 | 3.196 | 90 | .002 |

Source: SPSS data processing results (2022).

This Paired Sample T-Test table is interpreted to determine whether the hypothesis is rejected or accepted. There are two methods for this determination. The first method is by comparing the value of sig. (2-tailed) in the table with alpha values. The decision-making basis in the Paired Sample T-Test (Santoso, 2014: 265) is:

a. The significant value is > 0.05, Ha is rejected, and Ho is accepted (the difference in tax avoidance is not significant).
b. The significant value is < 0.05, Ho is rejected, and Ha is accepted (the difference in tax avoidance is significant).

Based on the analysis above, Sig. (2-tailed) value is 0.002. So, Sig. (2-tailed) value < 0.05. This means that Ho is rejected, and Ha is accepted (the difference in tax avoidance in 2019 and in 2020 is significant).

The second method is to contrast the t-count with the t-table. In interpreting the Paired sample t-test, you must first know the t-table value based on the df (degrees of freedom) and the alpha value divided by 2. Based on the analysis, the df value is 90. While the research alpha is 0.05 (α=5%), the alpha is divided by 5%/2 = 2.5% or 0.025, so that the t-table value obtained in the 0.025 row df column is 90, which is 1.98667.

Then the conclusion is obtained through a decision, namely:

a. The t-count > t-table, then Ho is rejected, and Ha is accepted (the difference in tax avoidance is significant).
b. The t-count < t-table, then Ho is accepted, and Ha is rejected (the difference in tax avoidance is not significant).

Based on the analysis, the t-count value is 3.196. So the t-count value > the t-table value, namely 3.196 > 1.98667. This means that Ho is rejected, as well as Ha is accepted (the difference in tax avoidance in 2019 and in 2020 is significant).

## Discussion

From the Paired Sample T-Test analysis result, Ho is rejected, and Ha is accepted. So the difference between tax avoidance in 2019 and 2020 is significant. If it is associated with agency theory, the manager tries to stabilise the company's economic condition by increasing profits because, during the pandemic, many companies experienced a decline in sales. Hence, the company carries out tax avoidance practices to reduce the amount of the tax burden.

The government makes an effort by providing tax incentives to businesspeople, but this is considered a loophole by companies to practise tax avoidance. This matches with Suhaidar's study, which shows an increase in tax avoidance practices during the COVID-19 pandemic. However, this is different from the results of research conducted by Firmansyah, which states that on the tax avoidance level, there is no difference, either before or during the pandemic.

### *Implications*

The results have several implications for tax administration. First, when broad incentive programmes are introduced quickly, the tax authority faces a dual objective: delivering relief efficiently while preventing abuse. A practical approach is to combine ex ante simplicity (so eligible firms can access relief without excessive burden) with ex post verification using risk-based analytics. Firms that show substantial declines in effective tax rates relative to peers, or that exhibit patterns consistent with aggressive profit shifting, can be prioritized for follow-up review. Because listed firms publish audited financial statements, reconciliation between financial reporting and tax reporting can also be leveraged as a screening tool.

Second, incentive design can be aligned more explicitly with transparency. For example, policymakers can require firms that claim significant tax relief to disclose a brief narrative in

their annual reports describing the nature of incentives received, the eligibility basis, and how the relief supports operational continuity. Such disclosure does not need to reveal sensitive tax positions, but it can increase accountability and reduce public skepticism when tax burdens decline during a crisis. This aligns with stakeholder theory's emphasis on the government and society as stakeholders with legitimate interests in corporate behavior (Deegan, 2001; Gunawan, 2015).

Third, the findings are relevant for corporate governance. Boards and audit committees can treat tax planning as an area requiring explicit oversight, especially during crisis periods when managerial incentives to conserve cash intensify. Clear internal policies on tax risk appetite, documentation standards for related-party transactions, and approval processes for material tax positions can help firms balance short-term liquidity objectives against longer-term regulatory and reputational risk. Such governance practices are consistent with agency theory, which emphasizes the need for monitoring mechanisms when managers may face incentives that differ from those of owners and other stakeholders (Jensen & Meckling, 1976).

From a public finance perspective, revenue shortfalls during a crisis can create difficult intertemporal trade-offs. If incentives reduce current revenue without being offset by higher compliance or faster recovery, fiscal space may narrow, increasing reliance on borrowing or spending cuts. The magnitude of corporate tax avoidance discussed in policy debates and external reporting underscores why monitoring matters even in an emergency context (Tax Justice Network, 2020). Accordingly, a balanced approach is to treat incentives as temporary support while preserving the credibility of enforcement through clear rules, consistent communication, and targeted audits focused on high-risk cases rather than broad punitive measures.

For investors and analysts, changes in effective tax rates also affect earnings quality assessment. A lower GAAP ETR can increase reported after-tax earnings, but it may also signal greater exposure to future tax uncertainty if the reduction stems from aggressive positions. Analysts can therefore interpret tax rate movements alongside disclosures on related-party transactions, deferred tax assets and liabilities, and the use of tax incentives. Integrating tax information into broader ESG and sustainability assessments may also become more relevant, as stakeholders increasingly view responsible tax behavior as part of corporate accountability.

***Robustness and Future Research Directions***

Although the paired-sample approach provides a clear comparison between 2019 and 2020, additional analyses can strengthen causal interpretation. One valid extension is to incorporate a longer panel and apply a difference-in-differences framework that compares firms more exposed to COVID-19 incentives with less-exposed firms or with sectors that were not prioritized for relief. This would help separate changes attributable to incentives from broader macroeconomic shifts affecting all firms.

Relatedly, heterogeneity across firms is likely to be important. Firms differ in whether they were eligible for specific incentives, in their ability to claim relief promptly, and in their exposure to cross-border transactions that affect tax planning opportunities. Future work can exploit this variation by classifying firms based on incentive eligibility or by using disclosures on incentive uptake, then testing whether the change in practical tax burdens is concentrated among certain groups. Such heterogeneity tests would provide more actionable evidence for policymakers than a single average effect.

A second extension is to apply alternative tax avoidance measures and statistical checks. Because GAAP ETR includes deferred tax effects, future work can compute cash ETR (cash taxes paid divided by pre-tax income) or use book–tax difference measures to triangulate whether changes in reported tax burdens correspond to cash tax savings. Researchers can also test robustness using nonparametric paired tests when the normality assumption for differences is borderline, and can examine whether outliers drive results in extreme profit or tax expense observations.

Finally, future research can move beyond aggregate proxies to investigate specific channels that may have shifted during the pandemic. For example, transfer pricing aggressiveness and thin capitalization are widely discussed as mechanisms for lowering taxable income, but their feasibility can be affected by disruptions to trade, financing costs, and enforcement priorities during a crisis (Amidu, Coffie, & Acquah, 2019; Falbo & Firmansyah, 2018; Taylor & Richardson, 2012). Combining detailed related-party disclosures with tax burden measures could clarify whether the overall decline in effective tax rates in 2020 reflects changes in particular strategies or a more general shift in the tax environment. Such evidence would be

especially valuable for designing targeted compliance responses without undermining the stabilization goals of emergency incentives.

## 5. Conclusions

On the basis of the above analysis, it was concluded that there were differences in tax avoidance practices before and during the COVID-19 pandemic. This difference is due to the tax incentives provided by the government. The government hopes that the tax incentives will increase the productivity and competitiveness of companies. The existence of tax incentives should be helpful for taxpayers to continue to carry out their obligations to pay taxes properly without having to take tax avoidance actions, so that there is no decrease in tax revenue during the COVID-19 pandemic. However, companies abuse the tax incentives as a loophole to practise tax avoidance.

The result implies that, during the early pandemic period, firms' reported practical tax burdens changed in a way that is consistent with both policy relief and heightened incentives to manage liquidity. For the government, this highlights the importance of aligning short-term stimulus with longer-term revenue protection. In practical terms, incentive programmes can be paired with strengthened guidance, standardized documentation, and risk-based supervision so that relief reaches eligible firms while minimizing opportunities for unintended tax avoidance.

For corporate stakeholders, the findings underscore that tax outcomes are not only a regulatory issue but also part of broader governance and social responsibility. Transparent disclosure of the use of tax incentives and the underlying tax positions can help firms reduce reputational risk and support accountability, especially when the public expects firms to contribute fairly to crisis financing (Eden & Smith, 2011). From a theoretical standpoint, the observed shift is consistent with agency-based arguments that managers adapt tax decisions when economic conditions and monitoring change, and with stakeholder arguments that the state remains an influential stakeholder through both incentives and enforcement (Jensen & Meckling, 1976; Deegan, 2001).

In addition to providing tax incentives from the government, another factor that encourages companies to practise tax avoidance is the encouragement from shareholders to managers to maintain the company's economic condition. The government should increase supervision regarding loopholes for tax avoidance practices so that state revenues can reach the expected target. This study found a correlation between tax avoidance practices before and during the pandemic.

The limitations in this research only discuss tax avoidance in the period before and during the pandemic, with a period of 2 years, namely 2019-2020. Further suggestions that can be used by further researchers are to increase the number of variables that may be related to tax avoidance, as well as to use sectors other than manufacturing companies.

Future studies could extend this work in several directions. First, a longer observation window (pre-pandemic, pandemic, and post-pandemic years) would help distinguish temporary effects from persistent changes in tax planning. Second, incorporating control variables—such as profitability, leverage, firm size, and incentive eligibility—would help separate the mechanical impact of policy changes from behavioral changes in avoidance. Third, alternative tax avoidance proxies (cash ETR, book–tax differences, or measures linked to specific channels such as transfer pricing and thin capitalization) could provide a more granular understanding of how firms adjust strategies under shock conditions. Finally, expanding the sample to other sectors would improve external validity and allow comparison of industries with different operating and tax planning characteristics.

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