Literature Review: The Effect of Carbon Emission Disclosure on Firm Value

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Abstract
This study aims to analyze the effect of carbon emission disclosure on firm value based on previous research findings. The method used is a literature review by examining 20 research articles published during the 2021–2026 period and obtained through google. The results indicate that the effect of carbon emission disclosure on firm value remains inconsistent, with nine studies reporting a positive effect, eight studies finding no significant effect, and three studies reporting a negative effect. Overall, carbon emission disclosure tends to provide a positive signal to investors regarding a company's commitment to sustainability, thereby potentially enhancing firm value. These findings suggest that carbon emission disclosure is an important non-financial information source for both companies and investors.

Keywords*: *Carbon Emission Disclosure, Firm Value, Signalling Theory, Literature Review, Sustainability.

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Introduction

Climate change has become one of the global issues receiving serious attention from various countries, international organizations, and business actors. The increase in greenhouse gas emissions generated from industrial activities, transportation, and the use of fossil energy has become the primary cause of global warming. Data from the Global Carbon Atlas (2023) indicate that CO_2 emissions from the energy sector reached 37.4 gigatons in 2022, representing the highest level ever recorded, with Indonesia contributing approximately 2.3% of total global emissions [1]. These conditions encourage companies to enhance environmental accountability through the disclosure of carbon emission information as a form of transparency to stakeholders. Carbon emission disclosure provides companies with the opportunity to demonstrate their contribution to reducing greenhouse gas emissions and supporting environmental sustainability [2]. Carbon emission disclosure refers to the communication of information regarding the amount of carbon emissions generated by a company, emission management strategies, and mitigation efforts undertaken to reduce environmental impacts.

In recent years, investors have not only considered financial information in making investment decisions but have also paid attention to environmental, social, and corporate governance (Environmental, Social, and Governance/ESG) aspects. In ESG disclosure, companies generally refer to the Global Reporting Initiative (GRI) standards. ESG performance is measured through ESG Scores that encompass environmental, social, and governance aspects [3]. The use of these indices enables stakeholders, particularly investors, to evaluate a company's commitment to sustainable business practices and assess long-term risks and opportunities that may affect corporate performance. One form of implementing environmental aspects in corporate sustainability practices is through carbon emission disclosure. Carbon emission disclosure is considered capable of providing information regarding a company's commitment to sustainability, thereby enhancing corporate reputation and investor confidence. This level of investor confidence may ultimately be reflected in an increase in firm value, which is commonly measured through stock prices or market ratios such as Tobin's Q and Price to Book Value (PBV). PBV measures the comparison between a company's market value and book value, while Tobin's Q reflects market valuation of company assets relative to their replacement cost [4]. Numerous studies have investigated the effect of carbon emission disclosure on firm value. Several studies have found that carbon emission disclosure positively affects firm value because it enhances corporate legitimacy and reduces information asymmetry between management and investors. However, other studies indicate that carbon emission disclosure has no significant effect on firm value because investors still tend to focus more on financial information than environmental information. Some studies even report a negative effect due to the increased costs incurred by companies in meeting environmental management requirements.

Based on the findings of previous studies, it can be observed that inconsistencies still exist regarding the relationship between carbon emission disclosure and firm value. Most previous studies have focused on empirical testing within specific sectors or periods, while prior research findings continue to demonstrate inconsistent results. In addition, literature review studies that specifically synthesize the relationship between carbon emission disclosure and firm value remain limited. Therefore, a literature review is needed to provide a comprehensive overview of research developments and the trends of findings obtained from previous studies. The scientific novelty of this study lies in the presentation of a synthesis of research findings concerning the effect of carbon emission disclosure on firm value by collecting and analyzing various recent research articles published within the last five years. Through a literature review approach, this study is expected to identify dominant relationship patterns, explain the differences in previous research findings, and provide directions for future research related to carbon emission disclosure and firm value.

Referring to the problems described previously, the researcher is interested in conducting a literature review to obtain a deeper understanding of the effect of carbon emission disclosure on firm value. Carbon emission disclosure is one form of corporate transparency in conveying information regarding environmental impacts and emission management efforts undertaken by companies. Such transparency can increase investor confidence and strengthen a company's reputation, which may ultimately enhance firm value. Therefore, this study is entitled "Literature Review: The Effect of Carbon Emission Disclosure on Firm Value." Based on the background that has been presented, the research question of this study is as follows:

1. How does carbon emission disclosure affect firm value based on the findings of previous studies?

Literature Review

Signalling Theory

From the perspective of Signalling Theory, companies need to provide relevant and accurate information to stakeholders. This theory emphasizes the importance of companies disclosing information that reflects their actual condition as a basis for investors in making investment decisions [5].

Information received by investors can take the form of either positive signals (good news) or negative signals (bad news) [6]. In the context of this study, carbon emission disclosure can be viewed as a positive signal indicating a company's commitment to environmental management and sustainable business practices. The more extensive the carbon emission disclosure, the greater the amount of information received by investors regarding the company's environmental responsibility. This condition has the potential to increase investor confidence, improve market perceptions, and ultimately enhance firm value.

Firm Value

Firm value represents the market's assessment of a company's performance and future prospects, which is generally reflected in its stock price. Firm value is an indicator that reflects the company's prospects and performance from the perspective of investors. Companies with high firm value tend to be more attractive to investors because they are considered to have favorable prospects. Conversely, low firm value may reduce investors' interest in investing, as such companies are perceived to have higher risks or less promising prospects [5]. Therefore, increasing firm value is one of the primary objectives of a company because it can strengthen investor confidence and enhance shareholder wealth.

Carbon Emission Disclosure

In recent years, environmental sustainability issues have increasingly attracted the attention of various stakeholders, including the public, governments, and business entities. Growing public awareness of the impacts of climate change caused by industrial activities has encouraged companies to take greater responsibility for the environmental consequences of their operations, one of which is through the disclosure of carbon emission information as a form of environmental transparency and accountability. Such disclosure not only reflects corporate social responsibility but also plays an important role in building and maintaining corporate legitimacy in the eyes of stakeholders [7]. Therefore, carbon emission disclosure has become an important instrument for companies to demonstrate their commitment to sustainable business practices.

Previous Studies

Studies examining the effect of carbon emission disclosure on firm value have been widely conducted in recent years; however, the findings remain inconsistent.[8] found that carbon emission disclosure has a positive effect on firm value. Similar results were also reported by [9] **,** [10]), [11], [12], [13], [14], [15], and [16], all of which indicate that carbon emission disclosure positively affects firm value.

On the other hand, several studies have shown that carbon emission disclosure has no effect on firm value. These findings were reported by oleh [17], [18], [19], [20]. [21], [22], [23], and [24] who found that carbon emission disclosure does not have a significant effect on firm value. Meanwhile, studies by [25], [26], and [27] found that carbon emission disclosure has a negative effect on firm value. These findings suggest that the market may perceive carbon emission disclosure as an indication of increasing environmental costs that could potentially reduce corporate profitability.

Based on these previous studies, it can be concluded that the effect of carbon emission disclosure on firm value remains inconsistent. Some studies have reported a positive effect, others have found no significant effect, while several studies have indicated a negative effect. These differing findings suggest that the relationship between carbon emission disclosure and firm value remains an interesting topic for further investigation.

Research Methodology

Research methods provide the knowledge and skills needed to solve problems and address environmental challenges in situations where decisions must be made quickly [28].This study employs a literature review method to systematically examine previous research findings regarding the effect of carbon emission disclosure on firm value. This method aims to identify, compare, and analyze various research findings related to the relationship between carbon emission disclosure and firm value. The literature review was conducted through a critical analysis of scientific articles relevant to the research topic. The literature used in this study consists of articles published during the period 2021–2026, which were obtained through searches in the Google Scholar database.

Articles that met the research criteria were subsequently collected and analyzed by preparing summaries containing the authors' names, year of publication, research title, research method, research object, and research findings. Furthermore, the findings of these studies were compared and examined to obtain a more comprehensive understanding of the effect of carbon emission disclosure on firm value. Based on the selection process that had been conducted, a total of 20 research articles met the established criteria and were used as the sources of analysis in this study.

Results

The Effect of Carbon Emission Disclosure on Firm Value

Carbon emission disclosure is one form of corporate transparency in communicating information regarding the environmental impacts generated by the company and the efforts undertaken to reduce carbon emissions. Such information may serve as a signal for investors in assessing the company's commitment to sustainable business practices. Based on Signalling Theory, companies that disclose environmental information more extensively attempt to provide positive signals to the market regarding their quality, responsibility, and future prospects. Transparent carbon emission disclosure is expected to enhance investor confidence, thereby contributing to an increase in firm value. Based on a review of 20 research articles published during the period 2021–2026, it was found that the effect of carbon emission disclosure on firm value remains inconsistent. Nine studies found that carbon emission disclosure has a positive effect on firm value, eight studies reported that carbon emission disclosure does not have a significant effect on firm value, while three studies found a negative effect on firm value.

Studies reporting a positive effect indicate that carbon emission disclosure can enhance corporate transparency in providing environmental information to stakeholders. Such transparency can increase investor confidence, strengthen corporate reputation, and reduce information asymmetry between management and investors. This finding is consistent with Signalling Theory, which explains that information disclosed by a company can serve as a positive signal for investors in evaluating the company's prospects and sustainability, thereby leading to an increase in firm value. These findings are supported by the studies of [12], [9], [14], [13], [15], [16], [8], [11], and [10].

On the other hand, several studies have shown that carbon emission disclosure does not have a significant effect on firm value. These findings indicate that investors still place greater emphasis on financial information than environmental information when making investment decisions. In addition, the voluntary nature of carbon emission disclosure in many companies means that the information provided has not yet become a primary basis for investors in evaluating firms. These findings were reported by [24], [22], [17], [21], [23], [19], [18], [20]. Meanwhile, several studies found that carbon emission disclosure has a negative effect on firm value. These findings suggest that the market may perceive c arbon emission disclosure as an indication of additional costs that companies must incur to meet environmental management and sustainability requirements. Such increased costs may reduce corporate profitability and consequently lead to a decline in firm value. These results were reported by [25], [26], and [27],

Overall, the results of the literature review indicate that carbon emission disclosure tends to have a positive effect on firm value, although the existing findings remain inconsistent. These differences in results may be attributed to variations in industry sectors, research periods, sample characteristics, measurement methods of carbon emission disclosure, and the proxies of firm value used in each study. Therefore, the effect of carbon emission disclosure on firm value remains a relevant topic for further investigation.

Conclusion

The conclusion of this study indicates that carbon emission disclosure tends to have a positive effect on firm value. Based on the literature review of 20 research articles published during the period 2021–2026, the majority of studies found that carbon emission disclosure is able to enhance firm value. These findings suggest that the more extensive the carbon emission information disclosed by companies, the greater the opportunity for companies to gain the trust of investors and other stakeholders.

The findings of this study are consistent with Signalling Theory, which explains that corporate disclosure can serve as a signal for investors in assessing a company's quality, prospects, and sustainability. Transparent carbon emission disclosure can be perceived as a positive signal regarding a company's commitment to environmental management and sustainable business practices. Such positive signals have the potential to enhance corporate reputation, attract investor interest, and increase firm value. However, several studies have also shown that carbon emission disclosure has either no effect or even a negative effect on firm value. These differences in findings indicate that the effect of carbon emission disclosure on firm value may be influenced by company characteristics, industry sectors, market conditions, and other factors that have not been fully explored in previous studies.

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