

The Effect of Carbon Emission Disclosure, Operating Efficiency, Capital Structure, and Media Exposure on Firm Value, With Media Exposure as A Moderating Variable (an Empirical Study of Low-Carbon Leader Companies Listed on the Indonesia Stock Exchange)

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Abstract

Keywords:

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perception of a company's performance, prospects, and sustainability. As investors' attention to environmental issues and information transparency increases, companies are required to not only demonstrate good financial performance, but also manage and disclose their environmental impacts and business strategies accountably. In this context, this study aims to analyze the influence of carbon emission disclosure, operating efficiency, Media Exposure, and Capital Structure to the value of the company. This research is based on Stakeholder Theory which emphasizes the importance of balancing stakeholder interests through transparency and accountability of information. The research method used is a quantitative approach with a causal-comparative design. Research data is obtained from annual reports and sustainability reports of companies that are members of the Index Low Carbon Leaders on the Indonesia Stock Exchange for the period 2020-2024 with the purposive sampling. Data analysis is carried out using Partial Least Square (PLS). The results of the study show that carbon emission disclosure negatively affects the value of the company, while operating efficiency and Capital Structure has a positive effect. Media exposure directly does not have a significant effect on the company's value, but plays a role as Quasi moderator. Media exposure Proven to strengthen influence carbon emission disclosure, but weakened the influence operating efficiency and Capital Structure to the value of the company. These findings suggest that media exposure does not necessarily improve the effectiveness of operational performance signals and corporate funding policies in the eyes of investors.

INTRODUCTION

Firm value is one of the main indicators that reflects the success of management in managing economic resources effectively and efficiently to create added value for shareholders. The higher the value of the company, the more investors will assume that the company has good performance, so investors will be interested in investing in the company. Every company strives to increase the company's value as a positive reflection of performance in the eyes of shareholders and stakeholders. Valuation of a company's value requires measures that are able to objectively reflect market conditions and fundamental performance. The value can be measured using (Dwiastuti and Dillak, 2019) Price to Book Value (PBV), Price to Earnings Ratio (PER), and Tobin's Q Ratio. Although PBV and PER are widely used, the Tobin's Q approach is considered more comprehensive because it reflects the market's assessment of a company's assets, performance, and long-term prospects.

According to Ana and Wibowo (2025), firm value measured through Tobin's Q provides a more complete picture of management's effectiveness in managing the company's assets and liabilities. This ratio is calculated by comparing the market value of equity and debt to total assets, thus reflecting the efficiency of the utilization of all company resources. A Tobin's Q value above one indicates that the market assesses that the company has high growth potential because the company's assets are considered capable of generating returns that exceed the cost of acquisition. On the other hand, if the ratio value is below one, it indicates that the assets have not been optimally managed and the company is considered undervalued. The use of Tobin's Q in this study aims to provide a comprehensive measure of firm value, not only based on historical data but also based on market perceptions and expectations.

BRIS only recorded an average Tobin's Q of 0.53, which reflects undervalued conditions. BBTN and BMRI also showed average scores of 0.92 and 0.95, which are still below the optimal threshold. JSMR, which originally had a value of 1.08 in 2020, has experienced a gradual decline until it reached 0.81 in 2024. Despite being included in the low carbon leader category, the company has not received commensurate market appreciation in the form of a high value ratio. This phenomenon raises questions about the company's low value amid its commitment to environmentally friendly practices. Compliance with sustainability principles has not been fully responded to positively by the market, indicating that there are challenges in building investor perceptions due to internal and external factors that have not fully supported sustainable value creation. In this context, stakeholder theory provides a normative and strategic foundation for the development of an empirical model in this study by placing stakeholder involvement and perception as central to every managerial decision. Therefore, carbon emission disclosure, operating efficiency, capital structure, and media exposure are positioned as forms of compliance as well as the company's responses to the demands for transparency, operational effectiveness, and financial stability proposed by various stakeholders.

In the dynamics of global economic transformation that is increasingly oriented toward sustainability principles, business entities are faced with the demand not only to maintain their existence amid market pressure but also to strengthen competitiveness through efficient and measurable use of resources. Indonesia is one of the countries that signed the Kyoto Convention through Regulation No. 17 of 2004 in order to implement sustainable development and participate in efforts to reduce greenhouse gas emissions on December 3, 2004. In response to sustainability demands, the Indonesia Stock Exchange (IDX) launched the IDX LQ45 Low Carbon Leaders (IDX LQ45LCL) Index on November 11, 2022. This index includes companies from LQ45 that have low carbon emission intensity and a strong commitment to ESG (Environmental, Social, and Governance) principles. The main objective of launching this index is to reduce the exposure of carbon emission intensity in investment portfolios by at least 50% compared to the parent index LQ45, while excluding companies in the coal sector (Indonesia Stock Exchange, 2022).

According to data, Indonesia recorded total emissions of 1200.2 MtCO₂-eq (Joint Research Center, 2024), which contributed 2.3% to total global emissions. This high figure shows that Indonesia is included among countries with significant emission levels, especially in the Southeast

Asian region. Although in 2023 there was a relatively small increase in emissions of 0.1%, the annual average growth rate (CAGR) of 3.4% since 1990 indicates an ongoing long-term trend of increasing emissions. This fact reflects that climate mitigation policies in Indonesia still face challenges in implementation and effectiveness, especially in the energy, transportation, and land use sectors.

Research on carbon emission disclosure has shown, as stated by Bahriansyah and Ginting (2022), that disclosure of carbon emission information contributes significantly to increasing firm value. Companies that are able to demonstrate compliance with sustainability principles receive a positive response from the market because they are considered to have stronger governance and competitiveness that are more adaptive to regulatory pressures and investor preferences increasingly oriented toward ESG (Environmental, Social, and Governance) aspects. This fact strengthens the argument that carbon emission disclosure is not merely a form of social responsibility but also a relevant corporate strategy in increasing firm value amid economic dynamics that increasingly demand sustainability.

There are several studies on firm value influenced by the carbon emission disclosure variable. As conducted by Putri and Sebrina (2025), carbon emission disclosure was found to have a positive effect on firm value. The results of the analysis show that companies that convey carbon emission disclosure information transparently tend to receive positive responses from investors. This reflects that openness to environmental issues is considered a signal of the company's commitment to sustainable business practices. Carbon emission disclosure not only fulfills corporate ethical demands but has also become a value-added strategy in improving market perception and strengthening the company's competitive position. This finding is consistent with research conducted by Bahriansyah and Ginting (2022), which showed that carbon emission disclosure positively affects firm value because it represents a form of commitment to sustainability that can increase investor confidence. A similar finding was reported by Aeni and Murwaningsari (2023), who stated that carbon emission disclosure plays a role in reducing information asymmetry and strengthening company legitimacy.

In contrast to research conducted by Gayatri and Yuniarta (2024), carbon emission disclosure does not have a significant effect on firm value. Investors' low understanding of sustainability issues has caused information related to carbon emission disclosure to be unable to encourage an increase in stock market value. Similar results were shown by Kencana et al., (2024) and Leilani and Andayani (2025), who also corroborated these findings with evidence that carbon emission disclosure has no significant effect on Tobin's Q. This condition reflects that limited investor literacy and low market attention to sustainability issues cause carbon emission disclosure to be unable to increase firm value. These results indicate that the effectiveness of carbon emission disclosure in creating firm value can depend on the social context, investor literacy level, and market response to environmental issues disclosed by the company.

Operating efficiency reflects the extent to which a company is able to utilize its assets to generate sales optimally. When the funds invested in assets are sufficiently large, companies are required to manage those assets productively to drive revenue growth. Increased efficiency in asset

utilization will have an impact on increasing profits, which in turn becomes a positive signal for the market. Investors' response to this efficient performance can drive investment interest and ultimately increase firm value (Nurwahyuni et al., 2019). In a study conducted by Husna and Kadarningsih (2025), operating efficiency proxied through the Total Asset Turnover (TATO) ratio was proven to have a positive influence on firm value. This shows that the higher the company's ability to utilize assets to generate sales, the greater the confidence investors have in the company's business prospects.

Research conducted by Putri and Wardani (2022) also found that the efficiency of asset utilization contributes significantly to increasing firm value. The higher the company's ability to maximize its assets to generate sales, the greater the economic value that can be created. However, not all studies show the same results. Research conducted by Simorangkir (2019) and Wati et al., (2021) found that operating efficiency does not have a significant influence on firm value. These results indicate that the effectiveness of asset utilization is not necessarily the main consideration for investors in assessing firm value. Similar results were reported by Ernawatiningsih and Swandewi (2025), revealing that the Total Asset Turnover (TATO) ratio has no effect on firm value. These findings suggest that asset efficiency is not always viewed as a determining factor by investors, as market attention is often more focused on financial stability and a company's ability to create sustainable cash flow. This condition indicates that the influence of operating efficiency on firm value is greatly affected by industry characteristics, management quality, and market responses to available information.

Capital structure refers to a company's policy in determining the composition of long-term financing derived from debt and equity. This composition plays a crucial role in determining the level of risk and cost of capital borne by the company, and it also influences investors' perceptions of the firm's value (Dhany et al., 2024). A study conducted by Manurung and Wildan (2023) shows that the proportional use of debt can increase firm value, as it reflects managerial confidence and strategic capability in utilizing financing sources to drive business growth and enhance market expectations regarding the company's future prospects.

METHODS

Population, Sample, and Sampling Techniques

The population used in this study uses the population of low carbon leader sector companies listed on the Indonesia Stock Exchange and takes the period 2020-2024. The determination of the research sample uses the purposive sampling method, which is a non-probability sampling technique based on special considerations and criteria, so that the selected sample has direct relevance to the research objectives.

Data Collection Methods

The data collection method in this study is carried out through documentation techniques. According to Johnson and Christensen (2017), documentation is a data collection technique that is carried out through recording documents or written records, images, or information that has been officially available and can be accounted for. This technique is used because all the data required

in this study is available in the form of public documents that are published periodically by companies and capital market authoritative institutions.

Documentation is done by accessing and downloading annual reports, sustainability reports, and other relevant publications from the Indonesia Stock Exchange website or the website of each company. The information collected through the document includes quantitative data such as net profit, total assets, total debt, stock market value, and carbon emission disclosure items. In addition, an online news search containing the company's name was also carried out to measure media exposure during the observation period. All data obtained through documentation is then compiled in tabulation form and used as a basis for quantitative statistical analysis.

Data Analysis

The data analysis technique in this study employs descriptive analysis and Partial Least Square–Structural Equation Modeling (PLS-SEM) to process data, answer research questions, and test hypotheses. Descriptive analysis is used to describe data characteristics through mean, standard deviation, minimum, and maximum values of all research variables, while PLS-SEM is applied to examine relationships among variables simultaneously due to its ability to analyze complex models, including moderating variables, without requiring normal data distribution and remaining effective for small to medium sample sizes. Data processing is conducted using SmartPLS version 4 through systematic stages of measurement model (outer model) and structural model (inner model) design to ensure statistically valid results with strong theoretical and practical relevance.

RESULTS AND DISCUSSION

Results

Outer Model

a. Convergent Reliability & Validity Test Results

Based on the results of data processing using SmartPLS 4, convergent reliability & validity were obtained as follows:

Table 1 Convergent Validity

Variables	Indicator	Outer Loading Value	Composite Reliability Value	Cronbach's Alpha Value	AVE value
<i>Carbon Emission Disclosure (X1)</i>	CED	1,000	1,000	1,000	1,000
<i>Operating Efficiency (X2)</i>	TATO	1,000	1,000	1,000	1,000
<i>Capital Structure (X3)</i>	DER	1,000	1,000	1,000	1,000
<i>Media Exposure (X4)</i>	ME	1,000	1,000	1,000	1,000
Firm Value (Y)	Tobin's Q	1,000	1,000	1,000	1,000

Source: Data processed by SmartPLS 4, 2025

All research variables, namely Carbon Emission Disclosure (X1), Operating Efficiency (X2), Capital Structure (X3), Media Exposure (X4), and Firm value (Y) show very good

measurement quality, because each indicator has an outer loading value of 1,000 which is far above the minimum limit of 0.700, as well as Cronbach's Alpha, Composite Reliability, and AVE values which all reach 1,000. This shows that each indicator is able to represent the construct perfectly, has very high measurement consistency, and is able to explain all construct variance without distortion, including Media Exposure (X4) which remains stable and accurate when acting as a moderating variable.

b. Discriminant Validity Test Results

Discriminant validity testing in this study uses the Heterotrait–Monotrait Ratio (HTMT) approach to assess the extent to which each construct can be empirically distinguished from each other.

Table 2 Heterotrait-Monotrait Ratio (HTMT)

	Original sample (O)	Sample mean (M)	2.5%	97.5%
<i>Carbon Emission Disclosure</i> <-> Capital structure	0.070	0.082	0.004	0.205
<i>Media exposure</i> <-> Capital structure	0.033	0.080	0.003	0.230
<i>Media exposure</i> <-> Carbon emission disclosure	0.213	0.213	0.035	0.384
Firm Value <-> Capital structure	0.180	0.188	0.066	0.315
Firm Values <-> Carbon emission disclosure	0.066	0.099	0.005	0.271
Firm Values <-> Media exposure	0.093	0.107	0.006	0.266
<i>Operating efficiency</i> <-> Capital structure	0.344	0.350	0.224	0.469
<i>Operating efficiency</i> <-> Carbon emission disclosure	0.058	0.090	0.003	0.245
<i>Operating efficiency</i> <-> Media exposure	0.045	0.087	0.003	0.238
<i>Operating efficiency</i> <-> Firm Values	0.737	0.727	0.542	0.842

Source: Data processed by SmartPLS 4, 2025

The results of the discriminant validity test using the Heterotrait–Monotrait Ratio (HTMT) method indicate that all constructs in this study have clear differences from each other. HTMT values range from 0.033 to 0.737, and all values are still below the recommended limit of 0.90. Low values in several pairs of constructs, such as between carbon emission disclosure and capital structure at 0.070 and between media exposure and capital structure at 0.033, indicate that the correlation between constructs is at a safe level. The highest value of 0.737 in the relationship between operating efficiency and firm value also still meets the criteria for discriminant validity because it does not exceed the maximum limit. The confidence interval at the 2.5% to 97.5% level

remains within the recommended limits, so the HTMT results can be declared to have met the requirements for discriminant validity.

Inner Model

a. R-Square Test Results

The r-square test is used to determine the extent to which exogenous variables explain the variation in endogenous variables. This value provides an indication of the strength of a predictive model; therefore, the higher the r-square value, the greater the proportion of the endogenous variable's variance that can be explained by the independent variables in the model. Assessment of the quality of r-square generally refers to the following criteria:

- $R^2 \geq 0.75$ indicates strong predictive ability
- $R^2 \geq 0.50$ indicates moderate predictive ability
- $R^2 \geq 0.25$ indicates weak predictive ability

Table 3 R-Square

	<i>R-square</i>	<i>R-square adjusted</i>
Firm Values	0.621	0.596

Source: Data processed by SmartPLS 4, 2025

The r-square value of 0.621 for the firm value variable indicates that carbon emission disclosure, operating efficiency, capital structure, and media exposure simultaneously have a strong enough ability to explain variations in firm value, so that the research model is considered capable of representing the main factors that influence firm value from both financial and non-financial aspects. Theoretically, carbon emission disclosure, operational efficiency, capital structure, and media exposure play an important role as signals for investors and stakeholders in forming perceptions of firm value. However, there are still some variations in firm value that are influenced by other factors outside the model, such as dividend policy, cash flow management, and working capital management, which according to the stakeholder theory perspective have the potential to influence firm value by increasing stakeholder trust and perceptions of the firm's performance and prospects.

b. F-Square Test Results

The f-square test is used to assess the relative influence of an exogenous variable on an endogenous variable in a structural model. The f-square value indicates how much a construct contributes to the change in the r-square value when it is included or removed from the model. According to Ghazali and Latan (2021), the interpretation of the f-square measure can be categorized as follows:

- $F^2 \geq 0.35$ indicates a strong effect
- $F^2 \geq 0.15$ indicates a moderate effect
- $F^2 \geq 0.02$ indicates a weak effect

Table 4 F-Square

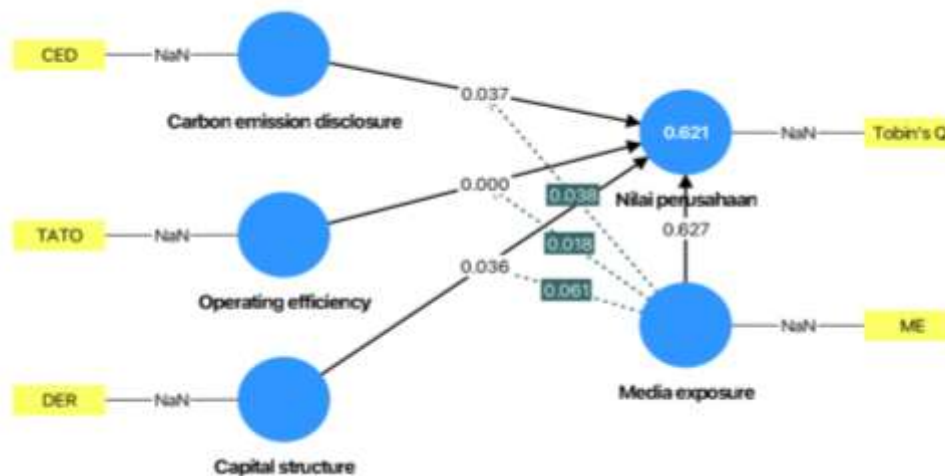
	Firm Values
<i>Carbon emission disclosure</i>	0.032
<i>Operating efficiency</i>	1,199
<i>Capital structure</i>	0.049
<i>Media exposure</i>	0.002
<i>Media exposure</i> x <i>Carbon emission disclosure</i>	0.04
<i>Media exposure</i> x <i>Operating efficiency</i>	0.137
<i>Media exposure</i> x <i>Capital structure</i>	0.037

Source: Data processed by SmartPLS 4, 2025

The f-square test results show that operating efficiency has a very strong effect size on firm value with a value of 1.199, so it can be categorized as a major determinant in the structural model. In contrast, capital structure and carbon emission disclosure only provide very limited contributions, with f-square values of 0.049 and 0.032, respectively, while media exposure shows almost no significant effect with a value of 0.002. The same pattern is also seen in all moderating relationships, which produce weak effect sizes in the range of 0.037–0.137. Overall, these findings indicate that only operating efficiency has a substantive influence on firm value, while other variables do not show a significant contribution in increasing the model's predictive capacity.

Hypothesis Test Results

Hypothesis testing aims to evaluate the extent to which the causal relationships between variables in a structural model are supported by empirical evidence. Through path coefficient estimation and statistical significance testing, this analysis assesses the strength, direction, and relevance of the influence generated by each exogenous variable, including the role of moderating variables in influencing these relationships. The structural model presented below serves as the basis for interpretation to assess empirical consistency with the research theory and hypothesis formulation, and to determine whether the hypothesis should be accepted or rejected.



Picture 1 Outer Bootstrapping

a. Direct Effect

The direct effect results are presented in the following table:

Table 5 Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (STDEV)	P values	Results Hypothesis
<i>Carbon emission disclosure -> Firm values</i>	-0.191**	-0.174	0.092	2,082	0.037	Rejected
<i>Operating efficiency -> Firm Values</i>	0.992***	0.963	0.120	8,287	0.000	Accepted
<i>Capital structure -> Firm Values</i>	0.255**	0.249	0.122	2,092	0.036	Accepted
<i>Media exposure -> Firm Values</i>	-0.063	-0.067	0.130	0.486	0.627	Rejected
<i>Media exposurex Carbon emission disclosure -> Firm Value</i>	0.266**	0.257	0.128	2,077	0.038	Accepted
<i>Media exposurex Operating efficiency -> Firm Value</i>	-0.488**	-0.466	0.207	2,365	0.018	Accepted
<i>Media exposurex Capital structure -> Firm Value</i>	-0.271*	-0.273	0.145	1,874	0.061	Accepted
Information	<p><i>p – value < 0, 10 (*)</i> <i>p – value < 0, 05 (**)</i> <i>p – value < 0, 01 (***)</i></p>					

Source: Data processed by SmartPLS 4, 2025

The results of the hypothesis testing show that Carbon Emission Disclosure (CED) has a negative and significant effect on firm value with a coefficient of -0.191 and a p-value of 0.037 so that H1 is rejected, while Operating Efficiency (OE) has a positive and very significant effect on firm value with a coefficient of 0.992 and a p-value of 0.000 so that H2 is accepted. Furthermore, Capital Structure (CS) also has a positive and significant effect on firm value with a coefficient of 0.255 and a p-value of 0.036 so that H3 is accepted, while Media Exposure (ME) has no significant

effect on firm value with a coefficient of -0.063 and a p-value of 0.627 so that H4 is rejected. Overall, these results indicate that operational efficiency and capital structure are the main factors in increasing firm value, while carbon emission disclosure is negatively correlated and media exposure does not have a significant effect on firm value.

b. Moderation Influence

The results of the moderation test show that media exposure plays a different role in each independent variable's relationship to firm value. In the relationship between Carbon Emission Disclosure (CED) and firm value, media exposure acts as a strengthening moderator with an interaction coefficient of 0.266, thus accepting H5. This indicates that the higher the media spotlight, the stronger the influence of carbon emission disclosure on firm value. Conversely, in the relationship between Operating Efficiency and firm value, media exposure acts as a weakening moderator with a coefficient of -0.488, thus accepting H6. Furthermore, in the relationship between Capital Structure and firm value, it also plays a weakening role with a coefficient of -0.271, thus accepting H7. Overall, these findings indicate that media exposure has a strategic role in influencing the strength of the relationship between variables, either by strengthening or weakening the influence on firm value.

Discussion

The Impact of Carbon Emission Disclosure on Firm Value

The research results show that carbon emission disclosure (CED) negatively impacts firm value. This finding indicates that the market does not view carbon emission disclosure as a positive signal of sustainability commitment, but rather as an indication of increasing environmental risks and potential costs that companies may have to bear. However, investors interpret such disclosure as a signal that companies face complex environmental responsibilities, face potentially greater regulatory pressure, and require additional allocation of costs for emissions management.

The consistency of these findings is reflected in the results of previous research which showed a similar pattern of relationships. Research conducted by Rahmawati et al., (2025), indicating that carbon emissions disclosure is perceived as an environmental burden that could potentially incur significant compliance costs, leading investors to respond by lowering their valuations of the company. Apriliani et al., (2024) found that energy sector companies that disclose carbon emissions more widely are more likely to experience a decline in firm value because the market views such information as an indication of high operational risk and a threat to future performance. Hadiwibowo et al., (2023) also strengthens these results by showing that transparency regarding carbon emissions is often understood as a signal of a company's inability to control its environmental impacts, as well as a sign of additional costs that can reduce operational efficiency.

Based on these results, the Indonesian market still views carbon emission disclosure as information reflecting risks and potential costs, rather than as an indicator of sustainability commitment that enhances corporate value. Therefore, companies need to integrate emissions disclosure with a comprehensive and consistent environmental management strategy to change investor perceptions, increase trust, and support long-term corporate value enhancement.

The Influence of Operating Efficiency on Firm Value

The research results show that operating efficiency has a positive and significant impact on firm value. This finding suggests that high operational efficiency is viewed by the market as an indication of a company's ability to optimally manage resources, reduce production costs, and generate stable revenue.

From a stakeholder theory perspective, operational efficiency reflects a company's responsibility to meet stakeholder expectations through effective asset management and transparent operational processes. This finding is consistent with previous research showing that operational efficiency is a key factor in creating corporate value. Husna and Kadarningsih (2025), proves that Total Asset Turnover (TATO) is able to increase firm value because this ratio reflects the company's effectiveness in generating sales through efficient asset utilization. Putri and Wardani (2022), also emphasized that companies with high asset turnover rates are better able to maintain operational stability and attract investor interest. Simorangkir (2019), indicating that TATO is a key indicator of efficiency that directly contributes to profitability and market perception. Based on these overall findings, operational efficiency can be understood as a fundamental determinant in the formation of firm value.

The Influence of Capital Structure on Firm Value

The research results show that capital structure has a positive and significant effect on firm value. This finding indicates that increasing the proportion of debt in the financing structure is still perceived as a profitable financing decision if maintained at a controlled level. This research aligns with stakeholder theory, which emphasizes that a company is valued based on its ability to meet stakeholder expectations regarding financial stability, risk management, and operational sustainability.

This finding is in line with Manurung and Wildan (2023), Setiawan et al., (2021) And Khoirunnisa et al., (2018), stated that a high Debt to Equity Ratio (DER) value is interpreted as an indicator that the company has the ability to increase funding to support business expansion, as long as the leverage is used productively. Setiawan et al., (2021), explains that companies that are able to manage debt proportionally tend to gain greater trust from investors because these companies are considered to have higher growth opportunities and better profitability prospects.

The Influence of Media Exposure on Firm Value

The results of the study indicate that media exposure has no effect on firm value. This finding indicates that the intensity of media coverage is unable to statistically explain or predict variations in firm value. The small, negative coefficient also indicates that media exposure does not generate strategic signals that the market considers in investment decision-making. From a stakeholder theory perspective, the media is positioned as an external stakeholder that plays a role in shaping public perception, communicating company issues, and influencing organizational legitimacy. However, the results of the study indicate that this function is not reflected in market behavior. Information conveyed through the media is not responded to by investors as a relevant factor in assessing a company's stability, performance, or prospects.

This finding is in line with Kurniansyah et al., (2021), which states that media exposure has no significant effect on firm value and tends to be ignored by investors in the company valuation process. The study explains that media coverage is not yet viewed as a source of economically valuable information, because it does not always provide a factual picture of a company's performance or ability to create value. The consistency of these results indicates that media exposure, in the context of the Indonesian capital market, is not yet a significant determinant in shaping investor perceptions or increasing firm value.

The Effect of Carbon Emission Disclosure on Firm Value with Media Exposure as a Moderating Variable

The test results show that the interaction between carbon emission disclosure (CED) and media exposure significantly influences firm value. This finding indicates that media exposure plays a crucial role in strengthening the influence of CED on firm value. From a stakeholder theory perspective, the media serves as an external communication channel that expands the reach of corporate information to stakeholders. Companies that disclose carbon emission information and simultaneously receive high-intensity media coverage tend to attract greater market attention.

Media exposure plays a role as a mechanism that strengthens a company's legitimacy in the eyes of stakeholders. Within the framework of stakeholder theory, the media acts as an external party that bridges the company with stakeholders by delivering broader, more credible, and consistent information. The intensity of media coverage allows investors to assess a company's commitment to managing carbon emissions more clearly and convincingly.

The analysis shows that CED's contribution to increasing firm value is significantly influenced by the level of media exposure a company receives. Companies with high media exposure enjoy greater market appreciation because the sustainability information they convey is perceived as more comprehensive, credible, and relevant by investors. Conversely, companies with low media exposure do not experience a comparable increase in value, despite high levels of carbon emissions disclosure, because the information is not optimally communicated to stakeholders.

The Effect of Operating Efficiency on Firm Value with Media Exposure as a Moderating Variable

The results of the study indicate that media exposure acts as a moderating variable, weakening the relationship between operating efficiency and firm value. The negative interaction coefficient indicates that increasing media coverage intensity does not strengthen the effect of operational efficiency on firm value, but rather reduces it. This finding suggests that media exposure does not increase market sensitivity to information related to operational efficiency, even though operational efficiency is theoretically an important indicator of a company's ability to optimally utilize resources.

From a stakeholder theory perspective, the media is viewed as an external stakeholder with a strategic role in shaping public opinion and providing information that can influence perceptions of company performance. However, research shows that media coverage does not enhance a company's legitimacy in terms of operational efficiency.

The analysis results indicate that media exposure does not provide adequate informational support to strengthen the relationship between operational efficiency and firm value. High levels of coverage have the potential to create fragmented attention, particularly if media content does not focus on relevant operational aspects. This situation can reduce the clarity of efficiency signals received by investors and weaken positive perceptions of a company's operational performance.

The Influence of Capital Structure on Firm Value with Media Exposure as a Moderating Variable

The test results show that media exposure acts as a moderating variable, weakening the relationship between capital structure and firm value. This finding indicates that the effect of capital structure on firm value is not constant, but rather depends on the level of media exposure the company receives.

From a stakeholder theory perspective, the media is positioned as an external stakeholder with a strategic role in shaping public perception and attention toward a company. The media serves as a means of disseminating information that can direct stakeholders' focus on specific issues related to the company's activities and conditions.

The research results show that the market response to capital structure is weaker in companies with high levels of media exposure. Investors tend to evaluate companies more broadly, considering additional information conveyed through the media. As a result, changes in capital structure are not always immediately responded to by the market, so the effect of capital structure on firm value tends to decrease when the company experiences high levels of media coverage.

The Role of Quasi Moderator

Based on the results of the structural model testing, the media exposure variable in this study exhibits characteristics as a moderating variable that plays a role through an interaction mechanism. This is demonstrated by the insignificant direct effect of media exposure on firm value, thus, this variable does not function as a primary factor in directly determining firm value.

Empirical results show that media exposure strengthens the influence of carbon emission disclosure on firm value, indicating that the intensity of media coverage can increase market attention and response to corporate sustainability information. Conversely, in the relationship between operating efficiency and firm value, as well as between capital structure and firm value, media exposure plays a role in weakening the effect.

Judging from the relationship patterns formed in the research model, media exposure functions more as a moderating variable through interaction rather than as a variable that directly influences firm value. This role reflects that the formation of firm value is influenced not only by internal factors but also by how company information is published and interpreted by stakeholders through the media. These characteristics position media exposure as a contextual variable in explaining the dynamics of the relationship between independent variables and firm value.

CONCLUSION

The results of the study conducted on 23 Low Carbon Leader companies listed on the Indonesia Stock Exchange (IDX) during the 2020-2024 period indicate several key findings.

Carbon emission disclosure has a negative and significant effect on firm value, leading to the rejection of H1. In contrast, operating efficiency has a positive and significant effect on firm value, supporting H2, while capital structure is also found to significantly influence firm value, confirming H3. Meanwhile, media exposure does not have a significant effect on firm value, resulting in the rejection of H4. However, media exposure is found to strengthen the effect of carbon emission disclosure on firm value, supporting H5, while it weakens the relationship between operating efficiency and firm value, confirming H6. Furthermore, media exposure does not moderate the relationship between capital structure and firm value, leading to the acceptance of H7.

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