

MAPPING THE LITERATURE ON ESG: A BIBLIOMETRIC ANALYSIS

D.P. Warne

Professor in the Department of Commerce, Chaudhary Devi Lal University, India

Kunal Kumar

Research Scholar, Chaudhary Devi Lal University, India

ABSTRACT

This bibliometric study provides a comprehensive overview of evolution of ESG (Environmental, Social, and Governance) research, its key research themes and prominent contributors in this field. In this study we examine 4810 papers on ESG from 2004 to 2024 by using Scopus database. We use VOSviewer and Biblioshiny to present a bibliometric review of publications, authors, countries, keywords, journals and citation structure on ESG. This analysis reveals that as a research field ESG is growing at a very fast pace that can be identify with the increasing number of publications. Country analysis reveals that China and USA are the leading countries in respect of number of publications as well as number of citation. Thematic analysis reveals that Sustainable finance, ESG, ESG performance and ESG investing emerges as key themes in the recent years. Our study gives a broad and comprehensive perspective on ESG research, its key contributors and emerging themes.

Keywords: ESG (Environmental, Social and Governance), Bibliometric analysis, Sustainability, Corporate Social responsibility.

INTRODUCTION

“Business cannot succeeds in societies that fail” this is the quote given by Björn Stigson, (Former President of the World Business Council for Sustainable Development) which reflects on the importance of the societies for the business world. In 21st century society has three major concerns protect the environment for future generations, make their investments safe and make a healthy society for everyone. These 3 concerns explicitly covered by the term ESG which came in to the limelight in 2004 in Who Cares Wins (UN, 2004). As we all know E stands for environmental, S stands for social and G stands for Governance. There have been lot of research published to find a relationship of this phenomenon with the corporate world. There are lot of themes researched viz. Evolution of ESG, ESG and financial performance, Impact of ESG on Corporate performance, ESG and Risk, integration of ESG principles and so on.

Bibliometric analysis helps in analysing the evolution, key- contributions and research trends relating to a particular topic or field. There are many tools viz. Vos-viewer, Citespace, r studio, Biblioshiny which helps in completing the analysis. Wan et al. (2023) examined the available literature on ESG using bibliometric analysis for the period 2004 to 2021 and identified three research trends. They used database Web of Science for their data collection. Khan (2022) study the relationship of ESG performance and its impact while employing meta-analysis and bibliometric analysis. Gao et al. (2021) contributed this field by analysing 690 articles from the Scopus database. With the aim to contribute this field , this study used latest data till 2024 for analysing the paper level metrics including Publication trends, author contributions, citation structure, influencing countries, research trends, prominent documents. Hence this study is trying to contribute with the aim to organise the existing literature with

the help of bibliometric analysis. This study aims to answer the following six questions as follows:

RQ1: What is the pattern of publication on ESG?

RQ2: What are the most proficient sources and their impact?

RQ3: Who are the leading authors contributing in ESG publications?

RQ4: Which countries are focusing more on ESG research?

RQ5: Which are the most relevant documents as per global citation?

RQ6: What information can be inferred to give direction for future research?

The remainder of this paper is structured as follows; the next section includes a brief literature review followed by methodology section. In the subsequent section results and discussion of bibliometric analysis is presented and in the last section conclusions are presented along with limitations and future directions for research.

LITERATURE REVIEW:

ESG is not only a crucial phenomenon for the corporate world but for the societies too. From protecting the current generations from the frauds and inequality to saving the resources for next generation ESG comes forward as a key factor. This review of literature will try to point out the major contributions given by some most cited papers.

In 2004 UN emphasized on integration of ESG within the financial market with the report "Who Cares Wins" that made the term ESG popular all over the world. This report stands on the principles of human rights, environment protection, labor welfare and anti-corruption. However some of the concerns were previously covered by CSR but as a framework ESG gave more depth to the responsibilities and wellbeing of different stakeholders. However many studies used both of these words interchangeably. **Cheng B et al. 2014** stated that the firm with better CSR performance have lower capital constraints and CSR is not only the ethical or social responsibility of firms but it is a strategical tool that can lead firms to better financing opportunities. **Fried et al. 2015** tried to analyses the relationship between ESG and Corporate Financial Performance with the help of meta-analysis by synthesizing over than 2000 empirical studies. It is discovered that approx. 90% of the studies gave non-negative relationship between ESG and CFP and among these studies most had showed positive relationship. In the paper **GILLAN et al. 2021** examined that firm characteristics viz. leadership style, ownership structures, market dynamics plays a key role in ESG/CSR performance of a firm. They also highlight the increasing growth in sustainability reporting by the companies and state in the favour of a positive correlation of ESG performance and Firm value. In their paper "The Importance of Climate Risks for Institutional Investors" **Krueger et al. 2020** authors surveyed the institutional investors in respect of their perceptions regarding climate risk. They discovered that these risks bring financial implications for their portfolio firms and the regulatory risk is the dominating one. They also stated that some of the institutional investors are of opine that the valuation of equity doesn't fully reflect the climate risk. In the paper "The Role of ESG Performance During Times of Financial Crisis: Evidence from COVID-19 in China" **Broadstock et al. 2021** found that in the time of crisis firm with better ESG performance have an edge over firm with lower ESG performance. The ESG can reduce the risk in critical times but in normal times the importance of ESG reduces. It means ESG can be a safeguard against volatility if not for better performance.

Above discussed paper are the top5 most cited documents as per the global citations which highlight the importance of these papers. Most of the studies are in the favour that ESG have a positive relationship with firm value as well as corporate financial performance and have a negative relationship with the risk and volatility.

METHODOLOGY AND DATA

Bibliometric Search

Bibliometric analysis is utilize for analyzing the publication patterns , authors contribution and their relationships, citation structures and many more metrics relating to a particular field. The criteria for the bibliometric search are as follows:

Step 1- Database Search: We used Scopus as the database for search as Scopus is a one of the most reputed database which has access to large number of prominent Publications. We used “ESG” or “environmental, social and governance” as the search keyword. The search period was 2004 to 2024 and it obtained 13934 papers.

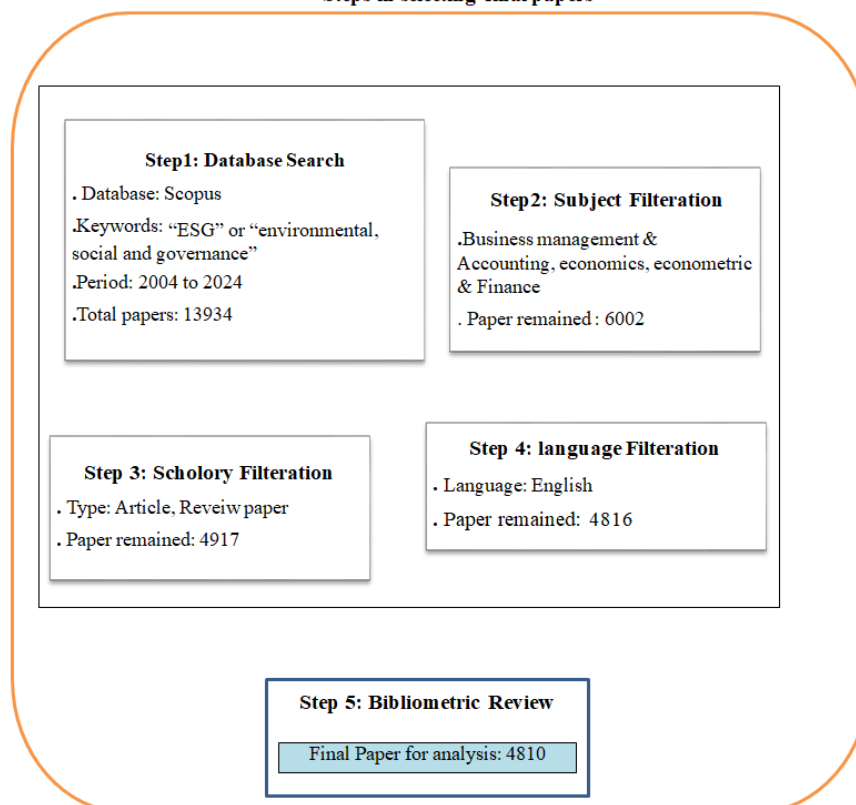
Step 2 – Subject Filtration: We retained Business management & Accounting, Economics, Econometrics & Finance for the subject filtration. In this step we obtained 6004 papers.

Step 3 – Scholarly Filtration: For the reliability of the research we retained articles and review papers in this filtration step. This reduced our count to 4917 papers.

Step 4 – Language Filtration: in this step we retained only those papers that are written in English for the consistency of our study. This reduced count to 4816 papers.

Step5 – Bibliometric review: Some papers have missing information for that reason they excluded from our study. So with the final count of 4810 papers bibliometric study was conducted to assess the impact of our selected papers.

Steps in selecting final papers



By following this filtration process 4810 papers were selected for bibliometric analysis.

RESULTS AND DISCUSSION

Analysis of Publications (RQ1)

The Purpose of Analysis of Publication is to ascertain how a particular research topic has been developed over the years. 2004 was the year when the term “ESG” was talked about for the first time in the United Nations report “Who Cares Win”. From fig.1 we can easily reflect on the fact that in the starting years comparatively there were lesser studies were published on the topic of “ESG”. It was the year 2019 when for the first time per year publication count crossed 100 and a dramatic shift can be seen in the publication numbers. In the year 2024 the per year publication count crossed 2000 papers and cumulative numbers also very close to 5000 papers. This only reflects the growing attention of researcher in the area of “ESG”.

Fig.1- number of Publications on ESG from 2004 to 2024

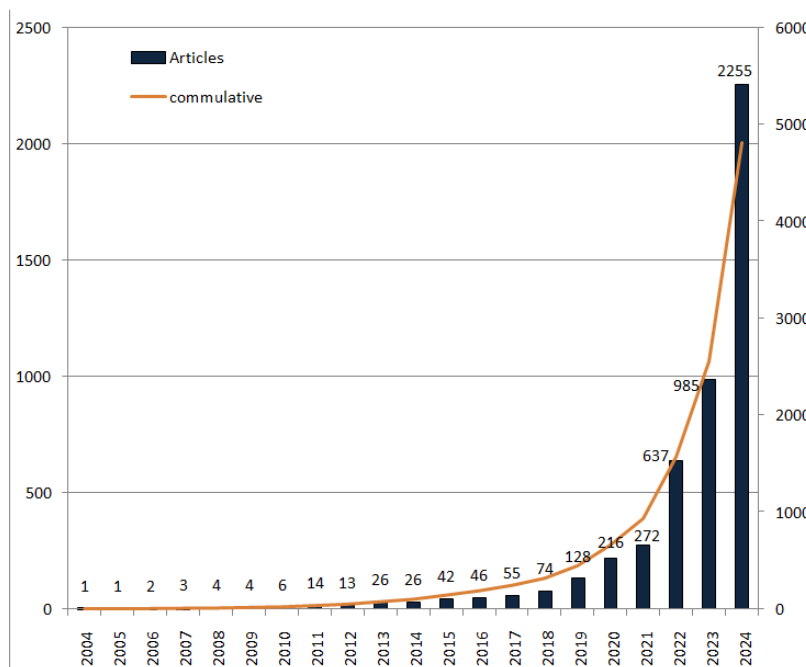


Fig.1- number of Publications on ESG from 2004 to 2024

Analysis of Publishers (RQ2)

The number of ESG publication in top 10 journals is depicted in Fig.2 and their citation numbers also listed in table1. As for the numbers of publications concerned Finance Research Letters has published the most number of Papers (290) followed by Corporate Social Responsibility and Environmental Management (222). However if we see the number of citations a journal received Business strategy and the environment (7443) tops the list followed by Finance Research Letters (5891). In the table1 the local impact of journals is denoted by H-index. H-index measures the productivity and impact of a researcher’s work. It is calculated by counting the number of publications that have been cited at least as many times as the publications number. Business strategy and the environment has the highest h index (49) followed by Corporate Social Responsibility and Environmental Management (39).

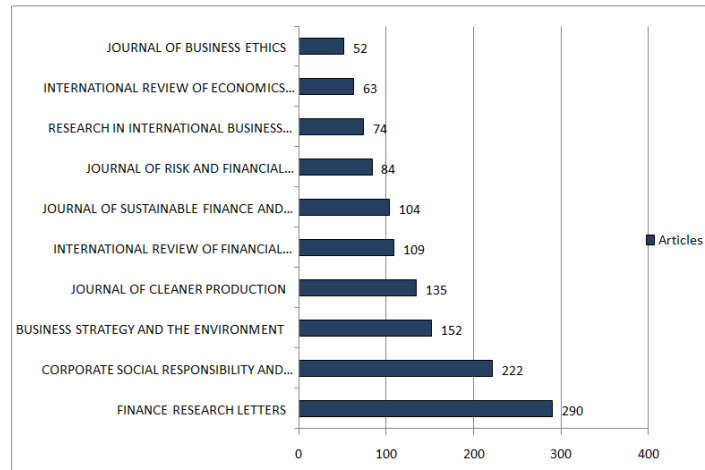


Fig.2 – Top 10 Journals Publishing on ESG

Table1: Top 10 influencing Journal Publishing on ESG

Source	H index	G_index	m_index	TC	NP	PY_start
Business strategy and the environment	49	85	3.769	7443	152	2013
Corporate social responsibility and environmental management	39	70	2.167	5553	222	2008
Journal of cleaner production	38	70	2.923	5296	135	2013
Finance research letters	37	68	3.364	5891	290	2015
Journal of business ethics	31	52	1.824	5650	52	2009
International review of financial analysis	25	50	2.273	2683	109	2015
Journal of sustainable finance and investment	23	58	1.533	3536	104	2011
Research in international business and finance	21	43	2.333	1971	74	2017
Sustainability accounting, Management and policy journal	20	39	1.333	1562	48	2011
Energy economics	18	32	2.571	1076	49	2019

Analysis of Authors (RQ3)

Table-2 top 10 authors based on number of articles published

Rank	Authors	Articles
1.	Buallay, amina	18
2.	Hussainey, khaled	14
3.	Makarenko, inna	13
4.	Uyar, ali	13
5.	Al amosh, hamzeh	12
6.	Hassan, m. Kabir	12
7.	Zhang, dongyang	12

8.	Albitar, khaldoon	11
9.	Karaman, abdullah s.	11
10.	Khatib, saleh f. A.	11

Analysis of authors helps in identifying that which authors are doing prominent work in the specific field so the researcher may follow their work, learn and extend the existing literature. From table2 it is known that buallay is leading authors with 18 articles as per the number of publication concerned also from table2 we can say buallay is also the most impactful researcher with h index of 14 in the category of ESG research. Hussainey Khaled ranked 2nd in both tables with 14 articles and h index of 10. Other writers with high h index are Zhang dongyang, serafeim George, Uyar ali , feng gen fu all have h index more than 8. In the list serafeim George is the only author who crossed 1000 total citation. He received 3486 total citation across his all work. He started publishing papers in 2014 and received many awards for his contribution in research relating to sustainability and integration of ESG issues in business strategy and investing. From table2 we can also identify that most of the prominent researcher started publishing their research in and after 2020.

Table-3 top 10 authors based on their impact score

Rank	Author	h_index	TC	NP	PY_start
1.	Buallay Amina	14	732	18	2019
2.	Hussainey Khaled	10	767	14	2020
3.	Zhang Dongyang	10	571	12	2022
4.	Serafeim George	9	3486	9	2014
5.	Uyar Ali	9	606	13	2020
6.	Feng Gen-Fu	8	436	9	2022
7.	Giannarakis Grigoris	8	699	8	2013
8.	Karaman Abdullah S.	8	515	11	2020
9.	Kuzey Cemil	8	252	9	2020
10.	Al Amosh Hamzeh	7	287	12	2022

Analysis of Countries (RQ4)

Table 4 represents the top 10 countries with number publications on ESG. China tops the list with 918 articles followed by USA 366 and ITALY 304. In table 4 SCP stands for Single country publications and MCP stands for multiple country publication. MCP denotes the collaboration of a country's authors with other countries authors. In the table 4 UK has the highest MCP% (53.27) followed by France (49.19) and Korea (32.08). With the help of table 5 the analysis based on the citation received by a country's publication highlight that USA secured the first rank with 13410 citations closely followed by China with 13210 citations and UK comes third with 8478 citations. However in average article citations Germany tops the list (55.8) followed by UK (39.6) and Australia (39.3). This analysis also indicates that Countries like Germany and Australia have limited number of publications but their each publication is highly cited by other researchers. There is also another key highlight that Developed (USA, UK) and developing (China, India) countries both have contributed significantly in ESG research.

Table4: Top10 countries publishing on ESG

Rank	Country	Articles	Articles %	SCP	MCP	MCP %
1.	China	918	19.08523909	727	191	20.8061
2.	Usa	366	7.609147609	256	110	30.05464
3.	Italy	304	6.32016632	228	76	25
4.	India	278	5.77962578	248	30	10.79137
5.	Uk	214	4.449064449	100	114	53.27103
6.	Germany	137	2.848232848	97	40	29.19708
7.	Spain	135	2.806652807	97	38	28.14815
8.	Korea	134	2.785862786	91	43	32.08955
9.	Australia	129	2.681912682	96	33	25.5814
10.	France	124	2.577962578	63	61	49.19355

Table5- Top 10 countries with most citation on ESG publication

Rank	Country	TC	Average Article Citations
1.	USA	13410	36.6
2.	CHINA	13210	14.4
3.	UK	8478	39.6
4.	ITALY	8287	27.3
5.	GERMANY	7645	55.8
6.	AUSTRALIA	5068	39.3
7.	FRANCE	4029	32.5
8.	SPAIN	3186	23.6
9.	INDIA	3147	11.3
10.	CANADA	2358	24.3

Analysis of the most relevant documents (RQ5)

Table 6 represents the documents with the most global citations. Global citations refer to the citations received without filtering (Kent Baker et al., 2020). According to Global citation, with 2059 citations the paper by Cheng B (2014) is the most cited with an average citation of 171.58 per year. Cheng in his paper “Corporate Social Responsibility and access to finance” concluded that better CSR performance relate to the lower capital constraints. Friede G’s paper published in 2015 received 1571 citations with an average of 142.82 per year. In his paper “ESG and financial performance: aggregated evidence from more than 2000 empirical studies” he found that more that 90% of studies found the non-negative relationship between ESG and Corporate Financial Performance. Gillan SI published their paper in 2021 and received 1033 citations with an average of 206.60 per year denotes their important in this field.

Table 6 – Top 10 most globally cited documents

Rank	Paper	Total Citations	TC per Year
1.	CHENG B, 2014, STRATEGIC MANAGE J	2059	171.58
2.	FRIEDE G, 2015, JOURNAL OF SUSTAIN	1571	142.82

governance, esg performance are some of the most occurred keywords. Table 5 shows top 20 keywords based on their total link strength. This shows their relative presence in most of the studies.

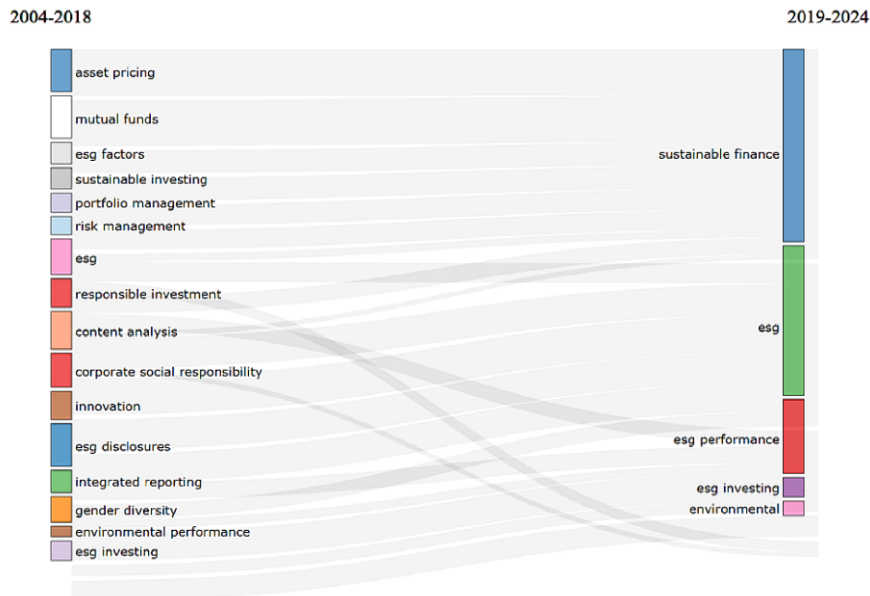


Fig.6 Thematic evolution analysis

Table5: Top 20 Keywords based on their total link strength

Rank	Keyword	Occurrence	Total link strength
1.	esg	1501	3684
2.	sustainability	479	1459
3.	corporate social responsibility	372	1054
4.	environmental	278	950
5.	corporate governance	270	827
6.	esg performance	392	740
7.	social	174	702
8.	governance	152	623
9.	sustainable development	214	581
10.	financial performance	194	578
11.	csr	150	482
12.	esg disclosure	173	469
13.	covid 19	138	424
14.	sustainable finance	114	337
15.	sustainability reporting	118	331
16.	firm value	102	311
17.	environment	80	287
18.	climate change	78	255
19.	firm performance	85	254
20.	stakeholder theory	83	252

Thematic evolution by biblioshiny is used to analyze the changes and evolution of terms over the years. The breakpoint is 2018 as after 2018 the number of publications significantly increased. The analysis highlight that between 2004 and 2018 the terms asset pricing, mutual funds, esg , responsible investment, content analysis, corporate social responsibility and esg disclosures among the ones that frequently used and between 2019 to 2024 the terms sustainable finance, esg, esg performance, esg investing, enviorenmental were used. This shows that sustainable finance, esg and esg performance has come forth as a major theme. Future researches can be done in these areas.

CONCLUSION:

The objective of this study is to dive in to the sea of the ESG research and to analyze how the research related to this particular domain has been developed, who are the prominent contributors in this field and what insight we can get for future research related to ESG. We can highlight our findings in 6 different key points.

1. Importance of ESG research is growing with each passing year however around 40% of the total studies published in 2024 only.
2. From the analysis it can be concluded that the Journals dedicated to Sustainability and environmental studies have higher impact score.
3. From the analysis it can be inferred that many authors with high impact score started publishing in and after 2020.
4. As per the number of publication matters China and USA is far ahead however as for quality studies concerned Germany has highest average article citation.
5. “CSR and access to finance”, “ESG and financial performance: aggregated evidence from more than 2000 empirical studies”, “Firms and social responsibility: A review of ESG and CSR research in corporate finance” are the 3 most globally cited documents.
6. ESG, sustainability, corporate social responsibility, environmental, corporate governance, esg performance are some of the most occurred keywords. Sustainable finance, esg performance and esg investing are the most potential future avenues in ESG research.

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