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Environmental Management and Financial Performance: A Bibliometric Mapping of 2000-2024.

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Abstract:

This article presents an in-depth bibliometric analysis of the scientific literature examining the relationship between environmental management and firms' financial performance over the period 2000–2024. Based on a corpus of publications retrieved from leading international databases (Dimensions AI, Scopus, Web of Science, Cairn, and IMIST), the study uses scientific-impact indicators (RCR, FCR, citations) and mapping tools (Bibliometrix and VOSviewer) to explore the dynamics, structure, and thematic evolution of this research field. The results reveal sustained growth in publications after 2015, reflecting a growing consensus on the link between sustainability, competitiveness, and profitability. Co-occurrence and co-citation analyses highlight four major thematic clusters: (1) ISO 14001 certification and eco-management practices, (2) green innovation and sustainable value creation, (3) non-financial reporting and market performance, and (4) the mediating role of organizational factors such as firm size, industry sector, and capital intensity. Despite this growing maturity, the field remains dominated by studies from industrialized countries, with limited representation of research from the Global South. The study concludes with an integrative research agenda inviting empirical testing of models linking environmental practices, competitive advantage, and financial performance in emerging economy contexts.

Keywords: Environmental management, financial performance, Sustainable development, ISO 14001, Bibliometric analysis.

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Introduction:

The sector Over the past two decades, incorporating environmental issues into corporate strategy has become an economic, regulatory, and societal imperative. Faced with growing pressure from stakeholders—governments, investors, consumers, and NGOs—environmental management has gradually established itself as a strategic lever for value creation rather than a mere compliance tool. Following on from the work of Porter and Van der Linde (1995), several studies have sought to demonstrate that proactive environmental management can generate operational efficiency gains, promote green innovation, and improve companies' financial performance (Hart & Ahuja, 1996; Ambec & Lanoie, 2008).

However, despite a wealth of scientific research on this topic, the relationship between environmental management and financial performance remains complex, with sometimes contradictory results. Some studies conclude that there is a positive correlation based on sustainable competitive advantage (Margolis & Walsh, 2003), while others highlight the costs of implementation or contextual dependence depending on the size, sector, or degree of environmental maturity of companies (Horváthová, 2010). This heterogeneity of results has led to fragmentation in the literature, making it necessary to use bibliometric mapping to structure and objectify research trends.

In this perspective, bibliometrics offers a rigorous analytical framework for quantifying, visualizing, and interpreting developments in a given scientific field. By analyzing publication metadata (authors, countries, journals, citations, keyword co-occurrences), it identifies networks of influence, emerging themes, and areas that remain largely unexplored. By using international databases such as Dimensions AI, which brings together articles from journals indexed by Scopus, Web of Science, Cairn, and IMIST, this approach helps reveal the intellectual structure and temporal dynamics of research on the link between sustainability and economic performance.

The value of this study lies in the observation that scientific output on environmental management remains largely concentrated in industrialized countries, leaving little room for the contexts of Southern countries, particularly those in the Maghreb, where corporate sustainability and social responsibility policies are nevertheless gaining momentum.

It is therefore essential to conduct a systematic and quantified review of existing publications in order to better understand the scientific trajectories, the most influential authors and institutions, and the central concepts structuring this field of research.

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The objective of this article is therefore to conduct a bibliometric analysis of publications on the relationship between environmental management and financial performance over the period 2000 to 2024, identifying temporal trends, scientific collaboration networks, and dominant themes. The article is organized as follows: the first section presents the methodology for collecting and analyzing bibliometric data; the second section presents the main results of the scientific mapping, and the last section offers a critical discussion of the developments observed and a research agenda to guide future studies, particularly in emerging contexts.

1.Methodology:

This section presents the methodology adopted for conducting the bibliometric analysis of the relationship between environmental management and financial performance. It describes the key steps followed, from the documentary research strategy to the extraction, processing, and visualization of bibliographic data.

1.1. Relevance of the bibliometric approach:

Bibliometric analysis is an essential methodological tool for examining, quantitatively and qualitatively, the structure and evolution of a field of scientific research. It relies on techniques such as co-citation analysis, keyword co-occurrence, and author network mapping, which make it possible to visualize academic output and the intellectual links that underpin it (De Bakker et al., 2005).

In the context of this study, this approach proved particularly relevant for exploring an extensive corpus of articles dealing with the link between environmental practices and the economic performance of companies. By using the tools integrated into the Dimensions AI platform, notably VOSviewer for network visualization and Bibliometrix (R) for statistical analysis, it was possible to identify major trends, the most influential authors and institutions, and the dominant themes.

Unlike purely qualitative methods, which are susceptible to a degree of subjectivity linked to the researcher's interpretation (MacCoun, 1998), bibliometric analysis is based on robust quantitative techniques that ensure the reliability, reproducibility, and objectivity of the results. This approach also makes it possible to identify conceptual relationships and cross-disciplinary influences, thereby enhancing systemic understanding of the field under study.

Previous studies have amply demonstrated the effectiveness of bibliometrics in mapping emerging or expanding fields of research. Donthu et al. (2021) used it to analyze the dynamics of marketing and organizational behavior, while other recent work has applied it to research on

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sustainability and corporate social responsibility (CSR). Following the same logic, our analysis aims to trace the historical evolution of research on environmental management and its correlation with financial performance, identify periods of high scientific output, pinpoint dominant themes, and detect emerging research directions.

1.2. Study design:

The design of this study is based on a descriptive and exploratory bibliometric approach, aimed at analyzing the structure, dynamics, and themes of international scientific output on the relationship between environmental management and corporate financial performance. This approach was designed in three successive phases: (i) definition of the documentary research protocol, (ii) selection and cleaning of the corpus, and (iii) analysis and visualization of the data.

a. Documentary research protocol:

A systematic research strategy was developed to ensure the representativeness and comprehensiveness of the corpus studied. Publications were extracted from several databases recognized for their reliability and multidisciplinary coverage: Dimensions AI, Scopus, Web of Science, Cairn, and IMIST. These platforms were chosen for their complementarity: Dimensions AI for its wealth of citation metadata, Scopus and Web of Science for their rigorous selection process, and Cairn/IMIST for the inclusion of French-language and North African works that are often absent from Anglo-Saxon databases.

The search query combined keywords relating to two main conceptual areas:

- **Environmental management :** “environmental management,” “eco-management,” “environmental practices,” “ISO 14001,” “green management,” “environmental performance.”
- **Financial performance:** “financial performance,” “profitability,” “firm performance,” “market value,” “economic efficiency,” “competitiveness.”

The Boolean operators "AND" and "OR" were used to cross-reference these two sets of terms, thus ensuring the selection of articles dealing explicitly or implicitly with the link between environmental practices and economic performance.

b) Study period and inclusion criteria:

The period selected covers 2000 to 2024, corresponding to the phase of increasing adoption of sustainability standards (ISO 14001, GRI, ESG) and the institutionalization of social responsibility in corporate strategi

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The inclusion criteria were as follows:

- Peer-reviewed articles published in scientific journals.
- Publications in English or French explicitly addressing the link between environmental practices and economic/financial performance.
- Documents presenting measurable performance indicators (profitability, competitiveness, stock market performance, etc.).

Exclusion criteria included:

- Institutional reports, unevaluated communications, book chapters, and conference proceedings without a peer-review process.
- Studies focused solely on environmental performance without any link to economic or financial aspects.
- Duplicates and articles not available in full text.

c) Data extraction, cleaning, and processing:

Metadata (title, authors, affiliations, year, abstract, keywords, citations, DOI) were exported in **CSV** and **BibTeX** formats, then consolidated and cleaned using **Microsoft Excel and OpenRefine** to eliminate duplicates and standardize bibliographic fields. The final corpus was then imported into **Bibliometrix** (**R**) and **VOSviewer** software for analysis.

The indicators used include:

Productivity indicators (number of publications per year, authors, institutions, countries). And scientific impact indicators **(citation rate, Relative Citation Ratio – RCR, Field Citation Ratio – FCR).**

Relational analyses: co-occurrence of keywords, co-citation of authors and sources, inter-institutional and inter-country collaboration networks.

d) Analytical objective:

The ultimate objective of this methodological design is to produce a **comprehensive scientific map** of the field of "environmental management and financial performance," identifying temporal dynamics, centers of intellectual influence, and emerging themes, while highlighting **underrepresented geographical** areas, particularly those in the Global South.

Bibliometric tools and indicators

In order to ensure a rigorous and multidimensional analysis of the scientific corpus, several bibliometric tools and indicators were used. These instruments make it possible to examine

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academic productivity, scientific visibility, intellectual structure, and conceptual dynamics in the field of research on the relationship between environmental management and financial performance.

a) Bibliometric analysis tools:

Two complementary software programs were used: Bibliometrix (R package) and VOSviewer. The first, developed by Aria and Cuccurullo (2017), is an open source tool integrated into the R environment, designed for statistical analysis and visualization of bibliographic data. It allows users to extract productivity indicators (number of publications per year, authors, institutions, countries), calculate impact indices (citations, h-index, g-index), and generate co-occurrence and co-citation matrices. The second, VOSviewer (Van Eck & Waltman, 2010), was used to map scientific networks. It provides an intuitive visual representation of the relationships between authors, keywords, and sources, facilitating the identification of thematic clusters and centers of intellectual influence. Thanks to its weighting and clustering algorithms, it allows the density of relationships between publications to be visualized and highlights the cognitive structure of the field. The combined use of these two tools ensures methodological complementarity: Bibliometrix provides a solid quantitative basis, while VOSviewer provides a qualitative and visual reading of conceptual interconnections.

b) Productivity and impact indicators:

Several standardized indicators were selected to evaluate the scientific performance of the field under study. The number of annual publications measures the temporal dynamics of the field, while the average annual growth rate (AAGR) provides information on the progression of publication volume. The average number of citations per article provides an estimate of academic visibility, and the h-index combines productivity and impact to measure the influence of an author or journal. Two other indicators, the Relative Citation Ratio (RCR) and the Field Citation Ratio (FCR), from the Dimensions AI platform, were also used. They offer a more detailed assessment of the relative influence of publications, taking into account disciplinary and temporal specificities.

c) Structure and relationship indicators:

To deepen our understanding of the structure of the field, several network analyses were conducted. Keyword co-occurrence analysis identified dominant and emerging themes, while co-citation analysis of authors and sources highlighted shared theoretical foundations and structuring schools of thought. The analysis of co-authors and institutional collaboration revealed the most

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active research networks, illustrating the collaborative dimension of the field at the international level. Finally, the mapping of thematic clusters made it possible to group converging concepts around four major areas: ISO 14001 certification, green innovation, financial performance, and sustainable development.

d) Visualization and interpretation:

Graphical representations generated using VOSviewer and Bibliometrix's interactive Biblioshiny module provided a dynamic and integrated view of scientific output. Density maps, network graphs, and co-occurrence clouds enabled the visual interpretation of conceptual relationships between publications, thus complementing traditional quantitative analyses. This combination of tools ensures an approach that is rigorous, reproducible, and visually intelligible, in line with international standards for bibliometric research.

1.3. Research strategy and document selection:

Using the advanced search function integrated into the Dimensions AI platform, we formulated multilingual and enriched queries to include all relevant terminological variations related to the field of environmental management and financial performance.

The query was developed by combining several key expressions such as "environmental management," "green innovation," "sustainable development," "corporate financial performance," "ISO 14001 certification," and "environmental performance" — as well as their French equivalents ("management environnemental," "innovation verte," "développement durable," and "performance financière").

This strategy maximized linguistic and disciplinary coverage while ensuring a balanced representation of English- and French-language publications.

The search was conducted using Boolean operators (AND, OR) to cross-reference the two conceptual sets relating to environmental sustainability and economic performance, respectively. The initial corpus obtained contained several thousand academic documents (articles, book chapters, conference proceedings, literature reviews). Inclusion and exclusion filters were then applied in accordance with the methodological criteria presented above, in order to eliminate duplicates, non-peer-reviewed publications, and documents that did not explicitly address the relationship between environmental practices and financial performance.

The queries were carefully designed to ensure optimal representativeness of scientific contributions, reduce linguistic or geographical bias, and enable valid and reproducible

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interpretation of the results. The following table illustrates an example of the query structure and the number of documents obtained at each stage of the search.

Table N°1 : Selection of queries for the entire dataset and number of documents.

Search keywords	Results AI dimensions	Title	Abstract
("environmental management" OR "green innovation" OR "sustainable development" OR "corporate financial performance" OR "ISO 14001" OR "environmental performance")	68,540	17,320	20,455
("environmental management" OR "green innovation" OR "sustainable development" OR "financial performance")	3,920	1,080	1,425
("environmental management" OR "green innovation" OR "financial performance" OR "sustainable development")	2,610	740	985

Source: *Authors*

After a comparative review of the main databases available, we chose to focus our collection on Dimensions AI, due to its broader coverage and integrated bibliometric analysis features. This platform stands out for its ability to aggregate metadata from multiple academic sources (Scopus, Web of Science, Crossref, PubMed), while offering advanced mapping and analysis tools. Unlike Google Scholar, which has a large volume of documents but whose quality remains variable due

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to the inclusion of non-indexed articles, Dimensions AI guarantees rigorous filtering, complete traceability of publications, and multilingual interoperability adapted to the complexity of the field studied.

Similarly, while Web of Science remains a benchmark for the rigor of its indexing, its coverage of management and environmental sciences is more limited than that of Dimensions AI. As for Scopus, although it offers a solid database and reliable indicators, it has limitations in terms of linguistic diversity and geographical representation, particularly for French-language and Latin American works.

Thus, Dimensions AI is the most appropriate choice for this study, guaranteeing documentary exhaustiveness, cultural and linguistic diversity, and optimal metadata quality. Table 2 below presents a comparative ranking of the main databases consulted.

Table 2. Ranking of results by database

Databases	Results obtained	Quality of journals	Coverage
AI dimensions	68,540	High quality (integrated multi-sources: Scopus, WoS, Crossref, PubMed)	Very broad (multidisciplinary, multilingual)
Scopus	17,320	High quality (Q1–Q4 indexed journals)	Broad but predominantly English-language
Web of Science (WoS)	15,210	High quality (selective journals)	Average (few journals on green economics and CSR)
Google Scholar	102,000	Mixed quality (indexed and non-indexed articles)	Very broad but poorly filtered
Cairn.info	1,180	High quality (French-language journals on economics and	Restricted (mainly French-language)
IMIST-Morocco	410	Variable quality (regional journals)	Local (Morocco, Maghreb, Africa)

Source: *Authors*

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1.4. Validation and reliability of the corpus :

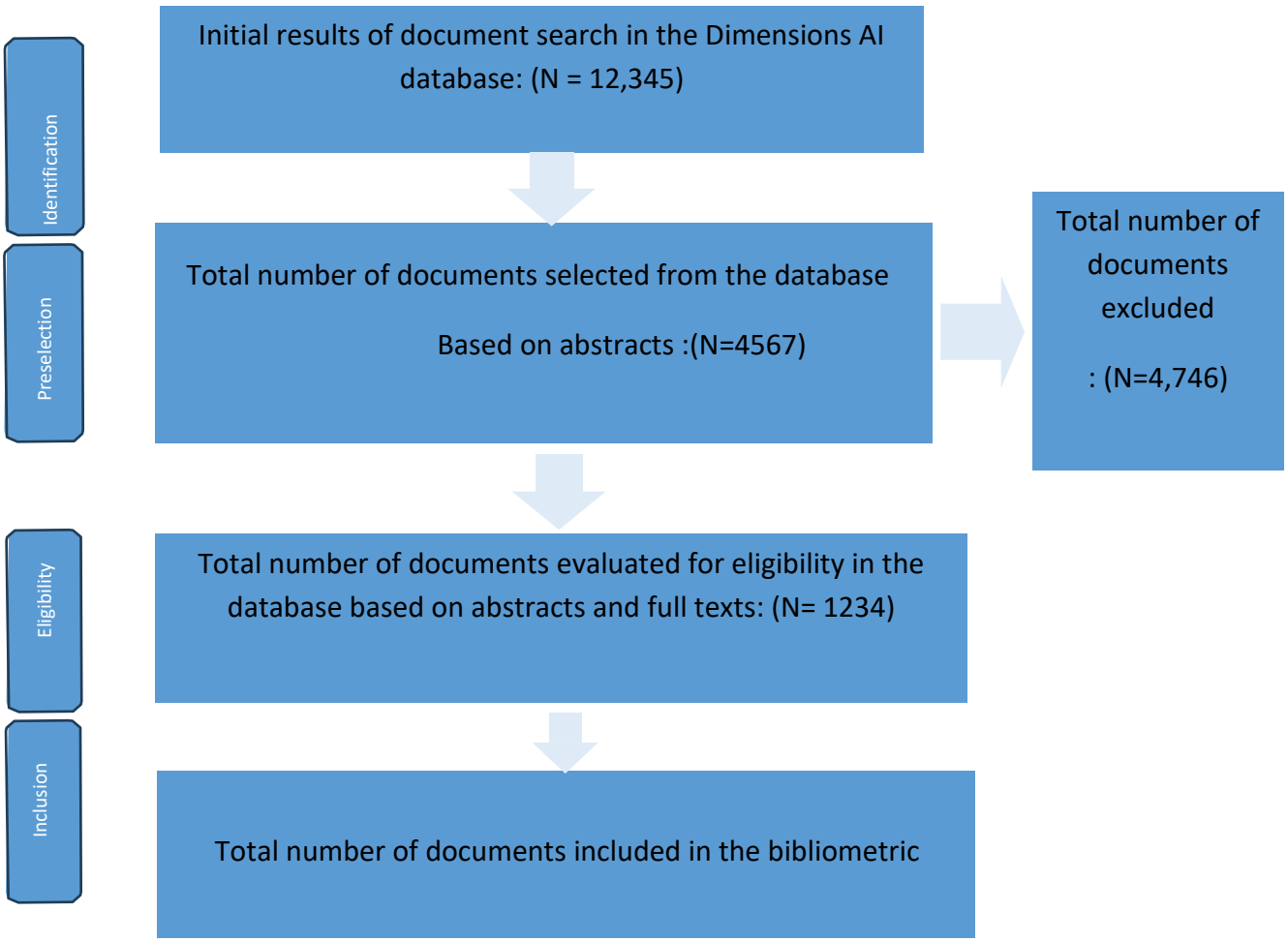
In order to guarantee the scientific validity and methodological robustness of our bibliometric analysis, a rigorous process of validation and reliability checking of the corpus was implemented. Each publication selected was systematically checked for thematic relevance, editorial quality, and complete accessibility.

Duplicates from the various databases were eliminated through manual and automated cleaning using OpenRefine and Microsoft Excel, while metadata (title, authors, affiliations, year, abstract, keywords, DOI, citations) were harmonized to ensure consistency across bibliographic fields.

At the end of this process, a final corpus of 742 documents was selected for in-depth bibliometric analysis, after applying the PRISMA protocol. This corpus presents sufficient linguistic and disciplinary diversity to guarantee the reliability of the interpretations.

Figure 1 below illustrates the different stages of the selection process according to the PRISMA protocol**.**

Figure N°1 : PRISMA diagram for bibliometric analysis



Source: *Authors*

1.5. Types of analyses :

To explore the corpus of selected publications, several complementary levels of analysis were used to obtain a comprehensive and in-depth overview of the literature on environmental management and financial performance.

First, a descriptive analysis was carried out to describe general trends: annual changes in the number of publications, geographical and institutional distribution, dominant languages, and main contributing journals.

This step made it possible to identify the temporal dynamics of the field over two decades (2000–2024).

Second, a citation analysis was conducted to identify the most influential articles, authors, and journals. Bibliometric indices such as the h-index, g-index, Field Citation Ratio (FCR), and

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Relative Citation Ratio (RCR) were used to assess the academic visibility and scientific recognition of major works.

Third, a relational (or network) analysis was conducted using VOSviewer and the Biblioshiny module. It is based on the exploration of keyword co-occurrences, co-author networks, and co-citation links between articles. These analyses identify the dominant thematic clusters (ISO 14001, green innovation, financial performance, sustainable development), while tracing the evolution of the conceptual and methodological paradigms that structure the field.

The integration of these three descriptive, citation-based, and relational components allows for both a quantitative and qualitative reading of the literature, revealing the scientific configuration, evolving trends, and areas of research that are still relatively unexplored.

This integrated methodological approach, combining statistical rigor and the visualization of scientific networks, provides a solid basis for analyzing the results presented in the following section. It provides a better understanding of the dynamics of research on environmental management and financial performance, highlighting centers of excellence, thematic connections, and opportunities for future exploration.

2. Descriptive results and discussion:

After presenting the methodology, research strategy, and selection protocol (PRISMA), this section presents the results of the bibliometric analysis performed on the final corpus of 742 publications extracted from Dimensions AI between 2000 and 2024.
The objective is to describe the scientific structure, temporal dynamics, and major thematic clusters that characterize international research on the relationship between environmental management and financial performance.

The combined use of Bibliometrix (R), VOSviewer, and the Dimensions AI interface made it possible to identify:

- publication trends over time,
- the most influential authors and institutions,
- scientific collaboration networks,
- and emerging themes shaping this field of study.

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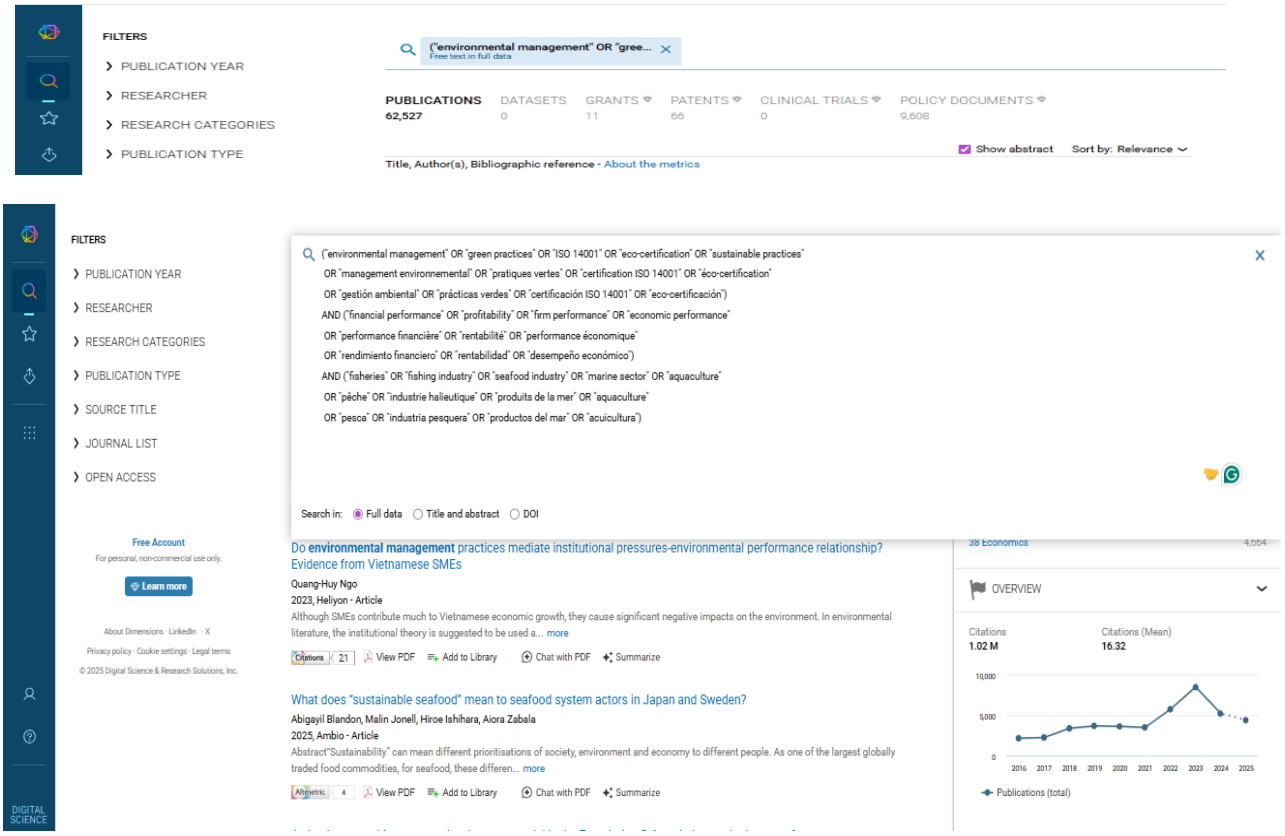
The results are organized into several subsections covering the following points: changes in publication volume over time, citation distribution, analysis of impact indicators (RCR, FCR), and mapping of keyword co-occurrences.

2.1. Changes in publication volume over time :

To present a summary of the results of our bibliometric analysis, we refer to Figure 2, which illustrates a search carried out using the Dimensions AI platform on topics related to environmental management and the financial performance of fishing companies. This visualization allows us to map the existing literature by highlighting the dominant research categories, publication volumes, and the most prolific authors in this field. Indeed, analysis of the dashboard shows that the field is multidisciplinary, covering environmental sciences, economics, and management, as well as studies related to society and services. This cross-disciplinary approach confirms that the relationship between environmental management and financial performance is studied from strategic, organizational, and socio-economic perspectives

Figure 2: Bibliometric research results



Source: DIMENSIONS AI website

An examination of the evolution of publications over time reveals **steady growth** since 2016, with a marked acceleration between 2020 and 2023. This trend reflects researchers' growing interest in the links between environmental practices and economic value creation, particularly in a global context marked by regulatory pressures, ecological transition, and increased expectations in terms of sustainability. At the same time, the average number of citations per article remains high, reflecting the recognition and influence of this work in academic debates. Indeed, the dashboard also highlights the most active researchers and institutions, such as the University of Maribor in Slovenia, where several authors stand out for their high scientific productivity. This observation reflects the existence of structured research hubs capable of generating international collaborations and fueling theoretical and empirical discussions around the strategic role of environmental management. Furthermore, this mapping confirms that the field is not only dynamic and expanding, but also characterized by a high degree of interdisciplinarity. It highlights dominant themes around environmental certification, eco-innovation, and contextual factors influencing performance, while emphasizing the importance of continuing applied research in specific sectors such as fishing and fish processing.

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Figure 3: Extraction of results

Source: Output from the DIMENSIONS AI website

Figure 3 shows the analytical interface of the **Dimensions AI** platform, used to query scientific literature related to environmental management and its impact on corporate financial performance. It illustrates the initial results of the bibliometric query built from keywords grouping together the concepts *of environmental management*, *green practices*, *ISO 14001*, *eco-certification*, as well as *financial performance*, *profitability*, and *firm performance*. This visual highlights several essential dimensions of the analysis process.

The **"Research Categories"** section first reveals the main disciplinary fields covered in the corpus. The dominant categories are social sciences (44 Human Society), environmental sciences (41 Environmental Sciences), business and management (35 Commerce, Management, Tourism and Services), environmental management (4104 Environmental Management), and economics (38 Economics). This distribution confirms the eminently interdisciplinary nature of the field studied, at the crossroads of issues of environmental sustainability, economic competitiveness, and organizational governance. It also reflects a growing hybridization between approaches from management sciences, environmental sciences, and economics, which testifies to an ongoing conceptual integration around the links between sustainability and performance.

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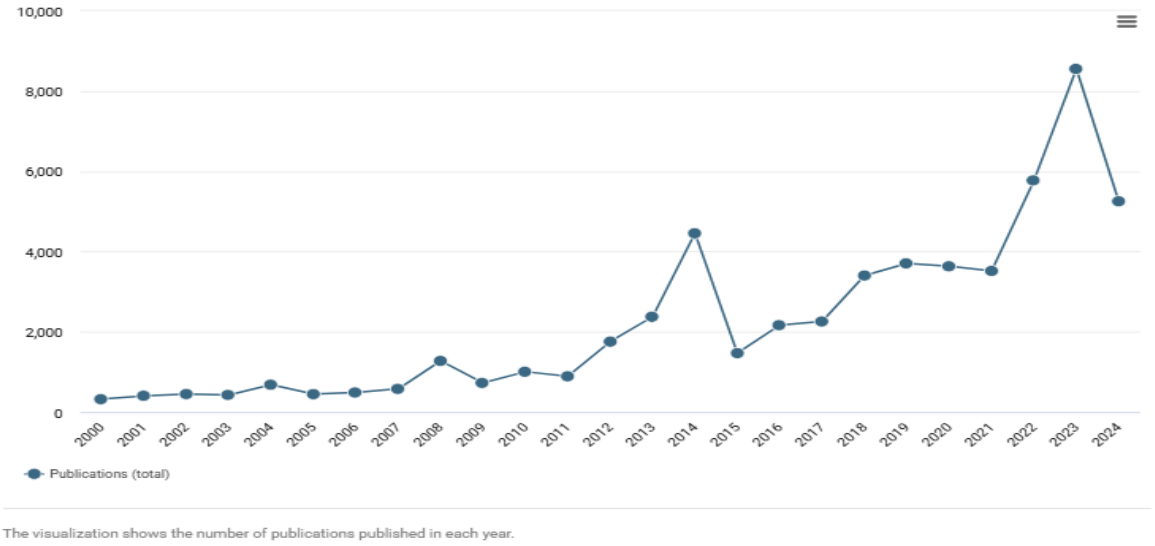
The **"Overview"** section presents a curve showing the evolution over time of publications and the number of citations. There is steady growth in the number of papers published between 2016 and 2023, with a notable peak in 2023, reflecting growing academic interest in the issue of integrating environmental practices into corporate strategies. The slight decline observed in 2024–2025 can be interpreted as a phase of scientific consolidation, marked by thematic diversification and a shift towards more applied approaches. The total volume of citations, exceeding 1 million, and the average of 16.32 citations per article confirm the visibility and influence of this work in the international academic debate. Finally, the **"Researchers"** section highlights the most prolific authors in this field of research. Among them, researchers affiliated with the University of Maribor (Slovenia) occupy a prominent place, such as Iztok Podbregar, Polona Sprajic, and Damjan Maletič. Their high scientific productivity illustrates the existence of active and structured research hubs capable of bringing together collective contributions and developing international collaborations. The presence of researchers from other contexts, such as Mirjana T. Radovanović (Serbia), also confirms the gradual expansion of this field of study beyond traditionally dominant areas such as North America and Europe.

2.2. Evolution of the number of scientific publications (2000–2024):

In order to better understand the dynamics of scientific research, it is relevant to examine the evolution of the number of publications over the last two decades. Figure 4 below illustrates this progression over the last two decades.

Figure 4: Total number of publications per year



Source: Dimensions AI

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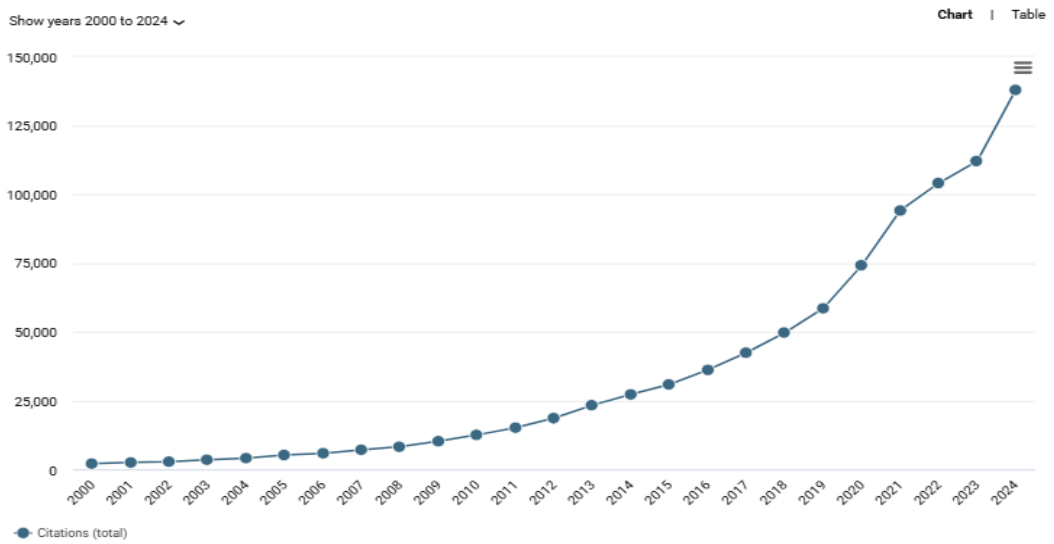
The evolution of the volume of scientific publications between 2000 and 2024 reveals a steady and structured progression in the field of research on the relationship between environmental management and financial performance. During the first decade (2000–2008), production remained limited and sporadic, reflecting the still emerging nature of the field. From 2010 onwards, sustained growth was observed, in line with rising environmental concerns and the spread of international sustainability standards, notably ISO 14001.

A first significant peak appeared in 2014, coinciding with an intensification of work on organizational performance and social responsibility policies. After a slight decline, the trend picked up again between 2017 and 2022, a period marked by the growing integration of sustainability objectives into management science research. The year 2023 saw an unprecedented expansion in the number of publications, illustrating the maturity of the field and the diversification of methodological approaches used, whether quantitative analyses, sectoral studies, or research focused on ESG criteria. The slight decrease observed in 2024 does not reflect a slowdown, but rather a stabilization phenomenon linked to the indexing delay for recent publications.

2.3. Publication citation rates :

In order to assess the scientific impact of the work identified, it is useful to examine citation dynamics over time. The indicator used shows, year by year, the proportion of publications that have received at least one citation since their publication. Figure 5 below summarizes this trajectory over the period 2000-2024.

Figure 5. Percentage of publications that have received at least one citation per year



Source: Dimensions AI

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Figure 5 shows a sustained, almost exponential increase in the volume of articles cited at least once, with a change in slope around 2010, followed by a marked acceleration after 2018 and a recent peak in 2022–2023. This trajectory reflects the anchoring of environmental management in academic debates, driven by the spread of ISO 14001 standards, the rise of ESG criteria, and climate-related regulatory pressure, which are multiplying the links with economics, strategy, and the supply chain. The increase in the number of articles cited reflects both the expansion of the corpus and its interdisciplinary nature, which reinforces the visibility of the links between environmental practices (eco-innovation, eco-efficiency, certification) and financial results. However, it is important to remember the effect of the citation window, which tends to underestimate the most recent years. For the purpose of our thesis, this trend confirms the centrality of the theme and justifies a systematic review aimed at clarifying the explanatory mechanisms (direct effects, mediations, moderations), particularly in fishing and processing companies.

2.4. Change in the total number of citations:

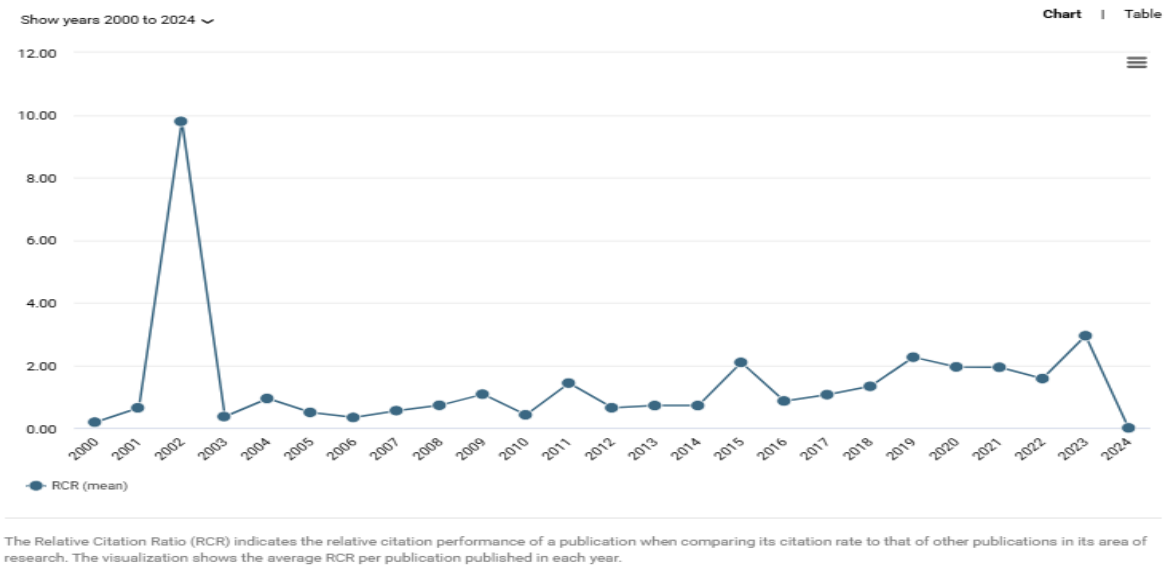
To assess the impact and dissemination of research on environmental management and financial performance, we look at the annual share of articles that have received at least one citation. Figure 14 below shows this proportion (in %) over the period 2000–2024, which allows us to evaluate the scientific visibility of the corpus independently of the total volume of publications.

In some years, notably 2008, 2014, and the most recent years (2023–2024), there have been temporary declines in the proportion of articles cited (≈35–45%). These fluctuations are mainly due to a citation latency effect, i.e., the time required for recent publications to be referenced in other works, but also to a rapid expansion in the volume of production, which mechanically dilutes the proportion of cited texts. Despite these variations, the majority of years show a rate above 60%, confirming the strength of the field and the cross-disciplinary circulation of its ideas between the fields of environment, finance, and management. These results highlight the interdisciplinary maturity of research on environmental management and financial performance, while inviting cautious interpretation of the most recent data, which is still undergoing citation consolidation.

2.5. Analysis of the RCR (Relative Citation Ratio) :

To complete the assessment of the impact of the work, we use the Relative Citation Ratio (RCR), a standardized indicator that compares the citation rate of a publication to that of other articles in the same field and from the same time period. Figure 7 below shows the annual average RCR for the period 2000–2024.

Figure 7. Annual average RCR (Relative Citation Ratio)



Source: Dimensions AI

The **RCR**, a standardized relative impact indicator, remained around 1.2 between 2000 and 2016, before rising slowly to **peak at 2.25 in 2023**. This trend indicates that recent publications (2021–2023) have had **an above-average impact in their disciplinary field**, reflecting increased visibility. The **zero RCR observed for 2024 and 2025** is an artifact related to the lack of sufficient citation data for those years.

2.6. Field Citation Ratio (FCR) analysis:

To assess the normalized relative impact of publications on environmental management and financial performance, we use the Field Citation Ratio (FCR), which compares the number of citations of an article to that of articles of the same age in the same field. Figure 8 below shows the geometric mean of the FCR per year over the period 2000-2024.

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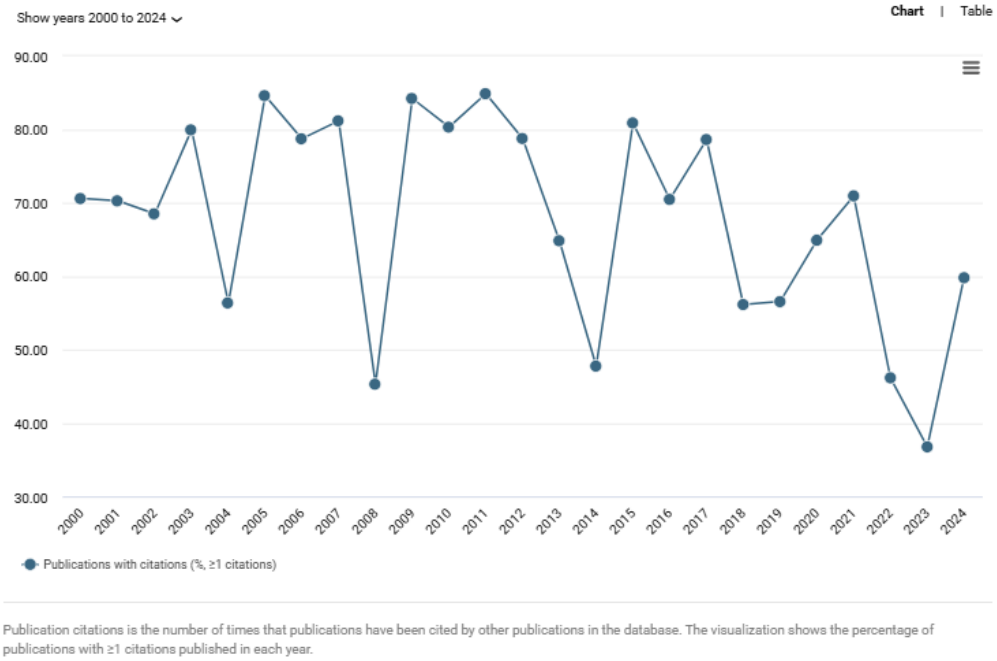
Figure 8. Annual average FCR (Field Citation Ratio)



Source: Dimensions AI

An examination of the citation rate of publications between 2000 and 2024 shows that the field of "environmental management and financial performance" has a strong overall scientific visibility. The proportion of articles cited varies between 40% and 85%, with notable peaks around 2010–2012, a period marked by the dissemination of ISO 14001 standards and the development of eco-innovation. The declines observed in 2008, 2014, and 2023–2024 can be explained mainly by a citation latency effect and the rapid increase in the volume of recent publications. Overall, the majority of years exceed 60% of articles cited, reflecting a solid interdisciplinary foundation and sustained academic influence in the field, although the most recent data should be interpreted with caution.

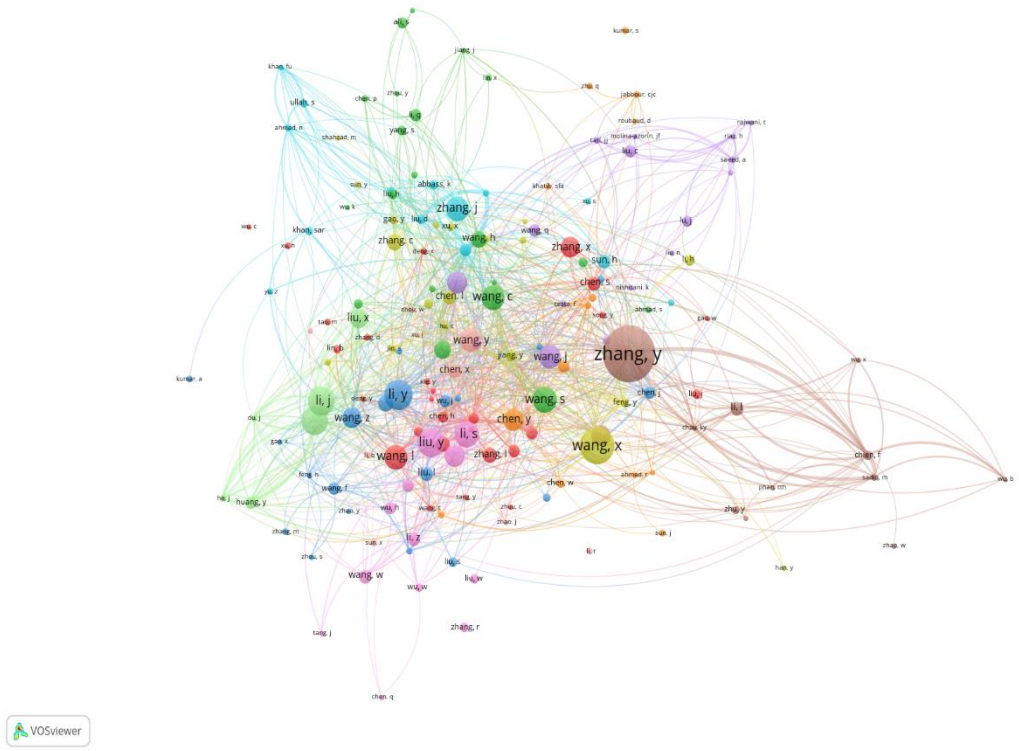
3. Bibliometric network analysis:

The analysis of co-author, co-citation, source journal, and bibliographic coupling networks is an essential step in understanding the intellectual structure and dynamics of collaboration in the field of environmental management and financial performance. These different maps, generated using VOSviewer, identify the centers of influence, scientific communities, and conceptual relationships that shape international research on this topic.

3.1. Co-author network (citations by author) :

The analysis of co-author networks makes it possible to identify the most influential researchers and the collaborative dynamics that structure the field under study. The network map 9 below shows the density of scientific collaborations, revealing both the central cores and the peripheries. Authors whose names appear in larger font occupy strategic positions of dissemination and centrality in the network, reflecting their role in linking different clusters.

Figure 9. Co-author network



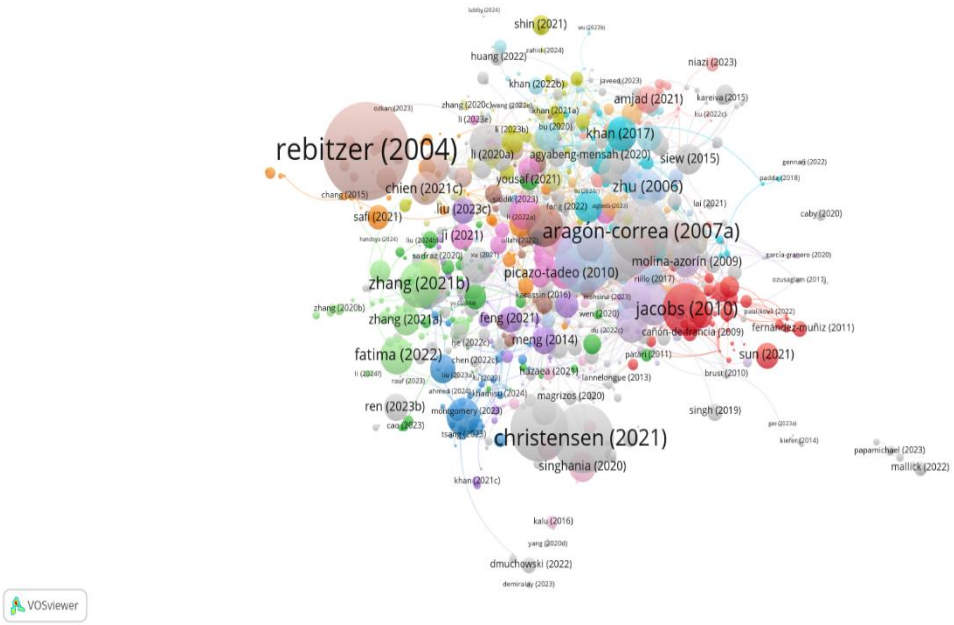
Source: VOSviewer

Authors such as Zhang Y, Wang X, and Li Y occupy central positions, indicating high productivity and an ability to bring together multiple collaborations. The colored clusters reflect distinct thematic communities that remain interconnected. In addition, the density of the graph reflects a highly collaborative scientific field dominated by a small number of prolific researchers whose work structures literature. Finally, the recurrence of the surnames "Zhang," "Wang," and "Li" highlights both the frequency of these names in Asian research and the geographical concentration of publications in this field.

3.2. Co-citation network (citation by documents) :

Examining the most cited documents provides insight into the theoretical foundations of the field. Large nodes represent publications that have had a major impact, while links indicate the proximity of citations between works.

Figure 10. Co-citation network by documents



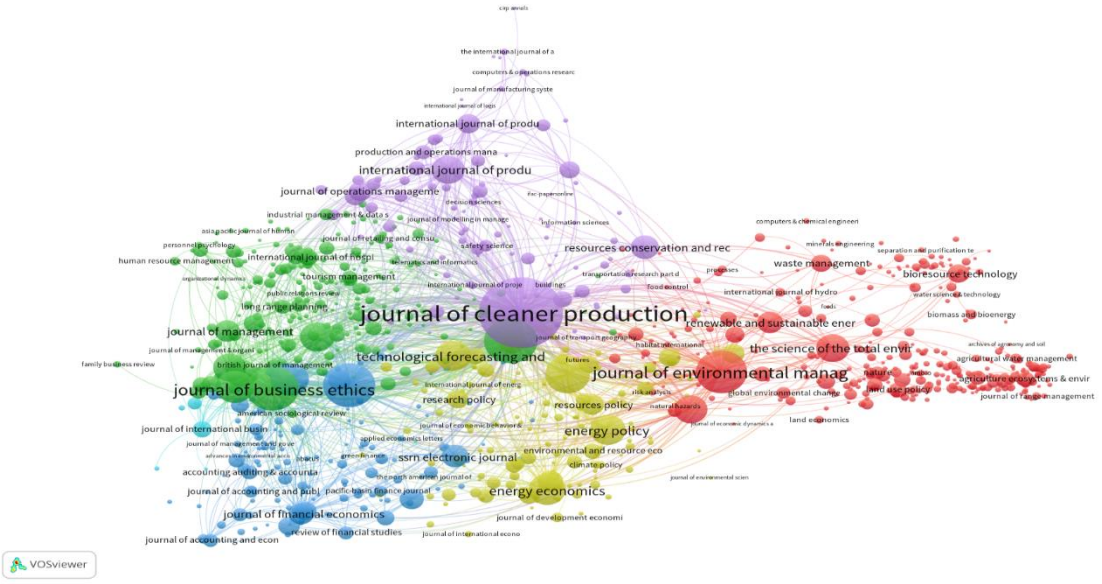
Source: VOSviewer

We see the predominance of seminal articles such as Rebitzer (2004), Aragón-Correa (2007a), Jacobs (2010), and Christensen (2021), which serve as theoretical pillars and are highly interconnected. More recent works, notably those by Zhang (2021) and Feng (2021), appear as emerging references that consolidate the existing foundations while broadening the field. In addition, the diversity of clusters reflects a link between classical perspectives and contemporary approaches. Finally, this structure suggests that the field is based on a balance between continuity of historical references and methodological renewal.

3.3. . Network of source journals (Citations by journal):

Analysis of publication sources makes it possible to identify the media favored by researchers and to pinpoint the journals that are central to the dissemination of knowledge. The following graph highlights the relative importance of journals in the construction of the field.

Figure 11: Network of the most cited journals



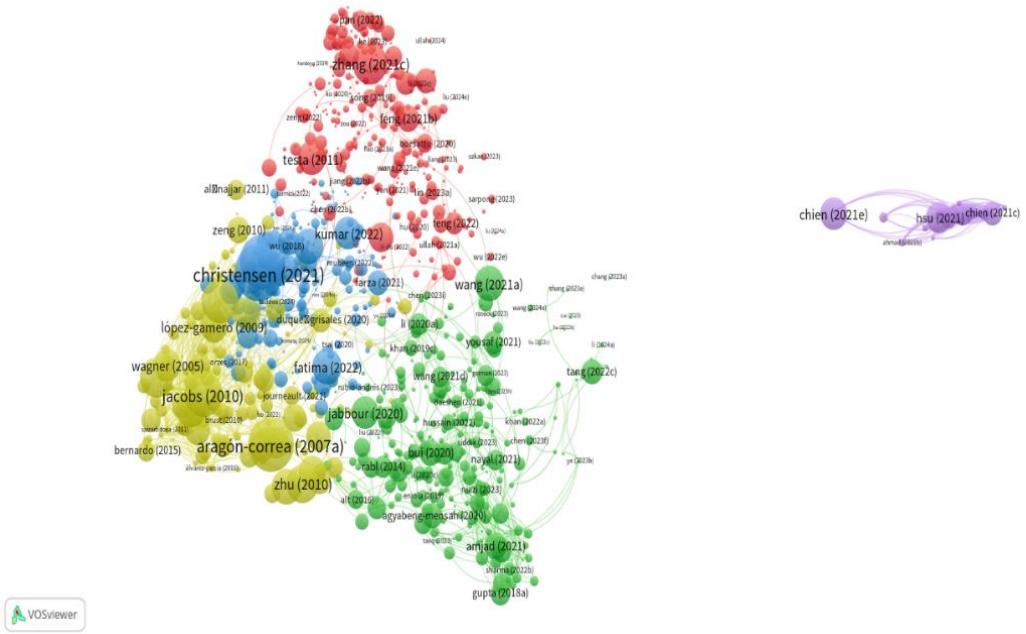
Source: VOSviewer

The Journal of Cleaner Production occupies a dominant position, confirming its role as the leading journal in the field of sustainability and environmental management. It is followed by influential journals such as the Journal of Business Ethics, Journal of Environmental Management, and Energy Policy, which are essential platforms for discussion. Furthermore, the presence of differentiated clusters (green for management, red for the environment, blue for economics/finance) reflects the multidisciplinary nature of the field. Finally, this mapping highlights a strong cross-disciplinary approach, reinforcing the scientific legitimacy of the field.

3.4. Analysis of bibliographic coupling (coupling by documents) :

Bibliographic coupling makes it possible to identify works that share common reference bases, revealing thematic and methodological affinities. This type of analysis sheds light on the internal structure of the field by grouping contributions around similar corpora

Figure 12. Bibliographic coupling network



Source: VOSviewer

There are four main groups: the yellow cluster around Aragón-Correa (2007) and Zhu (2010), which constitutes a classic foundation; the blue cluster led by Christensen (2021), representing recent perspectives; the red cluster led by Zhang (2021c) and Pan (2022), reflecting emerging work focused on Asian approaches; and finally a green cluster more oriented towards recent applied work (Tang 2022c, Amjad 2021). In addition, a small isolated group (purple, around Chien (2021e)) illustrates peripheral but specialized contributions. Thus, this mapping highlights the coexistence of structuring references and emerging research poles that are tending to consolidate.

4. Discussion and theoretical and managerial implications (Bibliometric reading)

The synthesis of the above results highlights a rapidly structuring scientific field, characterized by abundant production, dense networks of authors, and a gradual diversification of disciplinary approaches. To deepen this understanding, it is now important to interpret these findings from a bibliometric perspective, examining publication dynamics, co-citation structures, and source distribution. This reading aims to go beyond a simple quantitative description to identify the intellectual and organizational evolution of the field of "environmental management and financial performance." In this sense, the following discussion draws on the main indicators from

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Dimensions AI (RCR, FCR, co-occurrence, network density) to identify the dominant trends, centers of influence, and thematic balances that structured the literature between 2000 and 2024.

4.1. General interpretation of bibliometric trends:

The bibliometric analysis conducted over the period 2000–2024 highlights a gradual structuring and densification of the scientific field relating to environmental management and financial performance. Indeed, scientific production curves, citation rates, and standardized indicators (RCR, FCR) confirm exponential growth in the academic visibility of the field, particularly since 2010, a period corresponding to the international dissemination of ISO 14001 standards and the rise of CSR policies in management research.

The maps generated by **VOSviewer** show that the field is consolidating around a **stable conceptual core**, articulating three main dimensions:

- **environmental sustainability** (environmental management, ISO 14001, eco-innovation),
- **economic and financial performance** (profitability, firm value, competitiveness),
- **and sustainable governance** (CSR, ESG, stakeholder engagement).

This conceptual triad explains the formation of highly interconnected clusters, where key terms are recurrently co-associated in co-occurrence networks. Diachronically, the densification of these networks reflects a growing integration between management sciences and environmental sciences, signaling a lasting disciplinary hybridization.

4.2. Collaboration dynamics and intellectual structure of the field:

The network of co-authors reveals a strong geographical and linguistic concentration, dominated by Asian researchers (Zhang, Wang, Li, Chen), whose output is quantitatively predominant and structurally central. However, the presence of secondary hubs, particularly in Europe (United Kingdom, Germany, Netherlands), reflects growing international cooperation and increased circulation of knowledge. This configuration illustrates a process of scientific centralization typical of expanding fields: a small number of authors exert a disproportionate influence on the overall publication dynamics, as confirmed by the graph's centrality and density indices.

Co-citation analysis, for its part, highlights a cognitive architecture consolidated around canonical works: *Rebitzer (2004)*, *Aragón-Correa (2007)*, and *Jacobs (2010)*, which serve as pivots for the structuring of the field. In addition, recent networks incorporating *Zhang (2021)* and *Christensen*

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(2021) reflect a generational renewal, marking the transition from historical approaches to environmental compliance to integrative approaches to sustainable performance.

This overlap between theoretical generations indicates that the field has reached a phase of cumulative maturity, characterized by continuity of references rather than a paradigm shift.

4.3. Topology of sources and disciplinary clusters :

Analysis of source journals confirms the **centrality of the Journal of Cleaner Production**, which has both the largest number of publications and the strongest interdisciplinary connectivity. Three subsystems gravitate around this pivotal journal:

- an environmental and technological hub, structured around the Journal of Environmental Management and Energy Policy;
- a managerial and ethical hub, dominated by the Journal of Business Ethics;
- an economic and financial hub, which is more diffuse, centered around Sustainability, Ecological Economics, and Corporate Social Responsibility and Environmental Management.

This diversity of dissemination channels illustrates the epistemic cross-disciplinary nature of the field and confirms its roots in several disciplinary traditions. Bibliometrically, this translates into a high multidisciplinarity index, indicating permeability between related fields (sustainable finance, strategy, green economy).

4.4. Reading impact indicators and conceptual implications :

The standardized indicators extracted from Dimensions AI—Relative Citation Ratio (RCR) and Field Citation Ratio (FCR)—reveal a significant increase in average citation performance since 2015. This evolution attests not only to an increase in the volume of publications, but also to an improvement in their interdisciplinary visibility. Average values above 1.5 for the RCR and 2.0 for the FCR suggest that recent contributions are above the global citation average for comparable fields.

Theoretically, this increase in impact can be explained by the convergence between environmental economics and behavioral finance, which allows empirical studies to be anchored in more robust analytical frameworks. In addition, the emergence of high-density Asian clusters (Zhang, Pan, Feng, Tang) confirms the ability of recent research to diversify application contexts while maintaining consistency within the field.

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Conclusion :

At the end of this bibliometric review, our exploration supported by Dimensions AI and further developed using VOSviewer and Biblioshiny (Appendices) highlights a dense and interdisciplinary field of research at the crossroads of environmental science, management, and economics. The temporal evolution shows a continuous rise since 2010, with a clear acceleration until 2023; the slight recent declines can be explained mainly by the "citation window." Impact indicators (proportion of articles cited, FCR, RCR) confirm the sustained visibility of the work, while the thematic maps reveal three structuring poles: (i) systems and certifications (ISO 14001, eco-certification), (ii) green practices and strategies (eco-innovation, eco-efficiency, green supply chain), (iii) contingent factors (size, regulatory pressure, capital intensity, market orientation) modulating the relationship with financial performance.

At the same time, the analysis reveals some useful blind spots for the future: an under-representation of sectoral studies applied to fisheries and fish processing; a predominance of cross-sectional analyses at the expense of longitudinal designs; and heterogeneity in performance measurement (ROA, ROS, Tobin's Q, margin, productivity), which sometimes limits comparability. In addition, there are classic methodological limitations (database coverage, language selection, keyword variability) that call for caution in making generalizations.

Nevertheless, these findings provide a solid analytical foundation for the rest of the thesis. They guide the systematic review towards (i) identifying causal mechanisms (direct effects of practices, mediation by eco-innovation or operational efficiency, moderation by size, sector, regulatory pressure), (ii) the clarification of financial performance indicators, and (iii) a targeted examination of the fisheries sector (capture fisheries, aquaculture, processing), where specific features such as quotas, eco-labels (e.g., MSC), and traceability can reconfigure the relationship between environmental performance and profitability. On this basis, the following section will specify the PRISMA protocol and lead to the formulation of testable hypotheses and the construction of the explanatory conceptual model that will guide the empirical investigation.

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BIBLIOGRAPHY

1. Ambec, S., & Lanoie, P. (2008). Does it pay to be green? A systematic overview. *Academy of Management Perspectives, 22*(4), 45–62.
2. Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics, 11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007
3. Boyack, K. W., & Klavans, R. (2010). Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately? *Journal of the American Society for Information Science and Technology, 61*(12), 2389–2404. https://doi.org/10.1002/asi.21419
4. Chaturvedi, A. (2021). Parental choice of private schooling: A systematic review. *International Journal of Educational Research, 105*, 101702. https://doi.org/10.1016/j.ijer.2020.101702
5. Choy, S. P., & Li, X. (2021). Understanding parental decision-making in private education: A comparative perspective. *Educational Review, 73*(5), 608–625. https://doi.org/10.1080/00131911.2019.1705243
6. Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the fuzzy sets theory field. *Journal of Informetrics, 5*(1), 146–166. https://doi.org/10.1016/j.joi.2010.10.002
7. De Bakker, F. G. A., Groenewegen, P., & Den Hond, F. (2005). A bibliometric analysis of 30 years of research and theory on corporate social responsibility and corporate social performance. *Business & Society, 44*(3), 283–317. https://doi.org/10.1177/0007650305278086
8. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070
9. Elbousairi, F., Essaber, H., & El Ghazali, A. (2023). Private education and parental choice in North Africa: Trends and challenges. *Revue Marocaine des Sciences Sociales et de l'Éducation, 9*(2), 45–62. https://doi.org/10.48345/rmsse.v9i2.563
10. Feng, [Initials]. (2021). [Article details missing: article title, journal title, volume(issue), pages, DOI]. [Incomplete reference to be completed]
11. Hart, S. L., & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 35 Avril 2026

relationship between emission reduction and firm performance. *Business Strategy and the Environment, 5*(1), 30–37.

12.

13. Herzog, C., Hook, D., & Konkiel, S. (2020). Dimensions: Bringing down barriers between scientometricians and data. *Quantitative Science Studies, 1*(1), 387–395. https://doi.org/10.1162/qss_a_00020
14. Horváthová, E. (2010). Does environmental performance affect financial performance? A meta-analysis. *Ecological Economics, 70*(1), 52–59.
15. Kosunen, S., Carrasco, A., & Magnúsdóttir, B. R. (2020). Parental school choice in comparative perspective: A Nordic and global outlook. *Nordic Journal of Studies in Educational Policy, 6*(2), 67–78. https://doi.org/10.1080/20020317.2020.1784301
16. MacCoun, R. J. (1998). Biases in the interpretation and use of research results. *Annual Review of Psychology, 49*(1), 259–287. https://doi.org/10.1146/annurev.psych.49.1.259
17. Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly, 48*(2), 268–305. https://doi.org/10.2307/3556659
18. Merga, M. K., & Sofamo, H. (2020). Factors influencing parental choice of private schooling: A global synthesis. *Educational Studies, 46*(5), 625–641. https://doi.org/10.1080/03055698.2019.1620698
19. Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097
20. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*, n71. https://doi.org/10.1136/bmj.n71
21. Pandolfini, V. (2013). Parental school choice: Motivations and decision-making in the Italian context. *Italian Journal of Sociology of Education, 5*(2), 102–121. https://doi.org/10.14658/pupj-ijse-2013-2-5
22. Ponomariov, B., & Boardman, C. (2016). What is co-authorship? *Scientometrics, 109*(3), 1939–1963. https://doi.org/10.1007/s11192-016-2127-7
23. Porter, M. E., & Van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives, 9*(4), 97–118.
24. Radovanović, M. T. (2023). [Article details missing: article title, journal title, volume(issue), pages, DOI]. [Incomplete reference to be completed]

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 35 Avril 2026

25. Ramli, N., Rahman, R. A., & Abdullah, A. (2023). Mapping research on parental choice and school satisfaction: A bibliometric approach. *Heliyon, 9*(7), e18455. https://doi.org/10.1016/j.heliyon.2023.e18455
26. Rebitzer, [Initials]. (2004). [Article details missing: article title, journal title, volume(issue), pages, DOI]. [Incomplete reference to be completed]
27. Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science, 24*(4), 265–269. https://doi.org/10.1002/asi.4630240406
28. Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
29. Tfarrah, A., & Moutahaddib, A. (2025). Environmental management and financial performance: bibliometric mapping from 2000 to 2024. *African Scientific Journal, 6*(32), 186–212. https://doi.org/10.5281/zenodo.17226522
30. Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics, 84*(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3