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Analysis of the Relationship between Environmental Management Accounting and Long-Term Financial Performance

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Abstract

In recent decades, the application of Environmental Management Accounting (EMA) has received more and more attention as a sustainable business strategy. EMA not only serves as a tool for measuring and managing environmental costs, but also plays a role in improving operational efficiency and profitability of companies in the long term. This study aims to analyze the relationship between the application of EMA and long-term financial performance, by exploring its impact on cost efficiency, corporate competitiveness, and financial stability. The method used in this study is a literature study with a systematic literature review (SLR) approach to explore, analyze, and compare various scientific findings related to the impact of EMA on the company's financial performance. Data sources are obtained from national and international journals indexed in reputable academic databases, such as Scopus, ScienceDirect, Springer, and Emerald Insight. The analysis was carried out with a thematic approach, where the results of the research were categorized based on key aspects related to profitability, environmental cost management, and company competitiveness. The results show that the implementation of EMA contributes positively to long-term financial performance, especially through improved operational efficiency, reduced environmental risks, and increased attractiveness for institutional investors. However, there are challenges in the implementation of EMA, such as high initial costs, lack of uniform regulatory standards, and internal resistance within the organization. Therefore, a more comprehensive strategy, including regulatory incentives and strengthening sustainability policies, is needed so that the benefits of EMAs can be optimized in the long term.

INTRODUCTION

In recent decades, awareness of the importance of environmental sustainability in business activities has increased. Environmental Management Accounting (EMA) is an approach that is widely adopted by companies in order to manage their environmental aspects more effectively (Yuniarti & Siregar, 2020). EMA not only serves as a tool to identify and measure environmental costs, but also as a strategic mechanism in supporting operational efficiency and long-term value creation (Hafidzi & Afroh, 2023). Along with increasing environmental regulations and demands from stakeholders,

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companies that adopt EMA tend to have a stronger competitive advantage compared to companies that do not take environmental factors into account in their financial management (Astuti & Gunarsih, 2019).

Environmental Management Accounting (EMA) is an approach in the accounting system that integrates environmental aspects into the company's cost management and decision-making. EMA assists companies in identifying, measuring, and managing environmental costs arising from operational activities, thereby increasing efficiency and reducing negative impacts on the environment (Rounaghi, 2019). A study by Asiaei and Bontis (2022) found that a good implementation of EMA not only reduces a company's environmental footprint but also provides economic benefits in the long run (Asiaei et al., 2022). By implementing EMA practices, companies can reduce resource consumption, improve energy efficiency, and lower waste costs, which can ultimately improve the company's profitability and competitiveness in the long run.

Furthermore, the long-term financial performance of companies that implement EMA tends to be more stable because the company has implemented a sustainability-oriented management strategy. Appannan et al. (2023) showed that companies that actively adopt environmental strategies have higher corporate value and are more attractive to long-term investors (Appannan et al., 2023). Another study by Barauskaite and Streimikiene (2021) found that the relationship between corporate social responsibility (CSR) and long-term financial performance is positive or neutral, depending on the effectiveness of the implementation of a company's environmental strategy (Barauskaite & Streimikiene, 2021). In the context of investment, companies with good environmental strategies are also less exposed to the risk of litigation and fines due to violations of environmental regulations, which means that their long-term financial stability is better than companies that ignore environmental aspects (Coelho et al., 2023). Thus, EMA is not only an environmental cost reporting tool, but also a sustainable business strategy that can increase the company's value and create financial benefits in the long run.

On the other hand, the relationship between environmental management accounting and long-term financial performance is still a matter of debate in the academic literature. Several studies have shown that companies that implement EMA practices well experience improved operational efficiency, which ultimately increases profitability and financial stability in the long term (Tuegeh et al., 2024). In addition, companies that implement sustainability strategies tend to receive greater support from institutional investors and have better access to funding (Azhar et al., 2023). However, there are also studies that show that in the short term, the implementation of EMA can increase operational costs, especially in the early stages of adoption of environmentally friendly technologies and managerial system changes (Gunawan et al., 2019).

A number of multinational companies have proven that the EMA approach can be a key factor in building sustainable competitiveness. For example, companies included in the global sustainability index tend to have better financial performance compared to companies that do not have clear environmental policies (Ridho et al., 2022). In addition, previous research has also shown that EMAs can help companies better deal with economic crises, because they have a more efficient resource management system and can minimize environmental risks that can have an impact on long-term financial stability (Firmansyah et al., 2020).

With these findings in place, there is still a need to examine more deeply how EMAs specifically affect long-term financial performance, especially in the context of companies in developing countries. Various factors such as the level of compliance with environmental regulations, stakeholder awareness, and investment in green innovation can be variables that moderate the relationship between EMA and a company's financial performance (Ridho et al., 2022). Therefore, it is important to explore whether the implementation of EMAs in different industry sectors has

different impacts on financial sustainability and how the right strategies can maximize the benefits of implementing EMAs.

The urgency of this research lies in the importance of understanding how environmental management accounting can be a key factor in improving long-term financial stability. Given the increasing global pressure on sustainability policies, companies that do not adopt EMA practices are at risk of facing regulatory challenges, losing stakeholder trust, and experiencing a decline in company value (Sunaryo et al., 2024). As such, the study is not only relevant for academics but also for business practitioners and policymakers who want to understand how the implementation of EMAs can support a company's sustainability strategy in the long term.

Previous research has discussed the benefits of EMA in the context of operational efficiency and environmental management, but it is still limited in assessing its impact on long-term financial performance (Riantani et al., 2020). Most previous studies have focused more on the short-term impact of EMA implementation on reducing environmental costs and improving energy efficiency, but there are still few studies that comprehensively examine how EMA strategies contribute to profitability and company value over the longer term (Anita, 2021). Therefore, this study will add insight into the field of environmental management accounting by examining in more depth the relationship between the application of EMA and long-term financial performance, as well as the factors that can affect the relationship.

The purpose of this study is to analyze the relationship between environmental management accounting and long-term financial performance and explore the factors that can strengthen or weaken the relationship. Specifically, the study will identify the extent to which companies implementing EMAs can improve long-term profitability, how sustainability strategies can impact a company's competitiveness, as well as key challenges in implementing EMAs across various industry sectors. The results of this study are expected to contribute to the development of theories in environmental management accounting as well as provide practical recommendations for the business world in adopting more effective sustainability strategies.

METHOD

This study uses a qualitative approach with a literature study method to analyze the relationship between Environmental Management Accounting (EMA) and long-term financial performance. Literature studies were chosen because they allow for a more in-depth exploration of theories, concepts, and empirical findings from various previous studies (Creswell & Creswell, 2017). This method focuses on collecting and analyzing relevant scientific sources to provide a comprehensive understanding of the impact of EMA implementation on the long-term financial sustainability of companies (Bowen, 2009).

The data sources in this study come from secondary literature, including academic journal articles, reference books, research reports, and publications related to environmental management accounting and financial performance. The main sources used are national and international journals that have been indexed in reputable databases such as Google Scholar, Scopus, ScienceDirect, Springer, Emerald Insight, and Taylor & Francis (Flick, 2020). In addition, this study also considers various regulatory documents and environmental policy reports from relevant government agencies and international organizations in the context of corporate financial sustainability.

The data collection technique is carried out with a systematic literature review (SLR) approach, where this research collects, sorts, and analyzes literature related to the topic being researched systematically. The article selection process is carried out with pre-determined inclusion and exclusion criteria, such as the publication time span in the last five years (2019-2024), the topic's relevance to the EMA and financial performance, and the credibility of the source (Snyder, 2019). To

validate the validity of the literature used, this study applies the snowballing method, which is to search for references from the main articles that have been selected to obtain additional relevant sources and enrich the analysis (Tisdell et al., 2025).

The data analysis method used in this study is thematic analysis, where data collected from various studies are classified based on key themes related to the relationship between EMA and long-term financial performance (Braun & Clarke, 2021). The analysis process is carried out through the stages of data coding, pattern identification, and interpretation of findings which aim to formulate conclusions regarding the impact of environmental management accounting on the profitability, financial risk, and financial stability of the company in the long term (Saunders et al., 2009). In addition, this study also compared the results of various studies to identify similarities, differences, and factors that can affect the relationship between EMA and financial performance (Tranfield et al., 2003).

This approach is expected to make a significant academic contribution by identifying key trends in the literature, evaluating the effectiveness of EMA strategies, and providing evidence-based recommendations for businesses and policymakers. As such, this research not only has academic value, but it can also serve as a practical reference for companies looking to implement environmental management accounting as part of their sustainable business strategy.

RESULT AND DISCUSSION

In this study, a systematic selection of various scientific articles has been carried out that discuss the relationship between Environmental Management Accounting (EMA) and Long-Term Financial Performance. From various sources found, the 10 most relevant main articles were selected based on the quality of the research, relevance to the topic, and publications in the last five years (2019-2024). These articles cover a variety of analysis methods, including quantitative approaches, empirical studies, and conceptual models that examine the role of EMAs in improving a company's profitability and financial sustainability.

Table 1. Literature Review

No	Author	Title	Findings
1	Almeyda & Darmansya (2019)	The influence of environmental, social, and governance (ESG) disclosure on firm financial performance	Better ESG disclosure increases a company's profitability in the long run.
2	Cho et al. (2019)	Study on the Relationship between CSR and Financial Performance	The implementation of CSR and EMA contributes to improving long-term financial performance.
3	Asiaei et al. (2022)	Green intellectual capital and environmental management accounting	The management of green intellectual capital through EMA supports increased sustainability and financial competitiveness.
4	Rounaghi (2019)	Economic analysis of using green accounting and sustainability indicators	The use of EMAs can help companies increase long-term profitability by reducing environmental costs.
5	Xie et al. (2019)	Do ESG activities improve corporate financial performance?	ESG and environmental accounting have a positive impact on a company's value in the long run.

6	Song et al. (2023)	ESG performance and financial outcomes	EMAs play a crucial role in improving the financial performance of sustainability-oriented companies.
7	Hang et al. (2019)	Meta-analysis of the causality between environmental performance and financial performance	Good environmental performance contributes to financial stability in the long term.
8	Duque-Grisales & Aguilera-Caracuel (2020)	Does green innovation affect the financial performance of Multilatinas?	Investments in green innovation through EMAs contribute to the financial growth of multinational corporations.
9	Burritt et al. (2019)	Diffusion of environmental management accounting for cleaner production	The implementation of EMA contributes to production efficiency and long-term competitiveness improvement.
10	Wang et al. (2022)	Environmental performance, green finance and green innovation	A good EMA approach can promote green innovation and financial growth of companies.

In this analysis, it has been found that Environmental Management Accounting (EMA) has a close relationship with the long-term financial performance of a company. Through a literature review conducted on 10 main articles, it was found that the integration of EMA in business strategy has a significant impact on operational efficiency, reduction of environmental costs, improvement of competitiveness, and financial stability in the long term.

Research conducted by Almeyda and Darmansya (2019) shows that Environmental, Social, and Governance (ESG) disclosure has a positive correlation with a company's financial performance. In this context, companies that are more transparent in disclosing their environmental and social policies tend to be more attractive to long-term oriented investors. Investors consider companies with clear ESG policies to be more resilient to external risks, such as regulatory changes and global economic fluctuations. The study emphasizes that good environmental management can increase a company's value, especially as stakeholders pay more attention to business sustainability (Almeyda & Darmansya, 2019).

A study conducted by Cho et al. (2019) further confirms that Corporate Social Responsibility (CSR) and EMA contribute to improving long-term financial performance. Companies that allocate their resources to environmental sustainability and social responsibility often benefit from increased customer loyalty, better brand image, and stronger relationships with business partners and regulators. Companies that are more concerned about sustainability tend to have better access to long-term funding and enjoy lower financial risk compared to companies that ignore environmental factors (Cho et al., 2019).

In addition, research conducted by Asiaei et al. (2022) shows that green intellectual capital has a close relationship with EMA and corporate financial performance. In their findings, it is stated that companies that integrate green intellectual capital—that is, a combination of environmentally friendly innovation, human resource skills in managing environmental impacts, and the use of environmentally friendly technologies—have higher competitiveness compared to conventional companies. In the long run, this strategy not only helps companies reduce their carbon footprint and industrial waste, but also strengthens their financial stability by avoiding unexpected environmental costs, such as fines for non-compliance with environmental regulations (Asiaei et al., 2022).

Rounaghi (2019) research provides an economic perspective on the use of EMAs. In its analysis, it was found that EMAs allow companies to identify and manage environmental costs more accurately, which can ultimately improve cost efficiency and support long-term profitability. In his study, companies that implement EMA can reduce resource consumption, reduce waste costs, and reuse production materials that were previously considered waste. By optimizing environmental management, companies can avoid the financial risks associated with increasing environmental regulations and pressure from stakeholders (Rounaghi, 2019).

Furthermore, a study conducted by Xie et al. (2019) discussed the relationship between ESG and company value in the long term. The study highlights that companies with strong ESG practices have better access to capital and investment. This is because more and more institutional investors are considering sustainability factors in their investment decisions. Thus, companies that implement EMAs well have a greater chance of getting funding from more stable and long-term sources, which can ultimately improve the competitiveness of companies in their industry (Xie et al., 2019).

Song et al. (2023) further discuss how EMAs can improve the financial performance of sustainability-oriented companies. They found that in increasingly dynamic market conditions, companies that adopt the EMA approach are better able to deal with the uncertainty and volatility of the global economy. By having better mechanisms in place to manage environmental and resource costs, companies can operate more efficiently, even when economic conditions are less favorable. In the long term, this strategy helps companies to stay competitive and maintain their profitability despite external challenges (Chen et al., 2023).

Research conducted by Hang et al. (2019) also supports the idea that better environmental performance correlates with a company's financial stability in the long term. In their meta-analysis, it was found that companies that consistently improve their environmental performance tended to have higher financial stability compared to companies that did not have clear environmental policies. These findings show that a good environmental strategy is not just a form of corporate social responsibility, but can also provide real financial benefits for the company in the long run (Hang et al., 2019).

Meanwhile, research by Duque-Grisales and Aguilera-Caracuel (2020) highlights the role of green innovation in improving the financial performance of multinational companies. They found that investments in green technologies and greener production practices contribute to more stable financial growth, especially for companies operating in global markets. In this context, EMA plays an important role in ensuring that green innovation can provide optimal financial benefits, both in the form of cost savings and increased operational efficiency (Duque-Grisales et al., 2020).

Burritt et al. (2019) further asserted that EMAs contribute to production efficiency and the long-term competitiveness of companies. Their study shows that the implementation of EMA not only has an impact on reducing environmental impact, but also creates new opportunities for companies in terms of optimizing production processes. Companies that are able to implement EMA well often have an advantage in facing industry competition because they have more efficient and sustainability-based operational systems (Burritt et al., 2019).

Research conducted by Wang et al. (2022) provides additional perspective on the relationship between EMA, financial performance, and green innovation. In their study, they found that companies that adopted the EMA strategy had a better ability to develop environment-based innovations. This not only helps companies reduce their negative impact on the environment, but also opens up new business opportunities that are more sustainable (Wang et al., 2022).

From the various results of this study, it can be concluded that the implementation of EMA can effectively improve the financial stability of companies in the long term. Companies that implement EMA have advantages in managing environmental costs, improving operational efficiency,

and building a better corporate image in the eyes of investors and other stakeholders. In addition, EMAs also play an important role in supporting green innovation, which can ultimately create added value for companies in an increasingly competitive global market.

Overall, EMA is not just a financial reporting strategy that includes environmental aspects, but also a management approach that can have a significant impact on a company's profitability, efficiency, competitiveness, and financial resilience in the long term. Therefore, more and more companies need to consider the implementation of EMA as part of their sustainable business strategy to face future challenges in an increasingly dynamic and sustainability-oriented business world.

Discussion

Environmental Management Accounting (EMA) is an accounting approach that integrates environmental factors in a company's financial decision-making. EMAs are used to measure, manage, and control environmental costs associated with business activities. With increasing environmental regulations and pressure from stakeholders, many companies are beginning to adopt EMAs to ensure the sustainability of their businesses.

This study aims to analyze the relationship between EMA and long-term financial performance. In particular, we will explore the extent to which the implementation of EMA can improve long-term profitability, how sustainability strategies affect a company's competitiveness, as well as the key challenges in implementing EMA in various industry sectors.

The Relationship between Environmental Management Accounting (EMA) and Long-Term Profitability

The implementation of Environmental Management Accounting (EMA) in a company not only aims to improve compliance with environmental regulations, but also has a positive impact on long-term profitability. EMAs allow companies to identify and mitigate hidden costs associated with waste, carbon emissions, and excessive energy and water use. Thus, the company can improve operational efficiency and optimize available resources.

Research conducted by Devi and Firoz (2025) found that companies that implement EMAs tend to have more stable and higher profit margins in the long run. This happens because companies can manage environmental costs more effectively, reduce legal risks due to environmental violations, and attract investors who are more concerned about sustainability principles. Their study also shows that institutional investors are increasingly paying attention to environmental policies in assessing the financial viability of a company, so that companies that adopt EMAs have better access to green funding sources and tax incentives from the government (Devi & Firoz, 2025).

One of the companies that has successfully implemented EMA in its operations is Unilever. The company launched a sustainability strategy known as the Sustainable Living Plan, which aims to reduce waste and energy consumption throughout its supply chain. Using the EMA principle, Unilever was able to identify various inefficiencies in the consumption of resources such as water and energy, which were previously unseen in conventional accounting systems.

The impact of the EMA on Unilever's financial performance is significant. The company has managed to save more than €1 billion in energy and water costs since the initiative was implemented. In addition, products developed with environmentally friendly principles experienced an increase in sales by 69% faster than their conventional products. This shows that environmental policies integrated with managerial accounting can not only reduce costs but also increase the attractiveness of products for consumers who are increasingly aware of sustainability (Devi & Firoz, 2025).

Another company that has shown the positive impact of implementing the EMA is Patagonia, an outdoor clothing brand known for its commitment to environmental sustainability. Patagonia uses

the EMA to measure the environmental impact of each stage of production, including the use of recycled materials and the carbon emissions generated during the manufacturing process. With this strategy, Patagonia not only reduces its ecological footprint but also increases customer confidence in their products.

One of the key initiatives supported by the EMA is the Worn Wear program, which allows customers to return their old clothes for repair and resale. This initiative extends the life cycle of products while reducing textile waste. With this approach, Patagonia has succeeded in increasing customer loyalty, which has an impact on increased sales and stable business growth. In 2021, Patagonia achieved revenue of more than $1 billion, with a growing customer base due to the sustainable business approach they adopt (Bergougui & Meziane, 2025).

In addition to companies in the consumer goods sector, EMA also plays an important role in the automotive industry, especially in the electric vehicle business spearheaded by Tesla. As a company focused on reducing carbon emissions through electric vehicles and renewable energy, Tesla benefited greatly from the implementation of the EMA in its business model.

By implementing EMA, Tesla can measure and reduce the environmental impact of each unit of vehicle produced. Tesla's success in implementing its sustainability strategy also provides access to various government incentives and green funding. To date, Tesla has received more than $2 billion in tax incentives and subsidies from various countries that support the clean energy transition. This helps Tesla to continue to expand its production capacity and increase its competitiveness in the global market. In addition, the implementation of the EMA and the focus on sustainability have increased investor confidence in Tesla. This is evidenced by the significant increase in the company's share price, making it one of the highest-valued companies in the automotive industry (He & He, 2025).

Corporate Sustainability and Competitiveness Strategy

Sustainability strategies based on Environmental Management Accounting (EMA) have become a key factor in improving the company's competitiveness in the global market. By integrating sustainability principles in their business operations, companies can optimize operational efficiency while strengthening their reputation in the eyes of consumers and investors. Bergougui and Meziane (2025) highlight how technological innovations combined with EMAs can improve the efficiency of companies, allowing them to be more competitive compared to competitors who do not implement environmental strategies. Companies that implement EMAs effectively can reduce operational costs by reducing waste, optimizing energy use, and improving efficiency in their supply chains.

One of the key benefits of EMAs is their ability to reduce production costs through energy efficiency and better waste management. By lowering costs related to the use of raw materials and energy, companies can increase their profit margins without having to increase the selling price. In addition, the implementation of EMA also contributes to increasing consumer and stakeholder confidence. Companies that show concern for the environment are often more trusted by consumers and get more support from investors who pay attention to Environmental, Social, and Governance (ESG) factors in their investment decisions.

Another advantage of companies implementing EMAs is easier access to markets and sustainable funding. Currently, banks and investors are increasingly focusing on sustainability as a criterion in providing credit and investment. Companies that obtain green certifications such as LEED (Leadership in Energy and Environmental Design) or ISO 14001 have a greater chance of obtaining financial incentives and access to sustainable investment projects. With global regulations on carbon footprint and greenhouse gas emissions becoming more stringent, companies with strong environmental policies will find it easier to adapt to evolving regulatory requirements.

A clear example of the implementation of EMA-based sustainability strategies can be seen in Tesla and Nike. Tesla, as an automotive company focused on renewable energy, receives various government incentives and funding from ESG investors that support the green energy transition. With a focus on electric vehicles and battery-based energy solutions, Tesla has secured major investments that have allowed them to expand production and improve their technology. Meanwhile, Nike is running a "Move to Zero" initiative that aims to significantly reduce their carbon footprint. Through the use of recycled materials in the production of clothing and shoes and the optimization of their supply chain, Nike has managed to improve their brand reputation among environmentally conscious customers. With this strategy, Nike not only strengthens the company's image, but also attracts a wider market segment that prioritizes eco-friendly products.

Thus, it can be concluded that EMA-based sustainability strategies provide a variety of significant benefits for companies in improving their competitiveness in the global market. Companies that adopt EMAs well are not only able to reduce operational costs, but also strengthen their reputations, increase consumer confidence, and gain easier access to markets and sustainable funding. Going forward, with increasing pressure from environmental regulations and market demand for greener products, the implementation of EMA will become increasingly important in the business strategies of companies in various industry sectors.

Challenges in EMA Implementation in Various Sectors

Although Environmental Management Accounting (EMA) offers many benefits to companies, its implementation in various industry sectors does not always run smoothly. Challenges arise in the adoption process, especially those related to high costs, lack of uniform regulatory standards, and internal resistance within the organization. A study conducted by He and He (2025) revealed that the main obstacle in the implementation of EMA is the need for significant initial investment, both in the form of sophisticated environmental reporting systems and workforce training. In addition, regulatory inconsistencies between one country and another also make it difficult for multinational companies to implement globally standardized environmental policies.

One of the main challenges is the high cost of implementation. Companies must allocate a sizable budget to develop a reporting system that can identify, measure, and manage the environmental impact of their business activities. In addition, companies also need to provide training for employees so that they can understand how the EMA system works and how the resulting environmental data can be used in strategic decision-making. This obstacle is often a barrier, especially for small and medium enterprises (SMEs) that have limited resources. Many SMEs do not have enough budget to develop an effective EMA system, so they often neglect environmental accounting despite being aware of its long-term benefits.

In addition to the high cost, the lack of uniform regulatory standards is also an obstacle in the implementation of the EMA. Each country or even a region within a country has different environmental rules, so multinational companies often face difficulties in ensuring compliance with various existing regulations. For example, manufacturing companies in China often face challenges due to differences in environmental standards between provinces and another. In some cases, stricter environmental regulations in one region may increase a company's operating costs, while in another, looser region, the company may not have enough incentive to implement better environmental accounting practices.

In addition to external factors such as costs and regulations, internal resistance in the organization is also a significant obstacle. Many managers still consider EMA to be an additional burden that does not provide immediate benefits to the company. In some cases, a lack of understanding of the benefits of EMAs leads to low commitment from management levels to adopt

these systems. A study by Rahman, Rana, and Zhu (2025) shows that many companies have difficulty internalizing environmental costs into their business strategies, especially if management does not have a long-term vision for sustainability (Rahman et al., 2025).

One of the real examples of the challenges in the implementation of the EMA occurs in the textile industry in Bangladesh. The industry is known as one of the largest contributors to water pollution in the world, but many companies in the sector are still reluctant to implement environmental accounting systems due to the high initial costs required to reduce waste and manage water resources more efficiently. Some companies that have tried to implement EMAs have reported that they have struggled to get support from management due to concerns about rising production costs in the short term. This shows that without a strong regulatory push or adequate incentives, many companies tend to be reluctant to allocate resources for the implementation of EMAs.

Another case occurred in the energy sector, where oil and gas companies in the United States had difficulty adopting EMAs due to pressure from shareholders who were more focused on short-term profits. While some large companies such as BP and Shell have begun to integrate environmental accounting into their operations, many others are still reluctant to change their business models due to concerns about the negative impact on profits in the short term.

In conclusion, although the EMA offers various benefits for companies in improving operational efficiency and long-term sustainability, its implementation still faces various challenges. High costs, lack of uniform regulation, and internal resistance within the organization are the main factors that hinder the implementation of this system. To overcome these obstacles, support from various parties is needed, including the government that can provide incentives for companies that adopt EMA, as well as education for stakeholders about the importance of environmental accounting in building a sustainable business.

Recommendations

The implementation of Environmental Management Accounting (EMA) provides great benefits for companies in improving operational efficiency, competitiveness, and access to sustainable funding. However, its implementation still faces challenges such as high costs, lack of uniform regulatory standards, and internal resistance within the organization.

Many companies, especially in the heavy industry and manufacturing sectors, have difficulty integrating EMAs because they require large investments in environmental reporting systems and workforce training. In addition, regulatory differences between countries make it difficult for multinational companies to formulate consistent environmental policies. Some industries, such as textiles in Bangladesh and oil and gas in the US, still face obstacles to adopting EMAs due to pressure on short-term gains.

To address these challenges, companies can optimize the benefits of EMAs by implementing digital technologies in environmental accounting, investing in employee training, as well as adopting international standards such as ISO 14001 to increase transparency and credibility. With the right strategy, EMA not only contributes to improving the company's profitability but also helps to create a more sustainable business environment.

CONCLUSION

The results of this study show that the application of Environmental Management Accounting (EMA) has a positive correlation with the long-term financial performance of companies. EMA plays a role in optimizing operational costs, improving production efficiency, and strengthening the company's competitiveness in the global market. With an accounting system that focuses on sustainability, companies can reduce litigation and regulatory compliance risks, increase

transparency of financial statements, and attract more institutional investors who are increasingly paying attention to Environmental, Social, and Governance (ESG) factors in their investment decisions.

However, despite the benefits offered, the implementation of EMA still faces various challenges. One of the biggest obstacles is the high initial costs, especially in the procurement of environmental reporting systems and investment in environmentally friendly technologies. In addition, the lack of uniform regulatory standards between countries makes it difficult for multinational companies to formulate environmental policies that are in accordance with various regulations that apply in various jurisdictions. Not only that, internal resistance in the organization, especially from management who still view that environmental accounting is only an additional cost without direct benefits, is also a challenge in itself.

In the context of practical advice, companies can adopt a more structured approach in implementing EMAs. One step that can be taken is to use digital technology in environmental accounting, such as the application of Artificial Intelligence (AI) and the Internet of Things (IoT) to improve the efficiency of monitoring emissions and energy consumption. In addition, companies can also invest in employee training, so that each division has a better understanding of EMA-based sustainability strategies. The implementation of international standards such as ISO 14001 can also help increase the credibility of companies as well as facilitate access to green funding and fiscal incentives from governments.

As a recommendation for further research, further specific studies are needed on the effectiveness of EMAs in various industrial sectors, especially industries with high environmental impacts, such as manufacturing, energy, and mining. In addition, research on risk mitigation strategies in the implementation of EMAs is also urgently needed, considering that some companies are still hesitant to adopt this system due to concerns about the potential financial impact in the short term. The study of the role of government policies and regulations in encouraging the widespread implementation of EMA is also a crucial research agenda to ensure the sustainability of the global financial system in the future. With a more strategic approach and stronger policies, the application of Environmental Management Accounting (EMA) is not only a reporting instrument, but also a key pillar in a sustainable and long-term growth-oriented business strategy.

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