



NAVIGATING UNCERTAINTY: THE ROLE OF TAX AVOIDANCE AND LEVERAGE IN SHAPING FIRM VALUE

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Abstract

This study examines the effect of tax avoidance on firm value, with company leverage as a moderating variable, focusing on infrastructure companies during the Covid-19 pandemic. Using financial data from infrastructure companies listed on the Indonesian Stock Exchange from 2020 to 2022, this study employed a purposive sampling method to select 22 companies, resulting in 66 observations. The findings reveal that tax avoidance practices during the Covid-19 pandemic do not have a significant relationship with firm value. Additionally, company leverage does not moderate the relationship between tax avoidance and firm value. During economic uncertainty caused by the pandemic, investors prioritize investment risk, potential returns, and market stability over tax avoidance practices. This study is limited to a sample of infrastructure sector companies during the pandemic, which restricts the generalizability of the findings. Future research could expand the scope by including samples from other sectors to provide a broader perspective on the relationship between tax avoidance and firm value during periods of economic disruption. This study contributes to the Financial Services Authority (OJK) by supporting efforts to oversee corporate financial strategies, including tax avoidance practices. These findings can assist OJK in developing balanced regulations that ensure corporate accountability while maintaining economic stability during periods of uncertainty.

Keywords: Covid-19 pandemic, Firm value, Leverage infrastructure sector, Tax avoidance

INTRODUCTION

The outbreak of Coronavirus disease 2019 (Covid-19) in early 2020 marked a turning point in global history, disrupting societies and economies at an unprecedented scale. Talukdar et al. (2024) emphasized that the highly contagious and lethal virus compelled governments worldwide to adopt drastic measures such as social restrictions and lockdowns. While necessary to curb the spread of the virus, these measures triggered significant economic instability, creating fluctuating conditions that profoundly affected businesses across sectors. Ullah et al. (2023) highlighted how economic uncertainty, shifts in consumer behavior, and global supply chain disruptions during the pandemic directly influenced corporate valuations. It underscores the increased complexity of evaluating firm value under such challenging conditions.

Firm value is a critical measure of a company's operational efficiency and effectiveness, reflecting investor expectations regarding future performance (Bui et al., 2023). The Covid-19 pandemic magnified the intricacies of firm value determination as companies faced unprecedented pressures from external and internal factors (Tahu & Yuesti, 2023). Modigliani & Miller (1958) argued that key elements such as capital structure, operational performance, and broader external factors, including economic conditions and tax regulations, influence firm value. The pandemic amplified the importance of these factors, creating a unique context that calls for a deeper examination of how companies adapt and maintain value during crises.

The Covid-19 pandemic's impact on firm value has been well-documented. Revinka (2021) observed a significant decline in the value of companies listed on the Indonesia Stock Exchange (IDX) during this period, particularly as firms grappled with uncertainty. This situation highlighted the critical need for adaptive strategies to sustain financial performance. Among these strategies, tax avoidance has emerged as a focal point, given its potential influence on firm value during economic disruption. Despite its prominence, the relationship between tax avoidance and firm value remains contentious and inconclusive, with prior research yielding mixed results.



For instance, Nugraha & Setiawan (2019) identified a significant positive effect of tax avoidance on firm value, suggesting that reducing tax expenses can directly enhance corporate valuations. This result is in line with Gramatika & Nugrahanto (2022), Irawan & Turwanto (2020), Pradnyana & Noviani (2017), and Widodo & Firmansyah (2021). In contrast, Kusuma & Rahyuda (2022), Purnama (2020), and Tarihoran (2016) found no evidence of a positive relationship, casting doubt on the universality of such a link. These inconsistencies underscore the need for further research to elucidate the dynamics between tax avoidance and firm value, particularly under crisis conditions like the Covid-19 pandemic.

This study investigates the relationship between tax avoidance and firm value, focusing on infrastructure companies listed on the IDX during 2020–2022. These companies play a vital role in supporting national economic development and stability, making them an essential area of study amidst the economic challenges posed by the pandemic. Hanlon & Heitzman (2010) emphasized the strategic importance of tax avoidance in enhancing firm value, particularly in turbulent times. By analyzing tax avoidance practices in this context, the study aims to provide empirical evidence on how companies adapt their strategies to maintain value in the face of external shocks.

A distinctive feature of this research is its inclusion of corporate leverage as a moderating variable. Leverage, which represents the proportion of debt in a company's capital structure, plays a dual role in influencing financial outcomes. Desai & Dharmapala (2006) observed that companies with higher leverage often utilize debt to enhance tax efficiency, indicating that leverage can amplify or diminish the effectiveness of tax avoidance strategies. However, research by Cheng & Tzeng (2014), Serolin (2023), and Tulcanaza-Prieto et al. (2024) found a negative association between leverage and firm value. Companies with a greater proportion of debt in their capital structure may cause investors to exercise greater caution in investing, as high leverage raises concerns about financial stability. Conversely, tax avoidance is often perceived as a strategy that aligns shareholder interests, eliciting positive responses from investors. Nevertheless, when companies carry higher debt levels, the positive investor response to tax avoidance actions may diminish as the risks associated with leverage overshadow the perceived benefits of tax efficiency.

The contributions of this research extend beyond academia. It provides a critical lens through which policymakers, particularly the Financial Services Authority (OJK), can better understand corporate tax avoidance behavior and its implications for firm value. By identifying short-term trends in tax avoidance during the pandemic, this study equips OJK with insights to develop more effective tax policies and regulatory frameworks. Such contributions are expected to enhance corporate compliance and financial stability, ultimately supporting national economic resilience in future crises.

LITERATURE REVIEW

Agency theory provides a strong foundation for understanding the relationship between tax avoidance and firm value by emphasizing the conflict of interest between shareholders and management (Jensen & Meckling, 1976). Shareholders, as principals, are focused on maximizing firm value, which reflects the company's market performance and potential for future growth. Meanwhile, as agents, management may leverage their authority and informational advantage to pursue personal objectives that may not align with shareholder interests (Jensen & Meckling, 1976).

In this framework, tax avoidance serves as a strategic tool that can align the interests of shareholders and management. As a legal method to minimize tax obligations, tax avoidance increases net profits, which enhances the company's financial performance and contributes to the long-term growth of firm value (Hanlon & Heitzman, 2010). This approach reflects



managerial efficiency in leveraging available opportunities to optimize financial outcomes.

Empirical evidence underscores the positive impact of tax avoidance on firm value. Studies by Gramatika & Nugrahanto (2022), Irawan & Turwanto (2020), Pradnyana & Noviari (2017), and Widodo & Firmansyah (2021) demonstrated that companies engaging in tax avoidance are often perceived positively by investors. These companies are considered capable of effectively managing resources and maintaining performance under challenging economic conditions, which enhances their market reputation and investor appeal.

Nevertheless, acknowledging the risks associated with tax avoidance, including potential regulatory scrutiny and reputational harm, is crucial. Despite these challenges, research suggests that tax avoidance can enhance firm value when implemented carefully within the bounds of legal and ethical practices. By improving financial performance and demonstrating effective resource management, tax avoidance aligns management's actions with the broader objectives of shareholders, ultimately supporting the company's market position.

H₁: Tax avoidance has a positive effect on firm value.

Leverage, defined as the proportion of debt in a company's capital structure (Brigham & Houston, 2019), is pivotal in shaping the relationship between tax avoidance and firm value. According to Modigliani & Miller (1958), leverage influences firm value through its effects on the cost of capital and financial risk. Agency theory provides further insight, highlighting that leverage can exacerbate conflicts between shareholders and debt holders. Shareholders often favor higher risk to achieve greater returns, whereas debt holders prioritize financial stability, particularly when high leverage increases the likelihood of bankruptcy (Jensen & Meckling, 1976).

From the tax avoidance perspective, leverage can enhance tax efficiency by reducing taxable income through tax-deductible interest payments, thereby increasing post-tax profits (Modigliani & Miller, 1958). Klassen & Laplante (2012) demonstrated that firms with significant leverage often show a stronger positive association between tax avoidance and firm value, as debt amplifies the benefits of tax liability reduction.

While high leverage can offer benefits, such as tax efficiency through interest expense deductions, it also carries significant risks. These risks become particularly pronounced during economic uncertainty, such as the Covid-19 pandemic. In such conditions, highly leveraged firms face increased scrutiny from stakeholders, including creditors and investors, who may perceive heightened financial instability. Additionally, high leverage reduces a firm's flexibility in pursuing aggressive tax strategies, as the focus shifts more toward maintaining financial stability than achieving tax savings.

Previous studies have confirmed a negative relationship between leverage and firm value. Cheng & Tzeng (2014), Serolin (2023), and Tulcanaza-Prieto et al. (2024) found that high leverage often leads to a decline in firm value. It can be attributed to several factors, including increased financial costs, the risk of bankruptcy, and negative market perceptions regarding the firm's stability. In many cases, the potential costs associated with high leverage outweigh the tax efficiency benefits, thereby diminishing the firm's overall value.

This dynamic underscores the dual-edged nature of leverage. On one hand, leverage can be an effective tool for boosting profitability and achieving tax efficiency. On the other hand, it can pose substantial risks, especially if not managed prudently. Therefore, firms must adopt balanced financial management practices when dealing with leverage. It entails careful decision-making regarding debt financing, considering macroeconomic risks, and ensuring that the capital structure supports the long-term optimization of firm value.

H₂: Leverage weakens the positive effect of tax avoidance on firm value



METHODS

This study employs a quantitative approach using cross-sectional data. Secondary data was obtained from financial reports of infrastructure sector companies listed on the Indonesia Stock Exchange (IDX) during the Covid-19 pandemic, specifically from 2020 to 2022. The infrastructure sector was chosen for several key reasons. This sector is known for its high level of capital expenditure (Al'Alam & Firmansyah, 2019). Additionally, the infrastructure sector demonstrates strong resilience to crises, including the Covid-19 pandemic. According to Hardianti et al. (2020), this sector remains essential under any circumstances due to its consistent consumer demand, making it a highly relevant subject for this research.

Based on these criteria, the study selected a sample of 20 infrastructure companies, covering a data period from 2020 to 2022, resulting in 60 observations. The secondary data was sourced from financial statements accessible through the website www.idnfinancial.com. The sampling process was conducted meticulously to ensure the reliability and relevance of the data used for analysis.

The sampling process began with identifying infrastructure companies listed on the IDX as of January 1, 2023. These companies represented various subsectors, including Transportation Infrastructure Operators, Heavy Construction and Civil Engineering, Telecommunications Services, Wireless Telecommunications, and Electric, Gas, and Water Utilities. Those that did not meet specific criteria were excluded from the initial pool of companies. These exclusions included companies listed after 2020, companies reporting losses before tax, and those with either a negative Effective Tax Rate (ETR) or an ETR exceeding 1.00. After applying these criteria, 20 companies were deemed eligible for inclusion in the study. With a total of 60 observations, this research provides comprehensive coverage to analyze the effect of tax avoidance on firm value and the moderating role of leverage within the context of the infrastructure sector. This approach will yield valuable insights into corporate financial strategies during the Covid-19 pandemic.

This research employs firm value as the dependent variable, measured using Tobin's Q ratio, a commonly used proxy in financial literature. The Q ratio, as adopted by Widodo & Firmansyah (2021), compares the market value of a company's equity and liabilities to the book value of its total assets. The formula for Tobin's Q is expressed as:

$$Q = \frac{\text{Market Value of Equity} + \text{Total Debt}}{\text{Total Assets}}$$

Tax avoidance is a key independent variable in this study, measured through the GAAP Effective Tax Rate (GAAP ETR) proposed by Dyreng et al. (2010). GAAP ETR is advantageous because it encompasses all tax avoidance strategies, offering a comprehensive measure (Dyreng et al., 2010). The GAAP ETR is calculated as follows:

$$\text{ETR}_i = \frac{\text{Total Tax Expense}}{\text{Pretax Income}}$$

To quantify tax avoidance, the ETR value is multiplied by -1, as suggested by (Annida & Firmansyah, 2022), since a lower ETR indicates greater tax avoidance. The moderating variable in this research is leverage, represented by the Debt to Asset Ratio (DAR). Leverage reflects the proportion of a company's debt relative to its total assets (Brigham & Houston, 2019) and is calculated using the formula:

$$\text{DAR} = \frac{\text{Debt}}{\text{Total Assets}}$$

Here, debt comprises both short-term and long-term debt, while total assets represent the total resources owned by the company. The control variable employed in this study is financial performance, measured through the return on assets (ROA) ratio. ROA indicates how efficiently a company generates profit relative to its total assets (Irawan & Turwanto, 2020), calculated as follows:



$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

Hypothesis testing was carried out using multiple linear regression analysis using panel data. The equation model of this research is as follows:

$$\text{Tobin's } Q_{it} = \beta_0 + \beta_1 \text{TAXAVOID}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{LEV} * \text{TAXAVOID}_{it} + \varepsilon_{it}$$

RESULTS AND DISCUSSIONS

The descriptive statistics for all variables used in this study are presented as follows:

Table 1 Statistics Descriptive

Variable	Obs	Mean	Std. dev.	Min	Max
Tobin's Q	60	1.7268	1.7682	0.7519	9.9959
ROA	60	0.0483	0.0393	0.0001	0.1561
LEVERAGE	60	0.4418	0.2220	0.0679	0.8167
TAXAVOID	60	-0.1947	0.1972	-0.9285	0.0001

Source: data processed (2024)

The table provides valuable insights into the descriptive statistics of the variables analyzed in the study. Tobin's Q, which represents firm value, has an average value of 1.7268. This indicates that, on average, the market values the companies' assets at about 1.73 times their book value, suggesting positive growth prospects or the presence of intangible assets. The standard deviation of 1.7682 shows a moderate variation in firm value across the sample, with values ranging from 0.7519 to 9.9959. This wide range reflects significant differences in how the market perceives these companies.

The Return on Assets (ROA), a measure of financial performance, has a mean value of 0.0483, indicating an average return of 4.83% on total assets. It suggests modest profitability among the companies. The standard deviation of 0.0393 shows relatively low variability in profitability, with ROA values spanning from a near-zero level of 0.0001 to a high of 0.1561. This range highlights disparities in profitability, with some companies barely breaking even.

Leverage, measured as the debt-to-asset ratio, averages 0.4418, meaning that about 44.18% of the companies' assets are financed through debt. The standard deviation of 0.2220 indicates moderate variability in leverage levels, with values ranging from 0.0679 to 0.8167. These findings reveal that while some companies rely minimally on debt, others are heavily leveraged.

Tax avoidance, represented by the variable TAXAVOID, has a mean value of -0.1947, corresponding to an average effective tax rate (ETR) of 19.47%. The negative value reflects using tax avoidance strategies to reduce tax liabilities. The standard deviation of 0.1972 shows moderate variability in tax avoidance practices among the companies, with values ranging from -0.9285, indicating aggressive tax avoidance, to 0.0001, reflecting negligible tax avoidance.

The data analysis technique employed in this study is multiple linear regression to examine the influence of the independent variable, tax avoidance, on the dependent variable, firm value. Before conducting the regression analysis, the optimal model among the ordinary least squares (OLS), fixed effects model (FEM), and random effects model (REM) was determined through model selection tests, including the Chow test, Lagrange Multiplier test, and Hausman test. The results of the model selection tests indicate that the random effects model (REM) is the most appropriate for hypothesis testing. The hypothesis testing results are presented as follows.

Table 2 Test Results Hypothesis

Variable	Coeff.	z	Prob
C	1.9509	3.02	0.001
TAXAVOID	-0.6847	-0.75	0.228



TAXAVOID*LEV	1.2024	0.88	0.190
LEV	-0.5223	-0.56	0.289
ROA	-0.3611	-0.16	0.438
R ²	0.0007		
F-Stat.	0.3832		

Source: data processed (2024)

The association between firm value and tax avoidance

The regression analysis results indicate that tax avoidance does not significantly affect firm value in Indonesia's infrastructure sector during the 2020–2022 period. This finding rejects the initial assumption (H_1) and aligns with the results of Kusuma & Rahyuda (2022), Purnama (2020), and Tarihoran (2016). The Covid-19 pandemic introduced widespread economic uncertainty (Sumadi, 2020), and sentiment surrounding the pandemic significantly influenced stock prices (Alfira et al., 2021). Under such conditions, investors favored sectors with lower volatility (Saraswati, 2020), prioritizing profitable and stable industries over specific company practices like tax avoidance.

During the pandemic, tax avoidance was not a key consideration for investors in making investment decisions (Doloksaribu et al., 2023). One reason is the government's implementation of tax relaxation policies across various sectors (Musdalifah & Kiswara Endang, 2020). These policies reduced tax burdens uniformly, diminishing the comparative advantage that companies might have gained through tax avoidance strategies. Investors instead focused on more pressing factors such as investment risk, potential returns, and market stability (Bouteska & Regaieg, 2020). Rather than tax avoidance, fundamental economic and financial elements drove investment decisions during this period.

For companies in the infrastructure sector, the focus during the pandemic shifted toward survival and long-term stability (Viana & Arifin, 2020). The erosion of profits due to increased expenditures during the pandemic outweighed any benefits gained from tax avoidance. Additionally, the infrastructure sector operates under stringent regulations limiting aggressive tax avoidance opportunities. This sector frequently benefits from government-provided tax incentives to support public projects, reducing the necessity and financial advantage of engaging in tax avoidance practices.

The characteristics of the infrastructure sector further explain why tax avoidance did not significantly affect firm value. The sector's value is often derived from long-term cash flow stability and access to strategic projects rather than short-term financial maneuvers like tax avoidance. Investors in this sector are more focused on the company's reputation and sustained performance, making aggressive tax avoidance less attractive, especially if it risks damaging public perception. Furthermore, infrastructure companies often rely on significant debt financing, and the resulting interest payments already lower taxable income, leaving limited room for additional tax benefits from avoidance strategies.

These dynamics suggest that tax avoidance practices do not contribute directly to enhancing firm value in the infrastructure sector. Instead, they may pose reputational risks that could harm stakeholder relationships and government partnerships. The infrastructure sector's reliance on government support and its strategic importance may further discourage tax avoidance practices that could jeopardize these critical relationships. As a result, tax avoidance becomes ineffective and unattractive as a strategy for value creation in this context.

The moderating effect of leverage on the association between tax avoidance and firm value

The hypothesis testing results reveal that leverage does not strengthen the positive influence of tax avoidance on firm value, indicating that leverage fails to moderate the relationship between tax avoidance and firm value. One significant reason is that an increase in leverage elevates companies' financial risks, especially during economic uncertainty, such as



the Covid-19 pandemic. As debt levels rise, firms are burdened with higher interest expenses and a greater potential for bankruptcy, which can negatively impact firm value despite any tax savings derived from debt interest (Modigliani & Miller, 1958). Investors and other stakeholders often evaluate corporate risk comprehensively. When leverage is perceived as excessive, it can lead to a negative response from investors, overshadowing any potential positive effects of tax avoidance on firm value (Desai & Dharmapala, 2009).

High leverage also subjects companies to intensified scrutiny from regulators and creditors, which may limit the effectiveness of tax avoidance strategies (Erlisa et al., 2024). Firms with substantial debt obligations often face liquidity constraints, reducing their flexibility to invest in growth opportunities or expand operations (Bose et al., 2019). These financial risks are particularly pronounced in the infrastructure sector, which heavily depends on long-term debt for large-scale projects. Under unstable economic conditions, the tax savings from debt interest become insufficient to offset the default risk and associated financial pressures. Consequently, tax avoidance does not translate into significant improvements in firm value.

Leverage, as a mechanism for increasing business scale, is frequently used by companies to fund expansions, acquire equipment, and boost production (Amanta et al., 2022). While this strategy is theoretically intended to enhance profitability and shareholder value, high leverage in the infrastructure sector can become a double-edged sword. On the one hand, it enables firms to undertake large, sustainable projects. On the other hand, it increases financial fragility during market volatility. This fragility discourages investors from viewing leverage as a contributor to firm performance.

Moreover, during the Covid-19 pandemic, investors focused on minimizing risk and sought resilient sectors. In this environment, the relationship between leverage and tax avoidance was not a primary concern for investors. Research suggests that investors often lack access to detailed information about corporate leverage, which diminishes its relevance in investment decision-making (Khafa & Laksito, 2015). Limited transparency and heightened economic instability rendered leverage ineffective as a factor that could amplify the positive impact of tax avoidance on firm value.

For infrastructure companies, the inability of leverage to moderate the relationship between tax avoidance and firm value is also tied to the sector's unique characteristics. These companies focus on long-term stability, operational efficiency, and access to strategic projects rather than short-term financial gains. As a result, leverage fails to enhance firm value during economic uncertainty significantly. Investors prioritize risk mitigation and long-term viability over potential tax savings achieved through debt financing, especially in a crisis context like the Covid-19 pandemic. Thus, the role of leverage as a moderating variable in the relationship between tax avoidance and firm value is diminished in the infrastructure sector due to heightened financial risks, limited investor focus on leverage, and the sector's reliance on long-term strategic objectives. These dynamics explain why leverage did not enhance the positive impact of tax avoidance on firm value during the 2020–2022 period.

CONCLUSIONS

The research concludes that tax avoidance by companies during the Covid-19 pandemic did not influence firm value. Investors prioritize investment risk, potential returns, and market stability over tax avoidance in uncertain economic conditions. Additionally, corporate leverage failed to moderate the relationship between tax avoidance and firm value. Higher leverage increases financial risks, such as bankruptcy potential and elevated interest costs, which can outweigh the perceived benefits of tax avoidance. Investors and stakeholders also assess overall corporate risk, and high leverage often triggers negative perceptions and regulatory scrutiny, further diminishing the effectiveness of tax avoidance strategies in enhancing firm value.



This study has several limitations. The research sample is restricted to 2020 and 2022, focusing exclusively on the Covid-19 pandemic era. Additionally, the stringent sample criteria significantly reduced the number of observations. Future research could address these limitations by expanding the sample to include other sectors, such as manufacturing, energy, and technology, to examine the relationship between tax avoidance and firm value across a broader industrial landscape. It would also be beneficial to include data from before and after the pandemic to provide a more comprehensive analysis of how tax avoidance impacts firm value in varying economic conditions.

For policymakers, particularly the Financial Services Authority (OJK), this study highlights the importance of strengthening transparency and regulatory oversight of corporate financial strategies, including tax avoidance practices. The Directorate General of Taxes (DJP) is encouraged to enhance overall tax compliance by providing education and offering positive incentives for companies to reduce their reliance on tax avoidance strategies. Collaboration between OJK and DJP is recommended to develop a more effective monitoring and reporting system. This system should aim to identify harmful practices without discouraging investment or stifling the economic growth of companies. Such measures can create a more balanced regulatory environment that promotes accountability while supporting sustainable business development.

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