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49 Years Emerging of Environmental Performance: A Systematic Literature Review

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ABSTRACT

This study aims to analyze trends, progress, and opportunities for future research. This study reviews 49 years of emergence of environmental performance through systematic literature and conducts content analysis. The data for this study were obtained from 244 sample articles from the period 1972 to November 2021 based on the SCOPUS database. The findings we obtained show trends in topic classification, research settings, theories, methods and analysis techniques as well as suggestions for further research. We classified 10 themes of research topics; Management Strategy; Financial and Corporate Performance; Management information System; Characteristics of Corporate Governance; Green Supply Chain Management; Requests for Environmental Performance Information Exist; Green Human Resource Management; Organizational Behavior; Environmental Regulations; Security Market Returns.

INTRODUCTION

The environmental performance practices by companies are based on issues raised by shareholder and various stakeholder (such as investor, regulators, and public perceptions), which make an issue important and credible (Kheireddine et al., 2023; Noci, 1997). Initially, companies acted because management anticipated future financial performance with indications of improved stock market performance (Dangelico, 2015; Dohrmann et al., 2024). Environmental performance has become a new strategy used by management as a way to responsibly maximize shareholder wealth. Management also expects an increase in the company's reputation index due to improved environmental performance, which in turn impacts on financial performance. This has become an attractive goal to achieve (Dangelico, 2015). Some academics are skeptical about why companies are interested in environmental issues (James, 1992), which tend to focus on external reporting that highlights the company's negative activities. On the other hand, environmental performance will help them achieve a competitive advantage over their competitors (Azzone et al., 1996; Tan & Li, 2023).

This research aims to determine: 1) what are the trends in "*environmental performance*" in terms of *topics, research settings, theories, methodologies, and primary data analysis techniques*?; 2) what research opportunities related to "*environmental performance*" can be developed in the future?. We attempt to explore whether environmental performance has been an area of interest in the field of

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accounting for decades. Our search is limited to the term "environmental performance," which, according to an article by Rockness (1985), indicates that the major accounting associations have discussed this issue since 1972, including within the AICPA in 1972. The discussions continued regarding the material impact of compliance with environmental regulations in 1973, which should have been included in the framework of accounting disclosure. However, as we mentioned, our findings are limited. If asked when environmental issues began to gain attention, we would suspect it was around 1972.

Our findings are classified into several trends that we aim to analyze. First, we classified articles from 1972 to before 1990 based on the major Exxon Valdez case, the oil spill incident that occurred in the United States. This second-largest event prompted a response from the Coalition for Environmentally Responsible Economies (CERES) in 1989, which took the form of systematic efforts to illustrate good environmental performance (Ilinitch et al., 1998). This event also garnered a significant public response, with increased awareness of the threats to their health and environment due to pollution, as well as demands for industry accountability (Zetlin, 1990). Second, we classified the findings into 8-year periods to identify trends within this topic. Based on this classification, the research provides an overview of trends according to topics, research settings, theories, methods, and analysis techniques, as well as suggestions for future research.

MATERIALS AND METHODS

This research adopts a systematic literature review approach, following the methodology used by Hoque (2014) and Shields (1997). The first step involved identifying a topic we considered interesting by using broad keywords, namely "Management Accounting." In this field study, 1,980 articles were included, and we identified which topics had relatively stable discussions suitable for the analysis we planned to conduct. We used the programming tool "Python" to perform data mining and calculate the frequency of word occurrences. Our findings led us to the keyword "environmental performance," which appeared 47 times in titles, abstracts, or keywords. This choice was not the only option, but it was selected after considering: 1) whether this topic has contributed to the development of research since its emergence and remains relevant today, and 2) whether this topic has been previously studied in the literature and if similar questions to ours have already been addressed. The answers to these considerations led us to undertake this research. To the best of our knowledge, this study will be the first of its kind.

Our search was limited to the term "*environmental performance*," which we discovered in the article by Rockness (1985). This article informed us that the major accounting association or AICPA had already discussed this issue as early as 1972 and continued to address the material impact of compliance with environmental regulations in 1973, which should have been included within the framework of accounting disclosure. Therefore, when did environmental issues start gaining attention? We suspect it was around 1972. However, we hope that our limitations will not pose significant challenges in answering the research questions.

Furthermore, we defined the objectives or research questions that we aim to address. First, what are the trends in "*environmental performance*" in terms of *topics, research settings, theories, methodologies, and primary data analysis techniques?* Second, what research opportunities related to "*environmental performance*" can be developed in the future? This study gathered articles from the SCOPUS database based on several criteria that we established. For further details, Table 1 below outlines the selection criteria used in this article.

Table 1
Selection Criteria

Criteria	Total
Article with the keyword "*environmental performance*" in the title	3.449
Exclude:	
1) Article with *subject "non-business management and accounting"*	(2.532)
2) Article with document types *"non-article"* and document stages as *"non-finish"*	(179)
3) Article with *sources type "non-journal"* and those written in *"non-english"* languages	(27)
4) Articles with fewer than 30 citations	(467)
Final total articles	**244**

Most literature review studies would stop at exclusion criterion number 3. However, this study aims to obtain reliable evidence by focusing on articles with at least 30 citations, a rationale also used

in co-citation studies (Culnan, 1986). As a result, only 244 articles from the emergence of "environmental performance" in 1972 to November 2021 were included in the sample for this study. Table 2, which shows the frequency distribution based on the number of citations and years in this study. Articles with more than 1,000 citations were prevalent in the second period, shortly after major environmental-related events gained attention. Although these studies did not directly state that they were motivated by the Exxon Valdez incident of 1989, e.g., Ilinitch et al. (1998) and Jung et al. (2001), the year contributed significantly to the history of environmental issues. Furthermore, articles with citation counts in the range of 30-99 dominate the sample, indicating a broadening interest and new perspectives in the field, offering open opportunities for further development.

Table 2
Frequency Distribution Based on Number of Citations and Year

Cited by	<1990	1990-1997	1998-2005	2006-2013	2014-2021	**Total**
>1000	0	1	0	1	0	**2**
500-1000	0	0	6	0	0	**6**
100-499	0	2	10	28	18	**58**
30-99	1	7	21	49	100	**178**
Grand Total	**1**	**10**	**37**	**78**	**118**	**244**

RESULTS AND DISCUSSION

Frequency Distribution of Articles Based on Year and Journal

Our findings are displayed in Table 3, which shows the frequency distribution of the 244 articles that met the criteria, based on the year and journal. This table highlights the top 10 journals contributing to the topic of *environmental performance*, with the remaining articles classified under "*others*". Notably, only one article falls within the range of 1972 to before 1990. This limited number may be due to the initial lack of response from researchers and academics during the early emergence of the topic. However, trends show an increase, providing opportunities for journals to select related and interesting topics. In the leading position, the *Journal of Cleaner Production* is the most popular with a total of 88 articles published on this topic. This aligns with the journal's focus on cleaner production, environmental, and sustainability research and practices. In the "others" classification, articles are accumulated from a total of 59 other journals. Our analysis suggests that editorial policies of each journal play a significant role in this distribution. Although journals have specified scopes, preferences and other suitability factors are crucial in the acceptance of articles.

Table 3
Frequency Distribution of Articles Based on Year and Journal

Source title	**Year**					
	<1990	1990-1997	1998-2005	2006-2013	2014-2021	**Total**
Journal of Cleaner Production		1	8	32	47	**88**
Business Strategy and the Environment		3	3	3	21	**30**
Journal of Business Ethics			1	4	12	**17**
International Journal of Production Economics				2	5	**7**
Academy of Management Journal		1	1	2		**4**
Corporate Social Responsibility and Environmental Management				1	3	**4**
Technological Forecasting and Social Change				1	3	**4**
International Journal of Hospitality Management				2	2	**4**
Corporate Environmental Strategy			3			**3**
Production and Operations Management			3			**3**

Others	1	5	18	31	25	**80**
Total	**1**	**10**	**37**	**78**	**118**	**244**

Frequency Distribution of Articles Based on Journal Reputation Quality

Table 4. Displays the frequency distribution of articles based on journal reputation quality. Among all the articles we analyzed, the period from 2014 to 2021 had the highest number of articles contributing to "environmental performance." This result is lower than expected due to the study being limited to November 2021. We identified our research articles based on journal quality ratings from Scimago (SJR – with rankings Q1, Q2, Q3, and Q4) and ABS (with rankings 4*, 4, 3, 2, 1). Articles not included in these rankings are identified as not covered. The results are surprising: 228 articles had publication quality in SCOPUS Q1 and 11 articles in Q2. It is noted that none of the research samples fell into Q3 or Q4, while 5 articles did not have a SCOPUS ranking.

The next journal publication quality identification is based on the ABS ranking created by the Chartered Association of Business Schools. The ABS name was used in the initial period of 2010 to assess the previous 5 years of articles. It then changed its name to AJG (Academic Journal Guide) and started evaluating the previous 5 years of journals. The AJG in its 3rd (2018) and 4th (2021) editions adjusted from a 5-year cycle to a 3-year cycle. As a result, not all of our articles are within their ranking areas. However, we believe that ABS offers a more selective evaluation and can serve as a reference for obtaining reputable journals. The results show that only 5 articles are ranked 4*, 11 articles are ranked 4. The rest are ranked 3, 2, and 1, with 76, 57, and 9 articles respectively. Unlike SCOPUS, ABS shows an almost reverse reputation. While SCOPUS had a dominance of articles in Q1, ABS shows a greater dominance in the 3rd rank (middle rank). As we have explained, ABS provides a higher number of articles categorized as not covered.

Table 4
Frequency Distribution of Articles Based on Journal Reputation Quality

Reputation	**Year**					
	<1990	**1990-1997**	**1998-2005**	**2006-2013**	**2014-2021**	**Total**
SCOPUS						
Q1	1	8	33	72	114	**228**
Q2		1		6	4	**11**
Q3						**0**
Q4						**0**
Not Covered		1	4			**5**
Total	**1**	**10**	**37**	**78**	**118**	**244**
ABS						
4*				4	1	**5**
4			2	8	1	**11**
3			2	22	52	**76**
2				5	52	**57**
1				1	8	**9**
Not Covered	1	10	33	38	4	**86**
Total	**1**	**10**	**37**	**78**	**118**	**244**

Frequency Distribution of Articles Based on Research Topics

We analyzed 244 articles with 10 topic classifications based on our findings. Before that, we need to explain that it was challenging to find clear references to define the boundaries of each topic area because most topics are interconnected and overlap. Nevertheless, we ensured that topic classifications were based on the dominant areas within them. Therefore, Table 5 below shows the frequency distribution of articles based on topics.

Table 5
Frequency Distribution of Articles Based on Research Topics

Topic	Year					
	<1990	**1990-1997**	**1998-2005**	**2006-2013**	**2014-2021**	**Total**
Management Strategics		5	11	23	15	**54**
Financial and Corporate Performance		2	10	11	25	**48**
Management Information System		1	6	16	24	**47**
Corporate Governance Characteristics				8	14	**22**
Green Supply Chain Management		1	3	4	14	**22**
A Demand for Environmental Performance Information Exists	1		4	6	2	**13**
Green Human Resources Management					13	**13**
Behavioral Organization		1		6	5	**12**
Environmental Regulations			2	2	6	**10**
Security Market Returns			1	2		**3**
Total	**1**	**10**	**37**	**78**	**118**	**244**

The topic of *management strategics* (n=54) is the most dominant, followed by *financial, corporate performance* (n=48) and *management information system* (n=47). As the name suggests, *management strategics* addresses the broad goals of an organization, resources, and how a policy or decision can effectively work to achieve strategic objectives. On the other, *financial and corporate performance* directly tests whether environmental performance affects corporate performance.

Frequency Distribution of Articles Based on Research Theories

We documented 123 articles from the 244 sample articles that utilized a total of 299 theories. This means that a single article may use more than one theory. Table 6 illustrates the frequency distribution of articles based on the theories used in this research. Out of all the theories employed, 59 were categorized under "*other theories*". Overall, the *Resource-based (theory/perspective/view)* is the most widely used, with 26 articles employing this theory, and it is also the most frequently used theory in the fifth period (2014–2021) with 16 articles. Resource-Based Theory provides a perspective on unique resources within a company that can facilitate the implementation of environmental management systems and standards (Mensah & Blankson, 2013), as a strategic resource that aids in the development of superior environmental performance (Alt et al., 2015; Singh et al., 2020), improving energy efficiency, monitoring, and visualization (Belhadi et al., 2020; Singh et al., 2019), and refining the analysis of their CSR policies (Russo & Fouts, 1997).

Table 6
Frequency Distribution of Articles Based on Research Theories

Theory	Year					
	<1990	**1990-1997**	**1998-2005**	**2006-2013**	**2014-2021**	**Total**
Resource-Based Theory		2	1	7	16	26
Stakeholder Theory			4	6	11	21
Institutional Theory				5	6	11
Legitimacy Theory			2	3	6	11
Political Theory			3	2	5	10
Agency Theory				5	5	10
Economic Theory			1	1	3	5
Upper Echelons Theory				3	1	4
Other Theories	2	1	5	27	45	80

Not Available		8	25	35	53	121
Grand Total	2	11	42	94	150	299

Additionally, stakeholder theory is used in 21 articles to provide a perspective on *environmental practices*. This theory explains how social pressures and evolving demands can enhance *environmental reporting* (Elijido-Ten, 2007), encourage environmental behavior (Tang & Tang, 2012), improve environmental performance, and facilitate the implementation of environmental management processes (Guerci et al., 2016). Firstly, according to Dubey et al. (2015), institutional theory encourages organizations to adopt environmental management initiatives and green supply chain management practices in manufacturing companies. Berrone & Gomez-Mejia (2009) and Haque & Ntim (2018) also affirm that this theory helps explain how companies benefit from aligning with rules, norms, societal expectations, institutions, and stakeholders to enhance and protect their legitimacy.

Frequency Distribution of Articles Based on Research Setting

Table 7 shows the distribution of articles based on the countries represented in the research sample. The United States dominates with 51 articles out of the 244 sample articles in the study. Given the significant events related to environmental issues that occurred during the early stages of environmental performance discussions, it is not surprising to see the US's substantial contribution to this topic. China follows in second place with a total of 24 articles, but it shows a larger number of contributions during the 2014–2021 period, surpassing the US. Indonesia, as one of the countries facing significant environmental challenges, contributed 5 articles in the most recent period.

Table 7
Frequency Distribution of Articles Based on Research Setting

Research Setting	**Year**					
	<1990	**1990-1997**	**1998-2005**	**2006-2013**	**2014-2021**	**Total**
United States	1	3	8	23	16	51
China				2	22	24
Australia		1	2	4	2	9
Europe			2		6	8
Malaysia				2	6	8
Italy				3	4	7
United Kingdom			2		4	6
Indonesia					5	5
Sweden			3	2		5
Japan				4		4
Other Country	0	1	6	19	31	57
Multi Countries			6	4	7	17
N.A		5	8	15	15	43
Total	**1**	**10**	**37**	**78**	**118**	**244**

In this table, we present the top 10 countries with the highest contribution of articles, while also aggregating several categories we agreed upon. First, *other countries* represent articles that are not within the top 10, specifically spread across 39 countries. Second, *multi-countries* are identified as representing a collection of specific countries, provided that more than one country is used in the study. For example, the research by Epstein and Roy (1998) highlights strategic issues related to environmental management by multinational companies and proposes key elements for implementing environmental strategies globally. Lastly, the *not available* category includes articles that do not directly disclose their research setting, or are in the form of literature reviews, conceptual frameworks, and the like.

Table 8 presents the distribution of articles based on industry settings. The manufacturing industry (n=44) dominates the choice of industry settings, followed by articles that cover all industry sectors (n=13). Several reasons underlie these findings: manufacturing is one of the industries most directly associated with various environmental issues. Another reason is that manufacturing often faces

the most social pressure from the public (Yu & Ramanathan, 2015) and is frequently involved in problems such as emissions, pollution, waste, and so on (Kraus et al., 2020). Specifically, some studies use the Environmental Performance Index (EPI), Wiseman Index, or other indices to focus on measuring manufacturing performance in terms of emissions and material consumption (Clarkson et al., 2008; Hermann et al., 2007). Broadly speaking, the top 10 industries exhibit characteristics that are closely tied to and responsible for environmental issues.

Similar to the other distribution tables, our sample articles consistently identify specific aspects. A total of 33 articles falls under the *other industry* category, representing industries outside of the top 10. *Non-industry* and *specific criteria* categories represent articles that are not industry-based (18 articles) and those that focus on specific industries selected based on special criteria used in the research. The remaining 45 articles do not clearly specify their chosen industry setting or do not require the use of a research sample.

Table 8
Frequency Distribution of Articles Based on Industry Setting

Industry Setting	Year					
	<1990	1990-1997	1998-2005	2006-2013	2014-2021	Total
Manufacturing Industry			7	9	28	44
All Sector Industry		2	1	3	7	13
Nature Resources Industry	1	1	1	1	4	8
Construction Industry				2	2	4
Tourism Industry			2	2		4
Agriculture				2	1	3
Cement industry			2		1	3
Hotel Industry					3	3
Mining Industry			1	1	1	3
Pulp industry				2	1	3
Other Industry	0	0	6	16	11	33
Non-industry		1	2	4	11	18
Specific Criteria			7	20	33	60
Not available		6	8	16	15	45
Total	**1**	**10**	**37**	**78**	**118**	**244**

Frequency Distribution of Articles Based on Research Methodology

We identified five general categories of research methodologies along with subcategories used in analyzing studies on environmental performance. As shown in Table 9, the majority of sample articles employ quantitative methods (n=172), significantly outnumbering qualitative methods (n=36) by 136 articles. Within the quantitative subcategory, survey data (n=77) is more frequently used than archival data (n=69). In the qualitative category, case studies (n=22) are more commonly conducted compared to critical papers, document analysis, and semi-structured/in-depth interviews. Compared to others, conceptual papers and commentaries, literature reviews, and mixed methods have a relatively similar frequency (n=10, 15, 11, respectively). Essentially, given the diverse subtopics and expanding research questions, along with the increasing interest in this area, the choice of methodology tends to vary and adapt to the research objectives. Therefore, we find it intriguing that the topic of environmental performance is receiving broader attention and perspectives through various approaches.

Table 9
Frequency Distribution of Articles Based on Research Methodology

Detail Method	Year					
	<1990	1990-1997	1998-2005	2006-2013	2014-2021	Total
Conseptual Paper and Commentary		5	4		1	10

Literature Review			3	10	2	15
MixedMethod						
Archival and Interview			1		1	2
Interview and Experiment			1			1
Interview and Survey			2	5	1	8
Total			4	5	2	11
Qualitative						
Case Study			4	11	7	22
Critical Paper			1	1		2
Document Analysis		2	2	2	1	7
Semi-structured/in-depth interview			2	2	1	5
Total		2	9	16	9	36
Quantitaive						
Archival		1	11	23	34	69
Experiment	1	1			2	4
Mathematical Modelling			1	1	1	3
Meta Analysis				6	10	16
Survey		1	5	16	55	77
Textual Analysis				1	2	3
Total	1	3	17	47	104	172
Grand Total	**1**	**10**	**37**	**78**	**118**	**244**

Future Research Directions Based on Previous Studies

Previously, we identified the topic of environmental performance into 10 categories or themes, as shown in Table 5, which details the frequency distribution of articles based on research topics. All categories within this topic will be discussed in this section, along with recommendations for future research. From our analysis, we identified several areas with potential for further exploration to fill gaps, enhance understanding, and address the complexities of these research issues. As demonstrated by Mustikarini and Adhariani (2022), we decided to focus on articles from the last three years, adjusting the identified directions to guide future research. We have chosen to highlight only those questions that still offer opportunities for further development. Here is the analysis of our findings:

1. A Demand for Environmental Performance Information Exists

Building on the research Rockness (1985), which emphasized that social and environmental reporting should be an integral part of future accounting disclosure frameworks, this study overall supports the relevance of environmental performance disclosure in decision-making processes. Environmental issues disclosure receives varied responses across industries (Brown & Deegan, 1998). Ren (2000) explained that this variation is due to the lack of legal enforcement and the differing environmental goals and interests at various industry levels. Given this, environmental performance should ideally be assessed from multiple perspectives. However, other responses have raised concerns about potential social and political exposure (Hughes et al., 2001; Patten, 2002).

Regarding corporate environmental practices, the implementation of regulations is feared to limit companies' innovation in their reporting (Adams & Frost, 2007). Nevertheless, Clarkson et al. (2008); Clarkson, Li, et al. (2011); Clarkson, Overell, et al. (2011) emphasized the importance of mandatory disclosure of environmental issues, even for companies whose activities are not directly related to pollution. The emergence of disclosure indicators, such as those recommended by the Global Reporting Initiative (GRI), has gained reliance due to their perceived objectivity. This has led to variations in measurement and testing to understand the impact of environmental issue disclosure by companies. The practice of disclosing environmental issues pressures companies to be more accountable (Braam et al., 2016), enhances transparency in environmental performance, and achieves better overall performance. However, Nazari et al. (2017) also found that complex disclosure practices could lead to reduced readability and increased confusion.

Based on our analysis, we identified that the issues arise due to the differing levels of detail in disclosure and the voluntary nature of these practices. Although innovative disclosure practices have received positive responses, the lack of uniformity can backfire, creating challenges in terms of reliability, credibility, and comparability. The limitations of previous research often relate to the use of established measures and standards, leading to variations in results and potential issues with self-selection bias. Therefore, future research could focus on the importance of leveraging mandatory and robust regulations. Another area of focus could be the role of disclosure regulations in protecting stakeholders when assessing and evaluating environmental performance.

2. Behavioral Organization

Research in this area discusses the activities of groups or individuals within organizations related to performance, communication, motivation, and types of leadership. An article discusses managers' responses to environmental efforts, highlighting a gap in understanding that impacts managers' motivation to voluntarily disclose environmental issues (Jaggi & Zhao, 1996). Subsequent research has focused on the determinants of organizational behavior towards environmental performance, such as: societal and environmental pressures (Kassinis & Vafeas, 2006), public policies and political activities (Cho et al., 2006), national culture, economic development, and population growth (Peng & Lin, 2009). Overall, it addresses the relationship with environmental issues.

Long et al. (2017) investigated that environmental behavior control in China positively relates to environmental innovation policies, which then affects the extent of environmental performance impact more than economic performance. Additionally, Cheng and Liu (2018) delved deeper into these findings, indicating that public attention, state ownership, and the location of a company in the city center create more pressure and motivation to become the focus in implementing environmentally friendly policies.

We recommend integrating factors that actively influence organizational behavior. For example, Alt et al. (2015) suggests that future research could examine the interests arising from environmental performance by considering resource practices, rewards, and employees' views on environmental issues. We agree, as employees often play a role close to both the company and the community. If proven, the employee perspective becomes interesting to explore regarding how companies respond to environmental practice expectations. The employee perspective also helps companies legitimize their actions. Future research could also highlight when specific factors influence organizational behavior regarding environmental performance practices.

3. Corporate Governance Characteristics

Corporate governance characteristics discuss the characteristics of governance that are often identified as key or strategic positions close to decision-making within organizations or companies. The question arises of how to assess governance characteristics so that they can be represented effectively? Some studies explore key factors related to environmental performance. For example, membership in national hotel trade associations (Mensah & Blankson, 2013), the number of women in board positions (Elmagrhi et al., 2019), the number of independent directors (Post et al., 2015), gender diversity (Glass et al., 2016; Lu & Herremans, 2019; Shahab et al., 2018), ownership structure (Cordeiro et al., 2020; Walls et al., 2012), types of compensation received (Zou et al., 2015), and politics (Shahab & Ye, 2018) are closely related to a company's environmental performance. Their findings indicate a tendency to form sustainable energy alliances and improve environmental performance scores.

Companies with good governance tend to be more effective in pursuing environmentally friendly strategies and are trusted to create environmental policies without causing financial difficulties. Another attribute observed by Shahab et al. (2020) examined CEO characteristics based on background, financial expertise, foreign exposure, and age due to a more active preference for environmental policies and reporting. Dixon-Fowler et al. (2017) demonstrated that the presence of environmental committees and senior management roles affects good environmental performance through oversight functions. Additional evidence from Latan et al. (2018) shows that the presence of organizational resources (strategy, commitment, and environmental uncertainty) positively influences the use of Environmental Management Accounting (EMA). Rameshwar et al. (2017) highlighted Reconfigurable Manufacturing Systems (RMS) as a tool for top management to adopt in achieving environmental performance, with organizational culture involved between the two.

For future research, different approaches need to be considered, such as interviews or case studies with various perspectives involved (managers, government officials, regulatory authorities). Future

studies could also analyze comparisons of which theories best describe the research issues, adding specific conditions (e.g., underlying cultural backgrounds, multi-country contexts, or environmental uncertainties). Ultimately, this study is worth exploring based on personal or interpersonal characteristics, with a more adequate approach.

4. Environmental Regulations

Rockness (1985) explains that environmental regulators should be the most knowledgeable about the conditions of policy control and comparative performance assessment, particularly concerning technical conditions. A multinational perspective discusses how companies consider decisions to adopt global standards versus merely meeting local requirements amidst minimal regulation. Epstein and Roy (1998) emphasize the importance of a framework related to strategy and managerial decisions in environmental management, where companies should be able to analyze changes in legislation (Buhr, 1998). This is also related to its impact on the amount of disclosure.

Clark and Crawford (2012) note the willingness of stakeholders to accept companies' disclosure of environmental policies, plans, and activities. This allows companies to achieve transparency while maintaining their investments, even if they have a less-than-optimal record. With the onset of government involvement in regulation, ownership structures, or political pressure (see, Chang et al. (2015)), the resulting impact leads to varied responses from report users. Negative responses emerge from investors towards state-owned companies due to government involvement or pressure. Conversely, such positive initiatives represent a stage of environmental investment that will be beneficial and cost-effective, contributing to economic benefits and lower costs (Kroes et al., 2012). Furthermore, Graafland and Smid (2017) also explain the role of social license pressure in achieving higher environmental efforts as company size increases. According to Li and Ramanathan (2018), in China, environmental performance is not influenced by environmental regulation, with the note that sample characteristics and complexity play a role.

Finally, the study by Hafezi and Zolfagharinia (2018) underscores the valuable advice for governments to implement regulations more cautiously, as these are directly related to the strategies employed by companies. Furthermore, future research could better consider the complex characteristics of companies that may also influence the implementation of environmental practices in response to policies. Additionally, given the limitations of difficult-to-verify measurements, focusing on using more data and comprehensive indices for regulatory implementation and environmental practices will greatly aid in more complex analyses.

5. Financial, Corporate, and Environmental Performance

Understanding financial performance can be challenging, yet the discussion continues to evolve with increasing data, regulatory changes, measurement indices, and research interest. Debates often arise over whether environmental performance is related to improved financial performance and company outcomes, or vice versa. Such discussions can lead to varying results influenced by sample characteristics, complexity, and specific conditions. Russo and Fouts (1997) emphasize that a company's efforts to perform "good deeds" and reduce future environmental impacts constitute one dimension, while actual negative emissions that are "bad" represent another dimension. In contrast, Burritt and Welch (1997) highlight the goal of environmental performance accountability frameworks as a means to embody various interests and drive positive change.

Several studies use metrics such as profitability and pollution emissions (Stanwick & Stanwick, 1998), economic performance (Al-Tuwaijri et al., 2005), and organizational capacity for change (Judge & Elenkov, 2005). The relationships described above are based on significant investor preference effects, achieving company litigation related to external parties, and the development of legitimacy and trust, which can lead to better company performance. Additionally, many studies examine the relationship between environmental performance and financial performance, such as Nakao et al. (2007). Others evaluate and analyze cases related to frameworks developed within specific industries or organizations. For example, Clemens and Bakstran (2010); Delmas and Blass (2010) and Xie and Hayase (2007) evaluate new concepts and capital measurement, while Delmas et al. (2013); Erdogan and Tosun (2009) and Leslie (2007) explore the nature of environmental performance in their research. Overall, their findings vary, but future research could focus on establishing temporal causal structures

for environmental practices with assumptions of non-linear relationships. Future researchers might also use transformational leadership capabilities as a mediating construct between CSR and environmental performance and consider cultural aspects evolving in other countries.

6. Green Human Resources Management

Green Human Resources Management (GHRM) refers to a set of practices related to the social, political, and market contexts in which a large number of stakeholders present specific claims on companies, which, to some extent, lead to higher performance (Guerci et al., 2016). Evolving research links GHRM with environmental performance represented by employees Dangelico (2015); Kim et al. (2019), with variations in organizational citizenship behavior (Anwar et al., 2020; Paillé et al., 2014), employee education levels (Gilal et al., 2019), recruitment, training, and compensation (Yusoff et al., 2020), as well as consumer perspectives (Nyilasy et al., 2014). The results suggest that GHRM can activate a green organizational culture or influence how such a culture affects environmental performance and sustainable development (Roscoe et al., 2019). Additionally, findings show that individual values moderate the positive relationship between GHRM and environmental performance (Hameed et al., 2020), but employee commitment does not mediate this relationship (Pham et al., 2020). Based on these findings, future research could explore the impact of additional combinatorial and multiplicative practices. Furthermore, expanding the perspective to include non-managerial employees could provide valuable insights. Future studies could also examine other mediating roles, such as employee commitment, in different contexts, such as local organizations or broader organizational settings.

7. Green Supply Chain Management (GSCM)

Green Supply Chain Management highlights the importance of environmental dimensions across the entire supply chain and shifts the relationship between companies and suppliers from competitive to cooperative behavior (Noci, 1997). A key question that arises is how to measure environmental performance in an integrated supply chain to manage future performance. This question has led to research by Genovese et al. (2014); Green et al. (1998); McIntyre et al. (1998); Nagel (2002) and Rosič and Jammernegg (2013), which discusses the application of indicators, frameworks, and mapping of environmental impacts to facilitate comparisons.

Implementing GSCM can achieve benefits for environmental performance and competitive advantage (Baboulet & Lenzen, 2010; Chiou et al., 2011; Lee et al., 2015), and improve product promotion, which can reduce operational costs even though it may increase environmental costs (Paksoy et al., 2011). Other results show varying impacts across the value chain, influenced by technology (Ardito & Dangelico, 2018; Costantini et al., 2017), environmental regulations, customer roles, or a combination of both (Lopes de Sousa Jabbour et al., 2017); as well as customer and cost drivers (Athanassiadis et al., 2018; Wang et al., 2018). The findings suggest that if companies effectively implement GSCM, they can achieve improved environmental performance and increased opportunities for differentiation in the future (Abu Seman et al., 2019; Ardito & Dangelico, 2018; Laari et al., 2018; Somjai & Jermsittiparsert, 2019). Further research could be applied with a broader geographical scope to facilitate easier generalization. Additionally, future studies could address issues related to Green Supply Chain Management (GSCM) by focusing on non-linear relationships, mediation, and moderation, as suggested by (Laari et al., 2018). Moreover, considering the complexity of regulatory pressures, customer and supplier pressures, as well as economic pressures, could be integrated to confirm the results obtained.

8. Management Information System

In the early years of research on environmental performance, the focus was on measurement indicators and strategies applied through conceptual frameworks for environmental management systems (e.g., Ammenberg et al. (2002); Lothe et al. (1999); Thoresen (1999). A fundamental issue here is the varying and subjective definitions, which makes them unclear and not explicit (Nawrocka & Parker, 2009). Some studies propose using media (e.g., web-based) as a communication strategy (Adams & Frost, 2006). Additionally, the development of systems such as Quality Function Deployment (QFD) and Life-Cycle Analysis (LCA) is used to link environmental consequences with system configurations (Löfgren & Tillman, 2011; Santos et al., 2011; Utne, 2009). This system development becomes an engineering system to translate stakeholder needs into detailed system requirements throughout the lifecycle, evaluating environmental impacts and system development costs.

Other research also addresses the implementation of Environmental Management Systems, represented by a set of certification evidence, to signify legal compliance and commitment to environmental improvement. However, it is not used as a method to measure continuous improvement. Therefore, research considers ISO as one of the adequate performance assessment and monitoring indicators. The benefits offered by ISO practices for companies include internal motivation and driving forces for achieving internalization value (Aravind & Christmann, 2011; Comoglio & Botta, 2012; Qi et al., 2012). Considering previous research developments, future studies could develop software with environmental performance evaluation models to be used as environmental practice strategies. Additionally, based on Schniederjans and Hales (2016), future research could integrate different cloud computing applications to effectively manage competitive advantages from various perspectives. Other studies might use different methods to obtain detailed perspectives.

9. Management Strategics

Management strategy outlines the organization's goals, resources, and how a policy or decision can work effectively to achieve strategic objectives. In this area, we have a broader scope that includes cost management and cost accounting. This area ensures how diversity in creating standards maintains long-term consistency with important and absolute measurements. The second period of research on this topic Azzone and Manzini (1994); Azzone and Noci (1996); Eagan and Joeres (1997); James (1992); Noci (1997) shares a similar focus.

Based on previous research focuses, it is hoped that this can be developed into environmentally friendly strategies with performance measurements that consider the company's contributions. From various perspectives, the values formed should be communicated clearly so that employee actions in operations can impact environmental performance. We can ensure that research in this area aims for similar goals. As research evolves, strategic management capabilities are tested through various roles, such as knowledge and information flow (Lee et al., 2006), market orientation, and employee environmental involvement (Chen et al., 2015). Our findings indicate that positive effects on environmental performance are one outcome of strategic alignment capabilities where management is responsible for maximizing shareholder wealth. However, investors may also be skeptical about the company's ability to sustain environmental efforts, which might be perceived as value-destructive activities. From this, we underscore the importance of examining factors that determine competitive advantage (costs, etc.) in enhancing environmental resources to maintain performance superiority. Companies also need to study the results of environmental performance efficiency measurements and compare them. For us, as long as the standards and indicators used are not solidly aligned with the company, they do not convey meaningful information. Furthermore, in-depth research focusing on company characteristics should be conducted more carefully.

10. Security Market Return

Security market return discussing the stock market's response to the emergence of news or reports released by companies, we also agree that market reactions are purely speculative and may be difficult to use as a standalone proxy. There are many specific considerations for explaining how a market reaction occurs. The study by Lorraine et al. (2004) examines the impact of environmental performance on stock prices. The results show that the stock market response to news detailing fines generates a reaction after one week of the news release. Furthermore, we do not provide directions for future research due to the limited number of articles in this area.

CONCLUSIONS AND SUGGESTION

This study reviews 49 years of attention to *environmental performance* by "*Business Management Accounting*" in SCOPUS through a systematic literature review analysis. The research analyzes 244 sample articles from the period of 1972 to November 2021. As a result, we were able to answer research questions related to trends in "*environmental performance*" analyzed based on *topics, research settings, theories, methodologies, and primary data analysis techniques.* This study also highlights potential future research opportunities based on previous studies. However, we acknowledge the limitations of our research. Specifically, we did not include articles with the keywords "*Corporate Social Responsibility*" or "*Environmental Social and Good Governance*" that focus on environmental issues.

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