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Why do investors prefer sustainability? A bibliometric review and research agenda

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Abstract

Purpose – The study aims to identify the trends in the scholarly works on investors preference toward sustainable investments by synthesizing their knowledge structures.

Design/methodology/approach – A systematic search approach using PRISMA protocol on the Scopus database was used to generate a sample of 403 publications for the purpose of bibliometric analysis. The study performed a range of analyses, including three-field plot analysis, thematic mapping and cluster analysis using the VOSviewer and Biblioshiny software.

Findings – The key findings comprise the identification of four clusters within the subject, namely, corporate social responsibility and environmental, social and governance (ESG) investing, ethical investing, green finance and socially responsible investments. This study offers a clear picture of the publishing advancement and research diversification of four selected clusters' research themes, and cluster subthemes.

Practical implications – The research reveals the social and intellectual structure of the field, which provides the future researchers an insights into emerging themes and provides them opportunities for collaboration as well. The outcomes of the research hold significance for policymakers, governing bodies, aspiring scholars, advocates for the environment and investors. It offers an insightful framework for implementing sustainable practices, balancing profits, and environmental risks and creating value from environmentally conscious research and practice.

Originality/value – The future direction and extensiveness of research work have been explored using the themes generated. To the best of the authors' knowledge, this study, which combines the VOSviewer and Biblioshiny tools, is likely the first attempt to provide a thorough bibliometric analysis in the research sphere of investors preferences toward sustainable investments.

Keywords Sustainable investments, Investors, Bibliometric analysis, VosViewer

Paper type Literature review

1. Introduction

Standard finance has been built on the fundamental concepts of modern portfolio theory and the capital asset pricing model, where investors focused on the standard parameters of profitability and risk while making investment decisions (Markowitz, 1952; Merton, 1969; Samuelson, 1969). Remarkably, the notion of pursuing investments that encompass social, environmental and governance factors into consideration existed from the very start and took

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inspiration from the underlying principles of corporate governance (Mayer, 1997; Cadbury, 2000), corporate social responsibility (CSR; Jones, 1980; Moir, 2001), triple bottom line (Elkington, 1997a, 1997b; Norman and MacDonald, 2004) and other pertinent ideas.

Corporate governance can be defined as an atmosphere of trust, ethics, moral principles and confidence which is a synergistic endeavor including all societal constituencies, including the government, the public, professionals, service providers and the corporate sector (Aras and Crowther, 2008). However, the notion of CSR involves firms incorporating social and environmental issues into their commercial operations and their voluntary interactions with stakeholders (Commission of the European Communities, 2001). The thrust of the modern approach to CSR is the company's triple bottom line performance (Elkington, 1997a, 1997b). This method provides the social, environmental and economic aspects with equal consideration. The fundamental tenet of triple bottom line performance is its voluntary nature, which benefits sustainable businesses by giving them a competitive edge (Porter, 1996).

Combining social and financial considerations with investment decisions have been anchored in early 19th-century religious groups like how they function today. They were first referred to as ethical investments (Simon *et al.*, 1972; Domini, 1984) and then as socially responsible investing (SRI; Hofmann *et al.*, 2007a; Nilsson, 2007; Renneboog *et al.*, 2008; Berry and Junkus, 2012). Now, it is commonly known as sustainable investments and has increasingly attracted interest among market players around the world (Avramov *et al.*, 2021; Shanmugam *et al.*, 2022; Gutsche *et al.*, 2023). However, after the genesis of the "Sustainable Development Goals," a vision of investment that integrates the environmental, social and governance (ESG) concerns was elevated.

The coinage of "sustainable development" (SD) first appeared in the World Charter for Nature in 1982, indicating that the term originated in the context of environmental concerns. In 2014, the United Nations member states proposed a set of Sustainable Development Goals, or SDGs, following a decision made at the Rio + 20 Conference and after more than a year of intergovernmental work by what was called an Open Working Group (United Nations, 2014). ESG factors have emerged as crucial concerns in the effort to tackle the challenges raised by the United Nations Sustainable Development Goals (UNDP, 2015), leading to a new era of thinking toward the concept of sustainable investments. International bodies such as the United Nations Principles for Responsible Investment (PRI), United Nations Environment Programme Finance Initiative (UNEP FI), Global Sustainable Investment Alliance (GSIA), Task Force on Climate-related Financial Disclosures (TCFD), whilst others have also contributed to the proliferation of sustainable investments.

According to the Article 2 Sec (17) of Sustainable Finance Disclosure Regulations (SFDR, 2019) of European Union, Sustainable investment (SI) is the term for financial investments made in pursuits that advance social or environmental goals as long as the recipient companies uphold sound corporate governance standards and the investment does not materially impair the goals in question. Sustainable investment is a method of investing whereby environmental, social and governance (ESG) aspects are considered during the selection and management of portfolios (Global Sustainable Investment Alliance, 2020). Sustainable investing takes governance, social and environmental factors into account in addition to monetary objectives (Pastor *et al.*, 2020) in financial decision-making, for providing the best risk-adjusted and opportunity-directed returns for investors. Gutsche *et al.* (2023) define SI, an investment strategy that takes governance, social and/or environmental factors into consideration, has grown significantly in popularity and market share over the past several years on a global scale.

Sustainable investments encompass a range of investment strategies, such as screening investments through negative/exclusionary criteria, positive/best-in-class and norms-based approaches; integrating ESG factors; investing with a focus on sustainability; impact/community investing; corporate engagement; and shareholder action (GSIA, 2012). The socially conscious funds primarily look for companies with strong ESG standards, whereas green funds are distinguished by companies operating in sectors such as waste management, renewable energy, clean technologies, alternative fuels and clean technologies, among others. Contrarily, faith-based funds are those that are structured in accordance with the laws of Islam, Catholicism and other religions (Lesser *et al.*, 2016). Several investment service providers are currently offering investing techniques that incorporate ESG factors as an exclusive service. The practice centers on many nonfinancial aspects of a stock's performance, such as the company's environmental effect, social dimension and governance (Van Duuren *et al.*, 2015).

Sustainable investment has attracted attention of academics and has been well represented in many international journals in Indian context (Iyer and Kashyap, 2009; Sreekumar Nair and Ladha, 2014; Singh *et al.*, 2020; Raut *et al.*, 2020; Vyas *et al.*, 2020; Garg *et al.*, 2022; Thanki *et al.*, 2022; Jonwall *et al.*, 2022a, 2022b; Mishra *et al.*, 2023) as well as in the international context (Glac, 2008; Barreda-Tarrazona *et al.*, 2011; Berry and Junkus, 2012; Adam and Shauki, 2014; Lapanan, 2018; Brunen and Laubach, 2021; Christiansen *et al.*, 2023), which provides an overview of the early developments of this specific domain. Jansson and Biel (2011) investigated the psychological drivers and financial motives that influence major Swedish investments institutions to adopt sustainable investments. The study discovered that future sustainable investment (SI) is not influenced by social and environmental concerns. Rather, financial beliefs about risk and beliefs about increased market shares drive the SI forward. Escrig-Olmedo *et al.* (2012) studied the society's perception about socially responsible investing (SRI) and to identify investor's preferences regarding ESG criteria. Perez-Gladish *et al.* (2012) aimed at expanding the understanding of socially responsible (SR) investor profiles and their motivations when making investment decisions. Borgers and Pownall (2014) provide a descriptive information on investors attitudes toward social responsibility in pension investments. Riedl and Smeets (2017) examined the motives for investors' holdings in sustainable investment funds. The research indicates that social preferences and social signaling account for the reasons behind sustainable investment decisions, while financial considerations are not as significant. Raut *et al.* (2020) examined the drives behind individual investors' intentions regarding sustainable investment in the Indian stock market. The study's findings show that investors' intentions toward SRI are significantly influenced by their attitudes, subjective norms, moral norms, financial literacy and financial performance. Garg *et al.* (2022) looked at the investment habits of Indian retail investors on sustainable investing (SI). The results imply that investors' biases, values and perceptions of investment performance all positively influence their intentions toward SI. Gutsche *et al.* (2023) conducted an empirical analysis of the various financial and nonfinancial incentives that are significant for sustainable investments made at the individual level. The results demonstrate that social preferences along with feelings of warm glow, financial literacy and environmental values are important factors in explaining individual sustainable investing.

Given the growing interest from both academia and industry, it is necessary to map the existing body of knowledge on sustainable investments by providing a thorough overview of the academic literature. Reviews, such as this publication, offer possibilities for the advancement of corresponding research topics. According to Kraus *et al.* (2022), literature reviews can function as an initial step for more extensive research endeavors. Literature reviews

serve to establish a comprehensive understanding of a certain field, thereby providing a theoretical foundation for empirical study (Lim *et al.*, 2022). This study aims to examine the research produced in the field of sustainable investments and investors' preferences to describe its current state and propose future possibilities. Scholars have published prior investigations in the past years that only present a small number of bibliometric analyses that are specifically focused on the concept sustainable investments. Most reviews focus on specific themes, including "Sustainable investments" (Wagemans *et al.*, 2013; Von Wallis and Klein, 2014; Daugaard, 2019; Widyawati, 2019; Chatzitheodorou *et al.*, 2019), which was the subject of a comprehensive literature review. A few meta-analyses of sustainable investments, such as those by Revelli and Viviani (2014), Kim (2019) and Hornuf and Gul (2023) are also a part of the literature. Some critical perspectives on this area offered by Johnsen (2003) and Sparkes and Cowton (2004) shed light into the area of sustainable investments. Despite being a prevalent and developing research area, there is currently no thorough and organized bibliometric analysis available in the field.

This study is primary debut of a bibliometric analysis which specifically focus on the notion of investors preferences for sustainable investments. The study offers two distinct contributions. Primarily, concentrating on the relationship between investors and their preferences for sustainable investments, it fills in the vacuum left by previous literature reviews. Even though prior bibliometric reviews work on the broad concept of sustainable investments, those do not specifically deal with the specific concept of investor preferences toward the same. Second, the paper also attempts to suggest future directions for research on how investors prefer to sustainable investments, along with identifying research trends and emerging themes. It is anticipated that this study will assist researchers who are interested in this field in determining the areas in which to focus their own investigations.

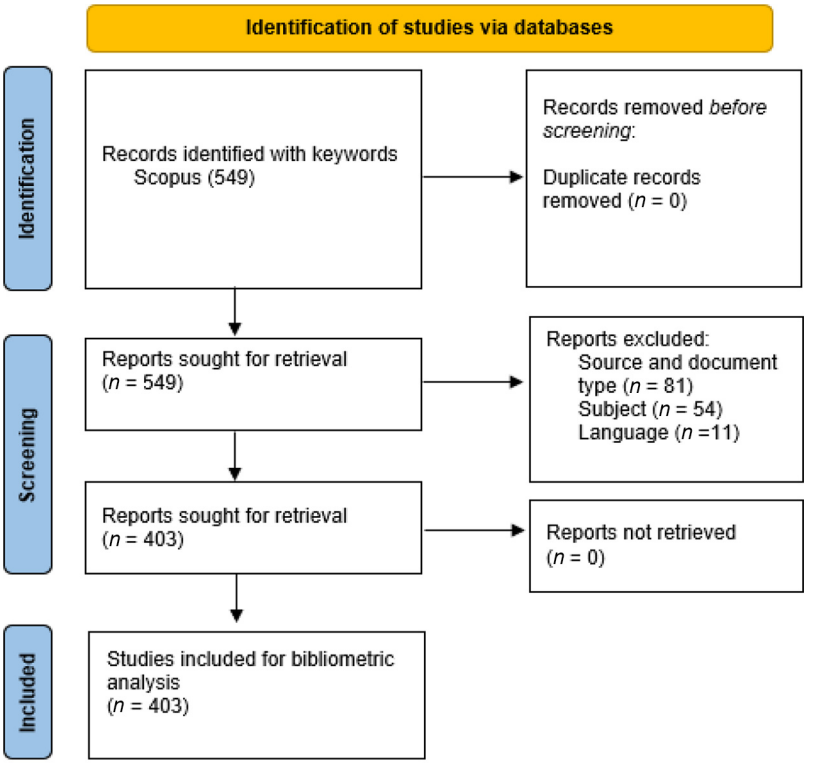
A thorough bibliometric review using qualitative and quantitative methodologies was required to compile the existing literature on this area and offer precise directions for future research. Using the combined analysis methods of Biblioshiny and VoSviewer on the scholarly works emphasized on the "Determinants of investor's inclination towards sustainable investments" gives the study additional uniqueness.

This is how the rest of the paper is structured. A summary of the process is provided in Section 2 and Section 3 discusses the findings, whereas Section 4 gives conclusions and future directions for the field.

2. Methodology

The Scopus database from Elsevier has been used by this research for acquiring data. According to Van Eck and Waltman (2014), Scopus is a highly esteemed abstract and citation database that includes notable articles from esteemed journals and research scholars. More than 27,000 current peer-reviewed journals and more than 90 million documents are available in the database. Scopus was selected above other well-known databases for several reasons. First, while other databases, like PubMed and Web of Science (WoS) are accessible for bibliometric analysis, PubMed is more oriented toward the life sciences and biomedical research (AlRyalat *et al.*, 2019), whereas WoS and Scopus provide multidisciplinary coverage. Second, WoS has 21,419 journals, whereas Scopus has almost 25,100 journals, indicating more coverage than WoS. In addition, Scopus ensures access to 1.7 billion citations, while WoS only offers 1.6 billion (Elsevier, 2020; WoS, 2021). Based on these inferences, we decided to proceed with Scopus for data collecting.

The PRISMA framework was created to assist authors in reporting systematic reviews (Moher, 2019), as illustrated in Figure 1. The business and finance research has recently adopted this framework (Shome *et al.*, 2023; Pranajaya *et al.*, 2024; Kwilinski, 2024). Four



Source: Authors' own work

Figure 1. PRISMA protocol

sequential steps make up the protocol: identification, screening, eligibility and study inclusion. Identification is the first step, and it covers all objects and databases associated with the chosen subject. A range of keywords are used in different combinations during keyword selection, the first stage of bibliometric analysis, to ensure that no article on the specified topic is left out. "Determinants," "Factors," "Antecedents," "Investors intention," "Investors behaviour," "Sustainable invest*," "Socially responsible invest*" and "ESG invest*" are the terms used in this study. The Boolean operation of "OR" and "AND" is used in the keyword's combinations for the first scan that yielded 549 articles.

After duplicate material is eliminated, the number of items is reduced in the second step, screening. Book chapters, newspaper articles and working papers were not taken into consideration for the analysis and the source type was restricted to journals which resulted an output of 460 papers. Instead, we looked at articles and review papers. We choose to use journal articles and review papers because they are regarded as "certified knowledge" and because they go through an evaluation procedure, which gives the results credibility (Ramos-Rodríguez and Ruíz-Navarro, 2004; Danvila-del-Valle *et al.*, 2019). Consequently, we did not consider news articles, proceedings papers or other kinds of documents that could be discovered in databases. Additionally, the subject was limited to business management, accounting, economics, econometrics, finance, social sciences, environmental science and

energy, which yields 414 papers. The initial stage's shortlisted documents were filtered through an “English” language filter to generate the final data set, which consisted of 403 documents.

The inclusion and exclusion criteria are thoroughly described in the third step, eligibility articles are only included if they are closely linked to the discussion of investors preferences toward sustainable investments. By ensuring transparency in the selection and analysis of included papers, the PRISMA framework serves as a valuable resource for other researchers in the field (Booth *et al.*, 2020). The bibliographic application of the R package is used to estimate the bibliographic data and to determine the growth of the field, influential documents, most prolific authors, evolution and three field plots. A total of 403 articles' raw data have been uploaded to Biblioshiny for further analysis. The VOSviewer application is used for network analysis and scientific mapping to find the cocitation network, bibliographic coupling and country collaboration shown in network mapping (VOS viewer, 2015). This programme gathers bibliographic information and presents the findings in several maps and tables.

3. Results and discussions

The study addressed the annual scientific production, average citations per year, most prolific author, most influential documents, most influential sources, top most relevant affiliations, most relevant countries and top most frequent words along with Bibliographic coupling and cooccurrence analysis.

3.1 Sample characteristics

Table 1 illustrates data characteristics with 403 documents published from 2001 to 2023 which contributes 375 articles and 28 reviews. There are 25.67 citations on average per document. With 1,044 authors and 20,882 references, these articles have 1,185 keywords and demonstrate the power of scholarly collaboration in the field of sustainable investments research.

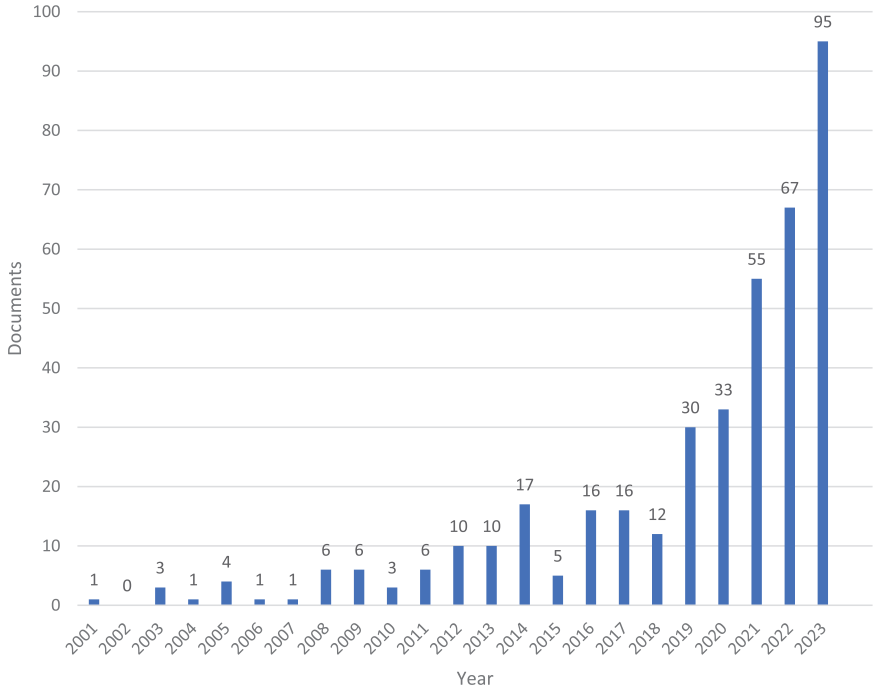
3.2 Annual scientific production

The yearly scientific production in sustainable investments from investor perspectives is depicted in Figure 2. It is evident that research in this area picked up steam after 2007, and it

Table 1. Data characteristics

Timespan	2001–2023
Sources	197
Documents	403
Average citations per doc	25.67
Document average age	3.85
References	20,882
Article	375
Review	28
Author's keywords (DE)	1,185
Authors	1,044
Authors of single-authored docs	50
Authors of multi-authored docs	996

Source: Authors’ own work



Source: Authors' own work

Figure 2. Annual scientific production

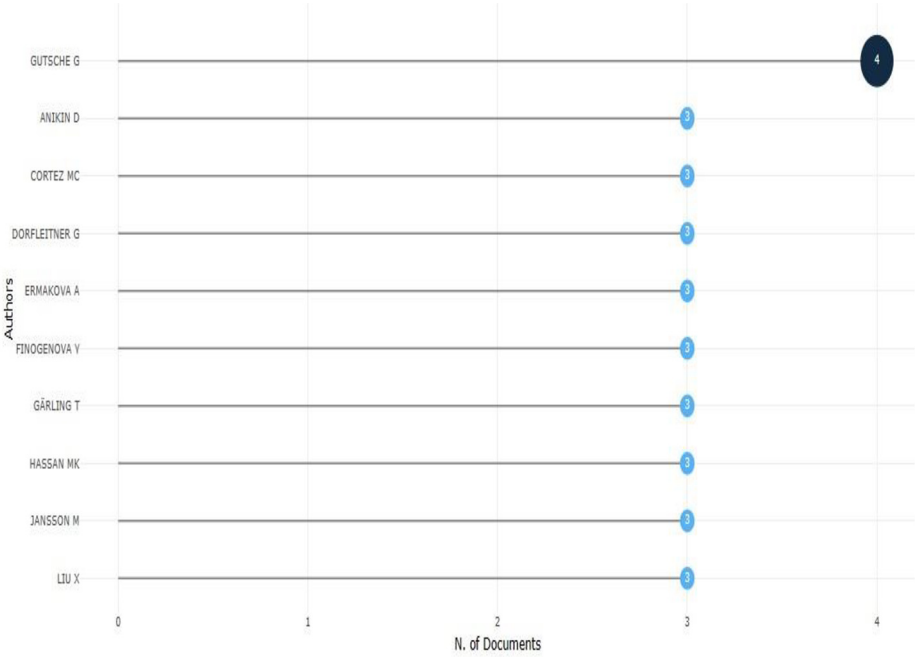
is currently expanding rapidly, with 55 publications coming out in 2021 and 95 by 2023, representing a growth rate of 7.25% annually. The average citation per year is maximum in the year 2011 (12.72) followed by 2005 (9.17) and 2021 (8.99).

3.3 Most prolific authors

The most significant contributors to the field of research are the prolific writers, whose total number of published articles is taken into consideration. There are 48 single authors in the sample of articles analyzed. The study used the combined total number of citations and each author's h-index to rank them to categorize and comprehend their significance. Authors like Cortez, Dorfleitner, Gutsche, Hassan, Richardson, Stambaugh and Zeigler topped the list when relevance was measured by the h-index. According to the volume of publications, Figure 3 shows the writers who are most involved in sustainable investments and Figure 4 shows the most active authors based on number of articles as well as total citations per year.

3.4 Most influential documents

The documents with the highest number of local and worldwide citations are the most influential documents as illustrated in Table 2. The most often referenced paper by Renneboog *et al.* (2008), "The price of ethics and stakeholder governance: The performance of socially responsible mutual funds," drew researchers to continue their research into SRI.



Source: Authors' creation using Biblioshiny

Figure 3. Most prolific authors

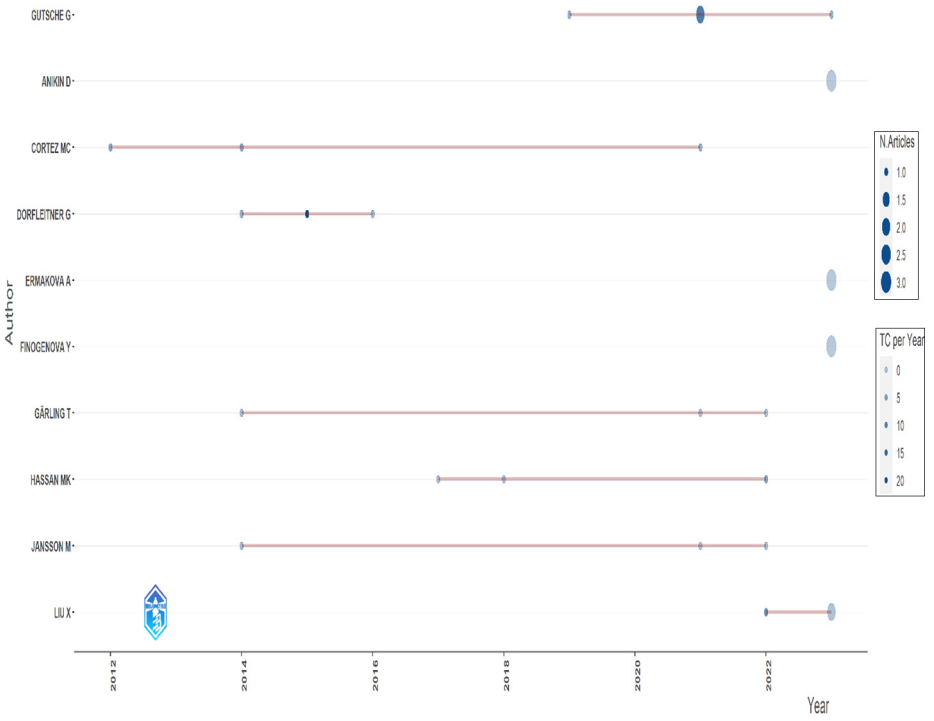
3.5 Most influential sources

A journal's excellence can be evaluated based on two metrics such as h-index and citations. As illustrated in Table 3, the *Journal of Business Ethics* tops the chart of *most influential source* with an h-index of 15 and 1,648 citations. Similarly, the *Sustainability, Corporate Social Responsibility* and *Environmental Management* and *Journal of Sustainable Finance and Investment* continue to expand and appear certain to do soon.

Figure 5 exhibits the growing number of sources, which confirms that there was very little research done in the 1990s on the field of sustainable investments. The stream gained popularity in the early 2000s and experienced significant growth during that time. The field of sustainability has experienced exponential growth, and research articles on sustainable investments have been published in the *Sustainability* journal with increasing regularity. Comparably, the *Journal of Business Ethics* and the *Journal of Sustainable Finance and Investment* publishing are expanding steadily and appear to be doing so in the near future.

3.6 Three field plots

A graphic evaluation of the relationship between well-known authors, referenced sources and author keywords was conducted using Biblioshiny app. The vertical dimension of the rectangular diagrams indicates the strength of the connections between authors, sources and author keywords. The diagrams' colors are chosen to emphasize the most important features. According to Aria and Cuccurullo (2017), a rectangle's component connections increase in size. A network diagram is shown in Figure 6 that shows the relationship between the authors



Source: Authors' creation using Biblioshiny

Figure 4. Most active authors

Table 2. Top 10 most influential documents on SI

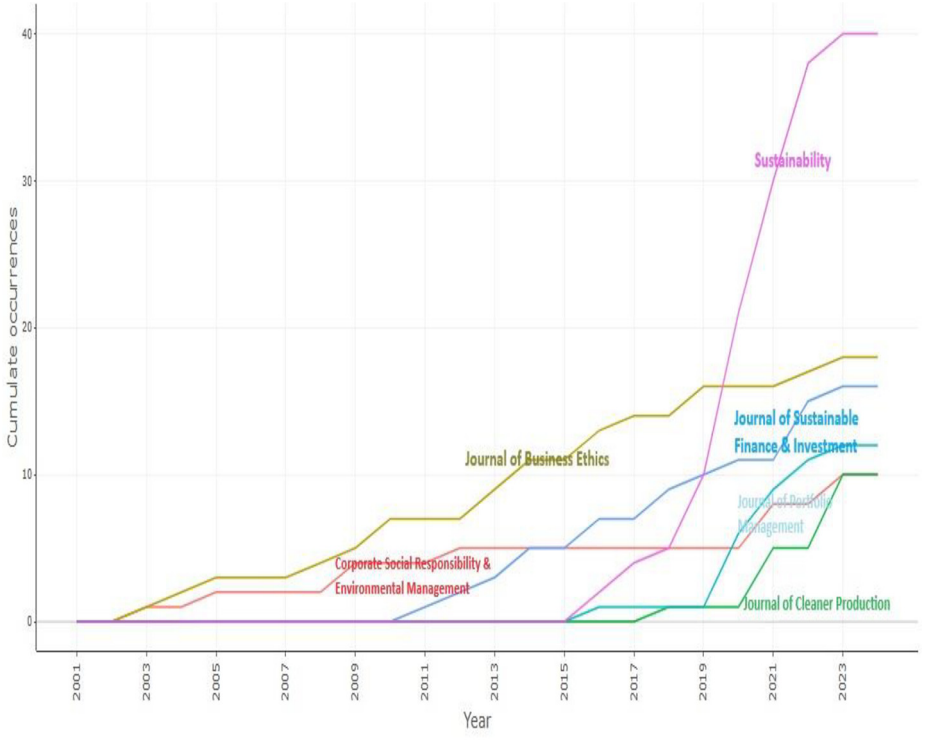
Document	Year	Local citations	Global citations	LC/GC ratio (%)
Renneboog L, 2008, *Journal of Corporate Finance*	2008	40	422	9.48
Derwall J, 2005, *Financial Analysts Journal*	2005	39	512	7.62
Edmans A, 2011, *Journal of financial Economics*	2011	29	877	3.31
Schueth S, 2003, *Journal of Business Ethics*	2003	25	268	9.33
Mclachlan J, 2004, *Journal of Business Ethics*	2004	23	161	14.29
Berry Tc, 2013, *Journal of Business Ethics*	2013	16	125	12.8
Junkus Jc, 2010, *Managerial Finance*	2010	15	46	32.61
Van Duuren E, 2016, *Journal of Business Ethics*	2016	14	248	5.65
Halbritter G, 2015, *Review of Financial Economics*	2015	12	182	6.59
Wins A, 2016, *Business Research*	2016	11	43	25.58
Jones S, 2008, *Journal of Business Ethics*	2008	10	84	11.90

Source: Authors' own work

Table 3. Top 10 most influential sources on SI

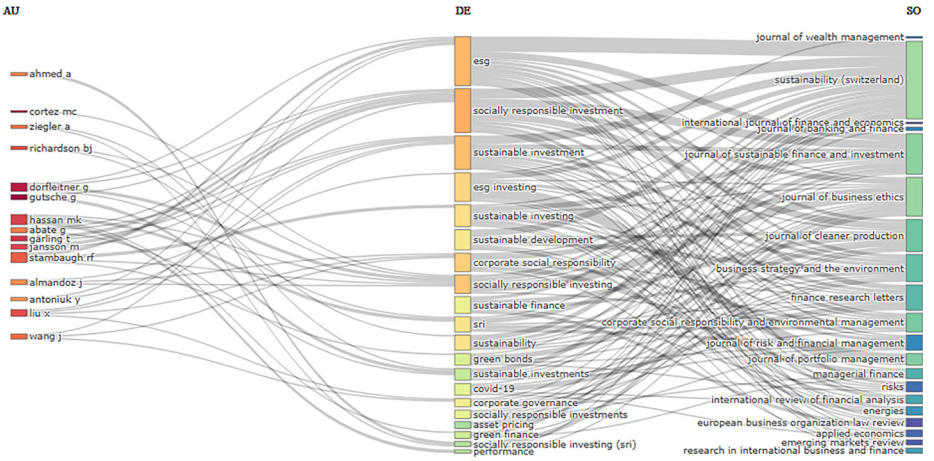
Journal	h-index	g-index	m-index	TC	NP	PY-start
Journal of Business Ethics	15	18	0.714	1648	18	2003
Sustainability (Switzerland)	15	26	1.875	744	40	2016
Corporate Social Responsibility and Environmental Management	8	10	0.381	371	10	2003
Journal of Sustainable Finance and Investment	8	12	0.615	158	16	2011
Finance Research Letters	6	9	2	212	9	2021
Journal of Portfolio Management	6	9	0.75	97	12	2016
Managerial Finance	6	7	0.429	102	7	2010
Social Responsibility Journal	5	6	0.455	56	6	2013
Managerial Finance	4	6	0.286	76	6	2010
Business Strategy and Environment	5	9	0.417	219	9	2012

Source: Authors' own work



Source: Authors' creation using Biblioshiny

Figure 5. Evolution of the sources



Source: Authors' creation using Biblioshiny

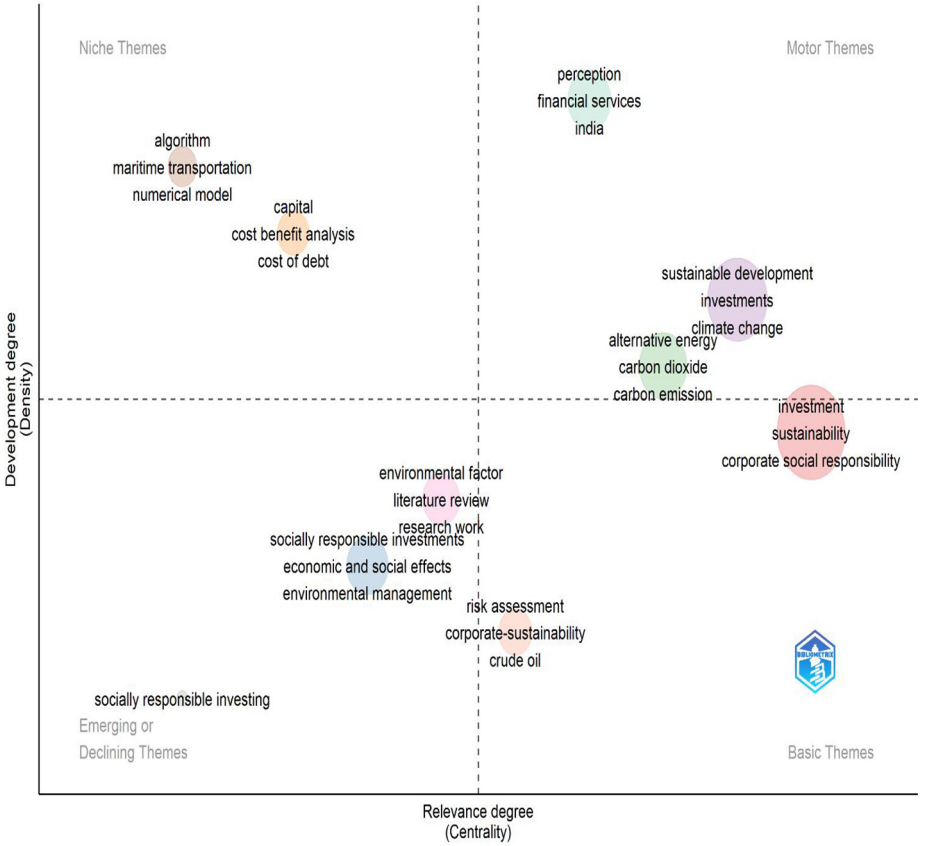
Figure 6. Three field plots

(on the left), their author keywords (in the middle) and sources to learn more about the sustainable investment study (on the right). The study examined the frequency with which writers and publications used specific terms related to sustainable investing. The terms "Socially responsible investment," Sustainable investments" and ESG are the most important.

3.7 Thematic map

The purpose of thematic mapping is to identify relationships between various textual elements. Information can be presented in a way that is easier to grasp by using a themed map (Aria and Cuccurullo, 2017). The map is created using abstracts, article names and keywords. The concepts are arranged in a two-dimensional graphic according to their significance and frequency. This analysis's *X*-axis belongs to gauging the significance of a specific research topic. It demonstrates the topic's centrality. The *Y*-axis shows how far a given study topic has come in terms of development and evolution. It displays the topic's density. To determine the centrality and density of a given study topic, different measures of central tendency, such as mean and median, are typically used. Figure 7 displays four sets of themes based on the authors' keywords and a minimum cluster frequency of five per thousand documents in the thematic analysis.

3.7.1 Q1: upper quadrant: motor themes. The motor themes are in the top-right quadrant. The study topics in this quadrant are highly central and dense, indicating that they are important and have been thoroughly investigated. Three motor topic clusters have been generated by the algorithm in this quadrant. Climate change, investment and sustainable development are the predominant cluster driving themes. The themes of alternative energy, carbon dioxide and carbon emissions constituted a secondary cluster. The principal goal of sustainable development is the long-term stability of the environment and the requirements of society; to accomplish this, the financial sector ought to promote more environmentally friendly and sustainable economic growth. The challenges posed by warming temperatures underscore the significance of curbing the increase in worldwide emissions of carbon



Source: Authors' creation using Biblioshiny

Figure 7. Thematic map

dioxide, an issue which lawmakers and experts regard as of utmost importance. The rise in worldwide carbon emissions is believed to reflect the benefits of renewable energy. On the other hand, worldwide investment in renewable energy remains consistently low (Appiah-Otoo *et al.*, 2023). Numerous research has been conducted on these ideas, which establish a connection between sustainable investments and unfavorable climatic effects. These concepts are well-suited for performing systematic literature reviews and bibliometric analyses.

3.7.2 Q2: lower-right quadrant: basic themes. Basic themes are shown in the lower-right quadrant with low density but high centrality since the ideas in this field are significant but not yet completely explored. The primary cluster in this quadrant consists of investment, sustainability and CSR. The secondary cluster in this quadrant is made up of themes corporate sustainability, risk assessment and crude oil. The core tenet of CSR is that businesses should engage in more meaningful, noneconomic societal roles than just manufacturing products and turning a profit. This involves socially and ecologically

conscious acts; in other words, the business sector should go above and beyond its profit-driven commercial activities to improve the general welfare and ultimately make the world a more harmonious place (Robins, 2008). The CSR and sustainability themes are therefore considered fundamental research themes because they have not yet reached a mature stage of development. Studies focusing on investments that connect CSR with sustainability can still be conducted because these fields have yet to become due.

3.7.3 Q3: lower-left quadrant: declining themes. Lower-left quadrant depicts the clusters that have limited and shaky connections to other themes that could emerge or vanish within the research area. Since we are getting close to a field of study that has grown significantly from 2000s, the topics in this quadrant are considered as declining ones. Much exploration is not essential on these topics because these have been thoroughly investigated and are expiring. The core clusters in this quadrant include SRI, economic and social effects and environmental management. The term "socially responsible investment" (SRI) is an approach to investing that links an investor's ethical, ecological and economic concerns by attempting to combine a monetary return with social and/or environmental perks (Brzeszczynski and McIntosh, 2013). SRI emerged primarily because of environmental consciousness, as people who were concerned about the environment tried to find a method to match their investments with their values (Folque *et al.*, 2021). Even though there have been studies in these areas, there is only a few rooms for in-depth investigation because these themes are continually declining.

3.7.4 Q4: upper-left quadrant: very specialized themes. Despite having a low centrality, the upper-left quadrant has a significant population density. Though they are less centrally related to sustainable investments, themes that have advanced to a high degree of development such as capital, cost benefit analysis and cost of debt remain apart from them. These topics need to be kept apart from studies on sustainable investments because they have been extensively examined. A sustainable investment approach aims to improve society and the environment in addition to generating financial gains. It is appropriate for investors who uphold fundamental values including rights for people and safeguarding the environment while also looking for monetary benefits from a business's operations (Landier and Nair, 2009; Sharma *et al.*, 2021).

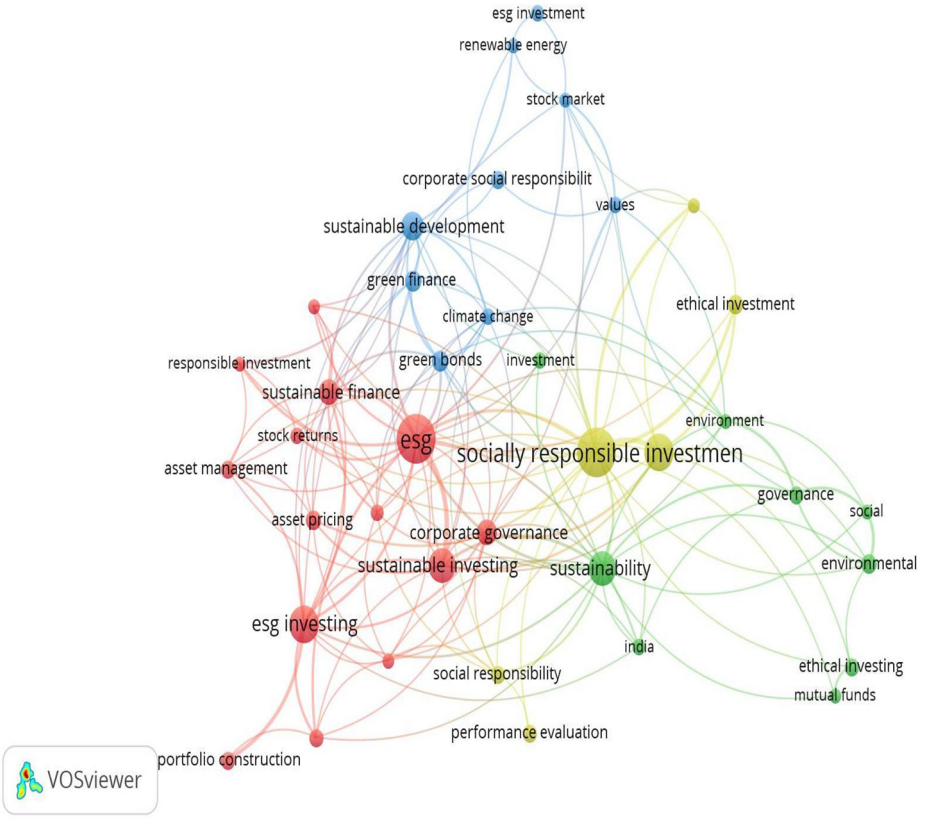
3.8 Cluster analysis

Figure 8 shows a map of keyword occurrences. To improve the cooccurrence results, a minimum of five instances of a keyword are chosen by default. Significant patterns in the data may be veiled by lower criteria, such as two, which may include a large number of erroneous or unnecessary cooccurrences. By increasing the threshold to 5, some of this noise can be filtered out and the most pertinent associations can be highlighted. Only 38 terms out of 1,718 satisfied the criteria of minimum occurrence of five instances.

These keywords were grouped into four groups on the result map. There are 14 keywords in cluster 1 (red), 9 keywords in cluster 2 (green), 9 things in cluster 3 (blue) and 4 items in cluster 4 (yellow). These clusters display the research streams in sustainable investments that revolve around a particular topic. These clusters exhibit the research areas that revolve around a particular topic in sustainable investments.

The 38 items produced by keyword occurrence map are divided into four clusters. Cluster 1 has 14 items, clusters 2 and 3 have 9 items each and cluster 4 consists of 6 items:

- *cluster 1:* corporate social responsibility and ESG investing;
- *cluster 2:* ethical investing;
- *cluster 3:* green finance; and
- *cluster 4*: socially responsible investments.



Source: Authors' creation using VoSviewer

Figure 8. Keyword occurrence map on SI

3.8.1 Cluster 1. Total 14 keywords make up the most noticeable cluster (red), which unifies papers related to sustainability research. This cluster includes keywords linked to corporate social responsibility and ESG investing, indicating a thematic emphasis on how corporate governance and responsible investment practices connects with financial performance and asset management strategies. This cluster encompasses: responsible investment, sustainable finance, stock returns, ESG, asset management, asset pricing, corporate governance and sustainable investment. The increasing significance of incorporating ESG factors into investment decisions has been highlighted by the existence of phrases like sustainable investment, responsible investment and ESG. The growing demand from investors for business behavior that takes ethics and transparency into account frequently serves as the driving force behind this integration.

The frequent cooccurrence of corporate governance with ESG investing suggests that strong corporate governance standards appear to be associated with a higher likelihood of companies participating in ESG activities (Karwowski and Raulinajtys-Grzybek, 2021; Camara, 2022). This reflects an overall shift where solid governance is reflected as a

foundation for sustainable business practices. The focus on integrating ESG elements into investment portfolios is indicated by keywords such as asset management and portfolio construction. This connection emphasizes the critical role asset managers play in creating portfolios that satisfy sustainability standards in addition to financial gains (De Spiegeleer *et al.*, 2021; Xidonas and Essner, 2022). Within this cluster, the keywords "stock returns" and "asset pricing" draw attention to studies examining the financial performance of ESG investments. To address concerns referring to the trade-off between profitability and sustainability, studies often dig into the question how sustainable investments yield competitive returns when compared to traditional investments (Chen *et al.*, 2021; Bannier *et al.*, 2023).

3.8.2 Cluster 2. The terms in this cluster, which revolves on ethical investing, represent notions and techniques of making investments whilst taking ethics into account. Sustainability, India, investment, environment, governance, social, ethical investing and mutual funds are some of the important terms in this cluster. This cluster emphasizes the significance of sustainability, governance and social effects while highlighting the focus on incorporating ethical considerations into investment decisions. Choosing investments according to moral principles entails ethical investing, which frequently places a higher priority on social and environmental issues than on financial gains.

The keywords "environment" and "sustainable" are commonly used in tandem, highlighting how important the protection of the environment is in terms of ethical investing. This shows that the objective of fostering long-term environmental sustainability and ethical investment practices is strongly aligned. The combination of social and governance principles with ethical investing suggests a comprehensive strategy that takes social effect and corporate governance policies into the equation (Puaschunder, 2018; Alda, 2021; Jonwall *et al.*, 2022a, 2022b). Companies that exhibit a strong commitment to social responsibility and have strong governance frameworks are frequently sought after by ethical investors (Hofmann *et al.*, 2007a, 2007b; Pilaj, 2015).

India's participation draws attention to case studies or regional studies that concentrate on the ethical investing practices that exist there. This geographical approach could shed light on the adoption and use of ethical investing in various regulatory and economic environments (Dutta *et al.*, 2021). The term "mutual funds" implies that the management of these investments is done so in accordance with ethical investing standards. This suggests that investors are becoming more interested in mutual funds that follow moral standards and provide them the chance to use their money to promote social and environmental objectives (Utz and Wimmer, 2014; Sandberg and Nilsson, 2015).

3.8.3 Cluster 3. With a focus on green finance, this cluster incorporates keywords that encapsulate the values and procedures associated with financing initiatives that advance environmental sustainability. This cluster's key notions are: climate change, green bonds, sustainable development, corporate social responsibility, stock market, renewable energy, ESG investment and green finance. With a focus on investments that support green efforts, this cluster emphasizes the importance of incorporating environmental sustainability into financial processes. Allocating funds to initiatives that support environmental goals, such as halting climate change and advancing renewable energy, is known as "green finance."

The frequent cooccurrence of ESG investment and CSR highlighted the association between green finance and corporate practices that gave precedence to ESG criteria. This intersection hints that green finance is often aligned with broader CSR goals, where companies commit to sustainability beyond financial performance (Sadiq *et al.*, 2021; Chen *et al.*, 2023). Terms like "climate change" and "renewable energy" draw attention to how important green finance is in helping to both combat climate change and facilitate the switch

to renewable energy sources. A major element of green finance is investments in renewable energy projects, which demonstrate a dedication to lowering carbon emissions and promoting sustainable development (Li *et al.*, 2021; Rasoulinezhad and Taghizadeh-Hesary, 2022).

The inclusion of green bonds and stock market reflecting a spotlight on financial instruments tailored to promote environmentally friendly initiatives. Green bonds offer a way to raise money exclusively for environmentally friendly projects, and their stock market performance shows that investors are interested in and confident in sustainable investments (Pham and Duc Huynh, 2020; Pineiro-Chousa *et al.*, 2021; Aruga, 2024). The coexistence of values and sustainable development suggests that moral issues and an extended perspective on sustainability drive green financing. This relationship underscores how crucial it is to match financial actions with principles that support social justice and environmental sustainability.

3.8.4 Cluster 4. The keywords in this cluster, which is focused on socially responsible investments, represent the ideas and methods of integrating social responsibility into financial choices. The following are the essential terms for this cluster: ethical investments, performance evaluation, social responsibility and socially responsible investment. The emphasis on incorporating social responsibility into investment methods is highlighted by this cluster, which also emphasizes the significance of performance evaluation and ethical issues in SRI. With a goal of producing both financial returns and beneficial social effect, SRI entails choosing investments based on moral and social standards.

The central concept of SRI, which is to ensure that investments align with more expansive social intentions, is highlighted by the frequent cooccurrence of SRI and social responsibility. This link suggests that at its core, SRI is about choosing investments that advance social welfare. In this cluster, performance evaluation is a crucial keyword, indicating how important it is to evaluate the financial performance of investments that are socially conscious. This implies that the emphasis should be on proving that SRI can provide competitive returns while upholding moral and social standards (Rodriguez-Fernandez, 2016; Leite *et al.*, 2017; Awaysheh *et al.*, 2020). Evaluating performance creates a link between social effect and financial objectives. The inclusion of ethical investments in this cluster highlights SRI's ethical aspect. It suggests that while making investing decisions, investors give ethical concerns top priority, coordinating their financial actions with their moral principles and social goals (Abdelsalam *et al.*, 2014; Chamorro-Mera and Palacios-González, 2019; Bonnefon *et al.*, 2022).

4. Conclusions and future research directions

This study set out to evaluate the literature on investors tilts on sustainable investments. The study does this by applying bibliometric approaches to examine the literature that has been published in well-known journals in the Scopus database. For bibliometric review, the study used a variety of tools. The results explored that the publications have consistently increased based on the performance analysis. Subfields of interest for research have also emerged because of this rise in publications and citations. The development of the notion, preferences for sustainable investments in terms of publications and citation trends, as well as the contributions from various stakeholders, are first highlighted. Our contribution identifies the most important authors, relevant documents, sources, affiliations, the topics already covered, and, as a result, fresh lines, and investigational horizons for future research.

The thematic map identified the motor themes, basic themes, emerging themes and very specialized themes in the sustainable investments research arena in connection with investors. The climate change, investment and sustainable development are the motor themes

and the investment, sustainability and corporate social responsibility are the basic themes of the study. The SRI, economic and social effects, environmental management are the emerging themes and capital, cost benefit analysis and cost of debt have advanced to a high degree of development. The primary strands of sustainable investments are identified by the cluster analysis which comprises of some of the key clusters such as CSR and ESG investing, ethical investing, green finance and SRI.

A key component of the transition to sustainable development is finance, and one of the most important ways to allocate it is through sustainable investment. Considering this, the current study has important theoretical and practical ramifications. The results of the cluster analysis show the keywords' interconnectedness indicates that ESG and CSR investment are closely related to sustainable finance. The focus on corporate governance, portfolio management techniques and responsible investment practices suggests that sustainable finance is becoming more and more of a mainstream concern for investors and asset managers. The second cluster keywords' connections imply that ethical investing is a complex idea that incorporates governance, social and environmental aspects. The focus on governance and sustainability suggests that ethical investors are thinking about the bigger picture of their investments in addition to financial gains. The examination of these activities is contextualized by the geographical focus on India, which may provide special insights into the opportunities and difficulties associated with ethical investing in developing economies.

The way in which the keywords of cluster 3 are related to one another implies that green finance is a holistic approach that incorporates many facets of sustainability into financial decision-making. The focus on renewable energy and climate change highlights the need to switch into sustainable energy sources, while the emphasis on ESG investment and CSR shows that firms are increasingly held accountable for their environmental impact. The function of green bonds is to draw attention to novel financing instruments that make investments in environmentally friendly projects less daunting. The cluster 4 keywords' connections imply that socially conscious investing is motivated by both financial performance and a dedication to moral and social principles. The focus on ethical investing and social responsibility reflects the rising understanding that investment practices can and should improve societal well-being. In this setting, performance evaluation is crucial to verifying that SRI not only satisfies moral requirements but also generates sustainable financial rewards.

As this study is primarily a bibliometric analysis, it does not encompass many theoretical contributions. To build a strong conceptual framework, future researchers should undertake a comprehensive, systematic literature review. Also, the scope of the research for this study is restricted to the Scopus database because of its extensive coverage of high-caliber journals in structured forms that work with the Bibliometrix programme. Upcoming researchers might examine articles on sustainable investments using other data sets. Future research can focus on a comprehensive view of sustainable investments as the study only examined the aspects of sustainable investments from the perspective of investors. Many conceptual and empirical studies in the fields of economics, finance, psychology and environmental studies have been conducted in the past, across national boundaries. This study significantly advances the topic by compiling the dispersed literature in the area, highlighting significant sources, writers and papers, and examining the link between investors and sustainable investments.

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