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Effects of carbon disclosure project on financial performance

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ABSTRACT

Companies that are aware of the environmental crisis will immediately take action to minimize environmental pollution risks and protect their reputation and image by disclosing information. This can reduce financial risks to a certain extent. This study aims to examine the impact of carbon disclosure projects on corporate financial performance. The methodological approach taken in this study used systematic literature research (SLR). Total of 24 articles were obtained that could be used in the systematic literature review . The Carbon Disclosure Project (CDP) can positively impact the company's financial performance in several aspects. The results indicate that environmental disclosure, including carbon disclosure, can attract investor interest, fulfill stakeholder demands, and reduce transaction costs. This can positively impact the company's stock market value, revenue, net income, and equity value. However, the relationship between carbon disclosure and financial performance may vary depending on contextual factors, such as industry, country, and specific disclosure practices.

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INTRODUCTION

In recent years, there has been increasing concern regarding the impact of human activities on the natural environment, particularly regarding carbon emissions (Nga, 2009). Companies have emerged as significant contributors to carbon emissions, which are largely responsible for climate change (Ganda, 2018). Therefore, governments worldwide have implemented various approaches to encourage companies to reduce the impact of climate change by adopting methods to reduce carbon emissions. In this context, the Carbon Disclosure Project (CDP) has become well-known as an important initiative for companies. Indonesia faces significant challenges in addressing carbon emissions and climate change (Andrian & Kevin, 2021). The country's emission profile is driven by a variety of factors, including emissions from road transport, industry, and electricity (Nations, 2000). Improper handling of plastic waste, which accounts for a large proportion of emissions, adds to the environmental burden (Li et al., 2018; Ziping & Genzhu, 2018). Without significant policy efforts, waste accumulation in Indonesia is projected to double by 2050 (Li et al., 2018). To resolve this challenge, it is very important for companies, especially those engaged in the industrial and consumer goods sectors, to disclose their carbon emissions (Gallego-Álvarez et al., 2015).

Companies that are aware of the environmental crisis will immediately take action to minimize the risk of environmental pollution and protect their reputation and image by disclosing information. This can reduce financial risk. The impact of corporate carbon information disclosure on the stock market is based on corporate CDP reports and finds that voluntary disclosure of carbon information increases shareholder motivation and reduces transaction costs, which positively impacts stock market value (Lu et al., 2021). In addition, the implementation of carbon disclosure projects can overcome this problem and have many benefits for companies. First, by disclosing carbon emissions, companies show transparency and their commitment to tackling climate change in their annual reports (Md Nor et al., 2016). This transparency helps companies to maintain the company's image and reputation while avoiding potential risks, such as damage to reputation and legal proceedings (Alsaifi et al., 2020a). In addition, disclosure of carbon emissions is an important accounting treatment for environmental issues, and plays an important role in stabilizing climate change and controlling greenhouse gas emissions (Li et al., 2018). Although the importance of carbon disclosure and its impact on financial performance has been widely recognized, the relationship between environmental performance and financial performance, especially in the context of carbon disclosure, requires further exploration (Amrigan et al., 2023).

In addition, previous studies by Desai, et al (2022) only focused on the ROA aspect in financial performance, so this study added another aspect, namely ROI in further examining the relationship between CDP and financial performance. Most of the previous research also focused only on specific countries or large industrialized countries, limiting the generalizability of their findings (Alsaifi et al., 2020b; Tang & Demeritt, 2018). This research is needed in order to references about the effects of carbon disclosure projects on financial performance. This research is expected to motivate companies to adopt sustainable practices and explore environmentally friendly opportunities that can improve well-being and health.

RESEARCH METHOD

Methodological approach used in this study is Systematic Literature Review (SLR) based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines which shows the data search path and decisions for the study results. Research that examines or critically examines knowledge, ideas, or findings contained in academically oriented literature, and formulates theoretical and methodological contributions to certain topics is known as literature research. Literature that can be accessed in full text in pdf format and is scientific (peer-reviewed journal). Researchers obtained 142 journal articles identified through databases and screened through titles. The databases used are the Scientdirect and Emerald database. Full-text articles that have been selected for eligibility are obtained totaling 31 journal articles. Furthermore, an assessment was carried out based on research articles that had met the inclusion and exclusion criteria. The initial screening was based on the relevance of the title and abstract related to all types of carbon disclosure project and financial performance. The next screening process is by reading the articles to get results that are relevant to the research question. Total of 24 articles were obtained that could be used in the systematic literature review. This is done to answer research questions. After the journal review has been completed, the information presented in the study will be examined.

RESULTS AND DISCUSSIONS

Based on the research questions, the research results are contained in Table 1 concerning the effects of the Carbon Disclosure Project and aspects of financial performance.

Carbon Emission Disclosure and Carbon Disclosure Project

According to Sari & Budiasih (2022), "Carbon Emission Disclosure" is a disclosure that evaluates carbon emissions produced by organizations and sets emission reduction goals. Disclosure

of carbon emissions is very important because stakeholders need the data. They are interested in recognizing the environmental risks associated with the company's operations as well as the environmental protection that the company offers (Sudibyo, 2018). Fewer companies are disclosing their carbon emissions as this is still a relatively rare practice in developing countries. Compared to companies in developed countries, these companies still need more resources to make disclosures. According to Irwhantoko & Basuki (2016), Indonesia is a developing country where disclosure of carbon emissions is still optional or voluntary (voluntary disclosure) and not required.

The emergence of social stakeholder theory is now more open in responding to consumers, communities, and other stakeholders (Bravo et al., 2012). This theory aims to create a better environment for everyone by separating the economic and ethical fields. In this context, organizations can achieve sustainable long-term competitive advantages and meet societal expectations. According to this theory, organizations are concerned with protecting the interests of all stakeholders in the environment rather than the benefits to be gained in the short term (Freeman et al., 2004; Schermerhorn J. R, 2001). On the other hand, CDP also requires organizations to share their management strategy in dealing with climate change (Stanny, 2018).

Many studies have been conducted on climate change discourse. The carbon disclosure project (CPD) is one of the most frequently used data sources in these studies (Hahn et al., 2015). The carbon disclosure project measures an organization's environmental disclosures to its key stakeholders and its top management commitment to climate change fighting practices. The CDP measure has been used in more than 150 articles on sustainability and the environment in the last five years, and its prevalence is seen as an increasing measurement tool. In addition, CDP, recognized by Harvard Business Review as the world's most influential green non-governmental organization in terms of climate change strategy, voluntarily discloses data on greenhouse gas emissions and sustainable water use to nearly 6,000 organizations to the public and investors. CDP shares information gathered by companies, governments and investors to ensure that society is taking action on the threat of climate change. This way, companies can benefit from a long-term sustainability approach and respond to policies like the Paris Agreement.

There are three benefits of using the CDP measurement. First, the CDP guidelines' contents, procedures, and requirements are standard for participating companies to provide relevant information. Second, the reporting resulting from the information gathering and rating procedures is consistent for all companies. This makes it possible to make meaningful comparisons between organizations. Finally, CDP reporting includes more detailed carbon performance information than what is available (Datt et al., 2018).

Previous researchers have benefited from climate change disclosure, such as why organizations disclose environmental activities (Reid & Toffel, 2009), how much they communicate it (Liao et al., 2015), and whether they reveal any particular data (Kolk et al., 2008). The CDP was developed for this purpose, and CDP data are used as an explanatory variable on issues, such as the market value of carbon emissions and environmental performance (Luo, 2019).

The CDP assessment has several sub-dimensionalities: climate change, water availability, and forest safety. This organization aims to provide organizational awareness to climate change assessment, climate change, and carbon risk. In this context, organizations are required to report on climate risks and low carbon opportunities. One of the areas assessed in the CDP is water safety. Through CDP water security activities in place, organizations are required to report on water security activities. Forest safety data includes forest damage and deforestation.

Financial performance

Financial performance refers to assessing how well a company or organization is performing financially over a certain period. This usually involves analyzing various financial metrics, such as revenue, net profit, profitability, cash flow, and return on investment. Without specific details about a particular company or organization, providing accurate information about their financial

performance is difficult. However, the researcher can provide an overview of common financial performance indicators and how they are evaluated (Enad & Gerinda, 2022) :

1. Revenue: represents the total amount of money generated from the sale of goods or services. An increase in revenue generally indicates growth and market demand.
2. Net Profit: is the amount of money left after deducting all expenses, including taxes, from income. Positive net profit indicates profitability.
3. Return on Investment (ROI): measures the profitability of an investment. ROI calculates the profit generated compared to the cost of the investment. Higher ROI indicates better financial performance.
4. Market Performance: A company's stock performance or market capitalization can reflect investors' confidence and market sentiment about its financial performance.

Carbon Disclosure Project on Financial Performance
CPD on Financial Performance on Income aspect

Md Nor et al. (2016) conducted a study of listed companies in Malaysia and found a significant positive relationship between total environmental disclosure and profit margins. This suggests that companies that disclose their environmental activities can attract investors and meet stakeholder demands, leading to improved financial performance in terms of earnings. Velte et al. (2020) explore the impact of carbon disclosure mandates on financial operating performance. They find that mandatory carbon disclosure does not significantly affect a company's gross margin, indicating that sales costs do not increase significantly with carbon disclosure. This implies that carbon disclosure does not have a negative impact on revenue performance.

Lu et al. (2021) investigated the impact of disclosing corporate carbon information on the stock market based on CDP reports. They find that voluntary disclosure of carbon information increases shareholder motivation and reduces transaction costs, positively impacting stock market value. Although this research focuses on the market value of stocks and not on income directly, this research shows that carbon disclosure can positively impact financial performance, including aspects related to income. These findings, together with the broader literature on the relationship between environmental disclosure and financial performance, suggest that carbon disclosure can positively influence the income aspect of financial performance. Companies that make carbon disclosures can experience increased financial performance, including increased revenue by attracting investors, meeting stakeholder demands, and reducing transaction costs. However, it is important to note that the relationship between carbon disclosure and financial performance can vary depending on factors such as the industry, country, and specific disclosure practices.

CPD on the Financial Performance Aspect of Net Profit

Md Nor et al. (2016) found a significant relationship between total environmental disclosure and profit margins in Malaysian listed companies. Companies that emphasize disclosure of their environmental contribution attract investors and satisfy stakeholder demands. This suggests that increased environmental disclosure can positively impact profit margins and net income. Lu et al. (2021) examined the impact of disclosing corporate carbon information on the stock market based on CDP reports. They find that voluntary disclosure of carbon information increases shareholder motivation and reduces transaction costs, positively impacting stock market value. Although this research focuses on the market value of stocks, it shows that carbon disclosure can positively impact financial performance, including net income. It is important to note that a variety of factors can influence the relationship between carbon disclosure and net income and may vary across studies. In addition, the reviewed literature highlights the positive financial impact of carbon disclosure on firm performance, including profit margins and market value.

In addition, carbon disclosure can positively affect firm value and equity value. Research by (Matsumura et al., 2014; Siddique et al., 2021) stated that these studies show that disclosure of

carbon-related information produces a positive effect on company valuation, which indicates there is a potential link between carbon disclosure and improved financial performance, including net income. (Lemma et al., 2019) found a significant negative impact of carbon disclosure on the weighted average cost of capital (WACC), indicating that companies with high quality disclosures have lower costs of capital. This reduction in the cost of capital can positively impact net income.

Thus, companies that emphasize disclosure of their environmental contribution are likely to attract investors and meet stakeholder demands. Investors who care about environmental issues will tend to invest in companies that have transparency regarding their carbon impact. This can provide long-term financial benefits, including an increase net profit. In addition, voluntary disclosure of carbon information can increase shareholder motivation and reduce transaction costs. This can positively impact the market value of the company's shares. Although the research does not directly link net income, an increase in stock market value can affect overall financial performance, including net income.

CPD on Financial Performance in Return on Investment (ROI) Aspect

Research conducted by Md Nor et al. (2016) examined the relationship between environmental disclosure and financial performance, particularly for companies listed in Malaysia. This study found a significant relationship between overall environmental disclosure and profit margins. Companies that focus on disclosing their environmental contributions can positively impact their profitability. Supporting this finding, (Perry & Singh, 2001) stated that disclosure of environmental information can provide market benefits and increase profitability through investing in environmental improvements. This indicates that companies that actively disclose their environmental initiatives can attract investors and generate profits. However, research by Md Nor et al. (2016) found there is no significant relationship between environmental disclosure and other financial performance indicators, such as Return on Investment (ROI). It is important to note that this research shows that environmental disclosure in Malaysia is still relatively low, but awareness of environmental issues is increasing among Malaysian companies.

Ali et al. (2022) and Wang (2023) states that disclosure, including carbon disclosure, can reduce information asymmetry between management and investors, thus leading to a more efficient allocation of resources and improving company operations and performance. (Velte et al., 2020) found that mandatory carbon disclosure did not significantly affect a company's gross margin and operating performance, suggesting that carbon disclosure does not increase cost of sales. However, other studies show different results. (Desai, 2022) is unable to provide evidence to suggest that participation in CDP will increase shareholder value (ROI) for Global 500 companies listed by the Financial Times. This suggests that the effect of CDP on ROI can depend on different contextual factors, such as regulations and market pressures that exist in a particular country or sector. (Liesen et al., 2017) showed that stock portfolios formed based on companies that reported carbon emission information outperformed portfolios of companies that did not report, showing positive returns with adjusted risk levels. Financial markets place a value on the quality of carbon disclosure. In the context of the influence of the Carbon Disclosure Project (CDP) on the Return on Investment (ROI), the research that has been conducted provides various findings. Although several studies find a positive relationship between environmental disclosures, including carbon disclosures, and financial performance, other findings show contradictory or insignificant results. Therefore, further research is required to understand the effect of CDP on ROI in depth.

CDP on the Financial Performance Aspect of Market Performance

The effect of carbon disclosure projects on financial performance, particularly in terms of market performance, has been widely studied. Research shows that there is a positive and negative relationship between carbon disclosure and market performance. Positive effects include voluntary carbon disclosure leading to positive stock returns (Griffin et al., 2017), stock portfolios of companies

reporting carbon emission information generate positive risk-adjusted returns (Liesen et al., 2017), good evaluation by financial markets for companies with climate-friendly practices (Delmas et al., 2015), and the positive effect of carbon disclosure on equity value (Matsumura et al., 2014) ; (Saka & Oshika, 2014). Negative effects include a negative market response to carbon disclosure announcements, especially for small, carbon-intensive companies (Alsaifi et al., 2020b), and possible increased price volatility related to carbon disclosure (Adhikari & Zhou, 2021). It is important to consider the various results and factors that contribute to the inconsistency of the relationship between carbon disclosure and market performance.

CONCLUSION

The Carbon Disclosure Project (CDP) can positively impact a company's financial performance in several aspects. Research shows that environmental disclosures, including carbon disclosures, can attract investor interest, meet stakeholder demands, and reduce transaction costs. This can positively impact the market value of a company's stock, revenue, net income, and equity value. However, the relationship between carbon disclosure and financial performance can vary depending on contextual factors, such as industry, country, and specific disclosure practices. This research implies that companies that disclose carbon with high transparency tend to experience an increase in financial performance. Suggestions for further research are to further understand the effect of CDP on specific aspects, such as Return on Investment (ROI) and market performance, and to consider contextual factors that may affect this relationship. The limitations of this study are that this research is qualitative, which only describes the results by reviewing related research articles, so the results cannot be generalized. Future research is expected to research understanding the mechanisms underlying the relationship between carbon disclosure and financial performance in depth.

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