

A Bibliometric Analysis using Biblioshiny: Environmental, Social and Governance (ESG) and Financial Performance

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Abstract

This study conducts a bibliometric analysis of the relationship between ESG (Environmental, Social, and Governance) factors and financial performance. The objective is to collect bibliometric data on authors, affiliations, sources, citations, scientific publications, contributions from different countries, keywords, trending aspects, and potential future research areas. The study collects data from the Scopus research database from 2010 to August 15, 2024. Biblioshiny in R Studio is used for data evaluation. The analysis includes influential authors and institutions, average citations, annual publication output, commonly used keywords, and country-wise research output. The study reveals a consistent and growing interest in ESG and financial performance research, with a significant increase in scientific articles over time. Earlier publications have higher average citations, but more recent ones show lower citation rates. Ahlia University and the University of Portsmouth are significant contributors to the study, while keywords such as finance and sustainable development are the main focus of academic discussions. Journal of Cleaner Production and Corporate Social Responsibility and Environmental Management were identified as the most productive and influential journals in the ESG field. The study highlights the ongoing research interest in the relationship between financial performance and ESG and the growing importance of sustainability and corporate social responsibility in corporate practices. The findings demonstrate the recent emphasis on ESG, financial performance, CSR, sustainability, and sustainable development.

Keywords: Environmental, Social, and Governance, Financial Performance, Corporate Social Responsibility, Sustainability, Sustainable Development.

Introduction

In recent decades, sustainability issues have become a significant focus in various sectors, especially the financial and investment industries. Environmental, Social, and Governance (ESG) has evolved into an essential framework for assessing corporate performance economically and from the perspective of environmental impact, social responsibility, and corporate governance. ESG is a tool to mitigate risk and a driver to create long-term value for shareholders. In 2006, the United Nations (UN) introduced the Principles for Responsible Investment (PRI) as an effort to provide a global framework that can encourage institutional investors to voluntarily incorporate ESG factors into their investment decisions and ownership practices. ESG itself is a

term that was first introduced in 2004 through a report entitled "Who Cares Wins: Connecting Financial Markets to a Changing World" prepared by 20 financial institutions at the request of the UN Secretary-General, Kofi Annan [1].

ESG has evolved into one of the key indicators in assessing corporate performance beyond traditional financial parameters. ESG encompasses how companies address environmental, social responsibility, and corporate governance issues, all of which are considered important in creating long-term value and business sustainability. The concept has gained widespread attention from academics, practitioners, and policymakers, especially with the growing interest in socially responsible investing. ESG

factors include three main components. First, the Environmental component covers climate change mitigation and adaptation, resource use, emissions management, recycling, waste management, greenhouse gas emissions, and other environmental issues such as biodiversity conservation, pollution prevention, and the circular economy. Second, the Social component focuses on issues such as inequality, inclusiveness, labor relations, investment in skills and community development, treatment of workers, human rights, community interests, and product responsibility, emphasizing building trust and loyalty among stakeholders. Third, the Governance component relates to the governance of public and private institutions, including management structures, employee relations, and executive remuneration, which play an essential role in ensuring that social and environmental considerations are taken into account in the decision-making process, as well as compliance with the principles of best corporate governance [2].

The bibliometric approach used in this study aims to identify research trends, patterns, and knowledge gaps in ESG and financial performance. This study analyzes scientific publications related to ESG from various sources, evaluates the contributions of authors, institutions, and countries in this research, and identifies the main themes and theoretical frameworks that dominate. Bibliometric data are collected through the Scopus database. Through this analysis, the author presents a comprehensive view of the ESG literature and its development over time and identifies areas of research that require further exploration for future scientific development.

Research shows that disclosure of ESG mechanisms in sustainable business models can lower the cost of capital, reduce financial risk, and reduce stock price volatility, which can ultimately improve financial performance. In addition, companies that make good ESG disclosures tend to avoid lawsuits and negative media coverage, allowing them to receive government subsidies [3-6]. There is an increasing number of academic publications in various fields due to the growing number of studies exploring the relationship between ESG and financial performance [7]. The study by, who used bibliometric analysis to identify trends and patterns in ESG studies, showed that ESG research has increased, especially in recent years, with significant contributions from multidisciplinary collaborations [8]. The study also revealed that green finance, corporate sustainability, and climate change are increasingly becoming an important focus. The study suggests future studies, emphasizing the importance of more empirical research and exploration of ESG practices in emerging markets.

Literature Review

The concept of ESG has been created to evaluate sustainability-related activities, particularly those focused on the environment, social responsibility, and governance. ESG is used intensively to assess activities that are difficult to measure and play an important role in financial decision-making for stakeholders. ESG provides various benefits, including supporting corporate communications, protecting stakeholder rights, enhancing business value, facilitating comparisons with other companies, and reducing risk perception. As such, sustainability activities play a critical role in corporate success, and the impact of new reporting and business models, such as ESG, is increasingly recog-

nized as important [9]. The ESG concept has been the focus of significant research in recent decades, mainly due to its essential role in supporting corporate sustainability and social responsibility. ESG has evolved into an important metric for evaluating a company's non-financial performance, which includes how companies handle environmental issues, social impacts, and good governance.

ESG is a type of report that examines the environmental impacts, social practices, governance criteria, and performance of companies and organizations. These reports, considered multidimensional statements, play an important role in shaping investors' perceptions of a company's success. ESG reports are especially important for publicly traded and international companies [10]. Strong ESG practices provide many benefits to companies. These benefits can be summarized as follows [11]:

1. Helping increase the liquidity of the company's shares.
2. Paving the way for competitive values against other competitors in the sector.
3. Ensuring companies are resilient to activist interventions.
4. Companies become experts in attracting and retaining top talent.
5. Investors of companies that place importance on ESG practices also favour strengthening the company in the long run.

In addition to the benefits listed, ESG practices contribute to the prevention of environmental pollution at the macro level, especially at the national level, and help create a protective shield against climate change that is detrimental to the national economy.

ESG and financial performance research has shown a significant increase in the number of publications and attention from various stakeholders. They found that previous studies showed varying relationships between ESG performance and corporate financial performance [12]. For example, several studies found a positive correlation between ESG performance and corporate financial performance, where companies that excel in ESG aspects tend to have better financial performance [13-15]. However, other studies have found different results, with some showing a negative correlation or no significant relationship [16-21].

The existing literature highlights that ESG-driven companies show better future innovation performance. Regarding labor productivity, exports, and survival, their performance is never lower than that of innovative companies that are not ESG-driven [22]. ESG integration can also improve a company's financial performance by creating long-term value, risk management, and stakeholder trust [23]. These studies suggest that ESG attention is not only about regulatory compliance or moral responsibility but also about creating a sustainable competitive advantage for companies. However, several challenges have been identified in the ESG-related literature. One of the main challenges is the heterogeneity of terminology and methodology used in ESG research, which often leads to inconsistent results and is difficult to compare between studies. This heterogeneity can include differences in the definition of ESG, how ESG performance is measured, and the approaches used to analyze the data. In addition, much of the ESG research focuses on large companies in developed countries. As a result, a lack of data and research addresses ESG in the context of developing countries or the SME sector.

This creates a gap in our understanding of how ESG principles are applied and how they impact financial performance across different regions and types of companies. In this context, emphasize the need for further research exploring the relationship between ESG and financial performance across different geographic contexts and industry sectors [12]. They also suggest using bibliometric analysis to identify trends, patterns, and gaps in the existing literature and explore emerging topics in ESG research.

As part of an effort to better understand these dynamics, bibliometric analysis offers a systematic approach to identify trends, patterns, and knowledge gaps in the existing literature. In addition, studies exploring the relationship between ESG and financial performance using bibliometric analysis with Biblioshiny still need to be completed. Using this technique, this study aims to map the development of research related to ESG and financial performance over time, identify the most influential authors, institutions, and sources, and explore trending topics and potential research areas for the future. This analysis is expected to provide

in-depth insights into how ESG has been integrated into academic research and business practices and assist researchers and practitioners in understanding the implications of ESG implementation on corporate sustainability and profitability.

Materials and Methods

Database and Keywords

The database used by the researcher comes from Scopus, which includes business, management and accounting, economics, econometrics, and finance papers because it is more comprehensive. The researcher used specific keywords in finding relevant articles, such as "Environmental, Social, and Governance" OR "ESG" AND "Financial Performance," which were applied to the search column for article titles, abstracts, and keywords, where the search results were 836 research articles. However, these search results still need to be filtered regarding inclusion and exclusion criteria to limit the search results to the most relevant literature.

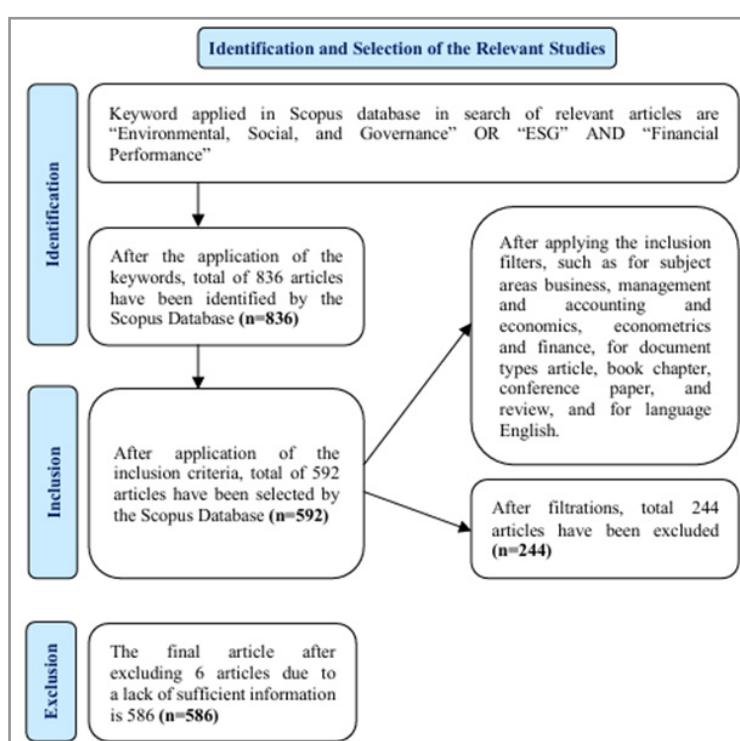


Figure 1: Prisma Framework

Filtration of Data

Data filtering was done by extracting data from the Scopus database covering the period from 2010 to August 15, 2024, and using the search string "PUBYEAR > 2009 AND PUBYEAR < 2025." After that, filtering was carried out based on inclusion criteria, including subject area, document type, and language. Ultimately, this filtering process resulted in a total of 592 articles presented in the database. However, six articles needed more information and were removed, leaving only 586 selected articles.

Software and Technique

After performing the final data screening to be analyzed from the Scopus database, the extracted articles in BibTeX format were

exported to Biblioshiny in R Studio software. Biblioshiny is an R Studio visualization application that helps analyze bibliometric and scientometric data comprehensively, covering various techniques for processing, analyzing, and visualizing data from databases such as Scopus, Web of Science, and PubMed.

Results

Table 1 presents a summary of the data collected from the Scopus database using specific keywords, namely "Environmental, Social, and Governance" OR "ESG" AND "Financial Performance." This table provides information about the authors, author collaborations, document type, and content.

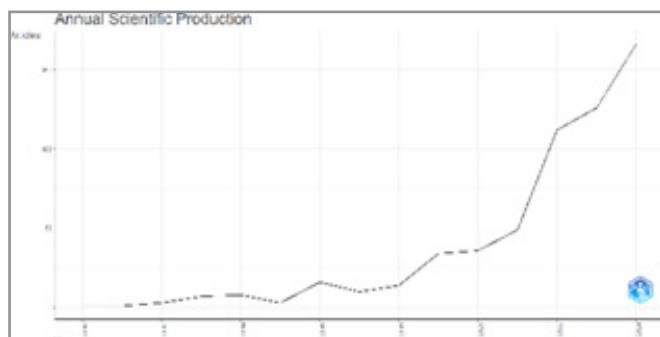
Table 1: Summary of Main Information about Data

MAIN INFORMATION ABOUT DATA	
Timespan	2010:2024
Sources (Journals, Books, etc)	301
Documents	586
Annual Growth Rate %	44.07
Document Average Age	2.29
Average citations per doc	29.04
References	0
DOCUMENT CONTENTS	
Keywords Plus (ID)	574
Author's Keywords (DE)	1438
AUTHORS	
Authors	1393
Authors of single-authored docs	87
AUTHORS COLLABORATION	
Single-authored docs	102
Co-Authors per Doc	2.72
International co-authorships %	26.11
DOCUMENT TYPES	
article	482
article article	3
article book chapter	1
article review	1
book chapter	52
conference paper	17
Review	30

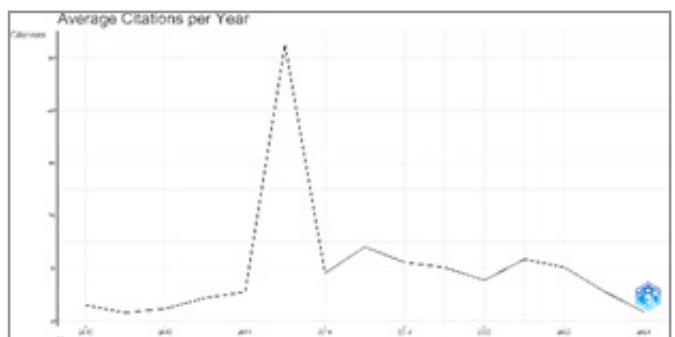
Annual Scientific Production and Average Citations Per Year

The information in Figure 2a reflects the number of articles published yearly from 2010 to 2024. With 166 articles, 2024 is the most productive year of scientific article publications. However, it has yet to be fully accumulated, considering that the year has yet to finish. There was a drastic spike in 2021-2023, where the published articles experienced a significant increase. In 2021, 49 articles were published, while in 2022, there were 112 articles, and in 2023, there were 126 articles, so there was an increase of 63 articles published in 2021 to 2022. After 2020, many governments and international institutions began introducing or strengthening regulations requiring companies to increase

transparency in their ESG practices. For example, the European Union introduced the European Green Deal, which encouraged sustainability and the transition to a low-carbon economy. This sparked academic interest in examining the impact of these policies on company performance. 16 and 14 articles were published in 2016 and 2018, respectively, indicating a relatively stable but relatively low level of research publication. The years 2010-2014 were the least productive because the publication of articles related to this topic could have been higher, namely less than ten articles; even in 2010 and 2011, there was only 1 article published each. The year 2014 was the most in the publication of articles, with as many as eight articles.



(a) Annual Scientific Production



(b) Average Citations Per Year

Figure 2: Summary of Annual Scientific Production and Average Citations Per Year

Figure 2b reflects the average number of citations per article published each year over the past 14 years. 2015 a significant spike in the average citations was recorded, with 52.47 citations per article. This spike is likely due to the publication of several highly influential articles on ESG topics that year. These articles underpinned new theories or methodologies critical in ESG research on corporate performance. The second-highest number of citations occurred in 2017, with an average of 14.07 citations per article, indicating that the articles published had quite a significant influence. In 2022 and 2023, the average citations per article were 10.21 and 5.66, respectively, indicating a much lower average citation rate, while there was a significant spike in the number of articles published in those years, 112 articles in 2022 and 126 articles in 2023. Although the number of articles pub-

lished increased in 2022 and 2023, the average citations per article tended to decrease. This could indicate that an increase in the quality or impact of the articles published has yet to accompany the increase in the number of articles published. In addition, citations may have spread more among many articles, reducing the average number of citations per article. This spike in the number of publications could create more competition for citations as more articles compete for attention in the academic community. The change in citation trends suggests that despite increased research productivity, the impact of citations per article may decrease if new publications gain a different visibility and impact than previous articles. This illustrates researchers' challenges in remaining relevant and influential in an increasingly competitive research environment.

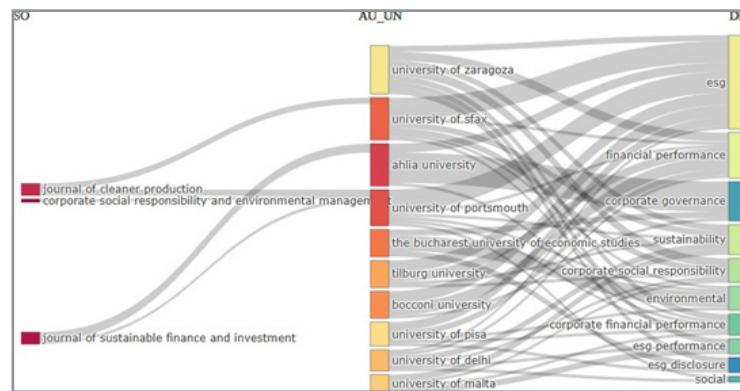


Figure 3: Three Field Plot

The information in Figure 3 shows the Three Field Plot, which illustrates the relationship between three key elements in bibliometric data, including publication sources/journals (SO), author affiliations (AU_UN), and keywords or research topics (DE). The data highlights the contributions of the top 10 universities in terms of journals and keywords. The University of Portsmouth has the most significant inflows and outflows among other universities, namely three and seven outflows. This university contributes to three journals (inflows), including the Journal of Cleaner Production, Corporate Social Responsibility and Environmental Management, and the Journal of Sustainable Finance and Investment. Meanwhile, the outflows represented by the keyword or research topic elements include seven streams, namely ESG, financial performance, sustainability, environmental, corporate financial performance, and social. However, the keyword ESG represents two outflows from the University of Portsmouth. ESG is a significant connecting point in research from the University of Portsmouth, flowing into two important subtopics: Corporate Governance and Sustainability. This highlights the multidimensional research focus in ESG studies at this university, where corporate governance and sustainability are key themes explored in the ESG context.

Next, the University of Sfax in Tunisia has the second largest inflow and outflow, with two inflows and seven outflows. Their inflows represent contributions to the Journal of Cleaner Production and outflows such as ESG, financial performance, sustainability, corporate social responsibility, environmental, and corporate financial performance. The University of Sfax has a strong research focus on sustainability, particularly how it relates to financial performance and corporate governance. By publishing work in the Journal of Cleaner Production, re-

searchers from the university demonstrate their commitment to sustainability issues that have real-world impacts, such as production efficiency and environmental impact. The research produced by the University of Sfax shows significant contributions in linking sustainability strategies to financial outcomes and corporate governance practices. The inflows and outflows depicted in the Three-Field Plot show that the University of Sfax plays a significant role in the global network of ESG-related research, with contributions influencing the broader academic literature on financial performance and corporate governance. Ahlia University has one inflow and three outflows, including the Journal of Sustainable Finance and Investment as an inflow and outflows such as ESG, corporate governance, and corporate financial performance. Based on the Three-Field Plot, the Journal of Cleaner Production has many publications from authors affiliated with the University of Zaragoza and the University of Sfax. Meanwhile, corporate social responsibility and environmental management have contributed to universities like the University of Portsmouth and Tilburg University. The University of Zaragoza and the University of Sfax have made significant contributions to research on ESG and financial performance. At the same time, the Bucharest University of Economic Studies and Bocconi University focus on environmental and corporate financial performance. The fact that the keywords ESG and financial performance attract the maximum number of inflows, ten and nine, respectively, indicates the importance of these terms in the academic community.

Most Relevant Authors, Affiliations, Sources, and Words

Figure 4 presents data on the most relevant authors, affiliations, sources and words in studies related to ESG and financial performance. The author data shows the authors with the highest

number of publications on ESG and financial performance; the affiliation data displays the institutions or universities that most frequently contribute to the study. Source data shows the journals or publications that published the most articles related to

ESG and financial performance. In contrast, keyword data shows the most frequently used words in related articles, indicating the main themes discussed.

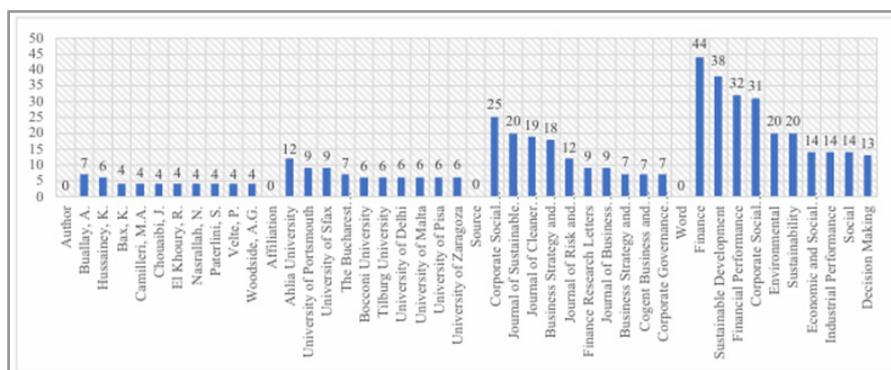


Figure 4: Most Relevant Authors, Affiliations, Sources, and Words

Most Relevant Authors: The listed authors are the most relevant in publishing ESG and financial performance research. Buallay, A. is the most relevant author among other authors on this research topic, with seven articles. This shows that this author is very productive and contributes significantly to the research field. Hussainey, K. is in second place with six articles, which shows a reasonably significant contribution but is slightly below Buallay, A. Other authors such as Bax, K, Camilleri, M.A., Chouaibi, J., El Khoury, R., Nasrallah, N., Paterlini, S., Velte, P., and Woodside, A.G., have each contributed to publishing four articles. This shows that their contributions are similar in the number of publications. Although there are fewer colleagues than the top two authors, they still play an essential role in the contribution of this research.

Most Relevant Affiliations: The data listed are the most relevant affiliations for their contribution to research work related to the topic. Ahlia University is in the top position with a total of 12 articles. This shows that Ahlia University contributes most to the analyzed field and maybe a relevant research or study center. The University of Portsmouth and the University of Sfax produced nine articles, indicating that these two universities also contribute significantly to this research topic. The Bucharest University of Economic Studies produced seven articles. In contrast, several other universities, including Bocconi University, Tilburg University, University of Delhi, University of Malta, University of Pisa, and University of Zaragoza, each produced six articles. These universities are also important, although their contribution is slightly smaller than the top four affiliates.

Most Relevant Sources: Regarding the research topic of ESG and financial performance, Corporate Social Responsibility and Environment is the most relevant source, with 25 articles published. This shows that this journal is the primary or most significant source in research on this topic. The Journal of Sustainable Finance and Investment is in second place with 20 articles, the Journal of Cleaner Production follows with 19 articles, and Business Strategy and the Environment is next with 18 articles published. These sources show that these journals also have significant contributions and are essential references in research on the relationship between ESG disclosure and financial performance. The Journal of Risk and Financial Management and Finance Research Letters each contributed 12 articles, and several

other journals, such as the Journal of Business Ethics, Business Strategy and Development, Cogent Business and Management, and Corporate Governance (Bingley), each contributed seven articles. Although their contributions are smaller than those of the top sources, these journals still play an essential role in this field or research topic.

Most Relevant Words: Finance is the most frequently occurring keyword, totaling 44 times. This shows that the theme of finance is a significant topic in ESG and financial performance research. Sustainable Development appears 38 times, indicating that this issue is also a central theme in this study. Financial Performance appears 32 times, and Corporate Social Responsibility (CSR) appears 31 times, indicating that financial performance and CSR are essential focuses in the analysis.

Environmental and Sustainability appear 20 times, indicating that these issues also receive significant attention. Keywords such as Economic and Social Effects, Industrial Performance, and Social appear 14 times, and Decision Making 13 times, indicating that these topics are essential and relevant in this study's context.

List of Most Productive Journals on “ESG and Financial Performance” including its Most Cited Article

Table 2 shows several influential journals in ESG (Environmental, Social, and Governance) and financial performance research and the most cited articles. Journal of Cleaner Production has the highest total citations (TC) of 313,186 and a citation score of 17.5. This journal has an H-index of 309, indicating that this journal has published at least 309 articles, each of which has been cited at least 309 times. This reflects that not only is the number of articles published by this journal very high, but also that these articles significantly impact the academic and research community. The most cited article in this journal is entitled "The Pitfalls of Corporate Social Responsibility Hypocrisy of Family Firms in South Korea," which has collected five citations as of August 2024 and was published by Elsevier. Business Strategy and The Environment is another critical journal on this topic, which has the highest citation score as of August 2024, with a value of 21.0. This journal has a total citation (TC) of 22,621 citations with an H-index of 147. The most popular article in this journal is "Can Innovation Affect the Relationship between

Table 2: Most Productive Journal on ESG and Financial Performance including its Most Cited Article

Journal	TC	H-index	Cite Score 2024	The Most Cited Article (Reference)	Times Cited	Publisher
Corporate Social Responsibility and Environmental Management	9,044	113	12.8	Corporate sustainability and financial performance: A hybrid literature review	10	John Wiley & Sons
Journal of Sustainable Finance and Investment	2,336	35	11.9	The pertinence of incorporating ESG ratings to make investment decisions: a quantitative analysis using machine learning	16	Taylor & Francis
Journal of Cleaner Production	313,186	309	17.5	The pitfalls of corporate social irresponsibility: Hypocrisy of family firms in South Korea	5	Elsevier
Business Strategy and The Environment	22,621	147	21	Can innovation affect the relationship between Environmental, Social, and Governance issues and financial performance? Empirical evidence from the STOXX200 index	10	John Wiley & Sons
Journal	TC	H-index	Cite Score 2024	The Most Cited Article (Reference)	Times Cited	Publisher
Journal of Risk and Financial Management	8,800	40	4.3	What Is the Relationship between Corporate Social Responsibility and Financial Performance in the UK Banking Sector?	1	Multidisciplinary Digital Publishing Institute (MDPI)
Finance Research Letters	34,974	101	9.5	ESG rating changes and portfolio returns: A wavelet analysis across market caps	4	Elsevier
Journal of Business Ethics	14,152	253	12.1	Does Social Media Pressure Induce Corporate Hypocrisy? Evidence of ESG Green-washing from China	1	Springer Nature
Business Strategy and Development	1,165	23	4.7	Do the firm characteristics moderate the nexus between the firm's sustainable practices and financial performance?	1	John Wiley & Sons
Cogent Business and Management	6,813	44	3.8	The role of Indonesian regulators on the effectiveness of ESG implementation in improving firms' non-financial performance	2	Cogent OA
Corporate Governance (Bingley)	2,355	78	9	Mediating effect of ESG performance on executive incentive compensation–financial performance relationship: evidence from MENA banking sector	6	Emerald Publishing

Furthermore, the most popular article related to the topic of ESG and financial performance as of August 2024 is entitled "The pertinence of incorporating ESG ratings to make investment decisions: a quantitative analysis using machine learning," which has been cited 16 times. This article was published in the Journal of Sustainable Finance and Investment, and Taylor & Francis was the journal's publisher. The Journal of Sustainable Finance and Investment has a total citation of 2,336 citations and a citation score of 11.9 with an H-index of 35, which means this journal has published at least 35 articles, each of which has been cited at least 35 times. The information presented in Table 2 above also highlights other essential publications in ESG and financial performance research, such as articles published in the Journal of Business Ethics, Finance Research Letters, Corporate Governance (Bingley), and so on. Researchers can also refer to other similar articles to conduct research related to the relation-

ship between ESG and financial performance, such as articles published by MDPI, Springer Nature, Cogent OA, and Emerald Publishing that offer various perspectives and findings that are relevant to understanding the relationship between ESG and financial performance. This helps researchers and practitioners to get a more comprehensive picture.

List of Most Prolific Authors in the "ESG and Financial Performance" Research Area

Table 3 presents a list of the most productive authors in the field of ESG and financial performance research. These researchers have contributed significantly to advancing the literature in this field. Amina Buallay is an Ahlia University author with 49 total publications (TP) and an H-index of 21. With 1,669 citations, Amina Buallay has a significant influence in this field of research, indicating that her work is recognized and used as an

essential reference by other researchers in the academic community. In addition, Amina Buallay is still relatively new in conducting research in this field, namely in 2017, but has quickly gained influence and reputation in the topic of ESG and financial performance. Next, Khaled Hussainey is in second place with 233 total publications (TP) with an H-index of 46. Karoline Bax from TUM School of Management has an H-index of 4 and 12 publications. Mark A. Camilleri of L-Università ta' Malta is in fourth place with 133 total publications and an H-index of 32. Other authors such as Jamel Chouaibi of FSEG Sfax - Faculté des Sciences Économiques et de Gestion de Sfax, Rim M. El-

Khoury of Adnan Kassar School of Business, Nohade H. Nasrallah of Laboratoire de Recherche en Gestion et Economie (LaRGE), Sandra Paterlini of Università di Trento, Patrick Velte of Leuphana Universität Lüneburg, and A.G. Woodside of Carroll School of Management also have significant influence and reputation for their contributions. These authors have significantly advanced the literature in the field of ESG and financial performance and provided practical insights that companies can use to integrate ESG aspects into their business strategies and improve financial performance while maintaining social and environmental responsibility.

Table 3: Summary of the Most Prolific Authors in ESG and Financial Performance

No	Author	Scopus Author ID	First Publication (Year)	TP	H-index	TC	Current Affiliation	Country
1	Buallay, Amina M.	5.72E+10	2017	49	21	1,669	Ahlia University, Manama, Bahrain	Bahrain
2	Hussainey, Khaled	1.64E+10	2003	233	46	6,468	Bangor Business School, Bangor, United Kingdom	United Kingdom
3	Bax, Karoline	5.72E+10	2022	12	4	75	TUM School of Management, Heilbronn, Germany	Germany
4	Camilleri, Mark A.	5.59E+10	2014	133	32	2,969	L-Università ta' Malta, Msida, Malta	Republic of Malta
5	Chouaibi, Jamel	5.55E+10	2009	39	12	501	FSEG Sfax - Faculté des Sciences Économiques et de Gestion de Sfax, Sfax, Tunisia	Tunisia
6	El-Khoury, Rim M.	5.66E+10	2013	49	12	554	Adnan Kassar School of Business, Beirut, Lebanon	Lebanon
7	Nasrallah, Nohade H.	5.72E+10	2021	26	9	372	Laboratoire de Recherche en Gestion et Economie (LaRGE), Strasbourg, France	France
8	Paterlini, Sandra	6.51E+09	2002	64	18	1,267	Università di Trento, Trento, Italy	Italy
9	Velte, P.	1.5E+10	2006	88	27	2,708	Leuphana Universität Lüneburg, Lüneburg, Germany	Germany
10	Woodside, A.G.	7.01E+09	1995	406	55	14,238	Carroll School of Management, Chestnut Hill, United States	United States

Countries Scientific Production

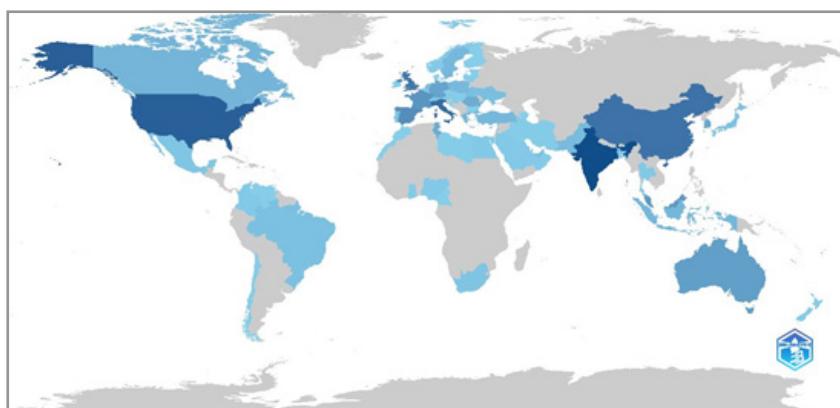


Figure 5: Countries Scientific Production

Figure 5 shows the results of a bibliometric analysis that illustrates the scientific contributions of various countries in the world based on the number of publications produced. This analysis aims to identify the most productive countries regarding scientific publications, indicating how much they contribute to

global literature in a particular field. India is in first place with 118 articles, while the United States is in second place with 100 articles. These two countries are likely significant research and development centers with major contributions to the global scientific literature. Italy and China are in third and fourth place

with a frequency of 88 and 82 articles published. Furthermore, the United Kingdom and Spain also show many scientific works, with 77 and 56 articles respectively. With 50 and 46 publications respectively, France and Malaysia have many articles published in the scientific field. Australia, Germany, South Korea, Romania, Tunisia, Canada, Greece, Indonesia, Sweden, Turkey, Poland, Pakistan, Bahrain, Netherlands, Ukraine, United Arab Emirates, Brazil, and Japan have scientific publications ranging from 41 to 11 articles. These countries show significant contributions but with slightly lighter color intensity. This indicates they have an important role in global scientific production, although

smaller than countries with darker colors, such as India and the United States. India and the United States are the two countries that contribute the most to scientific research in various fields, including ESG and financial performance, because there is substantial financial support from the government in research and development, so they have adequate research infrastructure. In addition, there is a solid academic ecosystem, supportive policies, and private sector involvement. All these factors create an environment conducive to producing high-quality research and contribute to the status of these two countries as leaders in global scientific publications.

Most Cited Countries

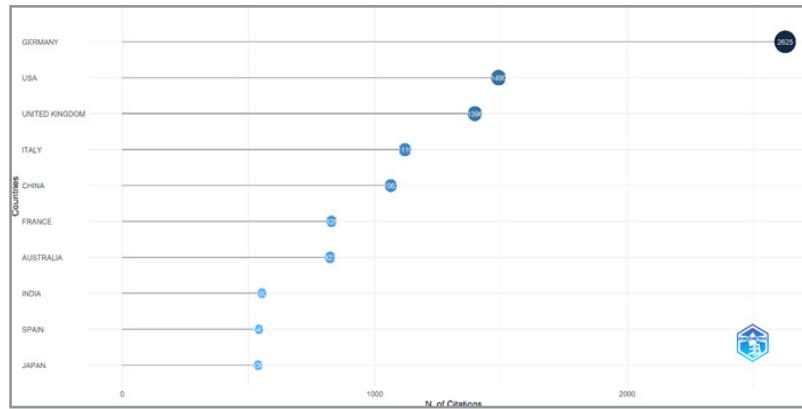


Figure 6: Most Cited Countries

Figure 6 presents a graph of the results of the bibliometric analysis of the most cited countries based on the data analyzed using biblioshiny. Germany ranks highest with 2,625 citations. This shows that research conducted by researchers or institutions in Germany dramatically impacts the global scientific community. The United States is in second place with 1,490 citations and the United Kingdom is in third place with 1,396 citations, which also reflects a significant contribution. Italy with 1,119 citations, China with 1,063 citations, and France with 828 citations show that these countries also play an essential role in global research. Australia also has a relatively high number of citations, namely 823, indicating a necessary contribution to the relevant research field. India has 553 citations and Spain has 541 citations, which shows that although their contributions are not as significant

as those of the top countries, they still play an essential role in scientific literature. Japan is at the bottom of the list with 538 citations, but it still has a significant influence in the field of research. The graph above shows that countries such as Germany, the United States, and the United Kingdom have contributed significantly to the field of research related to ESG and financial performance, as reflected in the high number of citations. Based on research by [12], these countries may have a significant research focus on Environmental, Social, and Governance (ESG) and financial performance issues. Their academics often publish important work recognized and cited by their peers. The graph also reflects that France, Australia, and other countries have made significant contributions to the field of research.

Corresponding's Author Countries

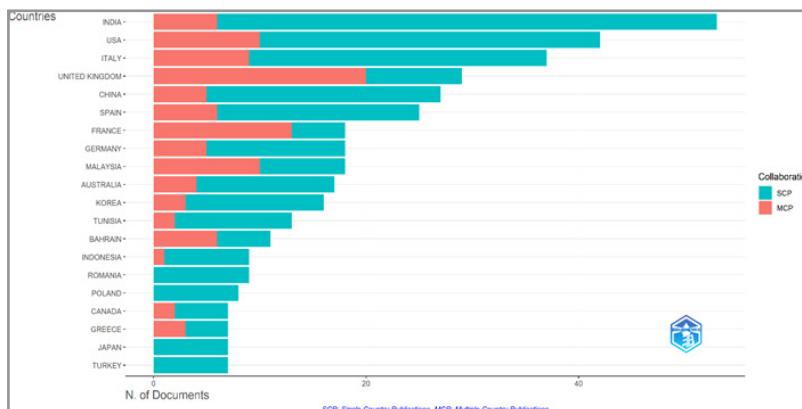


Figure 7: Corresponding's Authors Countries

Figure 7 presents a graph illustrating the corresponding author's number of publications by country of origin and distinguishes

between Single Country Publications (SCP) and Multiple Country Publications (MCP). India has the highest number of pub-

lications as the country of origin of the corresponding author, with 53 articles. Most publications are SCPs, with 47, and 6 are MCPs, indicating that most of the research is done without international collaboration. The United States is in second place with 42 publications, of which 32 are SCPs and 10 are MCPs. The large combination of SCPs and MCPs indicates that this country is involved in a lot of research, both domestically and in international collaboration. Italy is in third place with 37 articles, including 28 SCPs and 9 MCPs. The United Kingdom has 29 publications, of which 9 are SCPs and 20 are MCPs, of which this country has a significant proportion of MCPs, indicating a solid involvement in cross-country research collaboration, in contrast to China which has a substantial proportion of SCPs. There are 27 articles, 22 of which are SCP and 5 MCP, highlighting their strong participation in solitary research. Next, Spain has 25 publications, 19 of which are SCP and 6 of which

are MCP. France, Germany, and Malaysia have 18 articles each but different SCP and MCP proportions. With 17 and 16 publications respectively, Australia and Korea have similar distributions of SCP and MCP, differing only in total publications. Tunisia has 13 articles, 11 SCP and 2 MCP, indicating that most publications are from domestically conducted research. Bahrain has 11 publications, of which 5 are SCP and 6 are MCP, indicating balanced research involvement, both domestically and internationally. Indonesia has nine publications, most of which are from domestically conducted research. Countries such as Romania, Poland, Canada, Greece, Japan, and Turkey have smaller contributions to global research but show variations in the distribution of SCP and MCP. This distribution reflects how these countries position themselves in the worldwide research landscape and show the potential to strengthen their scientific impact through increased international collaboration in the future.

Word TreeMap and Trending Research Topics



Figure 8: Word TreeMap - Author Keywords

Figure 8 displays a visualization of the results of the bibliometric analysis using biblioshiny, which shows the distribution of keywords or topics in the analyzed literature. Finance appears most dominantly in the analyzed literature, with 44 occurrences and the most significant proportion at 8%. With 38 (7%), 32 (6%), and 31 (6%) occurrences overall, the terms sustainable development, financial performance, and corporate social responsibility stand out as significantly influencing the research field. This strongly focuses on how a company or entity's finances are evaluated. The terms environmental and sustainability each have 20 occurrences, and both of these topics pay attention to the environmental impact of business activities. Economic and social effects, industrial performance, and social each appear as many as 14 or a proportion of 3%; this indicates that this literature not only focuses on economic or business aspects alone but also considers the broader impact on society and industry as a whole. Furthermore, the terms decision-making, governance approach, and regression analysis, each with 13 occurrences, reflect that this literature often discusses how decisions are made and managed effectively in various contexts and how statistical tech-

niques are used to understand and predict relationships in data. This combination of topics reflects a balanced focus between decision-making processes, organizational governance, and data analysis in the research. However, the term ESG only appears five times or 1%. Although the term ESG is an essential topic in the context of sustainability, investment, and governance, its relatively low occurrence in this analysis may be due to a variety of factors, including the primary focus of the literature, the use of more general or different terms, and varying adoption across research contexts. This suggests that ESG may still be an evolving concept and has yet to be fully integrated or explicitly identified in many studies analyzed. The literature analyzed through biblioshiny tends to focus on significant issues related to finance, sustainable development, and corporate social responsibility. There is also substantial attention paid to governance and decision-making, as well as environmental and social impacts. The diversity of topics that emerged suggests that this literature is rich in perspectives related to challenges and solutions in the financial, environmental, and social contexts [22].

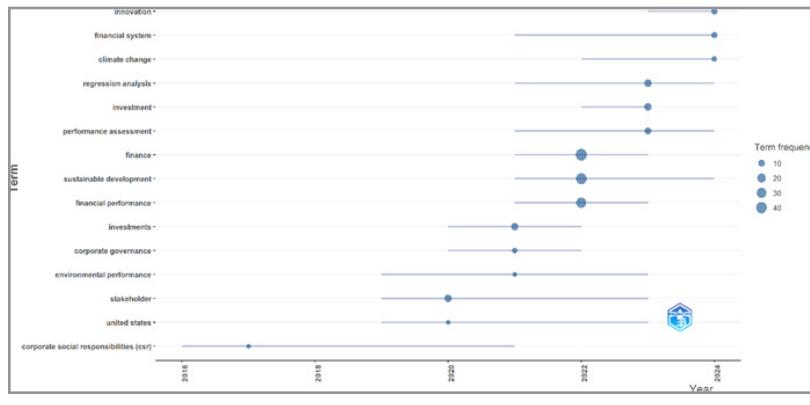


Figure 9: Trend Topics - Author Keywords

Figure 9 presents a graph that displays how the frequency of various topics or terms in the analyzed literature changes over time to identify research trends and issues that are rising or declining in popularity. Finance and sustainable development are the two dominant topics, appearing 44 and 38 times over the study period, highlighting that these issues remain a significant focus in the analyzed literature. Like finance, the term financial performance consistently appears 32 times, indicating that this topic remains an essential focus in related research. The term regression analysis has increased in the last three years, appearing 13 times, highlighting the increasing use of this statistical technique in research to predict and understand relationships between variables. In addition, investment and performance assessment topics have also shown an increase in recent years. The increase in these topics can be attributed to significant changes in technology, regulation, and the global economy that have increased the complexity and importance of investment and performance assessment. The greater focus on sustainability, financial technology, and corporate accountability has driven research in these two areas, making them more relevant and essential in today's literature and business practice. Furthermore, the innovation topic has shown a significant increase in frequency in recent years, especially approaching 2023-2024. This indicates that research on innovation has become increasingly relevant and vital in the analyzed literature, and climate change has become a trending topic in the last two years, indicating that this issue is a primary focus in research, especially concerning finance and sustainability. However, the topic of CSR has had a stable low frequency since 2016, highlighting that despite the importance of CSR, the terminology or focus on CSR may have shifted to other terms or concepts such as ESG (Environmental, Social, and Governance) in more recent literature. This reflects how academic literature and research constantly evolve, adapting to new global issues and research needs [23].

Discussion

This study reveals that ESG performance and disclosure practices are increasingly gaining traction in the literature. There is growing interest in understanding how ESG practices impact a company's financial performance. Researchers are increasingly interested in exploring the relationship between a company's commitment to environmental sustainability, social responsibility, and good governance with improved financial outcomes. The findings of this study also show that ESG disclosure practices are gaining prominence. Companies are not only required to implement good ESG practices but also to disclose these practices

transparently. This disclosure is necessary because it informs investors, stakeholders, and the public about the extent to which a company is committed to sustainability and social responsibility. Many studies have examined the relationship between Environmental, Social, and Governance (ESG) performance and a company's financial performance, and the results are mixed. Evidence shows that ESG performance has a positive, negative, or neutral impact on financial performance. Research conducted by Velte, P. at al and Albitar, K., et al. (2020) shows a positive correlation between ESG performance and company financial performance; Hussain, W. at al (2024) shows negatively correlated results, and research by Deng, J. (2024). shows neutral results [24].

After 2020, many countries and international institutions began introducing or strengthening regulations encouraging transparency and responsibility in corporate ESG practices. For example, the European Union introduced the European Green Deal, promoting sustainability and transitioning to a low-carbon economy. This policy has sparked academic interest in researching the impact of ESG on corporate financial performance, which has been reflected in the increasing number of scientific publications. The data presented in this article shows that 2024 was the most productive year, with 166 articles published until August 2024. This reflects a surge in interest in ESG topics, driven by global regulatory changes, increased awareness of sustainability issues, and the need to understand the long-term impact of ESG practices on corporate financial performance. Before 2020, ESG research focused more on individual aspects of environmental, social, or governance. However, after 2020, there has been a shift towards a more holistic approach, where ESG is seen as an interconnected whole with a collective impact on corporate performance. This has encouraged more comprehensive and multidisciplinary research, contributing to the increasing number of publications. The study also notes that specific journals, such as the Journal of Cleaner Production and Corporate Social Responsibility and Environmental Management, are becoming increasingly relevant and productive in publishing ESG research. Academic institutions such as the University of Portsmouth and the University of Sfax are also playing a pivotal role in advancing this research, indicating that there is increasing academic collaboration at the global level.

Conclusion

This study highlights the importance of ESG (Environmental, Social, and Governance) in corporate financial performance.

This study aims to explore the existing literature using bibliometric analysis to understand research trends, academic contributions, authors, sources, average citations, annual scientific publications, affiliations, frequently used keywords, and potential future research areas in the field of ESG. The methodology used in the study includes using the Scopus database and the Biblioshiny tool in R Studio to conduct bibliometric analysis.

The data collected from the Scopus database is between 2010 and August 15, 2024. The data selection and screening process shows how relevant articles were identified and analyzed for this study. The literature review highlights that previous studies have shown mixed results regarding the relationship between ESG performance and corporate financial performance. Some studies show a positive correlation, while others show a negative or neutral relationship. This emphasizes the need for further research to clarify the conditions under which ESG impacts financial performance. The study found that there has been a significant increase in the number of ESG-related publications since 2020, with 2024 being the most productive year. However, despite the increase in the number of publications, the average citations per article have decreased, indicating challenges in maintaining the relevance and quality of research amidst the increasing number of publications.

The study identified the most relevant authors, institutions, journals, and keywords in the ESG literature. Ahlia University and the University of Portsmouth emerged as key contributors to the study, while keywords such as "finance" and "sustainable development" were the main focus of academic discussions. The Journal of Cleaner Production and Corporate Social Responsibility and Environmental Management were identified as the most productive and influential journals in the ESG field. Articles published in these journals significantly impacted the academic community, highlighting the importance of these platforms in advancing ESG discussions. Authors such as Amina Buallay and Khaled Hussainey were identified as key contributors to the ESG literature, with significant publication numbers and impact, indicating these authors' critical role in advancing the understanding of ESG and financial performance. Countries such as India and the United States emerged as key contributors to the ESG literature, with high publication numbers, suggesting that ESG research has a strong base in these countries, which may be driven by good policy support and research infrastructure. Germany, the United States, and the United Kingdom are the most cited countries, indicating that research from these countries significantly impacts the global scientific community. This also reflects the high quality and relevance of research conducted in these countries. The analysis shows that India and the United States also dominate in publications from corresponding authors, with a combination of domestic and international publications indicating strong engagement in global research collaborations. Topics such as "finance" and "sustainable development" emerge as the most dominant in the ESG literature, indicating a strong focus on how finance and sustainability are central concerns. Terms such as "climate change" and "innovation" also show an increasing trend in recent years, reflecting a change in research focus. The discussion in this article highlights that ESG and disclosure practices have taken center stage in the recent literature, with growing interest in how ESG impacts financial performance. The article also emphasizes the importance of transparency in

ESG disclosures and suggests that further research is needed to clarify the relationship between ESG and financial performance, given the mixed results.

This study acknowledges some limitations, such as using only the Scopus database, which although comprehensive, may only cover some publications related to ESG and financial performance available in other databases, such as Dimensions, JSTOR, Openalex, SpringerLink, or Web of Science. Furthermore, future studies can consider using other analyses besides Biblioshiny, such as VOSviewer or Gephi network analysis. VOSviewer performs cluster analysis based on keyword co-occurrence, which can help identify key themes emerging in the ESG literature. In contrast, Gephi can be used for more complex network visualizations, such as analysis of relationships between institutions or authors. In addition, future researchers can also use Meta-Analysis using RevMan, Comprehensive Meta-Analysis (CMA), Content Analysis, or Thematic Analysis with NVivo or ATLAS. ti. Future studies can use these tools and approaches to produce more profound and comprehensive insights into the relationship between ESG and financial performance and strengthen academic contributions in this field. Future research could also explore new themes that may not have been sufficiently addressed in the current literature, such as the impact of ESG on small and medium-sized enterprises (SMEs), ESG in the context of emerging markets, or the role of digital technologies in implementing and measuring ESG performance.

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