

A BIBLIOMETRIC ANALYSIS ON THE TERMS OF GLOBAL PERFORMANCE

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Abstract: *The main objective of the study was to conduct a bibliometric analysis of the specialized literature on the terms of global performance. More precisely, we used an advanced search for the terms: "enterprise performance" "financial performance", "non-financial performance", "ESG performance", "sustainable performance", "global performance", using the VOSviewer program version 1.6.20. This approach is necessary because gradually, the concept of performance began to be used in as many areas as possible, being used mainly in the economic field. Currently, the existing performance at the enterprise level is of great importance, practically any enterprise aims to obtain profit, and within a profitable enterprise we speak of enterprise performance. Currently, in addition to financial performance, non-financial performance, ESG performance, sustainable performance or global performance are increasingly being discussed. The bibliometric analysis includes: the number of articles published per year between 1976 and 2024, the number of articles published according to the country of origin of the authors of the published articles, the number of articles published according to the Web of Science Categories section, with the inclusion in the figure of the first 10 records of the total, and the cluster analysis of scientific publications.*

Keywords: *Financial performance, non-financial performance, ESG performance, sustainable performance, global performance, bibliometric analysis, Web of Science Core Collection, VOSviewer.*

JEL Classification: M41, M40, M21

1. Introduction

This study begins with an analysis of the characteristics and objectives of a bibliometric analysis. In order to obtain the data and methodology of the bibliometric analysis of the specialized literature, an advanced search was performed using the terms: "enterprise performance", "financial performance", "non-financial performance", "ESG performance", "sustainable performance", "global performance". Regarding the bibliometric analysis, an analysis of the number of articles published per year on the terms of global performance was carried out, using the search type by title. Another analysis concerns the number of articles published according to the country of origin of the authors of the published articles. The paper concludes with the analysis of the correlation of keywords, which results in the words that were found most intensely in the scientific documents: financial performance, environmental performance, corporate governance, corporate social responsibility, ESG performance, intellectual capital, stakeholder theory, sustainability, ESG. Analyzing the specialized literature, it can be observed that, over time, more and more researchers have tried to analyze the concept of performance, and recently

also the concepts of enterprise performance, financial performance, non-financial performance, ESG performance, sustainable performance, global performance. This study can be a starting point for researchers interested in the evolution of the concept of performance over time and implicitly in an analysis of the specialized literature. The objectives of the paper are:

- Presenting the characteristics and objectives of bibliometric analysis;
- Carrying out a bibliometric analysis that aims to identify works in the specialized literature.

2. Characteristics and objectives of a bibliometric analysis

The need for a performance analysis of scientific publications is determined by the rapidity with which research in all fields evolves, but also by the researcher's responsibility to provide added value by carrying out specialized studies (Oana-Daniela Lupoe, 2023)

Bibliometric analysis is a precise method of examining and analyzing a large volume of scientific information. Van Eck, N.J. and Waltman, L. (2017) established that there are three reasons why researchers use the bibliometric method: it supports the obtaining of overall scientific reviews, research evaluations are less subjective and critical summaries of scientific works can be obtained through traditional reviews.

According to the authors Van Eck, N.J. and Waltman, L., (2017), clustering techniques play a prominent role in bibliometric research. They are, for example, used to identify groups of related publications, authors or journals. Clustering techniques have been developed mainly in fields such as statistics, computer science and network science. Bibliometricians usually do not develop their own clustering techniques, but use existing clustering techniques developed in other fields. They apply these techniques to bibliometric data sets, sometimes after adapting the techniques to the specific characteristics of bibliometric data (Van Eck, N.J. and Waltman, L., 2017).

When the number of objects to be grouped is relatively limited (e.g., a few hundred objects at most), analyzing and interpreting the results obtained from a clustering technique usually does not cause significant difficulties. However, when dealing with a large number of objects, analyzing and interpreting a clustering solution is far from straightforward. This can be a problem especially when clustering techniques are applied at the level of individual publications. We may have clustering solutions that include many thousands or even many millions of publications (e.g., Boyack, K. W. and Klavans, R., 2014; Klavans, R. and Boyack, K. W., 2017; Waltman, L. and Van Eck, N. J., 2012). Understanding these clustering solutions can be a serious challenge. VOSviewer is a widely accepted software for conducting bibliometric research (Costa et al., 2017). Researchers frequently use this program to visualize and build bibliometric networks. It is used to visualize and create co-occurrence networks for the subject and/or theme that have been extracted from high-impact literature. (Lupoe, O.D., 2023)

Two views provided by VOSviewer play an important role. The first view shows the clusters in a clustering solution and the citation relationships between these clusters. The second view uses a so-called term map to indicate the topics that are covered by a cluster. This view shows the most important terms that appear in publications

belonging to a cluster and the co-occurrence relationships between these terms (Van Eck and Waltman, 2017).

Determining the relationship between publications. To group publications, we must first determine the connection between the publications. In the bibliometric literature, the most commonly used approaches to determine the relationship between publications are based on either citation relationships or word relationships (for a more extensive discussion, see Van Eck and Waltman, (2014). In the case of citation relationships, a further distinction can be made between direct citation relationships, bibliographic coupling relationships, and co-citation relationships (e.g., Boyack and Klavans, 2010); Klavans and Boyack, (2017). In the case of word relationships, shared words in the titles, abstracts, or full texts of publications serve as an indication of the relationships between publications (e.g., Boyack et. al.,2011; Janssens et. al, 2006). Sometimes, the relationship between publications is determined using a combined approach that considers both citation relationships and word relationships (e.g., Boyack and Klavans. (2010); Janssens et al., 2008).

Pranckutė (2021) points out that the most compared and used databases by the scientometric community are Web of Science (WoS) and Scopus, but no verdict has been reached on the superiority of one over the other. This author states that the importance of bibliographic databases has increased enormously, being the main providers of publication metadata and bibliometric indicators used universally both for research assessment practices and for performing daily tasks. Since the reliability of these tasks depends primarily on the data source, all users of bibliographic databases should be able to choose the most appropriate one. Web of Science (WoS) and Scopus are the two main bibliographic databases. Comprehensive assessment of the coverage of bibliographic databases is practically impossible without extensive bibliometric analyses or literature reviews, but most users of bibliographic databases do not have bibliometric competence and/or are not willing to invest additional time for such assessments. In addition, the convenience of the bibliographic databases' interface, performance, impact indicators provided, and additional tools can also influence users' choice.

By conducting a bibliometric analysis, a wide range of questions can be answered regarding the evolution of the field, the most influential and productive authors and journals, trending topics, thematic mapping, and the intellectual landscape of the field. In addition, the in-depth analysis of essential works provides insights into thematic approaches, data used, and methodological choices (Handro and Dima, 2024).

3. Data and methodology

Bibliometric analysis can be performed using a database. To access the database, we used the Web of Science Core Collection platform.

We conducted a bibliometric analysis of the specialized literature on the terms of global performance. Specifically, we used an advanced search for the terms: "enterprise performance", "financial performance", "non-financial performance", "ESG performance", "sustainable performance", "global performance".

If we search for works in all fields without putting a search filter by subject or title or author or others, then a number of 83029 articles results, which is a fairly large number for a bibliometric analysis. In this context, we performed the analysis using

the search by title, thus resulting in a number of 7311 records. It is worth noting that the title refers to the title of a journal article, a report, a book or a book chapter.

Another filter that I selected was the year of publication, I chose to take into account in my analysis all works published up to and including the end of 2024, thus avoiding taking into account works published in the current year which is not a completed year. Following the search in the bibliometric data source applying the specified filtering, a number of 7159 works resulted.

Another filter I applied was to the Web of Science Categories section, where I selected the following fields: Business Finance, Business, Economics and Management, resulting in a total of 4171 records. The 4171 articles are published starting with the first year in which articles were written on the respective topic and up to and including 2024.

The search for written works in the bibliometric data source was carried out on 19.02.2025.

4. Descriptive analysis of selected scientific publications and empirical results obtained

Number of articles published per year on global performance terms and search type by title.

The first paper written on this topic was in 1976, with 2 papers written this year. Many decades followed in which the number of papers written on this topic was still reduced or with a slight increase. Gradually, with the passage of time, the number of papers on this topic has constantly increased. As we approach the year 2020, the number of papers written on this topic has increased significantly from one month to the next, and as we approach the year 2024, the number of papers written on this topic has increased at an alarming rate.

So, most articles were written in 2024, this being the year in which the greatest research interest was recorded on the chosen topic using the search type by title, it can be seen in the table 1. At the opposite end is the year 2000, the year in which the fewest articles on the analyzed topic were published. In conclusion, I could say that in the period 1999-2006 the number of published articles was quite small, and starting with 2007 the interest in publishing articles gradually increased, with the number of published articles being more or less constant in the period 2010-2023, with the peak being recorded in 2020.

Table 1 - Number of articles published per year on global performance terms and search type by title

YEAR OF PUBLICATION	NUMBER OF REGISTRATION	PERCENT
1996	17	0.408 %
1997	7	0.168 %
1998	11	0.264 %
1999	6	0.144 %
2000	14	0.336 %
2001	12	0,288 %

2002	12	0.288 %
2003	13	0.312%
2004	11	0.264 %
2005	29	0.695 %
2006	36	0.863 %
2007	39	0.935 %
2008	47	1.127%
2009	54	1.295 %
2010	73	1.750%
2011	105	2.517%
2012	100	2.398 %
2013	99	2.374 %
2014	120	2.877 %
2015	151	3.620 %
2016	172	4.124 %
2017	188	4.507 %
2018	227	5.442 %
2019	232	5.562 %
2020	291	6.977 %
2021	346	8.295 %
2022	403	9.662 %
2023	514	12.323 %
2024	751	18.005 %

Source: Own processing based on Web of Science Core Collection

Number of published articles on global performance terms, using the search type title, by country of origin of the authors of the published articles

This analysis includes a total of 25 countries, but in order to have a readable graph, we chose to include only 15 records in the graph, i.e. the first 15 countries that fell into this ranking.

The most published works on this topic were published by researchers from China (708 articles - 16,974%), followed by the USA (638 articles - 15,296%), then India (271 articles - 6,497%), then England (255 articles - 6,114%), then Indonesia (224 articles - 5,370%), then Malaysia (190 articles - 4,555%), then Australia (168 articles - 4,028%), then Spain (148 articles - 3,548%), Italy (133 articles - 3,189%), France (117 articles - 2,805%), Romania (117 articles - 2,805%), Brazil (115 articles - 2,757%), Czech Republic (111 articles - 2,661%), Canada (108 articles - 2,589%) and Pakistan (105 articles - 2,517%), followed by 10 other countries with a small percentage, which due to the clearer visualization of the graph were no longer included in the graph.

From the graph below, it can be seen that Romania is tied with France in tenth place in the number of published papers on global performance terms, using the search type title, a good place considering that 25 countries are included in this ranking.

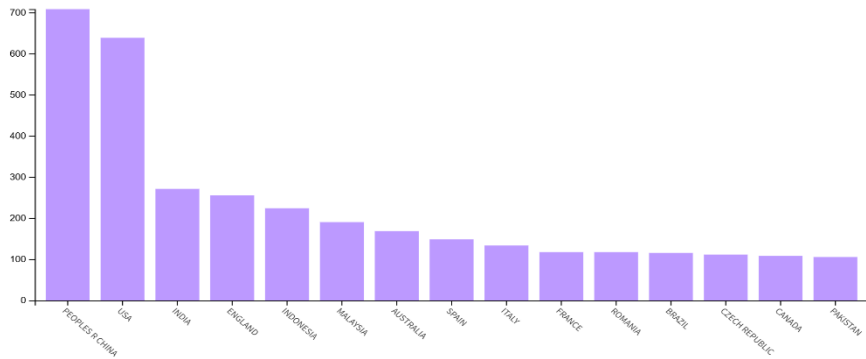


Figure 1 - Number of published articles on global performance terms, using the search type title, by country of origin of the authors of the published articles, with the first 15 records included in the figure.

Source: Web of Science Core Collection

Number of published articles on global performance terms, using the search type title, according to the Web of Science Categories section, with the first 10 records of the total included in the figure.

Most published papers on this topic were published in the fields of: Management (1735), Business (1581), Economics (1107), Business Finance (1062), Millet Studies (258), Operations Research Management Science (85), Industrial Engineering (71), Ethics (71), Sustainable Technology (57), Hospitality, Leisure, Sports Tourism (55)



Figure 2 - Number of published articles on global performance terms, using the search type title, according to the Web of Science Categories section, with the first 10 records of the total included in the figure.

Source: Web of Science Core Collection

Source: Web of Science Core Collection, own processing in VOSviewer version 1.6.20

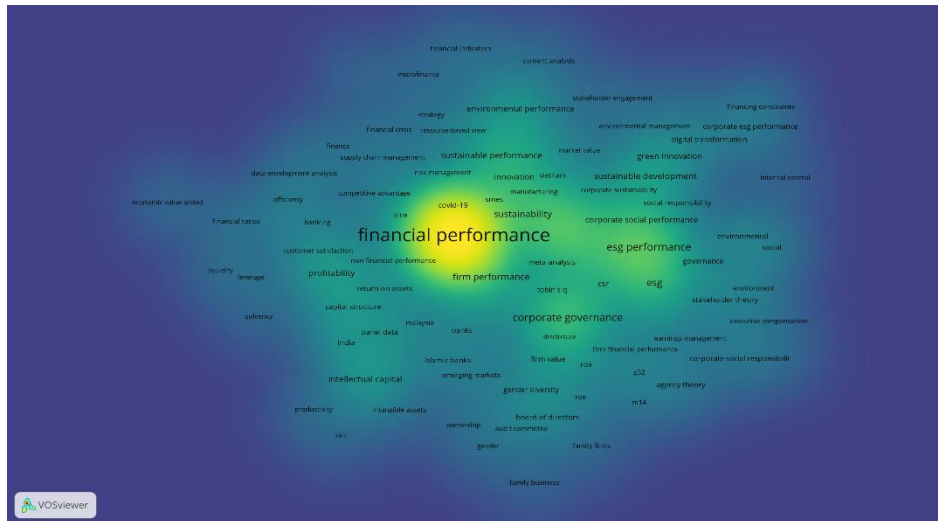


Figure 4 - Visualization of co-occurrence density for a minimum of 5 keyword occurrences and a total of 1000 keywords, using the VOSviewer version 1.6.20 program.

Source: Web of Science Core Collection, own processing in VOSviewer version 1.6.20

From the first analysis of the network for co-occurrences, after the filters set above, it can be seen that 116 items were recorded, i.e. keywords that were grouped into 9 clusters, which generated 1521 connections, while generating a total link strength of 4729. The 116 keywords were grouped into 9 clusters, each cluster being represented by different colors.

Cluster 1 is the red cluster and contains 31 keywords. The most important keywords grouped in this cluster are: financial performance, non-financial performance, performance, performance measurement, performance management, profitability, return on assets, return on equity, solvency, liquidity, financial reports, financial analysis, efficiency, risk.

Cluster 2 is the green cluster and contains 20 keywords. The most important keywords grouped in this cluster are: environmental performance, sustainable performance, operational performance, organizational performance, quality management, emerging markets, innovation.

Cluster 3 is the blue cluster and contains 15 keywords. The most important keywords grouped in this cluster are: corporate governance, CSR, financial performance, earnings management, board of directors, audit committee.

Cluster 4 is the mustard yellow cluster and contains 11 keywords. The most important keywords grouped in this cluster are: corporate social responsibility, corporate performance, corporate social performance, firm size, stakeholder engagement.

Cluster 5 is the dark purple cluster and contains 10 keywords. The most important keywords grouped in this cluster are: ESG performance, corporate sustainability, technological innovation, green innovation, internal control, digital transformation.

Cluster 6 is the light blue cluster and contains 10 keywords. The most important keywords grouped in this cluster are: intellectual capital, human capital, productivity, intangible assets, productivity, ROA, ROE.

Cluster 7 is the red cluster and contains 8 keywords. The most important keywords grouped in this cluster are: stakeholder theory, social responsibility, corporate financial performance, agency theory, environmental manager, market value.

Cluster 8 is the cherry cluster and contains 7 keywords. The most important keywords grouped in this cluster are: sustainability, social performance, economic performance, environmental performance, risk management, financial indicators.

Cluster 9 is the light purple cluster and contains 4 keywords. The most important keywords grouped in this cluster are: environment, environmental, governance, social.

6. Trends in research in the field of performance derived from the analysis

Bibliometric analysis is essential in research, as it provides tools and techniques to evaluate and understand the impact and development of a particular field of knowledge. The importance of this analysis can be highlighted by several key points:

- Evaluating the impact of research: Bibliometric analysis helps to measure the impact of a scientific article, an author or an institution through indicators such as the number of citations. This data shows a clear picture of the influence of research in a particular field, and can be used to evaluate scientific performance.
- Identifying trends and developments that allows the identification of emerging research trends and directions. By analyzing publications and citations, researchers can see which topics are becoming increasingly popular and what are the main developments in their field.
- Knowledge mapping: Bibliometric analysis can help build “knowledge maps,” which provide insight into the relationships between different research areas, key authors, leading institutions, and important publications. These maps are useful for understanding how different areas of knowledge are interconnected.
- Decision support: For researchers, research institutions or funding agencies alike, bibliometric analysis can be used to make informed decisions about resource allocation, prioritization of research projects and the most influential areas to invest in.
- Benchmarking performance: Bibliometric analysis provides a framework to compare the performance of researchers, research groups, universities or countries. This helps in benchmarking and assessing the global positioning of a subject, author or institution.
- Identifying international collaborations: This provides information on collaboration networks between researchers and institutions from different countries, facilitating the development of international partnerships in the scientific field.

- Monitoring publication quality: Bibliometrics helps identify prestigious journals and their quality through indicators such as impact factor, helping researchers choose quality journals to publish their results.
- Supporting academic and professional evaluation processes: Bibliometric analysis plays an important role in academic evaluations, such as grant awarding, selection for academic positions, or in the academic career evaluation process.

Thus, bibliometric analysis is essential to understand and support progress in research and science, providing an objective basis for decision-making and stimulating collaboration between researchers.

7. Conclusions of the bibliometric analysis

Regarding **the number of articles published per year on global performance terms and the type of search by title**, it can be seen that the first paper written on this topic was in 1976, year in which only 2 works were written in total. Gradually, with the passage of time, the number of papers on this topic has increased steadily. As we approach 2020, the number of papers written on this topic has increased significantly from one month to the next, and as we approach 2024, the number of papers written on this topic has increased at a rapid pace. So, most articles were written in 2024, this being the year in which the greatest research interest on the chosen topic was recorded. In conclusion, I could say that during the period 1999-2006 the number of published articles was quite small, and starting with 2007 the interest in publishing articles gradually increased, with the number of published articles to be more or less constant during the period 2010-2023, with the peak being recorded in 2020.

Regarding **the number of articles published on global performance terms, using the title search type, depending on the country where the authors of the published articles come from**, most works published by researchers from China (708 articles), followed by the USA (638 articles), then India (271 articles), then England (255 articles), then Indonesia (224 articles), then Malaysia (190 articles), then Australia (168 articles), then Spain (148 articles), Italy (133 articles), France (117 articles), Romania (117 articles), Brazil (115 articles), Czech Republic (111 articles), Canada (108 articles) and Pakistan (105 articles), followed by 10 other countries with a small percentage, which due to the visualization clearer parts of the graph were no longer included in the graph. It is therefore observed that China and the USA are the leaders, having the most researchers who have written articles on the chosen topic, followed by other countries that have much fewer researchers who have written articles on the chosen topic compared to China and the USA.

By the field of the journal in which the articles were published. The most published articles belong to the fields: Management (1735), Business (1581), Economics (1107), Business Finance (1062), followed by other fields in which much fewer articles were published compared to these fields, mentioned previously.

The paper concludes with **the visualization of the network for the co-occurrence of keywords**, where the intensity of the links between the keywords was analyzed. From the analysis of the correlation of keywords, the words that were found most intensely in scientific documents result: financial performance, environmental performance, corporate governance, corporate social responsibility, ESG

performance, intellectual capital, stakeholder theory, sustainability, ESG. Links are formed around these keywords with other words, but not limited to: performance, performance measurement, performance management, financial performance, non-financial performance, corporate social performance, sustainability, ESG, profitability, solvency, liquidity, efficiency, productivity, ROA, ROE, etc.

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