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The Rise of ESG: A Bibliometric Perspective on it's Integration into Investment Practices

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ABSTRACT

This review article presents a comprehensive bibliometric analysis of 248 articles related to ESG investing from 2011 to 2023. VOSviewer and Biblioshiny, an R package, are used in the study for bibliometrics and science mapping. The terms "ESG" AND "Invest*" OR "Investor*" OR "price*" were used in the search query in scopus database. With a focus on science mapping and performance analysis, the review employs a two-phase bibliometric approach. The results shed light on publication patterns, top nations for ESG research, and the ways that impact investing, SRI, ethics, and ESG have an impact on portfolio and financial performance. The evaluation broadens the study topic for future studies and advances our understanding of the intellectual growth and traits of writers and papers in the field of ESG investing.

Keywords: ESG Investing, Bibliometric Analysis, Science Mapping, Keyword Analysis

1. INTRODUCTION

Impact investing or Responsible investing or ESG investing is the process of incorporating sustainability factors, especially environmental, social responsibility, and corporate governance (ESG), into investments. To attain sustainable development goals (SDGs), capital is obtained and utilized responsibly by investors play a crucial role in contributing towards environment (PRI, 2017). ESG is a term that refers to the elements that are considered when evaluating a firm's performance for non-monetary activities (Galbreath, 2013). Numerous studies (Gillan et al., 2021; Garcia et al., 2017; Fried et al., 2015; Leins, 2020) that examine different facets of implementing the aforementioned principles in ecological protection, investment, business and firm rating attest to the growing popularity of the ESG concept. In past few years, it has been seen that a dramatic increase in the value of ESG portfolios and ESG investing has been attracting more and more responsible investors (Global Sustainable Investment Alliance, 2018). Investors are worried that it's unclear whether investments fall into the category of being socially responsible, and that the lack of guidelines for ESG investments casts doubt on the accuracy of the data available on firms' ESG ratings. (Avetisyan & Hockerts, 2017; Friede, 2019).

In green development model, a key indicator widely accepted by all nations to gauge the sustainable development of businesses, the ESG concept suggests needs to achieve strategic goals of enterprises (Iamandi et al.,2019; Sun and Wang, 2022; Jesus Munoz-Torres et al., 2019). It was discovered that following the ESG guidelines often improves a company's value and efficiency parameters (Alareeni and Hamdan, 2020; Fatemi et al., 2018). Nonetheless, research findings indicate these trends have a major effect on big firms, which draw attention from the general public and for which having a good brand value is essential (Aouadi and Marsat, 2018). In order to achieve SDGs, businesses play a crucial role. Nonetheless, scholars have made limited contributions towards gaining a thorough understanding of this topic and providing an evidence-based evaluation of it. The conventional review places more emphasis on empirical contributions than on synthesizing recent findings. As a result, the field is now large, dispersed, and contentious (Briner and Denyer, 2012).

In order to analyse in-depth overview of ESG activities and investing, this study uses bibliometric and scientific mapping techniques. This will aid in the rapid understanding of the topic by highlighting areas that require more investigation. Bibliometric data for this study has been obtained from Elsevier Scopus Database which is one of the largest digital repositories of research studies, Data is collected by using the title keywords ""ESG" AND "Invest*" OR "Investor*" OR "price*"" and then filtered to subject area, time frame and finally to the English language. The collected data are analysed using Biblioshiny of R software and VOS viewer.

This study addresses the following questions for research (RQs). (1) What exactly are the current patterns for publications, authors, citations, and journals within the ESG and investing realm? (2) What are the existing or future relationships among different topics related to ESG Investing? The study's findings show that, the rising pattern in publications and citations, ESG is a growing field in sustainable finance. The most popular journals for publishing research on ESG investment are Sustainability (Switzerland) and Finance Research Letters. The country United States is with the most articles published in the field of ESG. This is how the article proceeds. The paper's the data and methodology are demonstrated in Section 2. The discussion and results are schematized in Section 3.and the study's conclusion and its policy implications are presented in Section 4.

2. METHODOLOGY

The bibliometric data were obtained from the Elsevier Scopus core collection on December 13, 2023. This database, which covers prestigious international publications, is among the largest digital databases available for literature retrieval (Pranckut, 2021). During the initial screening step, the database's "title" was searched using the following search query: ""ESG" AND "Invest*" OR "Investor*" OR "price*"" The terms were taken from the (Gao et al., 2021). After looking through the necessary papers to find the data needed for this article, we discovered that the terms corporate social responsibility, sustainability, environmental social governance, SRI and ESG are used interchangeably (Zwaan et al., 2015; Limkriangkrai et al., 2017; Garcia et al., 2017). All research publications containing the keywords "investment" and "prices" are covered by the expressions Invest*, Investor*, and price*. As of December 13, 2023, 351 published articles were found in the database according to the first search results.

Only research articles and review papers published in the journal were taken into consideration in the following phase of screening, which sorted the studies based on subject areas and document type because they undergo a thorough review procedure (Sahoo et al., 2022). Additionally, papers were filtered according to the time frame, which is December 13–2023 for 2011–2023. Only publications which are in English are taken into account for this study. Ultimately, as Fig. 1 illustrates, 248 articles from Scopus were taken into consideration. A two-phase bibliometric assessment method that combines science mapping and performance analysis (Donthu et al., 2021). The R package "Biblioshiny" was used to conduct the analysis. The database's properties are revealed by the performance analysis. Descriptive statistics used for the most productive authors, Journals, countries, and citation analysis, the research themes were categorised and examined individually. Furthermore, we employed "VOS viewer" to map and visualise co-occurance network analysis.

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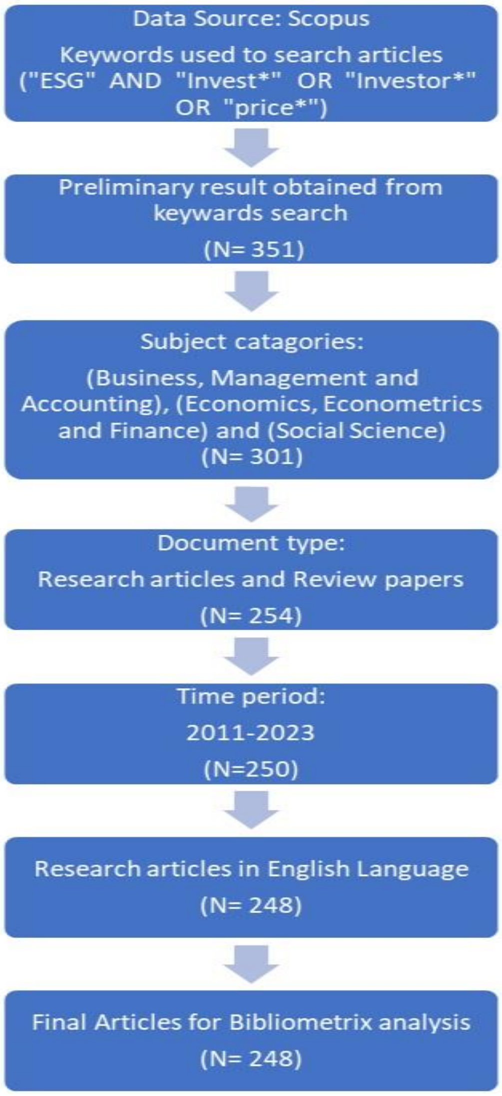

Figure 1. Flow chart of Data collection and filtration technique

3. RESULT AND DISCUSSION

This section discuss about the article publication trends in the study period and also focused on the country wise article production related to ESG investing.

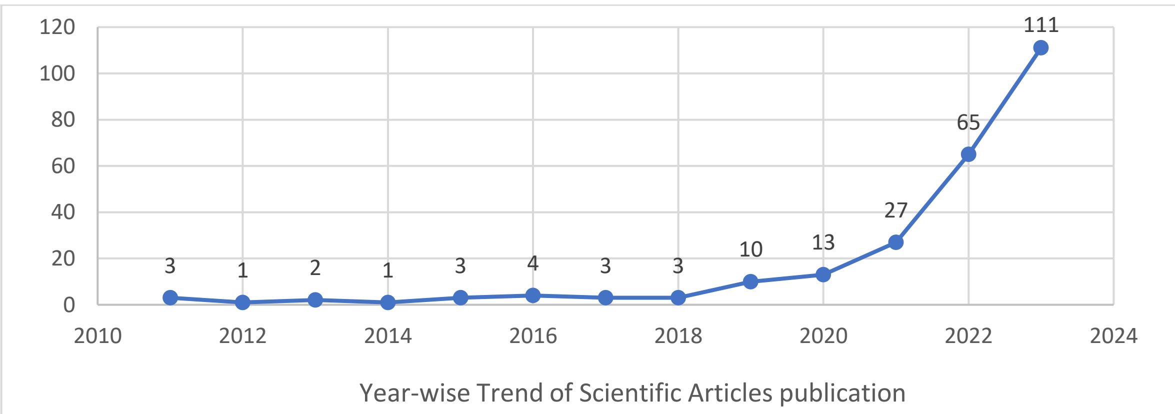

Figure 2. Annual article publication trend

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Fig. 2 depicts the trend of scholarly article publication in the fields of investing and ESG from 2011 to 2023. Although in 2011the first study was published, this could be the result of frameworks for reporting of sustainability in 2010-11 like sustainability reporting and Integrated Reporting introduction (IIRC, 2010; SASB, 2011). the average yearly production in the first five years was just 2, but in the following five years, the average annual publishing grew to more than 6 articles annually. This suggests that while the idea of ESG and investment first surfaced in 2011, not much attention has been paid to it. Nevertheless, it was noted that the annual production spiked in the year 2019 with 10 research publications published in a single year may be because of the 2015 Paris, agreement for climate change. The Description of data are shown in Table. 1

Table 1: Description of the Data used

Description	**Results**
Timespan	2011:2023
Sources (Journals, Books, etc)	130
Documents	246
Average citations per doc	16.8
Single-authored docs	36
article	233
review	11

Source: Authors compilation through Biblioshiny

Fig. 3 Represents the number of papers published with the title keywords used for searching query in Scopus. With 16 articles (6.45) percent the journal Sustainability (Switzerland) leads in the article production race and the second in number is Finance Research letter with 15 articles (6.04) percent.

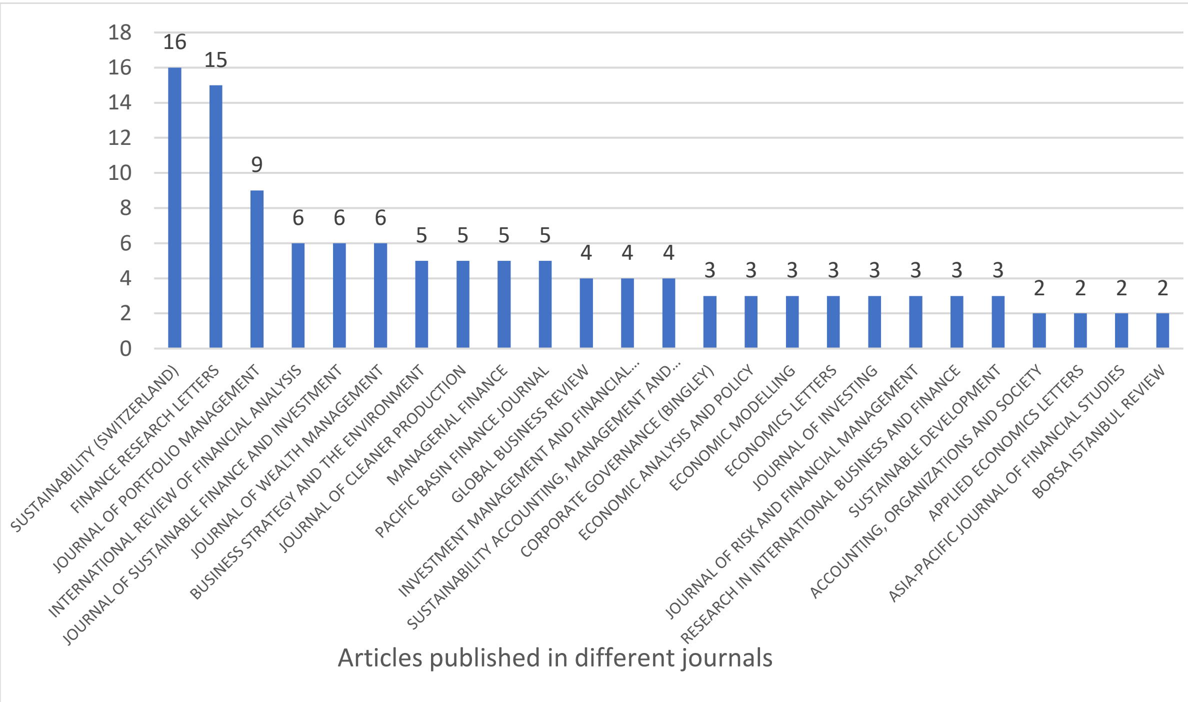

Figure 3. Journal wise article production

A study's citation indicates its importance and impact. Papers with an increased citation count are seen as having greater influence in a given field of study.

Table. 2 Top 10 cited articles

Sl No	Research Article	Title	Total Citations	TC per Year
1	AMIR AZ, 2018, FINAN ANAL J	“Why and How Investors Use ESG Information: Evidence from a Global Survey” (Amel-Zadeh & Serafeim, 2018)	400	66.67
2	PEDERSEN LH, 2021, J FINANC ECON	“Responsible investing: The ESG-efficient frontier” (Pedersen et al, 2021)	295	98.33
3	VAN DUUREN E, 2016, J BUS ETHICS	“ESG Integration and the Investment Management Process: Fundamental Investing Reinvented” (Van Duuren et al., 2016)	247	30.88
4	HALBRITTER G, 2015, REV FINANC ECON	“The wages of social responsibility — where are they? A critical review of ESG investing” (Halbritter & Dorfleitner, 2015)	179	19.89
5	GIESE G, 2019, J PORTF MANAGE	“Foundations of ESG Investing: How ESG Affects Equity Valuation, Risk, and Performance” (Giese et al., 2019)	161	32.2
6	AUER BR, 2016, Q REV ECON FINANC	“Do socially (ir)responsible investments pay? New evidence from international ESG data” (Auer & Schuhmacher, 2016)	144	18
7	ADAMS CA, 2022, CRIT PERSPECT ACCOUNT	“Connecting the COVID-19 pandemic, environmental, social and governance (ESG) investing and calls for ‘harmonisation’ of sustainability reporting” (Adams & Abhayawansa, 2022)	130	65
8	AVRAMOV D, 2022, J FINANC ECON	“Sustainable investing with ESG rating uncertainty “(Avramov et al., 2022)	119	59.5
9	DEMERS E, 2021, J BUS FINANC ACCOUNT	“ESG did not immunize stocks during the COVID-19 crisis, but investments in intangible assets did” (Demers et al., 2021)	108	36
10	FENG J, 2022, FINAN RES LETT	“ESG rating and stock price crash risk: Evidence from China” (Feng et al., (2022)	97	48.5

Source: Authors compilation through Biblioshiny

The top ten cited papers in the repository are presented in Table 2. The average number of citations per document is 16.8, can be seen from Table 1. With an average citation rate of 66.67%, the paper by Amir and Serafeim (2018) was published

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in the Financial Analysts Journal is the most cited article. It can be seen from Table 2 that most of cited documents from the data are basically focus on the Responsible investing and Integration of ESG information in investment decision.

1. (Amel-Zadeh & Serafeim, 2018) analysed how investors utilise institutionally provided sustainability information and found the financial performance of investments is significantly impacted by ESG information, yet there are some issues with the accuracy of reported data between companies.

2. (Pedersen et al, 2021) calculated the empirical ESG-efficient frontier and illustrate the advantages and disadvantages of responsible investment by combining many big data sets. Lastly, they use proxies for E (carbon emissions), S, G, and total ESG to evaluate the predictions of the hypothesis.

3. (Van Duuren et al., 2016) the manner in which traditional investment managers incorporate ESG parameters into their investing methodology and discover that a large number of traditional managers incorporate ethical investing into their investment procedure.

4. (Halbritter & Dorfleitner, 2015) analysed relationship between ESG rating and return using the cross-sectional research and discover notable distinctions among the three providers' ESG conceptions. The return on investments significantly impacted by both Bloomberg's and ASSET4's total ESG scores. These findings hold up well over several subperiods. This suggests investors may not able to take advantage of it through an ESG portfolio strategy, but there may be a relationship between returns and ESG ratings.

5. (Giese et al., 2019) analysed relationship between corporate performance and investment valuation and ESG data. According to the research, shifts in an organization's ESG traits could serve as a helpful financial indication. ESG ratings could be a good fit for financial analysis and policy benchmarks.

6. (Auer & Schuhmacher, 2016) examines the results of SRI in the US, Europe, and the Asia-Pacific and discover that an ESG-backed investment strategy's focus on geography and sector, as well as the ESG factors used, have a significant influence on the strategy's performance. Choosing high- or low-impact ESG stocks does not seem to consistently improve or decrease investment performance in comparison to indexes in the Asia-Pacific region and the US.

7. (Adams & Abhayawansa, 2022) In order to dispel three myths about calls for "harmonisation" that aim to streamline reporting about sustainability and ESG analysis and transfer authority for establishing standards to a private sector organisation focused on investors, the paper analyses the proposal for "harmonisation" of sustainability reporting frameworks and standards.

8. (Avramov et al., 2022) examines how ambiguity regarding the company ESG profile affects asset pricing and portfolio implications, which is a significant obstacle to responsible investing. Under ESG uncertainty, the demand for equities drops and the market premium rises in equilibrium.

9. (Demers et al., 2021) investigated performance of ESG disclosed company's' stocks during covid 19 crisis and found the COVID-19 crisis did not significantly affect the relationship between ESG scores and stock market performance. Share price resiliency was strongly correlated with investments in intangible assets. This runs counter to the widely held beliefs that ESG contributed to crisis resilience.

10. Feng et al., (2022) analysed the connections between the stock price risk and ESG ratings.

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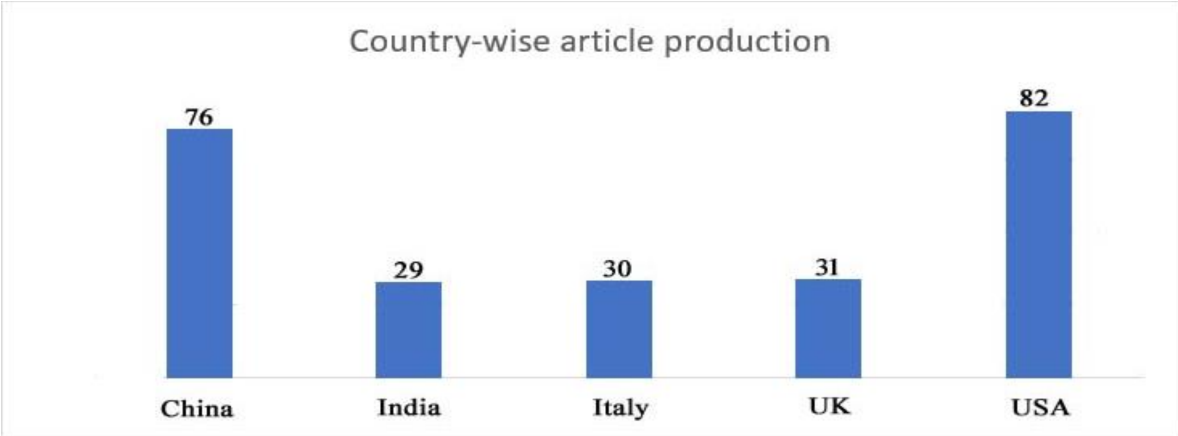

Figure 4. Country-wise article production Analysis

The United States has the largest contribution to research paper publications (82), followed by China (72), the United Kingdom (31) Italy (30), and India (29). Fig. 4 shows how many articles were produced in each nation during the sample period.

Fig. 5 Wordcloud represents the number of keywords used in the research literature used in the study with Investment(23), Sustainability (15), Sustainable development (15), Governance approach (11) Environmental(8), Stock market (6) and Decision making (5) words are used most of the times in the articles taken into consideration for the study so these words are of big size in the figure and Spillover effects(3), Corporate strategy (2), Market system (2) and Strategic approach (2) are used less in the keywords of articles so they are shown small in the word-cloud.

Figure 5. Word Cloud of Keywords

In order to visualise and comprehend the associations between bibliographic items and their related keywords, researchers utilise the co-occurrence analysis technique to examine potential relationships between bibliographic items, such as books, articles, conference papers, etc. Co-occurrence analysis is a useful tool for mapping scientific domains and spotting changes or new trends in the area over time. Researchers can be benefited from this since it can shed light on the connections between various subjects and point forth possible directions for further investigation.

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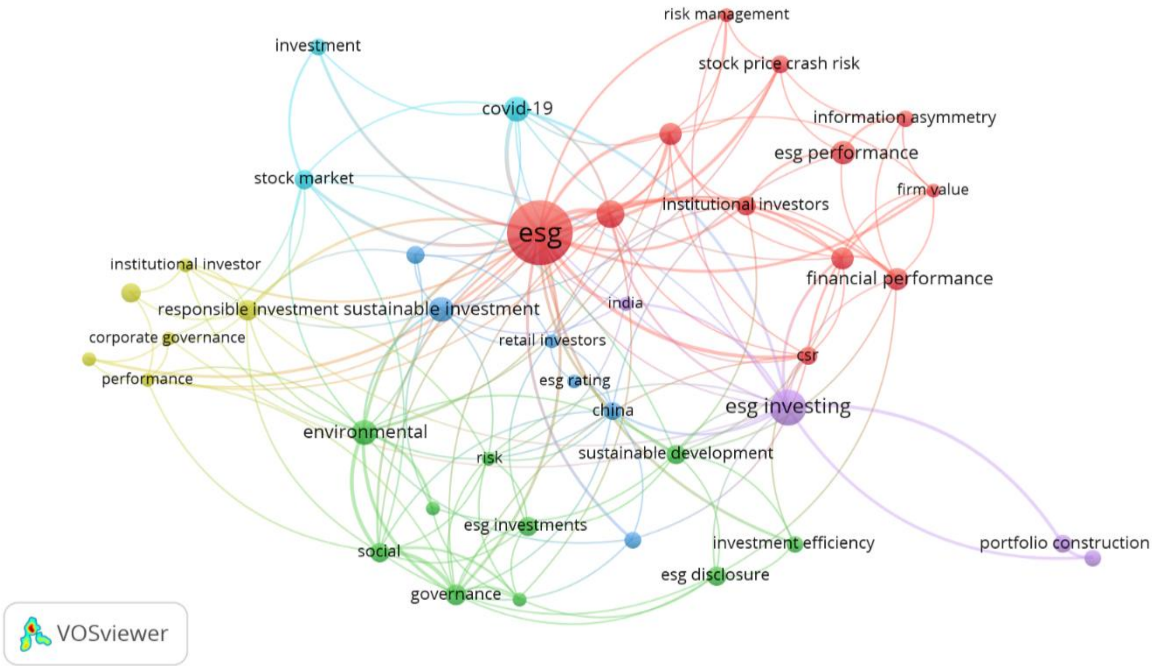

Figure 6. Co-occurrence of keywords

Fig. 6 represents the co-occurance analysis of considered articles which shows there are basically 5 clusters cluster 1 is depicted by orange colour which shows the link between ESG and performance of firms Cluster 2 shows the connection between ESG and Investing which ultimately reflects the usefulness of ESG in portfolio construction. Cluster 3 is represented by green colour which reflects ESD disclosure, ESG Risks and Sustainable development. Cluster 4 is shown in yellow and it shows ESG performance, and institutional investors perception towards the ESG investing. Cluster 5 is in the blue colour which reflects the role of ESG disclosure, retail investors and stock market performance.

4. CONCLUSION

This scholarly investigation contributes significantly to the ongoing academic discourse surrounding ESG investing by presenting the inaugural comprehensive and holistic bibliometric analysis within this domain. The study furnishes a thorough overview of the research landscape, accompanied by a visual representation facilitated through Biblioshiny and VOSviewer. Employing a string-based search methodology, our inquiry delves into the bibliometric characteristics of Environmental, Social, and Governance (ESG) investing.

Through our research, we have discerned the most influential articles, most influential authors, identified common keyword clusters, delineated sub-themes, and elucidated focal points within the evolving domain of ESG investing. Our descriptive bibliometric approach suggests that ESG investing constitutes a relatively nascent research field, exhibiting bibliometric patterns akin to those found in related research domains. This interdisciplinary nature is evident in its propensity to draw inspiration from diverse backgrounds, affirming its position as a dynamic and interdisciplinary field of study. Research related to ESG investing in business, management, finance and accounting area mostly started in 2011 with 2 articles and increases up to 211 articles in 2023. An increasing trend has been marked since 2019. Sustainability and Finance Research Letters are top two journals in ESG investing research. "Why and How Investors Use ESG Information: Evidence from a Global Survey" is the highest cited article in this domain with 400 citations Amel-Zadeh and Serafeim (2018), followed by "Responsible investing: The ESG-efficient frontier" with 295 citations (Pedersen, 2021). United States of America is the top producing country followed by Chaina and United Kingdom. India stood fourth to this list. Investment, sustainability and sustainable development are the buzz word in this field of research and frequently used in this literature.

In contemplating prospective research endeavours in the realm of bibliometric analyses within ESG investing, a compelling avenue of exploration lies in ascertaining the stability of the observed patterns over time. Thus, we propose the prospect of revisiting this subject within a reasonable timeframe, employing a methodology that aligns with the current study for comparative purposes. Such an endeavour could unveil new subthemes, affording the opportunity to augment and incorporate them into a social network, akin to the methodology implemented in the present paper. Furthermore, an intriguing avenue for future inquiry involves an examination of the specific common keyword areas and an exploration of how these emergent sub-themes interrelate with the broader context of socially responsible investing. Additionally, delving into the dynamic interplay between the academic discourse and the perspectives of industry practitioners could yield valuable insights, fostering a more comprehensive understanding of the multifaceted landscape of ESG investing.

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