

REVIEW ARTICLE

The burgeoning field of sustainable investment: Past, present and future

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Abstract

The current concern with sustainability issues pervades all scientific fields. Sustainable investment is not an exception judging by the significant increase in the literature. This work provides an extensive up-to-date overview of studies on sustainable investment, revealing current trends, identifying gaps and future research topics. A total of 1091 documents are reviewed and bibliometric analysis is used with two approaches: data analysis and conceptual structure of the field. Additionally, a classification into 12 categories by topic is proposed. The results show that more than 40% of the publications belong to analysis of classical investment tools with a gradual evolution towards the concept of “green” instruments. Socially Responsible Investment (SRI) strategies have changed over time from “screening” to the current “best-in-class”, “Environmental, Social and Governance (ESG) integration” and “impact investing.” The results of the study are valuable for academics and practitioners, as they show the current state of knowledge, evolution paths and emerging topics.

KEYWORDS

bibliometric analysis, ESG, socially responsible investment, sustainability, sustainable investment

1 | INTRODUCTION

The 20th century was an era of industrial development, scientific discoveries and intensive pollution of the earth. This century, humanity has started to be more aware of nature and our responsibilities to it as inhabitants. Several global instruments have been developed in the direction of making the world a better place to live in, such as the Paris Agreement (United Nations, 2015a), the Sustainable Development Goals (United Nations, 2015b), the Task Force on Climate-related Financial Disclosures (TCFD, 2017), the Action Plan on Sustainable Finance (European Commission, 2018), the European Green Deal (European Commission, 2019) and the Next Generation EU (European Commission, 2020). These agreements and norms also affect the financial system, whose activity

should be oriented towards a sustainable development, promoting sustainable investment.

The first references to sustainable investment date from the sixteenth century and refer to ethical investing (Renneboog et al., 2008a), which was de facto money usage influenced by religious beliefs. However, as an attribute of social responsibility in investing process it was mentioned first time in early 1970s by Moskowitz (1972). Nowadays the concept of “sustainable (socially responsible) investment” has evolved from the idea of ethical investing to the wider notion of having financial returns based on economic, environmental, and social challenges. Busch et al. (2016) and Escrig-Olmedo et al. (2017) stated that, over the years, authors have employed different terms to refer to the concept of sustainable investment, including ethical investment (Bauer et al., 2006; Domini & Kinder, 1984; Mallin

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et al., 1995), Socially Responsible Investment (SRI) (Barnett & Salomon, 2006; Cox et al., 2004; Derwall et al., 2005; Renneboog et al., 2008a; Sparkes, 2003; Statman, 2000), responsible investment (PRI, 2020), Environmental, Social and Governance (ESG) investment (Friede et al., 2015; van Duuren et al., 2016), impact investing (Höchstädter & Scheck, 2015), green investment (Martin & Moser, 2016), and so forth.

According to the Principles for Responsible Investment (PRI), responsible investment is a strategy and practice to incorporate ESG factors in investment decisions (PRI, 2020). Likewise, the Global Sustainable Investment Alliance (GSIA) defines sustainable investment as an investment approach which considers ESG factors in portfolio selection and management (GSIA, 2020). Nowadays, the concept of “sustainable investment” or “responsible investment” includes ESG factors in a general way.

At the beginning of 2020, the volume of global sustainable investment reached 35.3 trillion USD in five major markets (Europe, the United States, Canada, Australasia, and Japan), representing a 15% increase in the past 2 years and a 55% increase in the past 4 years (GSIA, 2020). These data show a growing interest in considering sustainable criteria in investment decision making.

The aim of the paper is to reveal the current trends in sustainable investment research to give clues for its promising future. To achieve it, this work provides an organized summary of the existing literature, defines different categories among the field, identifies the most influential papers, authors, countries, journals, and keywords, and analyses the relationship between them.

Sustainable investment has attracted attention of academics and several quantitative review papers have been published on this topic. Capelle-Blancard and Monjon (2012) exploited simple content analysis to examine all sort of articles (journals, newspapers, books, webs, etc.) related to SRI over the period 1982–2009, concluding that majority of highly cited academic articles concentrates on financial performance and predominantly they are data-driven studies. Zhang et al. (2019) applied bibliometric study of 381 papers over the period 2001–2018 on green finance. Also Fabregat-Aibar et al. (2019) examined 209 research papers a specific sub-field of SRI such as socially responsible funds over the period of 1988–2018 and explored intellectual and conceptual structure of the field. Widyawati (2020) analyzes influential 63 articles on SRI, published by 2016. The study conducted bibliometric map and full-text analysis revealing the main SRI research topics and disconnection between them in the literature. Moreover, Daugaard (2020) analyzed 463 articles and books on ESG investing, published over the period of 1972 and 2017, revealing research topics of diverse constituents of ESG investing. Recently, Losse and Geissdoerfer (2021) examined SRI literature through bibliometric and centrality analysis and Secinaro et al. (2021) used bibliometric techniques to explore the sub-field of social finance and banking. Difference from these works, this paper analyzes the whole concept of sustainable investment, incorporating the full-text content analysis and identifying the main categories for the future research paths.

The main contribution of this research is to identify foundational literature, specify current trends and open up future directions in

sustainable investment. The results of the study will be valuable for academics and practitioners, as they show the current state of knowledge and evolution paths in sustainable investment, as well as emerging topics in this research field.

The remainder of the paper is organized as follows. Section 2 explains the methodology and data sampling used; Section 3 presents the results of the data analysis and the conceptual structure; Section 4 discusses the main findings; Section 5 states the conclusions and the limitations; and Section 6 proposes possible lines of future research.

2 | METHODOLOGY AND DATA

2.1 | Systematic literature review

Regardless of the discipline, a literature review is a crucial part of a research project. It aims to draw the study map, assess the body of literature, and justify the research topics. Nevertheless, traditional narrative reviews often lack rigor (Tranfield et al., 2003) and, in many cases, literature reviews could be subjected to a selection bias since authors tend to consider only the most influential studies or those that are in tune with their personal ideas.

The Systematic Literature Review (SLR), unlike the traditional literature review, minimizes the selection bias, as well as the publication and extraction bias (Nightingale, 2009), synthesizing scientific evidence in a way that is transparent and replicable (Lame, 2019). It is possibly the most precise and thorough method of gathering articles (Snyder, 2019).

According to Tranfield et al. (2003), the SLR method is conducted in three stages: planning the review, conducting the review, and reporting and disseminating it.

In the first stage, a review protocol is obtained, which contains the steps with specific descriptions, that will allow to stick to objectivity of the study.

Afterwards, in the second stage, keywords should be identified from the selected preliminary studies. Initially, between preciseness or exhaustiveness of the search, the last is more important than the first (Wanden-Berghe & Sanz-Valero, 2012). Studies are selected in accordance with the inclusion or exclusion criteria established by the researchers and at least two of them should independently assess studies for inclusion into the review to minimize the risk of selection bias. The reasons for exclusion should be clearly stated (Nightingale, 2009).

As a result of the review, in the third stage, two reports could be produced: (1) full descriptive analysis/categories of the field; (2) thematic analysis, highlighting the main contributions and emerging themes.

2.2 | Bibliometric analysis

Evaluative bibliometrics is a branch of quantitative science and technology studies aimed at building research performance indicators from

a quantitative analysis of publications (Moed, 2009). Bibliometric analysis can effectively illustrate the general trend of the area of research (De Bakker et al., 2005) and is used to evaluate the research of authors, universities, departments and countries on the basis of publication output and received citations (Noyons et al., 1999; Zupic & Čater, 2015), and to reveal structural and dynamic facets of the research field (Cobo et al., 2011).

There are three broad groups of bibliometric indicators: (1) *performance indicators*, which can be estimated through two aspects, (a) quantity indicators, to gauge the scientific productivity of a particular researcher or research team and frequently comprise the total number of publications and (b) quality indicators, to gauge the performance of a researcher, journal or research group in terms of different types of average citation rates; (2) *structural indicators*, provides description of research units, in terms of publications and citations and (3) *collaboration indicators*, where co-author (authors, affiliations, and countries) analysis is the standard measure of collaboration (Lundberg, 2006).

This paper uses performance indicators (citation analysis), as well as collaboration (co-author analysis) and structural indicators (co-word analysis).

Citation analysis includes implementation of a series of indicators, extracted from citation data, based on the “impact,” “influence,” or “quality” of a publication. (Moed, 2009). It can be concentrated on the publications themselves, the authors, the journals or the countries (Osareh, 1996). Co-author analysis detects intellectual partnership networks and the social structure of research groups within the field, thereby becoming a measure of collaboration. This analysis can identify who the influential figures in research teams are (Peters & Van Raan, 1991). Co-word analysis is a content analysis technique that uses patterns of simultaneous occurrence of pairs of words or noun phrases in a body of text to detect the relationships between ideas within a research field (He, 1999). It identifies the co-occurrences of keywords in the publications in the given field over different periods in time (Callon et al., 1991). Thus, this analysis helps to define the conceptual structure of the field of research.

2.3 | Data collection

The data were collected from the Elsevier's well-known academic Scopus database. Scopus was chosen based on its wide literature coverage (Mingers & Leydesdorff, 2015) and the preciseness of the search.

As a result of the evolution of the terminology used to refer to sustainable investments, the following six keywords were chosen for the search: sustainable investing, responsible investing, ethical investing, sustainable finance, green finance, and ESG investing. To obtain the documents that contain these selected keywords, the exact string for the search was: “sustain* invest*,” “responsible invest*,” “ethical invest*,” “sustain* finance,” “green finance,” “ESG invest*.” The search was carried out on 27 July 2021 and it was not restricted to a particular starting date. In this phase, 3568 publications were identified.

In a second step, the search was bounded using the following criteria:

- Subject area: “Business, Management and Accounting,” “Economics, Econometrics and Finance” or “Environmental Science.”
- Type of document: Article or Review.
- Language: English.

As a result, the sample was reduced to 1829 documents. These publications were checked for appropriateness for a key focus on sustainable investment. A total of 738 publications were removed due to their irrelevance to the topic, deduced from reading the title and abstract of each. Two researchers jointly agreed on the documents to be removed. A total of 1091 publications were included in the bibliometric analysis.

Each step of the review process is graphically illustrated on Figure 1.

Table 1 shows the number of documents that include each of the keywords used in the screening phase and the final phase. The most frequently used keyword is clearly “responsible invest*.”

Last, before applying VOSviewer software (Van Eck & Waltman, 2019) to conduct the bibliometric analysis, authors' names, affiliations, journals and keywords were standardized for the sample of 1091 documents. Standardization consists in homogenizing when, for instance, an author's name is spelled with one or two initials, a name of affiliation or journal is spelled with small differences or some keywords intend to mean the same but they are not spelled the same.

To avoid subjective modifications in keywords that can influence the co-word analysis results, the standardization of keywords only consisted in grouping together singular and plural nouns (e.g., “ethical funds” and “ethical fund”) and nouns with their acronyms (e.g., “sustainable development goal” and “SDG”), but not similar concepts that have not been standardized and remain as different keywords (e.g., “risk management” and “risk assessment”).

3 | RESULTS

3.1 | Data analysis

3.1.1 | Papers

According to the data, the first document was published in 1988. Figure 2 shows the evolution of the number of documents and citations in sustainable investment.

The volume of papers and citations remained stable and low until 2003, when the number of papers started to rapidly increase. However, the greatest change was observed in the period 2013–2021, with 75% of the documents in the field of sustainable investment having been published in the last 9 years. The topic began to receive considerable attention from academics, probably due to the global financial crisis, marking a questioning of traditional economic models. Notably, the number of publications in 2021 only includes papers up to July 27, 2021.

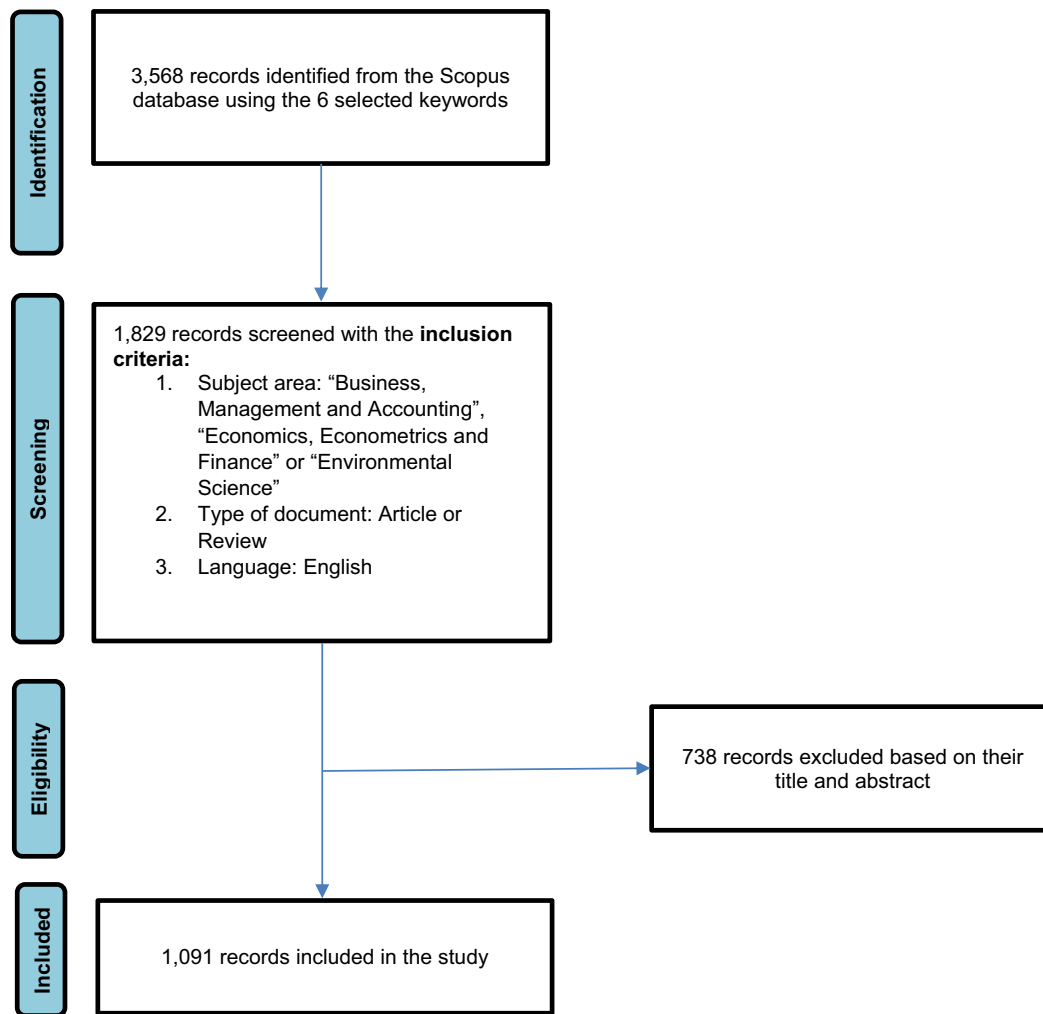


FIGURE 1 Systematization of the review process [Colour figure can be viewed at wileyonlinelibrary.com]

Keywords	Screening phase: 1829 documents		Final phase: 1091 documents	
	Documents	%	Documents	%
responsible invest*	964	47	757	58.6
ethical invest*	229	11.2	169	13.1
sustain* invest*	462	22.5	161	12.5
sustain* finance	184	9.0	86	6.7
ESG invest*	72	3.5	65	5.0
green finance	139	6.8	53	4.1
Total (1)	2050	100%	1291	100%

TABLE 1 Analysis of keywords

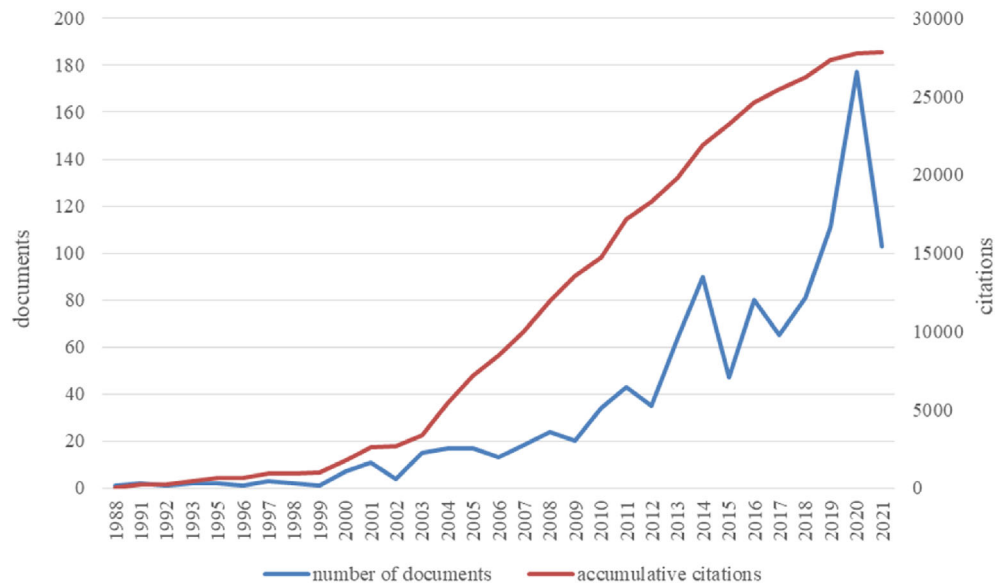
Note: The sum of the number of documents exceeds the number of documents in the phase because the same document can include more than one keyword.

Regarding the impact of the research on the scientific community, frequency of citation can be a performance indicator (Durieux & Alain Geveno, 2010). Table 2 shows the 20 top-cited papers on sustainable investment. The included papers have the highest number of citations in absolute terms, ordered by citations per year (C/Y) so as not to prioritize the year of publication. The most influential papers have

been published during the last 20 years and 65% of the most cited papers were published after 2011.

Of the 20 most cited papers, there are two documents that carry out a review of the literature: Friede et al. (2015) and Renneboog et al. (2008a). The first paper performs a meta-analysis with the aim of identifying the relationship between ESG criteria and Corporate

FIGURE 2 Number of documents and accumulative citations in sustainable investment during the period [Colour figure can be viewed at wileyonlinelibrary.com]



Financial Performance. The second is a critical review of the literature on SRI, which focuses on the comparison between the performance of SRI funds and non-SRI funds.

Of the 20 most influential papers, 7 analyze the relationship between performance and sustainability and the main difference is the pillar/score (environmental, social or governance) and the sample used (country, asset, period, etc.) (Barnett & Salomon, 2006; Bauer et al., 2005; Derwall et al., 2005; Edmans, 2011; Riedl & Smeets, 2017; Taghizadeh-Hesary & Yoshino, 2019; Zerbib, 2019). The most influential paper is Edmans (2011), which analyzes the effect of SRI screens on financial performance to determine the relationship between employee satisfaction and long-run stock returns. Following this research line, Barnett and Salomon (2006) study how social screening affects the financial performance of SRI funds. In this regard, studies on the performance of SRI funds compared to non-SRI funds predominate in the period 2000–2010 (Bauer et al., 2005; Renneboog et al., 2008a). In recent years, financial performance has continued to be analyzed but with a new approach. The more current influential papers focus on green finance (Taghizadeh-Hesary & Yoshino, 2019; Zerbib, 2019) and the characteristics of investors to select sustainable investments (Riedl & Smeets, 2017). Riedl and Smeets (2017) examine investor expectations regarding the financial performance of SRI funds, asserting that mostly socially oriented investors are willing to give up financial performance with the intention to invest following their social preferences. The more recent documents among the most cited papers per year study the impact of investors' pro-environmental motives on bond prices (Zerbib, 2019) and the characteristics of green project propositions (Taghizadeh-Hesary & Yoshino, 2019).

Another relevant topic is the definition of different aspects of CSR. The topics are broad, ranging from corporate reports (Adams, 2004; Diouf & Boiral, 2017; Frias-Aceituno et al., 2014) to corporate strategies (Boulouta, 2013; Mackey et al., 2007) and the corporate social performance and sustainability business models

(Goss & Roberts, 2011; Wu & Shen, 2013; Yip & Bocken, 2018). Adams (2004), Frias-Aceituno et al. (2014) and Diouf and Boiral (2017) investigate sustainability reporting in terms of corporate sustainable performance, the effects of industry concentration on integrated reporting development and the quality of the reports within the Global Reporting Initiative (GRI) framework. Boulouta (2013) and Mackey et al. (2007) analyze the effect of gender diversity and the socially responsible behavior of the board. Meanwhile, Goss and Roberts (2011), the second most influential paper, focuses on the examination of CSR and cost of debt, finding that firms with higher CSR concerns are associated with higher cost of borrowing (higher spreads).

Another strand of literature focuses on the use of sustainable ratings (Chatterji et al., 2009, 2016; Khan et al., 2016). Chatterji et al. (2009, 2016) explore the transparency and validity of widely used social ratings, specifically in this case the Kinder, Lydenberg, Domini Research & Analytics (KLD's) rating. Furthermore, Khan et al. (2016) contribute to progress in (in)material sustainability issues and the relation between ratings of sustainability and future financial performance. The authors propose a materiality and immateriality index from KLD data and follow guidance from SASB for different industries.

3.1.2 | Authors

The period analyzed (1988–2021) is divided into four subperiods to illustrate more fully the significant changes and trends regarding the number of authors. Each subperiod is 6 years except for the first subperiod, which covers from 1988 to 2003 due to the low number of documents in it. Table 3 shows the authorship pattern during these subperiods, indicating for each interval how many papers have been written by 1 author, 2 authors, until 6 authors, and the percentage that it represents.

TABLE 2 The 20 top-cited papers in the sustainable investment field considering citations per year

R	Author/s	Title	Year	TC	C/Y
1	Edmans A.	Does the stock market fully value intangibles? Employee satisfaction and equity prices	2011	497	49.70
2	Goss A., Roberts G.S.	The impact of corporate social responsibility on the cost of bank loans	2011	472	47.20
3	Chatterji A.K., Levine D.I., Toffel M.W.	How well do social ratings actually measure corporate social responsibility?	2009	536	44.67
4	Friede G., Busch T., Bassen A.	ESG and financial performance: aggregated evidence from more than 2000 empirical studies	2015	266	44.33
5	Renneboog L., Ter Horst J., Zhang C.	Socially responsible investments: Institutional aspects, performance, and investor behavior	2008	563	43.31
6	Zerbib O.D.	The effect of pro-environmental preferences on bond prices: Evidence from green bonds	2019	81	40.50
7	Barnett M.L., Salomon R.M.	Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance	2006	570	38.00
8	Mackey A., Mackey T.B., Barney J.B.	Corporate social responsibility and firm performance: Investor preferences and corporate strategies	2007	471	33.64
9	Taghizadeh-Hesary F., Yoshino N.	The way to induce private participation in green finance and investment	2019	59	29.50
10	Bauer R., Koedijk K., Otten R.	International evidence on ethical mutual fund performance and investment style	2005	468	29.25
11	Khan M., Serafeim G., Yoon A.	Corporate sustainability: First evidence on materiality	2016	144	28.80
12	Boulouta I.	Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance	2013	228	28.50
13	Yip A.W.H., Bocken N.M.P.	Sustainable business model archetypes for the banking industry	2018	84	28.00
14	Wu M.-W., Shen C.-H.	Corporate social responsibility in the banking industry: Motives and financial performance	2013	224	28.00
15	Chatterji A.K., Durand R.B., Levine D.I., Touboul S.	Do ratings of firms converge? Implications for managers, investors and strategy researchers	2016	136	27.20
16	Adams C.A.	The ethical, social and environmental reporting-performance portrayal gap	2004	438	25.76
17	Frias-Aceituno J.V., Rodríguez-Ariza L., García-Sánchez I.M.	Explanatory Factors of Integrated Sustainability and Financial Reporting	2014	167	23.86
18	Derwall J., Guenster N., Bauer R., Koedijk K.	The eco-efficiency premium puzzle	2005	381	23.81
19	Diouf D., Boiral O.	The quality of sustainability reports and impression management: A stakeholder perspective	2017	95	23.75
20	Riedl A., Smeets P.	Why Do Investors Hold Socially Responsible Mutual Funds?	2017	95	23.75

Abbreviations: C/Y, citations per year (considering 2021 as a complete year); R, rank; TC, total citations.

The data showed that 2019 different authors published the 1091 selected papers, which is 1.85 authors per document. This means that multiple authorship is very common in this field. Specifically, the percentage of papers with two authors is the highest both for the global period and in the last subperiods. Table 3 shows that multiple authorship is dominant with 848 documents (78%) compared to single authorship contributions with 243 documents (22%). Most papers are signed by two or three authors (62%). By subperiods, the change in authorship trend clearly stands out. During the period 1988–2003, more than 40% of the production was signed by a single author. However, in the last 6 years this figure is just 18% of the total.

There are different measures to show the trends towards multiple authorship in a discipline, such as the Collaborative Index

(Lawani, 1980), the Degree of Collaboration (Subramanyam, 1983) and the Collaborative Coefficient (Ajiferuke et al., 1988). The Collaborative Coefficient (CC) combines some of the advantages of the previous two methods and measures the strength of collaboration. It is defined as:

$$CC = 1 - \frac{f_1 + (1/2)f_2 + \dots + (1/k)f_k}{N} = 1 - \frac{\sum_{j=1}^k (1/j) \cdot f_j}{N},$$

where, f_j ($j = 1, \dots, k$) is the number of j -authored papers published in a discipline during a certain period; k is the greatest number of authors per paper in a discipline; and N is the total number of papers published during the same period.

Table 4 shows the CC for the field of sustainable investment.

TABLE 3 Distribution of authorship by subperiods

Number of authors	Number of papers (% in parenthesis)				Total general
	1988–2003	2004–2009	2010–2015	2016–2021	
1	22 (42.31)	35 (32.11)	74 (23.64)	112 (18.15)	243 (22.27)
2	16 (30.77)	29 (26.61)	115 (36.74)	199 (32.25)	359 (32.91)
3	12 (23.08)	32 (29.36)	94 (30.03)	179 (29.01)	317 (29.06)
4	2 (3.85)	11 (10.09)	27 (8.63)	92 (14.91)	132 (12.10)
5	-	2 (1.83)	3 (0.96)	27 (4.38)	32 (2.93)
6	-	-	-	8 (1.30)	8 (0.73)
Total	52	109	313	617	1091

TABLE 4 Collaborative coefficient by subperiods

	1988–2003	2004–2009	2010–2015	2016–2021	Total
Collaborative coefficient	0.337	0.419	0.456	0.512	0.479

The data indicates a medium intensity of author collaboration (48%) over the whole period. This implies that the field of sustainable investment is far from research collaboration, although it is observed that the CC coefficient is increasing.

Additionally, the VOSviewer software allows the network of co-authorship to be visualized. According to Acedo et al. (2006) co-authorship analysis reflects stronger social ties than other measures of relationships, which makes it particularly suitable for examining social networks rather than the intellectual structures of research fields. A social network is created when scientists collaborate on publishing a research paper together.

Figure 3 shows the collaboration network of authors, considering a threshold of at least three documents. This criterion explains why some influential authors are not included in the figure, having published less than three papers. A total of 2019 authors were identified, of which only 127 fulfilled the threshold requirement.

Figure 4 shows the details of the most cited authors on Figure 3.

The collaboration network is clearly decentralized and the nodes are hardly connected, implying that co-author work has weak collaboration. However, the most influential authors in the research field are, first, the group formed by Bauer (1268 citations) and Koedijk (1141 citations), and second, the group made up of Ter Horst (1203 citations), Renneboog (970 citations) and Zhang (969 citations). It is difficult not to refer to these authors since they represent the current school of thought on sustainable investment.

3.1.3 | Countries

The diversity found in the authors' affiliation is shown in Figure 5. The map shows that the interest in sustainable investment is worldwide

since there are 69 countries that have published at least one paper related to the topic, covering all the continents, although the most productive are Europe and America (especially, the North). The majority of papers have been written in USA (189), UK (136) and Spain (105), followed by Australia (92), Germany (71), France (62), Netherlands (57), and Canada (56). The article production of these eight countries comprises 70% of the literature on sustainable investment.

3.1.4 | Journals

Jointly with papers, authors and countries, journals also provide a citation-based criterion to evaluate research performance on a topic, in this case on sustainable investment. Among the top 15 journals in terms of number of citations and total number of articles, there is a coincidence of only eight common journals.

Table 5 contains hybrid information of the top 15 journals in terms of citations and the top 15 journals in terms of number of articles. The 1091 analyzed papers were published in 327 journals. A total of 482 papers (44.2%) were concentrated in 15 journals and 24.5% in three journals (Journal of Business Ethics, Journal of Sustainable Finance and Investment, and Sustainability).

The most influential journal, both in terms of documents and citations, is the Journal of Business Ethics. The scope of the journal focuses on ethical issues related to business and its intention is to provide a public forum for discussion and debate on current issues concerning this topic. In terms of publication volume, the Journal of Business Ethics constitutes 10% of the total articles published in the area of sustainable investment and accumulates around 22% of the total citations of all the selected documents. This journal published the first paper on sustainable investment (Paul & Aquila, 1988) and

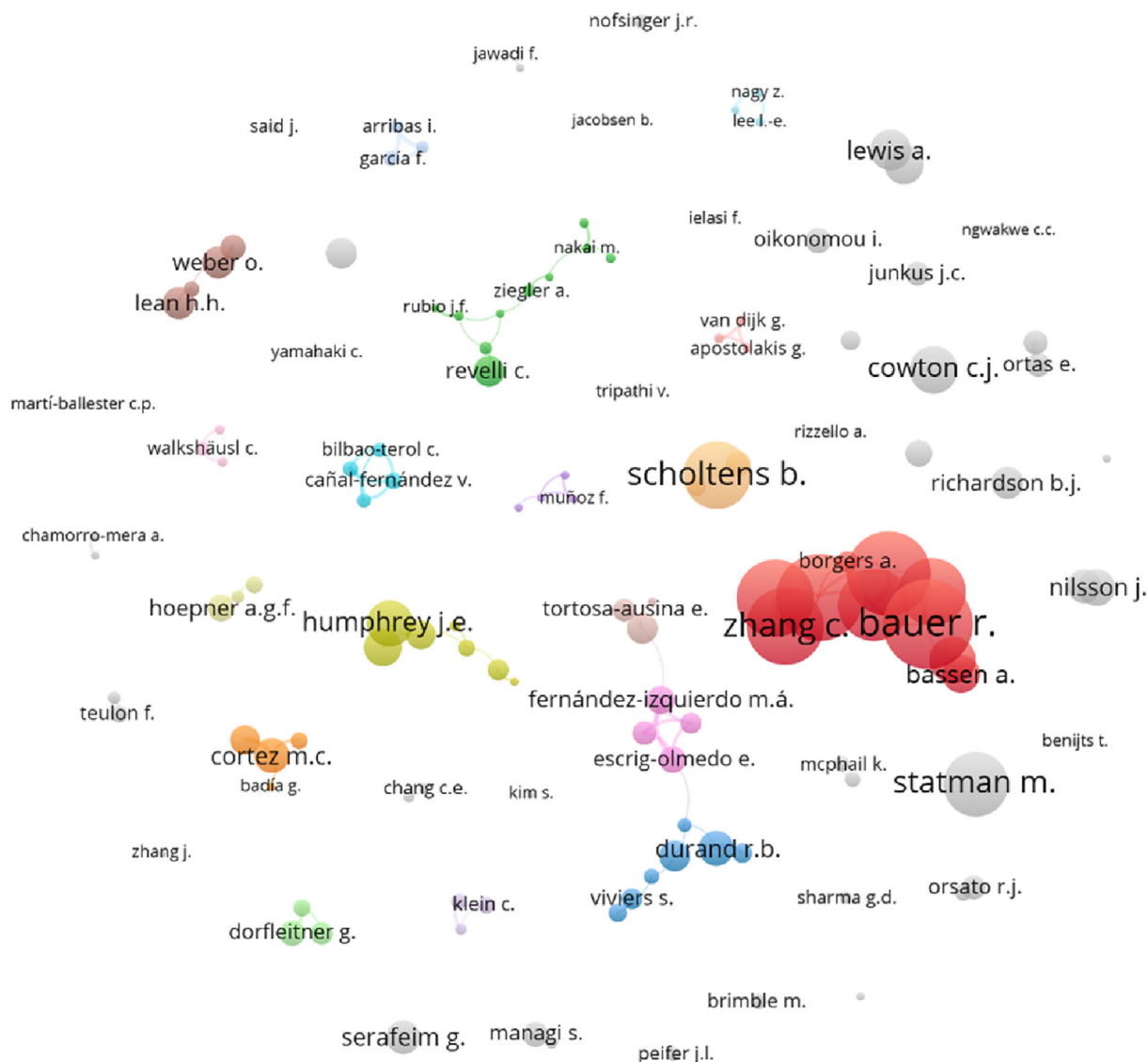


FIGURE 3 Co-authorship network on sustainable investment. Each node represents an individual author and its size shows their number of citations. The link between nodes indicates the collaboration network and its thickness indicates the strength of the collaboration [Colour figure can be viewed at wileyonlinelibrary.com]

the paper with the most citations in this journal is Sparkes and Cowton (2004), with 320 citations.

Next, in Table 5 there is a quarterly journal, the Journal of Sustainable Finance and Investment. The focus of the journal is ESG and developmental principles in financial markets and institutions, covering investment management, banking, micro-finance, project finance, philanthropy and developing the understanding of sustainable investment theory and practice. It has a total of 82 articles (7.5% of all documents) and just one of them, Friede et al. (2015), comprises 37% of all of the journal's citations.

Occupying third place is Sustainability, a cross-disciplinary open access journal which focuses on environmental, cultural, economic, and social sustainability issues. All 76 articles (around 7% of all the documents) on sustainable investment were published during the last years, between 2016 and 2021. Among them, five articles (Cui

et al., 2018; Escrig-Olmedo et al., 2019; Fabregat-Aibar et al., 2019; Hussain et al., 2019; Talan & Sharma, 2019) represent 33.1% of the journal's total citations.

3.2 | Conceptual structure

3.2.1 | Keywords analysis

Authors use keywords to identify their work. Keywords give an idea of the content, topic and methodology of the paper. A total of 2812 different keywords were identified in the 1091 selected documents included in the analysis.

VOSviewer software allows a bibliometric map to be created where the keywords can be visualized by establishing certain

FIGURE 4 Enlargement of Figure 3 regarding the most cited authors. Each node represents an individual author and its size shows their number of citations. The link between nodes indicates the collaboration network and its thickness indicates the strength of the collaboration [Colour figure can be viewed at wileyonlinelibrary.com]

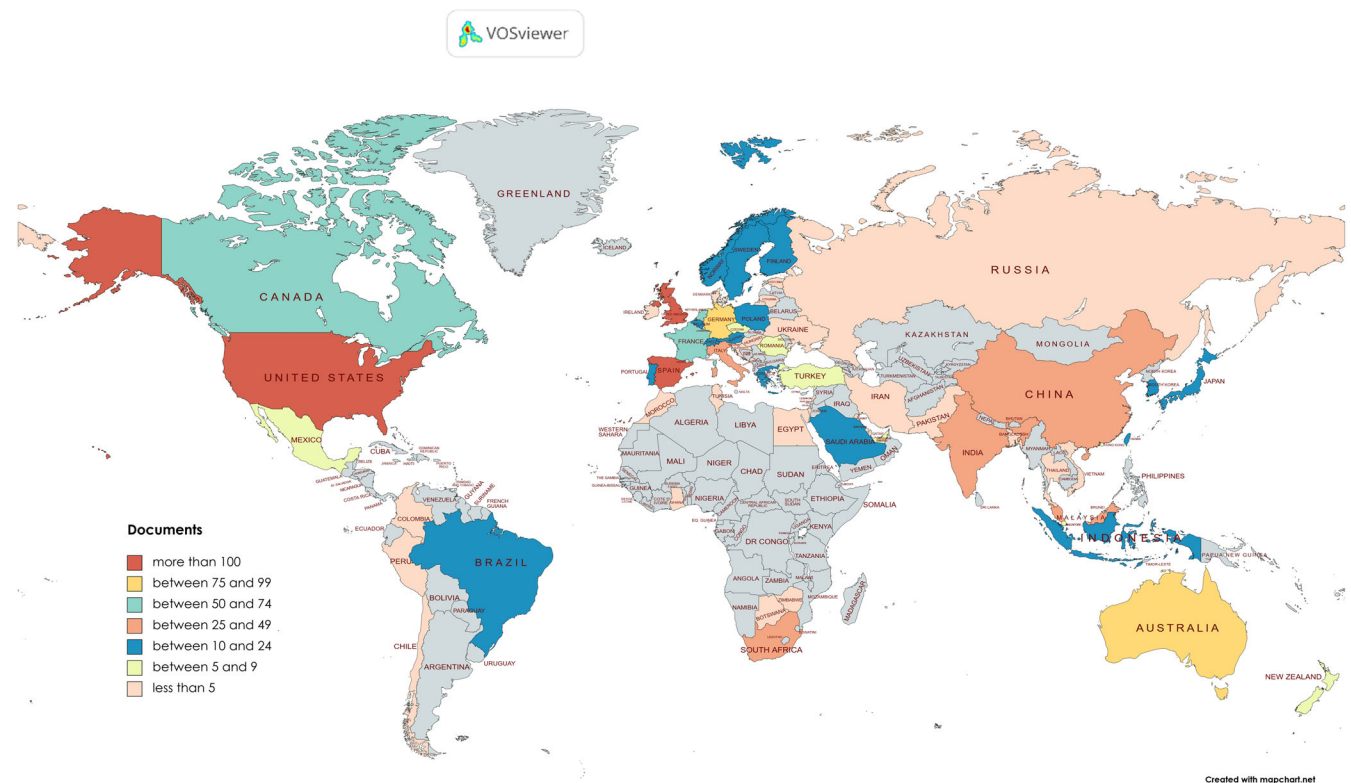
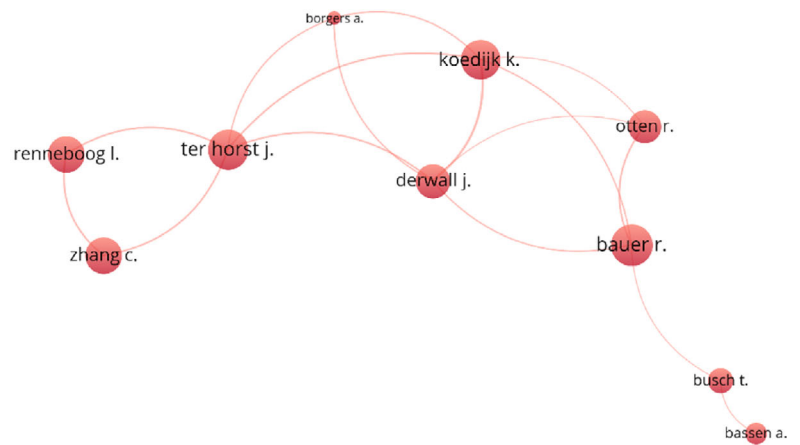


FIGURE 5 Countries [Colour figure can be viewed at wileyonlinelibrary.com]

thresholds, revealing the hot topics and development direction of the research field (Fabregat-Aibar et al., 2019).

Figure 6 considers a threshold of nine occurrences and shows the 90 keywords with the most frequent co-occurrence related to the sustainable investment field. The highest occurrence is found for the term “socially responsible investment (SRI)” with 435 occurrences (meaning that it appears in 40% of the documents), thus it is located at the center of the bibliometric map. This result is logical given that the term “SRI” is defined as “A generic term covering sustainable, responsible, socially responsible, ethical, environmental, social investments and any other investment process that incorporates environmental, social and governance issues” (Global Sustainable Investment Alliance, 2018). This term is broader than more specific terms such as ethical investing (95 occurrences) and green investing (30 occurrences).

The other popular keywords are “corporate social responsibility (CSR)” (199 occurrences), followed by “investments” and “sustainability” with 144 and 129 occurrences, respectively. Moreover, Figure 6 shows how these last two terms are frequently cited together, as shown by the thickness of the line between the two concepts.

The network built five clusters of keywords (red, green, dark blue, yellow, and purple) that represent subfields in sustainable investment research. Table 6 shows the keywords contained in each cluster and the topic to which it refers.

The red cluster shows the strong relation between “socially responsible investment (SRI)” and “corporate social responsibility (CSR),” used together in many research papers. Many authors consider that these two concepts are in essence the same one, but viewed from different angles (Sparkes, 2003; Stutz, 2021). Each concept essentially

TABLE 5 Top 15 journals by number of documents and number of citations

Journal	Top 15 journals by		SJR quartile
	Number of documents (rank)	Number of citations (rank)	
Journal of Business Ethics	109 (1)	6148 (1)	Q1
Journal of Sustainable Finance and Investment	82 (2)	717 (5)	Q2
Sustainability	76 (3)	486 (10)	Q2
Journal of Cleaner Production	29 (4)	663 (8)	Q1
Business Strategy and The Environment	25 (5)	800 (4)	Q1
Journal of Portfolio Management	22 (6)	275 (15)	Q1/Q2
Finance Research Letters	20 (7)		Q1
Journal of Banking and Finance	19 (8)	2632 (2)	Q1
Corporate Social Responsibility and Environmental Management	19 (9)	487 (9)	Q1
Critical Studies on Corporate Responsibility, Governance and Sustainability	19 (10)		Q4
Social Responsibility Journal	18 (11)		Q2
Business and Society	12 (12)		Q1
Journal of Asset Management	11 (13)		Q2/Q3
Investment Management and Financial Innovations	11 (14)		Q3/Q4
Research in International Business and Finance	10 (15)		Q1/Q2
Financial Analyst Journal		977 (3)	Q1
Accounting, Auditing and Accountability Journal		694 (6)	Q1
Journal of Financial Economics		686 (7)	Q1
Journal of Corporate Finance		435 (11)	Q1
European Financial Management		375 (12)	Q1
Journal of Business Finance and Accounting		362 (13)	Q1
Pacific Basin Finance Journal		310 (14)	Q2

Abbreviation: SJR, Scimago Journal Rank.

states that business should generate wealth for society but within certain social and environment frameworks (Martini, 2021). CSR looks at this from the viewpoint of companies, and SRI from the viewpoint of investors in these companies. The blue cluster has a strong focus on topics related to risk assessment and stock markets. The green cluster clearly collects the keywords related to an environmental and social approach in terms of finance, including “*sustainable development*.” The focus on socially responsible funds, a specific sustainable investment tool, and the different variables used is shown by the yellow cluster, highlighting “*performance*” and “*risk*.” Moreover, this cluster defines the different SRI strategies of an investment fund, such as the “*screening*” strategy (negative or exclusionary screening and positive or best-in-class screening based on products, sectors, norms, etc.) and “*ESG integration*” (the use of qualitative or quantitative ESG information in investment processes). The purple cluster is related to decision-making processes from the different points of view of investors and managers.

Figure 7 shows the network of keywords linked to their use over time. The color of the node represents the average publications year. Regarding the clusters, it can be seen that the red, yellow, and purple clusters generally contain the oldest topics, while the green and blue clusters encompass the newest themes.

The portfolio performance cluster is clearly the one that contains the oldest keywords (yellow). This is a logical result considering that studies on SRI funds have been dominated by research on the performance of SRI funds compared to non-SRI funds (Renneboog et al., 2008b). To this effect, “*ethical investment*” was the term originally used to describe SRI (Domini & Kinder, 1984; Mallin et al., 1995). The notion of ethical investment is focused on seeking to avoid investments in industries considered socially harmful such as alcohol, tobacco, gambling, and defense companies, among others.

Regarding the keywords related to SRI strategies, a change can be observed in the trend in the investment type. Initially, the most used methodology was screening (Royal & O'Donnell, 2013; Sauer, 1997) since it was simple to apply and understand and responded to the investor's values. The three main methods of screening were “*negative screening*,” which involves the exclusion of companies based on their activity, sector, and so forth, “*positive screening*,” which involves seeking out companies that enhance SRI practices, and a type of most current positive screening known as “*best-in-class*,” which considers companies that demonstrate best practices among the activities of the entire industry. However, Figure 7 also shows two current other SRI strategies: “*ESG investing*” and “*impact investing*.” “*ESG investing*” aims to enhance long-term value by using ESG factors to mitigate risks and identify growth opportunities, and “*impact investing*” aims to invest with the intention of having a measurable environmental and/or social return (Boffo & Patalano, 2020).

Last, the size of the nodes representing recent topics is small, indicating the scarcity of documents related to “*green bonds*,” “*green economy*,” “*sustainable development goals (SDG)*,” and “*covid-19*,” although these topics have a high potential to grow in the future.

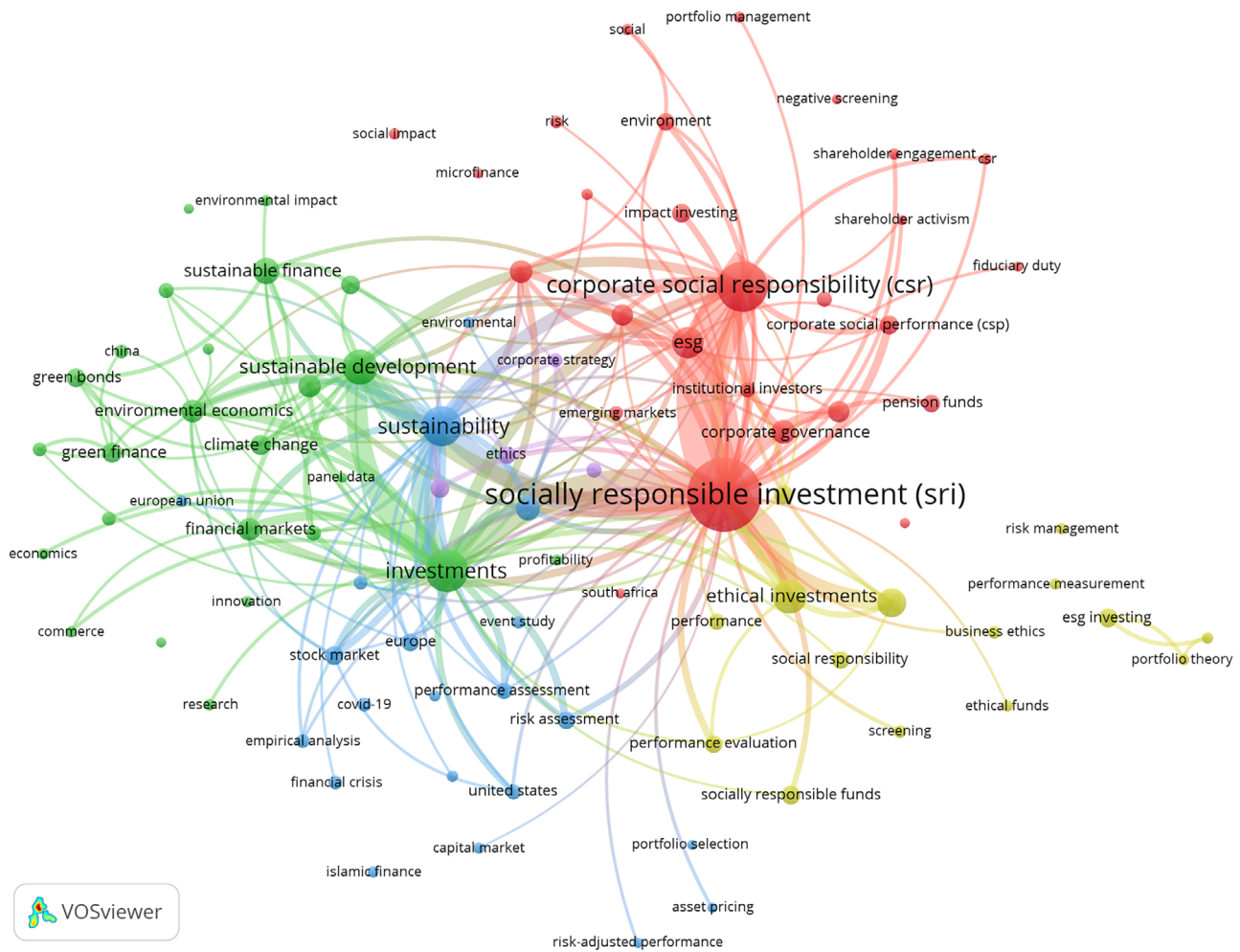


FIGURE 6 Keyword network visualization on sustainable investment. The node size represents the number of repetitions (occurrences) of each keyword. The lines represent keywords that appear together, and the thickness of these lines represents the intensity of the relationship. The thicker the lines, the more times the keywords appear together [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 6 Cluster analysis

Cluster	Items	Keywords	Topic
Red	25	Corporate financial performance (CFP); corporate governance; corporate social performance (CSP); corporate social responsibility (CSR); emerging markets; environment; ESG; fiduciary duty; financial performance; governance; impact investing; institutional investors; microfinance; negative screening; pension funds; portfolio management; responsible investment; risk; shareholder activism; shareholder engagement; social; social impact; socially responsible investment (SRI); south Africa; sustainability index	Business strategy
Green	25	Banks; China; climate change; commerce; economic development; economics; environmental economic; environmental impact; environmental investment; environmental protection; finance; financial markets; financial system; green bonds; green economy; green finance; innovation; investments; panel data; policy making; profitability; research; sustainable development; sustainable development goals (SDG); sustainable finance	Environmental and social finance
Dark blue	21	Asset pricing; capital market; covid-19; empirical analysis; environmental; equity; Europe; European Union; event study; financial crisis; investment incentive; Islamic finance; market conditions; performance assessment; portfolio selection; risk assessment; risk-adjusted performance; stock market; sustainability; sustainable investments; United States	Stock market and risk assessment
Yellow	15	Business ethics; ESG investing; ethical funds; ethical investments; mutual funds; performance; performance evaluation; performance measurement; portfolio construction; portfolio theory; risk management; screening; social responsibility; socially responsible funds; sustainable investing	Portfolio performance
Purple	4	Corporate strategy; decision making; ethics; investment decisions	Decision-making process

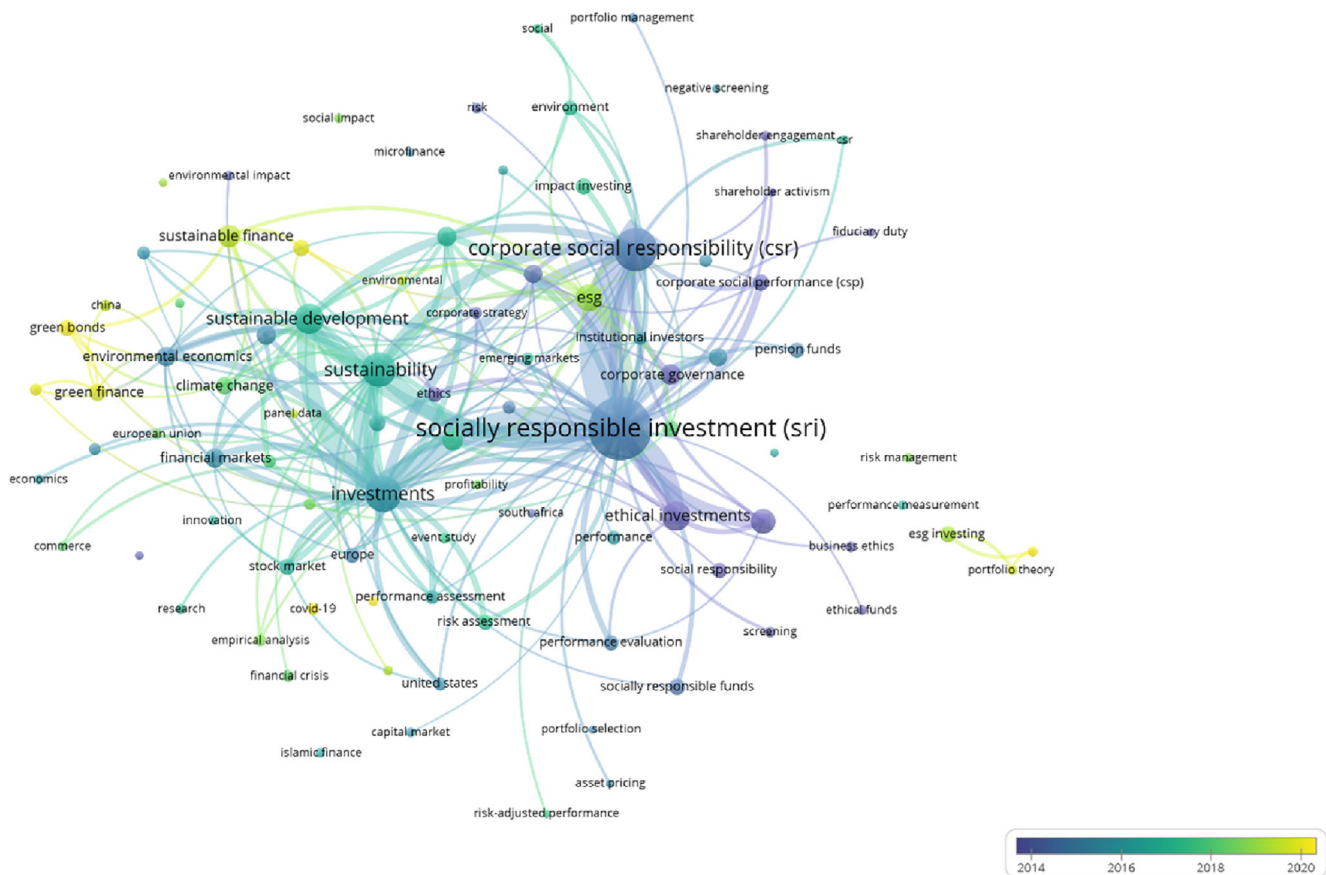


FIGURE 7 Keyword trend visualization [Colour figure can be viewed at wileyonlinelibrary.com]

3.2.2 | Categorization by research topics

Once the conceptual map of the sustainable investment field was obtained, each paper was categorized according to the research topic based on the information included in the abstract. The analysis of this classification reveals the most relevant and important trends in the publications over these 30 years and identifies the gaps to be addressed in the future. From the reading of the 1091 documents, 12 categories were established. Table 7 shows each category with its definition.

Moreover, different subcategories were identified in the most general categories to carry out a more in-depth analysis. Table 8 shows the total number of published papers in each identified category.

It is observed that there are three predominant categories: investment tools, investment decisions and CSR, which correspond to the 75% of the total number of publications.

4 | DISCUSSION

The results of the three predominant categories are presented below. The aim of this section is to detect the past, current and future trends on the sustainable investment field.

4.1 | Investment tools

Topics related to funds, indexes and stocks comprise 81.8% of all publications in this category (see Table 8).

Funds is the main subcategory within “Investment tools.” Most of the papers focus on comparative studies between conventional and SRI mutual funds. Capelle-Blancard and Monjon (2012) state that most SRI studies have found limited or no statistically significant impact of SRI in terms of financial performance. Based on findings of the core papers on ethical and SRI funds, it can be concluded that there is no significant difference between returns of conventional and SRI funds (Bauer et al., 2006, 2007; Derwall et al., 2005; Gregory et al., 1997; Hamilton et al., 1993; Luther et al., 1992; Mallin et al., 2005; Statman, 2000). Other studies have found significant differences depending on the region. For example, Bauer et al. (2005) find that US ethical funds underperform conventional funds, but that this was not the case in the UK (outperform) or Germany (no significant differences). Renneboog et al. (2008b) also assert that SRI funds domiciled in France, Japan and Sweden underperform conventional ones.

The second subcategory based on the number of documents is the analysis of sustainable indexes. In parallel to the increased importance of sustainability issues, different organizations have started to construct sustainable indexes based on different ESG characteristics,

markets, and methodologies. However, these methodologies are highly divergent, so the performance of sustainable indices is heterogeneous (Berg et al., 2019). The performance of the Dow Jones Sustainability Index (DJSI) in the US was found to be marginally lower than the benchmark, while in Europe the DJSI return was slightly higher than its benchmark (Cunha et al., 2020). Likewise, Monasterolo and de Angelis (2020) state that as a consequence of the Paris Agreement, the performance of the most low-carbon indices has been positively affected, and the systematic risk (beta) has decreased significantly.

The third subcategory of “*Investment tools*” is the analysis of sustainable stocks and their comparison in terms of risk-adjusted returns with the traditional market. In this line of research (Statman & Glushkov, 2009) claim that expected returns of socially responsible stocks were higher than conventional ones. More recently, Revelli and Viviani (2015) state that the construction of a stock portfolio based on ESG criteria does not affect financial performance. This implies that sustainability does not affect portfolio performance, either positively or negatively. The traditional conclusion from Derwall et al. (2005) is that equity portfolios with higher eco-efficiency scores tend to have higher risk-adjusted returns.

The most recent aspects of sustainable finance are the issues related to environmental finance and the sustainable development goals (Miralles-Quirós et al., 2020; Soler-Domínguez et al., 2021). These topics have caught the attention of investors due to the increased interest in problems related to the environment and particularly issues related to carbon emissions. In this line, the topic of green bonds and green mutual funds have gained momentum in recent years. Green bonds are one of the main instruments to finance climate-friendly projects as a way of building a low-carbon future. For example, the database showed that 92.8% of the articles on green bonds were written during the last 5 years. The literature on green bonds has started to grow rapidly, incorporating analysis over pricing of green bonds (Zerbib, 2019), comparative analysis of liquidity risk and bond yield (comparison between green and conventional bonds) (Febi et al., 2018), and even the analysis of the drivers of green market growth (Tolliver et al., 2020). Moreover, studies have concluded that green bonds are more financially convenient than traditional ones (Flammer, 2021; Gianfrate & Peri, 2019).

4.2 | Investment decisions

As shown in Table 8, the most prominent subcategories of “*Investment decisions*” are “Investors' characteristics” and “Portfolio selection/portfolio optimization without.” Together, these constitute 76.3% of all studies in this category.

“Investors' characteristics” is the most significant subcategory, focusing on the features of SRI investors such as their motives, preferences, and so forth, when choosing sustainable investments. For example, Chatterji et al. (2009) define the motivations of social investors as financial, deontological, consequentialist and expressive. Other studies focus on the behavior of ethical investors that invest in SRI

funds (Renneboog et al., 2011), and the effect of age and education on deciding to invest in sustainability (Rosen et al., 1991), and so forth.

SRI investors decide to invest in ethical principles (McLachlan & Gardner, 2004) rather than performance and they care less about negative returns than conventional investors (Renneboog et al., 2011). However, sustainable investors are not homogeneous, and have different reasons to invest in SRI issues. Several studies have shown that environmental issues are the most important SRI component considered by investors (Berry & Junkus, 2013; Rosen et al., 1991). Following this line, Riedl and Smeets (2017) state that investors with strong prosocial motives are likely to sacrifice financial performance to invest according to their social preferences. In addition, social investing can influence corporate behavior. However, approximately 25% of investors must be persuaded to change the behavior of polluting firms (Heinkel et al., 2001).

The other prominent subcategory, “*Portfolio selection/portfolio optimization*,” gathers different types of strategies reflected in the asset allocation process in sustainable portfolios. Despite the development of a variety of SRI strategies and the opportunity cost of negative screening (Trinks & Scholtens, 2017), studies on the latter are still popular (Amir & Serafeim, 2018; Arribas et al., 2019; Trinks & Scholtens, 2017). Nevertheless, professional investors and retail investors prefer ESG integration rather than exclusionary screens (Berry & Junkus, 2013; van Duuren et al., 2016). The evidence obtained from over 2000 empirical studies indicate that, on average, ESG score integration has a positive correlation with corporate financial performance (Friede et al., 2015). Notably, it is almost impossible nowadays to discuss sustainable investment without referring to ESG integration, given that it is the most widespread SRI strategy (GSIA, 2020) and the one that is most beneficial, from the perspective of investment performance (Amir & Serafeim, 2018). Liang and Renneboog (2020) find that target companies' ESG scores and sovereign wealth funds' ownerships are positively correlated. Pedersen et al. (2021) recently introduced the ESG-efficient frontier, where ESG characteristics are employed in the portfolio construction process.

4.3 | CSR

The three predominant subcategories in the CSR category are corporate governance, performance analysis and ESG/sustainable reporting, comprising approximately 70% of the total number of documents in this category (see Table 8).

Corporate governance is the highest researched aspect of CSR. It investigates sustainable investment in relation to corporate management, board of directors and other stakeholder interests. Borghesi et al. (2014) find that large companies (in terms of size, profitability, and advertising expenses) show higher levels of CSR. Institutional investors can provide companies with leverage to improve their performance with respect to CSR (Sparkes & Cowton, 2004). To this effect, when institutional owners have large holdings, and their interests are more in line with the shareholders', they are less likely to

TABLE 7 Categorization by research topics in the sustainable investment field

Category	Definition
Alternative investment	Investing in commodities and venture capital, crowdfunding and microfinance
CSR	External and internal behavior of the firm regarding its socially responsible aspects, including corporate governance, shareholders engagement/activism, CSR performance analysis, sustainable reporting, and so forth
Ethical investment	Earlier form of SRI, which is based on religious beliefs and moral standards
Government policies	Establishment, changes and additions of government policies regarding sustainable development
Investment decisions	Characteristics of decision makers (investors and managers) and types of investing strategies in portfolio creation and management process
Investment tools	Analysis of different assets, such as investment funds, pension funds, indexes, including investing through stocks, bonds, financial derivatives and credit/loans
Islamic finance	Financial decisions based on principles of Sharia
Ratings	Score based evaluation of the firm to measure its values and performance on ESG issues
Review	Reviews of literature on sustainable investment
Social issues	Issues related to human rights, gender equality, foundations, impact investing
Sustainable banking	Banking strategy with consideration of ESG factors
Sustainable environment	Responsible interaction with the environment, environmental impact, climate change mitigation, promotion to achieve UN SDG (13, 14, 15) and low carbon economy

invest in CSR (Borghesi et al., 2014). Moreover, Harjoto et al. (2017) claim that there is an inverse relationship between CSR and institutional ownership as the latter do not necessarily consider CSR as a value increasing action. Crifo et al. (2019) recently distinguish the relationship between different members of a corporate governance system and CSR, claiming that corporate sustainability has a positive relationship with inside directors and a negative relationship with external directors' and investors' engagement.

The second subcategory includes debates about CSR performance, a topic that has been discussed for more than 20 years. Many studies have been undertaken to investigate its effect on financial performance with distinct results and still no common agreement. There are studies that claim a positive (Wu & Shen, 2013), negative (Lin et al., 2019) or non-significant and neutral relationship (Makni et al., 2009; Revelli & Viviani, 2015). It is also known that empirical results could be different depending on the sample characteristics (period, country, and sector), the dimensions of ESG issues and the specificity of the applied methodologies.

SRI studies use the ESG metric as a proxy of sustainable performance. However, there is some criticism regarding their

trustworthiness, transparency and convergent validity (Busch et al., 2016; Chatterji et al., 2009; Delmas & Blass, 2010). Since there are many providers with different methodologies, ratings are naturally diverged. Moreover, CSR ranking can affect the value of the company. Firms with low environmental profiles have a higher cost of debt and cost of equity (Chava, 2014). There is extra-financial information on CSR for banks, which leads them to charge higher rates to the lower CSR ranking companies (Goss & Roberts, 2011), motivating them to have higher CSR scores. However, Delmas and Blass (2010) find that the firms with poor environmental performance and compliance usually provide the most advanced environmental reports.

Regarding the third subcategory, ESG/sustainable reporting, the topic is investigated in terms of corporate sustainable performance. From earlier studies, Adams (2004) noted that reports show low levels of accountability and reporting guidelines need to be improved. Frias-Aceituno et al. (2014) find an industry concentration effect on sustainability reporting, and particularly that monopolistic firms are less likely to disclose important information, which can affect decision making. Diouf and Boiral (2017) analyze the quality of the reports within the Global Reporting Initiative (GRI) framework, finding that sustainable reports mirror impression management strategies. Additionally, Capelle-Blancard and Petit (2019) show the significance of the media for shareholders, evidencing that firms with positive ESG information and good sector reputation can decrease the risk of negative ESG news. Amir and Serafeim (2018) note that the vast majority of financial investors use ESG information and they have a positive attitude towards green investment disclosure (Martin & Moser, 2016). However, a lack of reporting standards regarding ESG information is an important drawback (Amir & Serafeim, 2018).

5 | CONCLUSIONS AND LIMITATIONS

In this paper, a bibliometric study on sustainable investment was carried out by analyzing 1091 documents extracted from the Scopus database and published by July 2021. The study considers two approaches: data analysis and conceptual structure. In the first, citation analysis and co-authorship analysis are applied, as well as a journal analysis. The conceptual structure includes keyword analysis and the identification of categories defined by the authors of this paper. The VOSviewer software was used as a tool for the visualization analysis.

A huge growth in the literature on sustainable investment started in 2013 because of the global financial crisis and the willingness to modify traditional economic models, which was reinforced with the introduction of the Paris Agreement.

The main topic of the most influential papers is the relationship between sustainability and financial performance. Nevertheless, in recent years, there is a new approach based on green finance and the characteristics of investors concerned about SRI. Co-authorship analysis showed that the collaboration network is decentralized and weak, implying authors work individually, and that the field of sustainable

TABLE 8 Number of published papers in each category and subcategory

Category/subcategory	Documents		Category/subcategory	Documents	
	No.	%		No.	%
Investment tools	444	40.7	Islamic finance	39	3.6
Funds	183		No subcategory defined	39	
Indexes	121		Ethical investment	34	3.1
Stocks	59		No subcategory defined	34	
Bonds	42		Ratings	33	3.0
Pension funds	32		ESG/Sustainability ratings	21	
Credit/Loans	6		CSR ratings	9	
Derivatives	1		Sustainability/ESG scores	3	
Investment decisions	194	17.8	Review	30	2.7
Characteristics of decision maker: Investors	112		No subcategory defined	30	
Portfolio selection/portfolio optimization	36		Alternative investment	27	2.5
Characteristics of decision maker: Managers	17		Microfinance	12	
ESG integration	16		Venture capital	7	
Screening analysis	13		Crowdfunding	4	
CSR	180	16.5	Commodities	4	
Corporate governance	50		Government policies	23	2.1
Performance analysis	41		Regulations	18	
ESG/Sustainable reporting	33		Law	3	
Shareholder	25		UE taxonomy	2	
Engagement	20		Social issues	23	2.1
Fiduciary	8		Impact investing	11	
Greenwashing	3		Human rights	8	
Sustainable environment	41	3.8	Foundations	2	
Low carbon economy	16		Gender equality	2	
Climate change	10		Sustainable banking	23	2.1
Sustainable development goals	10		No subcategory defined	23	
Environmental impact	5				

investment is far from research collaboration. It should be mentioned that the most influential authors' group is the one formed by Bauer and Koedjik, followed by Ter Horst, Renneboog and Zhang. The data analysis also shows that the Journal of Business Ethics is the most prominent journal, concentrating 10% of the total published articles and 22% of the total citations, ranking first in both criteria.

Regarding the conceptual structure, the keyword analysis showed how the concept of sustainability has changed over the years. At first, academics used the term "ethical" to refer to any religious and ethical aspect of an investment. Hence, the classic investment strategy was "negative screening." Nowadays, this concept is broader and it can encompass different strategies of SRI ("best-in-class," "ESG integration" and "impact investing," among others).

Moreover, keyword analysis revealed that the future hot topics in sustainable investment will be related to green products (green bonds, green funds, etc.), and to the sustainable development goals. There is a gradual shift in focus underway from the analysis of SRI funds to the analysis of green financial instruments.

Among the identified categories, "Investment tools," "Investment decisions" and "CSR" stand out with 41% of all selected documents in the study.

In the "Investment tools" category, studies of funds, indexes and stocks predominate, and the vast majority of the papers include a comparison of conventional and SRI funds. Most of these studies found no significant difference in financial performance between the two kinds of funds.

The analysis of the documents included in the "Investment decisions" category revealed that institutional and individual investors' values and preferences are the main drivers of the growth of sustainable investments. Investors have heterogeneous motives to invest sustainably that are related to different environmental, social and governance issues, with environmental and social concerns the most driving motivations. However, the lack of transparency of the sustainability ratings creates confusion and uncertainty among investors and practitioners in the decision-making process. Nonetheless, in the current context it is barely possible to imagine an investment strategy without the integration of ESG criteria.

From the viewpoint of corporate participants, corporate governance, firms' performance analysis and sustainability reporting are the most discussed CSR topics. Corporate governance highlights topics related to institutional ownership and shareholders' interest. There is no consensus on the relationship between CSR and financial performance and, moreover, there is heterogeneity among the different CSR rankings. Regarding ESG information reporting, the lack of standards is a main shortcoming.

It should be noted that the conclusions of this paper have some limitations. The use of the Scopus database as the only source and, on the other hand, the definition of the categories and the inclusion of each publication in a category, decided by the authors, that can be discussed.

6 | FUTURE TRENDS

The analysis conducted in this paper identifies critical gaps in the existing body of knowledge on sustainable investment. In this section, it is proposed possible pathways for addressing these gaps and advancing future research on sustainable investment.

First, it is observed that the co-word analysis, which provides the conceptual structure of the field, shows that there are different hot topics related to green investments. Nowadays, the term green finance has emerged as another investment class with a much greater concentration of projects with well-defined environmental objectives. For example, green bonds have become a popular mechanism for funding environmentally focused projects such as alternative energy, energy efficiency, pollution prevention and control, sustainable water, and green building. This trend is confirmed in the categorization of the papers, since the newest publications deal with green bonds, green funds, concern with the SDGs, and so on.

Second, it has been observed that the ESG integration is the most used strategy, since it systematically analyzes the ESG factors and risks. However, this strategy is used more frequently in equities than in other categories of financial products. Therefore, there is a lack of research in fixed income, indices, and so forth. that could have a great impact in the advance of these assets in terms of sustainability. Additionally, the ESG considerations should be aligned with investors' growing will to achieve a positive social impact.

Third, the SRI studies highlight the necessity to create and use a common (or standard) ESG metric, since there are currently numerous methodologies that differ in their results due to their lack of homogeneity and transparency.

Finally, related to the gap above, the lack of reporting standards regarding ESG information is an important drawback. Therefore, it would be interesting for investors to be able to use homogeneous and comparable ESG information to make the best financial decisions.

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CONFLICT OF INTEREST

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