

Evolution and relevance of research on Environmental, Social, and Governance factors

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Abstract

In the wake of a compelling societal shift and the subsequent widespread response across multiple industries, Environmental, Social, and Governance (ESG) factors have emerged as a pivotal subject in scholarly literature. To gauge the significance of these contributions and facilitate objective exploration in future research, we employ bibliometric techniques. Thus, we identify the relevant authors and journals, and depict the evolution in the themes and pillars of the intellectual framework underpinning the topic. Our analysis covers 594 articles from 2007 to 2022, divided into two distinct periods. In the first period, the pillars are centered on contextualizing theories, the impact in terms of financial-related performance, and the ethical implications within the domain of corporate social responsibility. In the subsequent period, there is a notable progression towards reinforcing theoretical foundations. The pillars shift towards more practical implications, focusing on challenges associated with investing based on ESG criteria, guiding stakeholders in adapting to this paradigm, and addressing risks tied to its implementation. Financial performance, disclosure in reporting, and socially responsible investments remain crucial matters, and the analysis of the environmental issues outnumber social, and governance ones in both periods. We discuss the potential implications and further lines of research.

KEYWORDS

bibliometric analysis; co-citation; CSR; Environmental, Social, and Governance (ESG); intellectual framework

1 | INTRODUCTION

Since the Environmental, Social, and Governance (ESG) factors were jointly established as a meaningful term almost two decades ago (UN – The Global Compact, 2004), there has been an increasing interest, both in practice and in literature research, in addressing this key matter. Subsequent events provided further support. Thus, the UN launched the Principles of Responsible Investments in 2006 to take

into account ESG issues when determining investment practices. Also, received the impulse of the Global Reporting Initiative, appearing in 2001, which was initially focused only on environmental issues.

On the practice side, the impulse of seeking more socially responsible investments and the aim of introducing corporate social plans led to identifying issues, setting definitions, and performing action plans, turning into a significant change for the mandates the business and fund managers receive. ESG criteria-based mandates have grown

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above the average since 2018,¹ and there is an increasing disclosure of activities that can be aligned with ESG elements (Krueger et al., 2021). Unlike what it is defined by the concept of sustainability, the ESG framework sets the focus on certain criteria to evaluate the performance of firms in the mentioned fields. It is not about the long-term balancing of all principles, although it implies some of them. It is also different from several related terms. Contrasting Socially Responsible Investing (SRI), which primarily focuses on the environmental impact aspect, ESG encompasses a broader spectrum of non-financial factors that are crucial for evaluating a company's ethical footprint (Camilleri, 2021). Also, instead of referring to a whole set of long-term economic factors, it narrows the scope to firm's governance. Long-term value lenses are wider than the umbrella of ESG (Edmans, 2023) but it does not mean it is not relevant enough to consider its development in terms of research articles. By becoming pertinent to understand management competence, risk management, and non-financial performance (Boerner, 2011; Kiernan, 2007), it drives "materiality" to a variety of issues related to the environment, social responsibility practice, and corporate governance matters (Richardson, 2009). Accordingly, the ESG framework is utilized by rating agencies (Moody's, S&P Global, Fitch Ratings), regulatory agencies (e.g., SEC, ESMA, and FCA), stock exchanges (e.g., NYSE, LSE), and public organizations (UNEP FI, UE). The number of investing firms that signed the PRI surpassed 4300 in 2021. They manage over \$121 trillion in the markets. Also, over 90% of large US firms and 70% of UK ones are using ESG in their incentive plans (PwC, 2022).

On the academic side, a noticeable number of contributions addressing the topic have been elaborated since then. Before its deployment, most studies were focused on one dimension (Galbreath, 2013). Some authors have considered ESG as the meeting point between internal practices the firms take on social, environmental, and economic factors, and the view of the markets and their agents, in order to assess performance (Friede et al., 2015; Mervelskemper & Streit, 2017; Nollet et al., 2016) or risks (De Giuli et al., 2024; Giese et al., 2019). Also, a variety of matters have been studied in relation to this framework. It is the case of ESG disclosure (Xie et al., 2019), idiosyncratic risk (Reber et al., 2022), ESG scores and firm performance using machine learning algorithms (D'Amato et al., 2022), ESG reporting in terms of quality, and quantity, and ESG reporting (Arvidsson & Dumay, 2022), asymmetric return patterns (Nofsinger & Varma, 2014), ESG disclosure and firm performance (Khan, 2022), the differences among industries in the later relationship (Brogi & Lagasio, 2019), ESG disclosure and board diversity (Cucari et al., 2018), ESG controversies and firm value (Aouadi & Marsat, 2018). Also, there were ongoing discussions on how ESG information is utilized and the prioritization of relevant sets of items on the assessment of investments (Amir & Serafeim, 2018), the way ESG assets provide information and affect investor preferences (Pedersen et al., 2021), or its role during the financial crisis (Broadstock et al., 2021). Recently, green innovation has been related

to ESG performance (Long et al., 2023), ESG ratings (Yang et al., 2024), and ESG preferences in family firms (Wu et al., 2023). Besides, there are other discussions on the contents of scores or ratings (Berg et al., 2022), or on how to make ESG mainstream as a result of the integration of all long-term value drivers in this realm (Edmans, 2023). Therefore, the growth and actual number of contributions referred to ESG makes the analysis of the landscape of published documents convenient for the advancement of future studies.

We aim to obtain a general view and understand the relevance of the contributions to ESG research literature, the importance of authors and journals, and the intellectual framework that underlays this corpus of research. To accomplish this objective, we use bibliometric methods (Groos & Pritchard, 1969; McCain, 1996) to analyze articles published in leading journals (Callon et al., 1993; Ramos-Rodriguez & Ruiz-Navarro, 2004). We will try to identify and weigh the relationships and influence of the main documents shaping the extant intellectual framework. Thus, from an objective-based analysis, we will be able to highlight the relevance, development, and configuration of ESG research. It will help to point out avenues for future research works addressing still underdeveloped angles concerning ESG or to elaborate meta-analyses.

Acknowledging the existence of previous studies addressing isolated parts of the topic, we centered the analysis on all the contributions utilizing this framework theme by making explicit reference to ESG or by being categorized as such by third parties. Thus, we are not addressing sustainability reporting (Dinh et al., 2023; Singhania & Chadha, 2023). Previous works on the topic of our study utilized different databases of documents and scope of research (Gao et al., 2021; Senadheera et al., 2022), with a different purpose (Khan, 2022), dealt with ESG performance within the banking industry (Galletta et al., 2022), relating ESG with risk (De Giuli et al., 2024), addressing its performance and COVID19 (Marie et al., 2024), or in connection with the knowledge-based economy (Pu et al., 2022). Besides, they lack some of the types of measurements and analyses we find convenient for this purpose. We broaden the scope considering the whole framework regardless of the industry, using the most reliable database of documents, and including new metrics and period-related analyses.

The main objective of this article is to address the following questions: What are the key contributions to ESG research literature? What are the central topics and their interrelationships? What constitutes the foundational intellectual underpinnings of this research? This study aims to bridge gaps in understanding the topic, reveal the evolution and nuances of ESG research over the years, and elucidate areas that remain underexplored or require a fresh perspective.

Consequently, and following a frequently used structure (Barnett et al., 2020; D'Amato et al., 2017; De Jong et al., 2015; Donthu et al., 2021; Khanra et al., 2022; Mura et al., 2018; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004; Verma & Gustafsson, 2020; Vogel & Güttel, 2013), the article unfolds in three subsequent sections following this introduction, wherein we delineate the methodology employed, present and discuss the results, and draw our conclusions.

¹<https://www.morningstar.com/articles/1120612/sustainable-fund-flows-shine-bright-in-a-dismal-third-quarter-for-us-funds>.

2 | METHODOLOGY

Bibliometric techniques are a set of tools conceptualized in the late 1960s (Groos & Pritchard, 1969) that use mathematical and statistical methods for analyzing data on publications (Diodato et al., 1994; McCain, 1996). They have been used to address fields of research such as management (Tahai & Meyer, 1999), strategic management (Nerur et al., 2008; Ramos-Rodríguez & Ruiz-Navarro, 2004), finance (Alexander & Mabry, 1994; Merigó et al., 2015), operations management (Pilkington & Liston-Heyes, 1999; Pilkington & Meredith, 2009), organizational behavior (Culnan et al., 1990), human resources management (Fernandez-Alles & Ramos-Rodríguez, 2009), supply chain management (Charvet et al., 2008), or innovation (Fagerberg et al., 2012). Likewise, these techniques were used for the study of specific topics or subfields within the management arena. That is the case of studies on corporate social responsibility (Danilovic et al., 2015; De Bakker et al., 2005; Santana & Lopez-Cabral, 2019), family business (Casillas & Acedo, 2007), entrepreneurship (Etemad & Lee, 2003; Landström et al., 2012; Schildt et al., 2006), environmental management accounting (Schaltegger et al., 2013), science parks and incubators (Diez-Vial & Montoro-Sanchez, 2017), human resource training (Danvila-del-Valle et al., 2019), or diversity (Estevez-Mendoza, 2022). Besides, theories and intellectual frameworks have been the objective of these methods too, for example, resource-based theory (Acedo et al., 2006), the Dynamic Capability View (Vogel & Güttel, 2013), the Transaction Cost Theory (Martins et al., 2010), or the Institutional Theory (Weerakkody et al., 2009).

The unit of analysis is the article. The articles published in journals follow a qualification process that secures a high degree of reliability to the contents (Callon et al., 1993; Ramos-Rodríguez & Ruiz-Navarro, 2004). Thus, frequencies of citations (Culnan, 1987) and impact indicators (Egghe, 2006; Hirsch, 2005) may point to influential works. A further analysis usually shows connections among different contents that might lead to identifying potential clusters of themes, authors, or intellectual frameworks (Pilkington & Liston-Heyes, 1999; Ramos-Rodríguez & Ruiz-Navarro, 2004). In this context, it is particularly useful to visualize a map of the network configuration they originate as a way to analyze the structural traits of the research (Cobo et al., 2011b). For that purpose, we employed VOSviewer software (Van Eck & Waltman, 2014), Bibexcel (Åström et al., 2009), SCLmat (Cobo et al., 2012), and biblioshiny R package (Aria & Cuccurullo, 2017).

The elaboration of conclusions follows a process that includes the necessary steps to accomplish the analysis (see Figure 1). The retrieval and cleaning of data, descriptive and relational analysis, and visualization stages are crucial for this purpose (Zupic & Cater, 2015). Thus, in the first stage of the methodology, reliable databases of publications must source the sample, and the terms of search should cover the topic and embrace different potential approaches, combining words and categories and other featured elements. Then, the cleaning step aims to consider just the right set of publications and formats according to the objective. In the analysis elaboration step, descriptive and relational bibliometric tools are set. The frequency of publications frames the evolution of the literature. By using impact indicators, the

analysis of the main contributors and the journals illustrates the way the academia bestows relevance and builds the maturation of the research on the topic. Through the mapping of co-occurrences, it is easier to visualize potential clusters among references and keywords (Callon et al., 1983). The last provides a pre-classification of contents from the point of view of the authors and the database managers, pointing out the related concepts still under debate.

Hence, to identify the most relevant topics and their evolution, we will select the words in each document, create and normalize a co-occurrence network, apply a clustering algorithm to obtain the map and its associated clusters and subnetworks, and perform a set of analyses (Cobo et al., 2011a, 2012). Results obtained will be available for visualization using two basic elements: the strategic diagram (Callon et al., 1991) and the thematic network (Bailón-Moreno et al., 2005; Cobo et al., 2011a; López-Herrera et al., 2009). The strategic diagram will show those identified clusters according to their Callon's density and centrality measures (Figure 2a). Thus, those with high density and centrality are motor themes, those with high centrality and low density are considered transversal or basic, those with high density and a low centrality qualify as highly developed or isolated topics, and those with low centrality and density are considered as emerging or declining depending on their evolution across periods of time (Callon et al., 1991). The Figure 2b shows an example of the way they are depicted. Besides, each cluster has an associated network of keywords, which helps in understanding clusters' contribution, and it is also drawn reflecting their relationship (Figure 2c).

Then, by computing these themes, we can assess the evolution of topics and visualize them. Figure 3a shows an example of the summarized evolution of clusters of themes (Evolution areas). Figure 3b shows an example of the number of words evolution (stability between periods). The number inside each circle shows the number of words considered, the number over the arrow that links them shows the number of words staying between periods, the number over the outer arrow indicates those words that are no longer considered, and the number of the incoming arrow shows the number of new words.

Therefore, these tools are suitable to obtain the main figures to define the configuration of the research works, their relevance, frameworks topics and subtopics, and new research themes objectively. The next section provides the results and discussion based on the elaboration of these steps.

3 | RESULTS AND DISCUSSION

3.1 | Descriptive statistics and evolution of publications

We collected data on articles stored in the Web of Science database. We searched the terms "ESG" or "Environment*, Social, Governance." Then we filtered by the categories "Business OR Management OR Economics or Business Finance OR Ethics." After cleaning data, we processed 594 articles that fit into the purpose of this study (see Appendix A for search strategy steps). The published journals spread

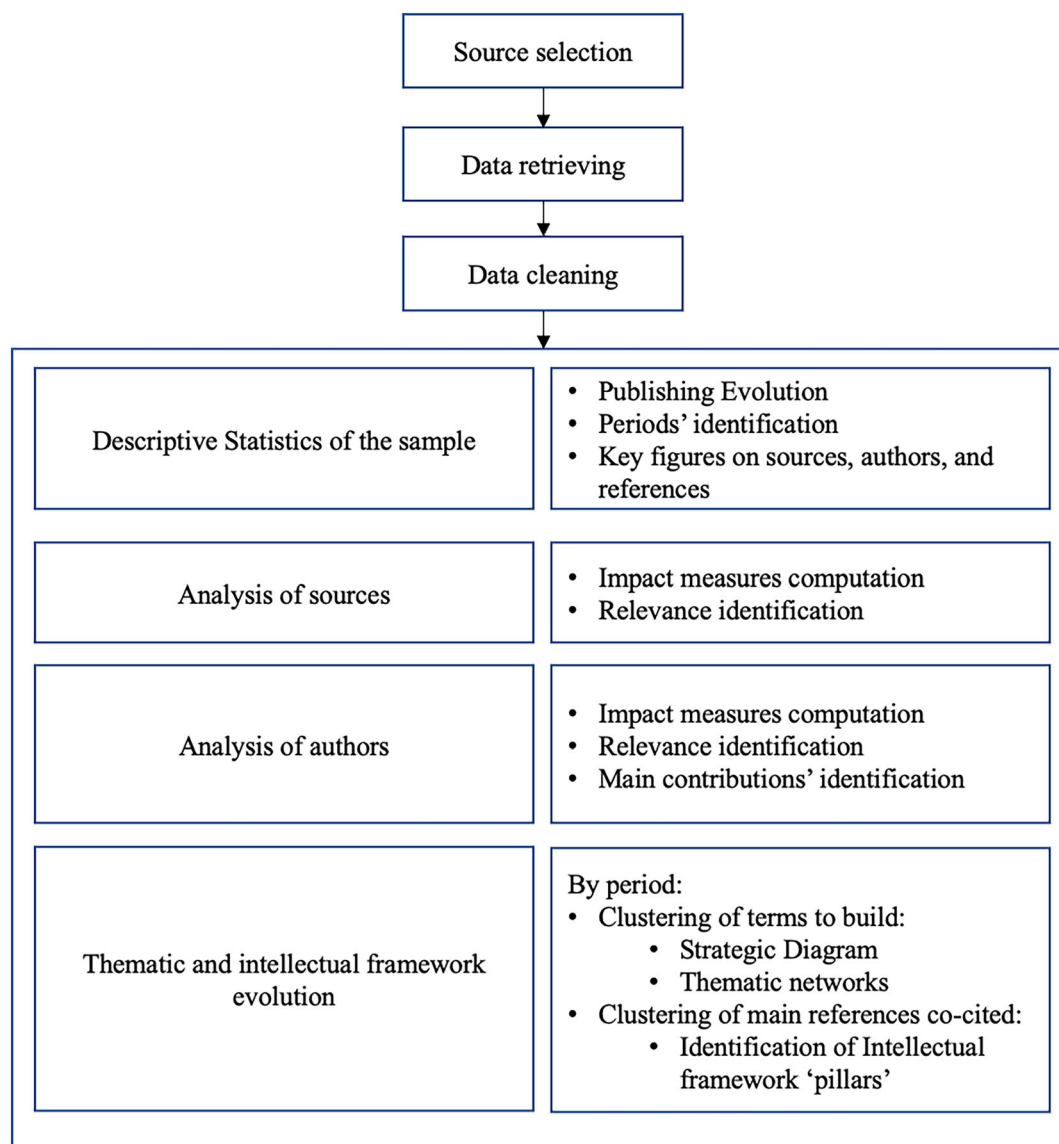


FIGURE 1 Steps of the methodology. Source: Own elaboration.

from 2007 to 2022 and the evolution of the number of published articles, citations per year, and citations per article are shown in Figure 4.

The number of published articles, as well as the average citation per article and the average citation per year, shape a seeding period until 2018, and a maturation one afterward. The first period is shaped by a low number of publications that set up a basic grounding for the study of the topic, embraces preliminary studies, and provides initial empirical testing on the issues related to or using ESG factors. After 2018, publications are boosted mainly by management journals with focus on environmental and social issues such as *Business Strategy And The Environment* or *Corporate Social Responsibility And Environmental Management* (with 228 articles), financial journals where *Journal of Portfolio Management* and *Finance Research Letters* produced 161 articles on the topic, and journals on ethics like the *Journal of Business Ethics* (providing 86 articles). The presence of financial journals is coherent with the initial objective of using ESG issues in the realm of assets management and other financial services. Management journals

approach ESG from the CSR perspective. Journals on ethics address the topic in a broad and consistent subfield of sustainability-related topics. The increasing availability of data triggered by non-financial reports disclosures—often supported by codes of good governance—is aligned with the growth in published documents in recent years.

3.2 | Analysis of sources: Relevance identification

The articles were published in 143 different journals, and we ranked them after computing h-index, g-index, and m-index.² The most

²The Hirsch index (h-index) is the number of documents (authors, journals) (h) cited at least h times. The m-index is defined as H/n , where H is the H-index and n is the number of years since the first published paper of the scientist (journal). The g-index (Egghe, 2006) provides an improvement of the h-index with the aim of measuring the global citation performance of a set of documents. If this set is ranked in decreasing order of the number of citations, the g-index is the largest number such that the top g articles received at least g^2 citations.

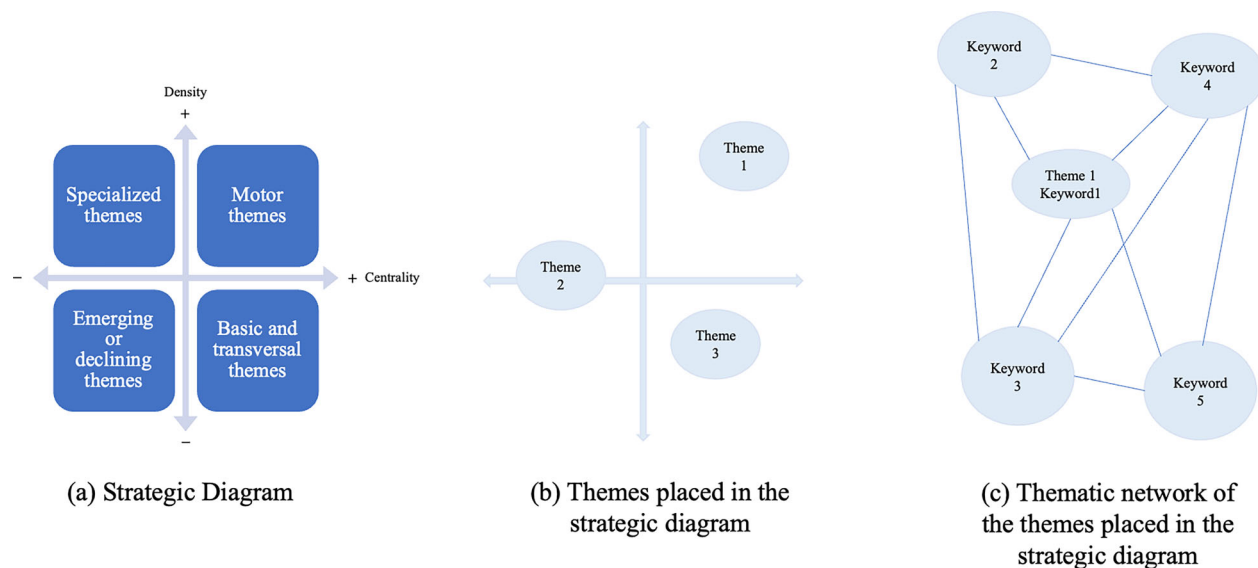


FIGURE 2 Strategic diagram and thematic networks. Source: Adapted from Cobo et al. (2012).

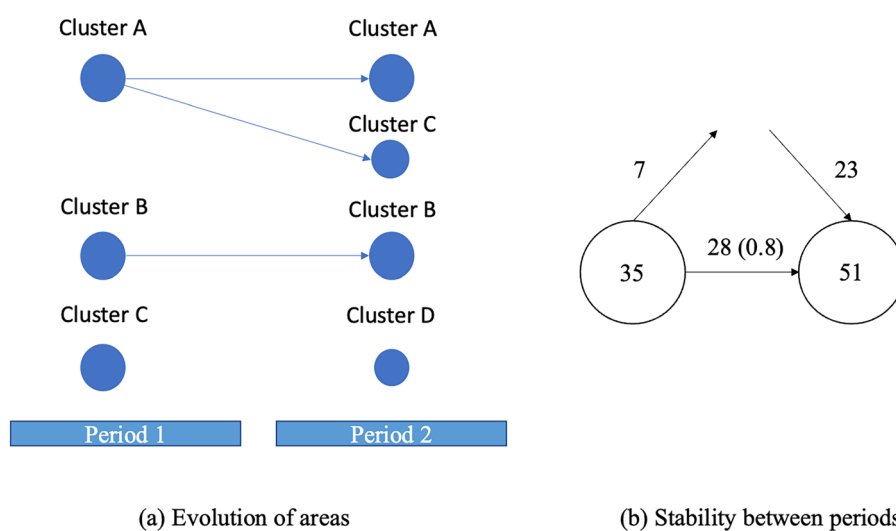


FIGURE 3 Examples of evolution figures. Source: Adapted from Cobo et al. (2012).

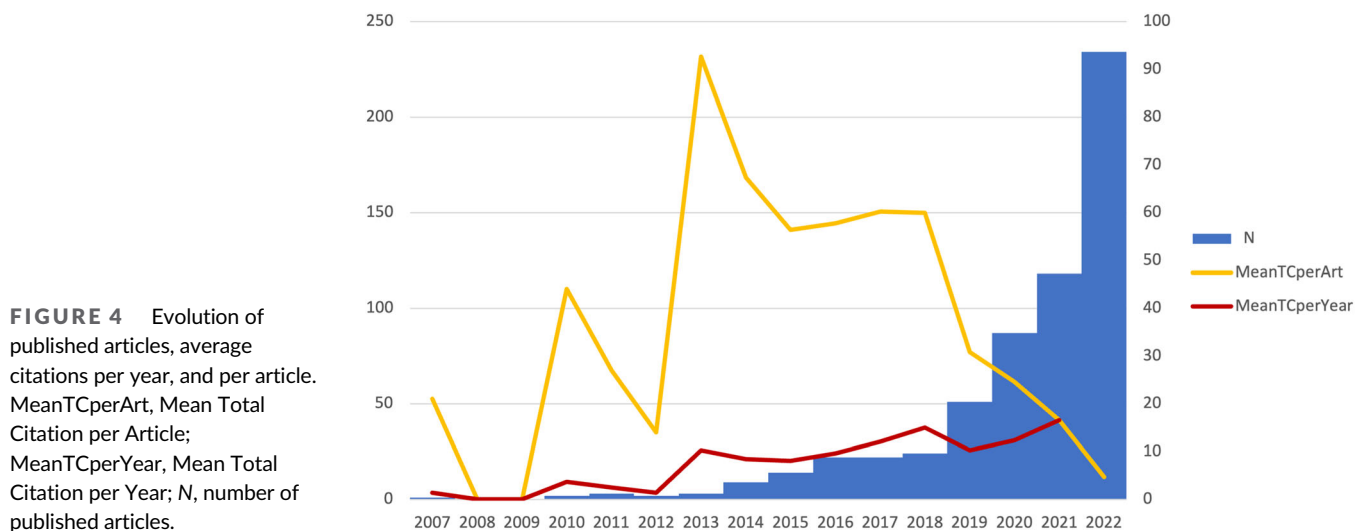


TABLE 1 Sources ranked by impact indices h-index, g-index, m-index.

Journal	H-index	G-index	M-index	TC	NP
Business Strategy and the Environment	23	41	2.30	1718	45
Journal of Business Ethics	19	26	1.46	1498	26
Corporate Social Responsibility and Environmental Management	15	31	2.50	1019	41
Finance Research Letters	11	22	1.38	534	34
Journal of Corporate Finance	9	11	1.13	552	11
Sustainability Accounting Management and Policy Journal	9	16	1.13	351	16
Journal of Business Research	8	12	1.14	354	12
Journal of Banking & Finance	7	8	0.78	469	8
Journal of Portfolio Management	7	14	1.75	237	30
Research in International Business and Finance	7	13	1.17	200	13
Financial Analysts Journal	6	8	1.20	295	8
International Review of Financial Analysis	6	9	0.86	95	9
Accounting and Finance	5	6	1.67	40	8
Corporate Governance-An International Review	5	8	0.31	139	8
Journal of Financial Economics	5	6	2.50	281	6
Accounting Auditing & Accountability Journal	4	5	0.50	190	5
Business & Society	4	6	0.57	234	6
Global Finance Journal	4	6	1.33	48	7
Inzinerine Ekonomika-Engineering Economics	4	5	0.36	42	5
Management Decision	4	5	0.44	250	5
Review of Financial Studies	4	4	1.33	299	4
British Accounting Review	3	3	0.50	340	3
Energy Economics	3	4	0.75	49	4
Energy Policy	3	4	1.00	90	4
European Financial Management	3	3	1.50	47	3

Source: Own elaboration with bibliometrix.

relevant 25 journals account for 63.94% of those with h-index 1 or above (50.3% of the sample) and 73.79% of the citations. There is a prevalence of journals on finance and accounting. Table 1 shows them ranked using different impact indexes.

3.3 | Relevance of the main authors contributing to the topic

There are 1600 authors of which 1144 had at least one citation. Just 98 of them have more than 100 citations, adding up to 15,206 of the total number of citations. These figures confirm a certain concentration among the relevant contributors to the topic, and the pattern might be suggesting a sign of initial sufficiency in the process of maturation of the topic. Table 2 shows the first 20 authors ranked by the H-index (section A) and the total number of citations (section B) (Tables 3–5).

The contributions of Serafeim and his co-authors focus on the trade-off between financial and ESG performance (Baker et al., 2022), the market reaction to mandatory nonfinancial disclosure (Grewal et al., 2019) or ESG news (Serafeim & Yoon, 2021, 2022), the impact

of ESG disclosure on ratings (Christensen et al., 2019), the public sentiment and ESG data in relation with corporate sustainability performance (Serafeim, 2020), US Green Bonds (Baker et al., 2018), and the reasons and ways of using ESG information (Amel-Zadeh & Serafeim, 2017). The impact on firm valuation and investment decision of ESG performance disclosure is supported by Crifo et al. (2015). Some research works led by Crifo center the analysis on the case of France, addressing the role of investors, bring clear categorical definitions and measures, and a proper institutional framework in sustainability transition (Crifo, Durand, & Gond, 2019), point to the corporate governance as a key driver (Crifo, Escrig-Olmedo, & Mottis, 2019), and depict the macro-level impact of ESG performance (Capelle et al., 2017; Capelle-Blancard et al., 2019; Crifo et al., 2017). Yu also emphasizes the topics related to transparency, disclosure, and greenwashing (Yu et al., 2018, 2020, 2021; Yu & Van Luu, 2021). Umar and Gubareva provide an international perspective and the dynamics in turbulent periods (Akhtaruzzaman et al., 2022; Umar et al., 2020, 2021; Umar & Gubareva, 2021), while Broadstock, Managui et al. narrow the scope to the case of China (Broadstock et al., 2019, 2020, 2021). The articles of Kocmanova et al. address the measurement and construction of ESG indicators (Kocmanova

TABLE 2 Impact of top 20 authors ranked by H-index and citations.

A						B		
Author	H-index	G-index	M-index	TC	NP	Author	TC	LC
Serafeim G	6	7	0.6	446	7	Serafeim G	446	67
Managi S	5	5	1.25	261	5	Busch T	278	27
Umar Z	4	4	1.33	140	4	Kolbel Jf	274	39
Yu Epy	4	4	0.8	179	4	Managi S	261	22
Crifo P	4	4	0.5	165	4	Broadstock Dc	254	32
Kocmanova A	4	4	0.36	64	4	Fujii H	221	20
Zhang Dy	3	4	3	29	4	Cucari N	216	19
Hassan Mk	3	3	1.5	45	3	Krueger P	216	30
Dreassi A	3	3	1	47	3	Rezaee Z	215	25
Pisera S	3	3	1	47	3	Starks Lt	203	26
Stroebe J	3	3	1	143	3	Sautner Z	197	23
Broadstock Dc	3	3	0.75	254	3	Filis G	197	21
Lee Le	3	3	0.75	108	3	Mitrokostas E	197	21
Uyar A	3	3	0.75	125	3	Nollet J	197	21
Cucari N	3	3	0.6	216	3	Nofsinger J	195	32
Capelle-Blancard G	3	3	0.5	160	3	Varma A	195	32
Burke Jj	3	3	0.43	101	3	De Falco Se	191	17
Rezaee Z	3	3	0.38	215	3	Amel-Zadeh A	185	35
Utz S	3	3	0.38	65	3	Gong Mf	185	19
Eccles Rg	3	3	0.3	175	3	Koh L	185	19
Escrig-Olmedo E	3	3	0.3	134	3	Li Yw	185	19

Note: Section A: authors ranked by H-index. Section B: authors ranked by total citations.

Abbreviations: H-index, Hirsch index; LC, local citations; TC, total citations.

Source: Own elaboration with bibliometrix.

et al., 2017; Kocmanová & Dočekalová, 2012; Kocmanova & Šimberova, 2012; Kocmanová & Šimberová, 2014).

As regards the most cited authors, a different set of main topics is observed. They highlight that innovation and investments are two key components of sustainable development (Tolliver et al., 2021). Besides, Busch et al. (2016) expose that a reorientation towards a long-term paradigm where ESG data should be more reliable, as there is a divergence of rating agencies, where the general opinion of an evaluator about a company influences the measurement of specific categories (Berg et al., 2022). In any case, ESG reporting is considered to have a positive association with business efficiency at a moderate level of disclosure (Xie et al., 2019), as companies receiving higher ESG coverage face higher financial risk (Kölbel et al., 2017). When it comes to investing, it is commercial motives, uncertainty about fiduciary obligations, and lower ESG market maturity the elements that explain why US-domiciled PRI signatories fail to meet their responsible investment commitments (Gibson Brandon et al., 2021, 2022). These investors prefer risk management and engagement, rather than divestment, as the approach to address climate risks (Krueger et al., 2019). Besides, as it occurs in other related disciplines, diversity is addressed under the context of environmental, social, and

governance issues reporting (Cucari et al., 2018) or the ESG disclosure itself (Cicchello et al., 2023).

The topics addressed by the most relevant authors demand, then, the analysis of the key themes through the keywords, and how they are supported by a certain intellectual configuration built out of consolidated clusters of references. Following the evolution of publications previously observed, we split our analysis into two differentiated stages: the first includes all documents until 2018, and the second all those that were published from 2019 to 2022.

3.4 | Thematic and intellectual framework evolution

Following the steps of the methodology, we identify five thematic clusters in the first period and six in the second (Figure 5), changing the variety and specification of topics. This is consistent with the great increase in the number of words in the second period (+546) while keeping a significant number of those analyzed in the first one (181 of 233).

In the following two sections, we analyze themes and intellectual framework for each period.

TABLE 3 Themes and intellectual framework until 2018.

		Intellectual framework pillars			
	Themes	1	2	3	4
Until 2018	Governance; SRI; Financial performance; integrated reports; environmental disclosure	Theoretical grounding and main factors	Social and environmental components of ESG, CSR and performance	Intangibles and performance	Investing, ethics and reputation
		Stakeholders Theory; institutional Theory; transparency; disclosure; CSR as competitive advantage	CSR and financial performance; stakeholder management and performance; environmental performance and profitability; Issues in capturing phenomena through ratings and other measures	Intangibles and market perception; lowering of financial costs; mitigation effect for shareholders; issues leading to potential irrelevance	SRI and performance; SRI and risk; Reputation and market perception
	Kocmanova, Busch, Crifo, Dal Maso, Docekalova, Du Rietz, Hebb, Galbreath, Revelli, Serafeim, Amel-Zahed, Aouadi, Filis, Bauer, Gong, Baldini, Nollet, Nofsinger, Varma, Koh	Suchman (1995); Mitchell et al. (1997); Cheng et al. (2014); Eccles et al. (2011); Eccles et al. (2014); Dimaggio and Powell (1983); Freeman (1984); Gray et al. (1995); Dhaliwal et al. (2011); Healy and Palepu (2001); Clarkson (2008); Porter and Kramer (2006)	Orlitzky et al. (2003); Waddock et al. (1997); Chatterji et al. (2009); Hillman and Keim (2001); McGuire et al. (1988); Russo and Fouts (1997); Margolis and Walsh (2003); Delmas and Blass (2010); Schueth (2003); Sparkes and Cowton (2004)	El Ghoul et al. (2011); Edmans (2011); Barnea and Rubin (2010); Godfrey et al. (2009); Surroca et al. (2010); Carroll (1979); McWilliams and Siegel (2001); Donaldson and Presto (1995); Petersen (2008)	Renneboog et al. (2008a, 2008b); Barnett et al. (2006); Statman (2000); Statman and Glushkov (2009); Hong and Kacperczyk (2009); Galema et al. (2008); Bauer et al. (2005); Kempf and Osthoff (2007)

Note: Contributions are referred only with the first author. Comments and proper format are included when cited in the text. Authors shown below themes are the top ranked in that period in terms of h-index and citations.

3.4.1 | Themes and intellectual framework until 2018

In the period that covers publications until 2018, we may observe five main thematic clusters that pivot about these terms: governance, financial performance, integrated reports, SRI, and environmental disclosure. We show them in the strategic diagram in Figure 6.

The clusters on “governance” and “financial performance” appear as motor themes in the development of the literature. The cluster on “governance” includes a high degree of relationship with CSR, the fact of sustainability, and the environment. The governance body of the board is also linked to diversity and the role of the investors in this context. Besides, the institutional theory is explicitly evoked to support contributions (see Figure 7a for the thematic network). The cluster on “SRI” is shown as a transversal topic across all the articles in this period. This topic is framed by ethics and brings about topics on the investing side through institutional investors, asset management, and ESG-related investing (Figure 7b). The cluster on “financial performance” is transversal to both periods too. It combines the focus on the market performance in financial terms with the corporate social performance, the sustainability reports, and the measurement through ratings (Figure 7c). The remaining two clusters (Figure 7d,e) address two sides of the same theme: disclosure and integration of information on ESG, CSR policies, and other nonfinancial topics under the aimed transparency behind sustainability performance and activities,

with special focus on the environmental realm. In fact, these two clusters act as basic and emerging themes in the strategic diagram. Therefore, we might assess that this period serves to set the grounding of ESG around the relevant subjects, linking it to the impact—in terms of market performance—and the importance of disclosure, with a special focus on environmental reporting.

By clustering the most co-cited references, we identified four basic pillars configuring the intellectual framework. We map them in Figure 8 following the clustering algorithm and assigning a different color to each one of them. The first one, in red nodes, establishes the main theoretical context and topics. Thus, the Stakeholders' Theory (Freeman, 1984), appears as the cornerstone of many studies and the normative core, in which the identification of relevant and salience parts (Mitchell et al., 1997) is crucial to manage their power, urgency, and legitimacy. Also, the Institutional Theory (Dimaggio & Powell, 1983; Suchman, 1995), usually introduces the issue of legitimacy and discussions on CSR disclosure and performance. Transparency and disclosure (Healy & Palepu, 2001), especially in the case of nonfinancial information (Dhaliwal et al., 2011), lead to the need to form a reliable database of reporting (Gray et al., 1995), which can be linked to the market interest (Eccles et al., 2011), and to the organizational processes and performance (Cheng et al., 2014; Eccles et al., 2014). Besides, the link between competitive advantage and CSR (Porter & Kramer, 2006) is set as the strategic justification of firms' policies aiming for impact.

TABLE 4 Themes and intellectual framework since 2019.

		Intellectual framework pillars			
	Themes	1	2	3	4
Since 2019	Financial performance; disclosure; ESG investing and disclosure; SRI; gender diversity	Theoretical grounding	Investing issues	CSR context and stakeholder orientation of the firm	CSR and risk
		Stakeholders Theory; Institutional Theory; Agency Theory; Theory of the Firm Perspective	Models for assessing returns; ESG measurements; Environmental issues and risk; investors and environmental and social performance	CSR and distributive justice; individual and corporate social responsibility relationship; stakeholder maximization; legal system and CSR adoption; CSR offsetting role	CSR and risk; CSR and cost of capital; governance efficiency and ownership configuration as contextual factors in crash risk mitigation; CSR activities as “insurance-like” protection
	Managi, Serafeim, Umar, Broadstock, Dreassi, Hassan, Lee, Pisera, Stroebel, Uyar, Yu, Fuji, Krueger, Starks, Sautner, Nozawa, Xie, Yagi, Chan	Friede et al. (2015); Waddock et al. (1997); Orlitzky et al. (2003); Cheng et al. (2014); Dhaliwal et al. (2011); Freeman (1984); Eccles et al. (2014); Jensen and Meckling (1976); Khan et al. (2016); Amel-Zadeh and Serafeim (2017); Fatemi et al. (2018); McWilliams and Siegel (2001); Barnea and Rubin (2010); Aouadi and Marsat (2018); Garcia et al. (2017); Ioannou and Serafeim (2012); Campbell (2007); Eccles et al. (2011); McWilliams and Siegel (2001); Dhaliwal et al. (2012)	Carhart (1997); Fama and French (2015); Renneboog et al. (2008a); Riedl and Smeets (2017); Nofsinger & Varma (2014); Albuquerque et al. (2019); Chava (2014); Dyck et al. (2019); Edmans (2011); Lins et al. (2017)	Ferrell and Ferrell (2008); Benabou and Tirole (2010); Servaes and Tamayo (2013); Deng et al. (2013); Liang and Renneboog (2017); Krüger (2015); Flammer (2015)	El Ghouli et al. (2011); Goss and Roberts (2011); Sharfman and Fernando (2008); Kim et al. (2014); Godfrey et al. (2009)

Note: Contributions are referred only with the first author. Comments and proper format are included when cited in the text. Authors shown below themes are the top ranked in that period in terms of h-index and citations.

The second pillar, in blue nodes in Figure 8, presents basic elements for the social and environmental components of the ESG framework, and relates them to performance, CSR practice, measurements, and investing. Thus, it poses a link between corporate social and financial performance, which helps to understand a positive association to impact, and its limitations in terms of the operationalization of measures, the mediating role of reputation, and the direction of the relationship (Mcguire et al., 1988; Orlitzky et al., 2003; Waddock et al., 1997). In this line, it is also discussed whether stakeholder management leads to value creation for shareholders, and the impact of social participation (Hillman & Keim, 2001), broadening the scope of action to a broader conception of the social responsibility realm. This is a threshold to consider a normative theory of the firm, which reconciles societal ills, features of the firm, impact, and boundaries of corporate response (Margolis & Walsh, 2003). This “social side” is put under screening when it comes to investing, something that has a long track record historically speaking (Schueth, 2003), and it is linked to CSR practice

in firms (Sparkes & Cowton, 2004). Regarding the environmental factor, (Russo & Fouts, 1997) helps to support the positive association between environmental performance and profitability in firms competing in growing industries. Besides, there is a need of understanding whether ratings are capturing corporate social responsibility activities related to the environment (Chatterji et al., 2009), and whether there are trade-offs in the measurement and evaluation of them in the investment process (Delmas & Blass, 2010).

The third pillar helps to back the idea of the existence of a link between intangibles and performance. Stakeholders Theory contextualizes this pillar (Donaldson & Preston, 1995) in which intangibles have an impact that is perceived by the market (Edmans, 2011; Surroca et al., 2010). This results in lowering financial costs associated with CSR (El Ghouli et al., 2011), and a mitigation effect for shareholders (Godfrey et al., 2009). Given the initial positive association, it opens the door to potential irrelevance without trade-offs (McWilliams & Siegel, 2001), despite of the willingness to perform considering social matters (Barnea & Rubin, 2010).

TABLE 5 Summary of themes and pillars in the intellectual framework by period of analysis.

		Intellectual framework pillars			
	Themes	1	2	3	4
Until 2018	Governance; SRI; Financial performance; integrated reports; environmental disclosure	Theoretical grounding and main factors Stakeholders Theory; institutional Theory; transparency; disclosure; CSR as competitive advantage	Social and environmental components of ESG, CSR and performance CSR and financial performance; stakeholder management and performance; environmental performance and profitability; Issues in capturing phenomena through ratings and other measures	Intangibles and performance Intangibles and market perception; lowering of financial costs; mitigation effect for shareholders; issues leading to potential irrelevance	Investing, ethics and reputation SRI and performance; SRI and risk; Reputation and market perception
Since 2019	Financial performance; disclosure; ESG investing and disclosure; SRI; gender diversity Return; SRI; ESG; Model	Theoretical grounding Stakeholders Theory; institutional Theory; Agency Theory; Theory of the Firm Perspective	Investing issues Models for assessing returns; ESG measurements; Environmental issues and risk; investors and environmental and social performance	CSR context and stakeholder orientation of the firm CSR and distributive justice; individual and corporate social responsibility relationship; stakeholder maximization; legal system and CSR adoption; CSR offsetting role	CSR and risk CSR and risk; CSR and cost of capital; governance efficiency and ownership configuration as contextual factors in crash risk mitigation; CSR activities as “insurance-like” protection

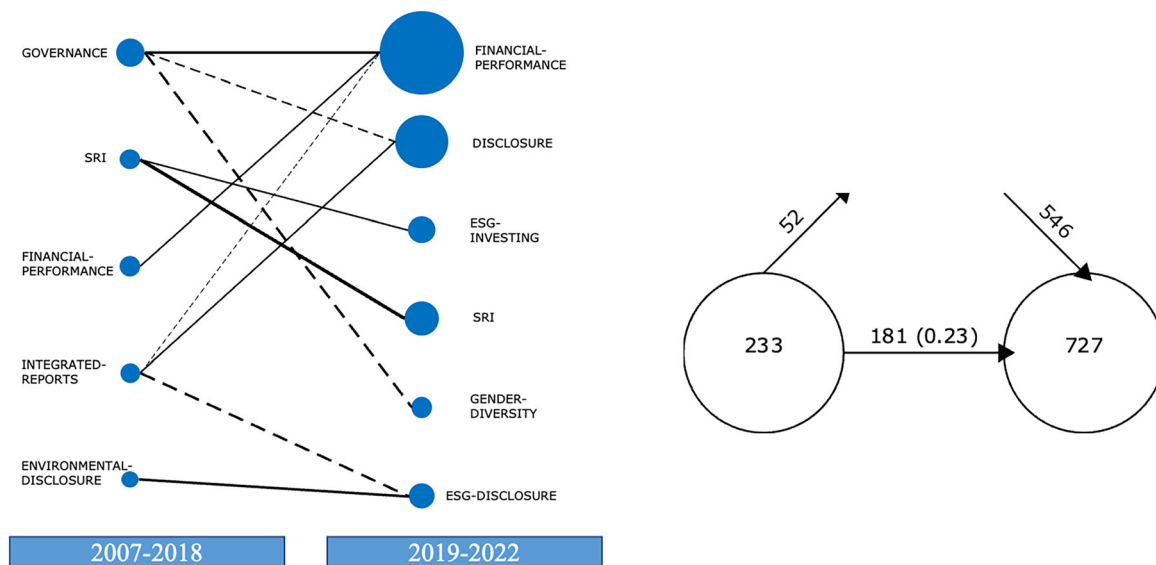
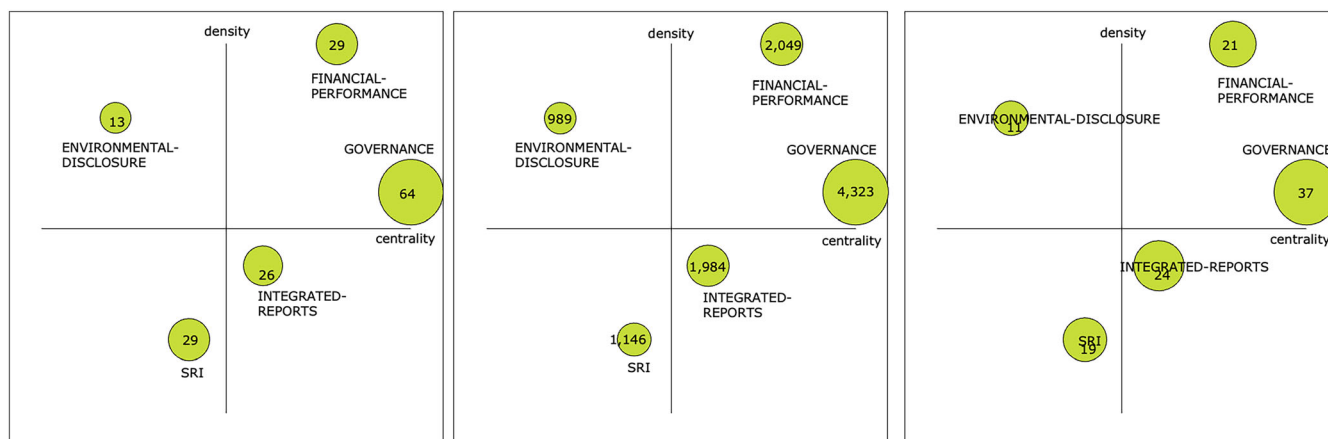


FIGURE 5 Thematic evolution and stability between periods. Source: Own elaboration with SCLmat.

The last pillar refers to investing, reputation, and ethics. Thus, it provides support to the positive relationship between socially responsible investing and performance (Renneboog et al., 2008a), considering their ethical beliefs (Renneboog et al., 2008b), and using appropriate measurements for screening (Kempf & Osthoff, 2007). Also, these types of investments may benefit from higher demand and lower risk (Galema et al., 2008). Framed by the perception of the

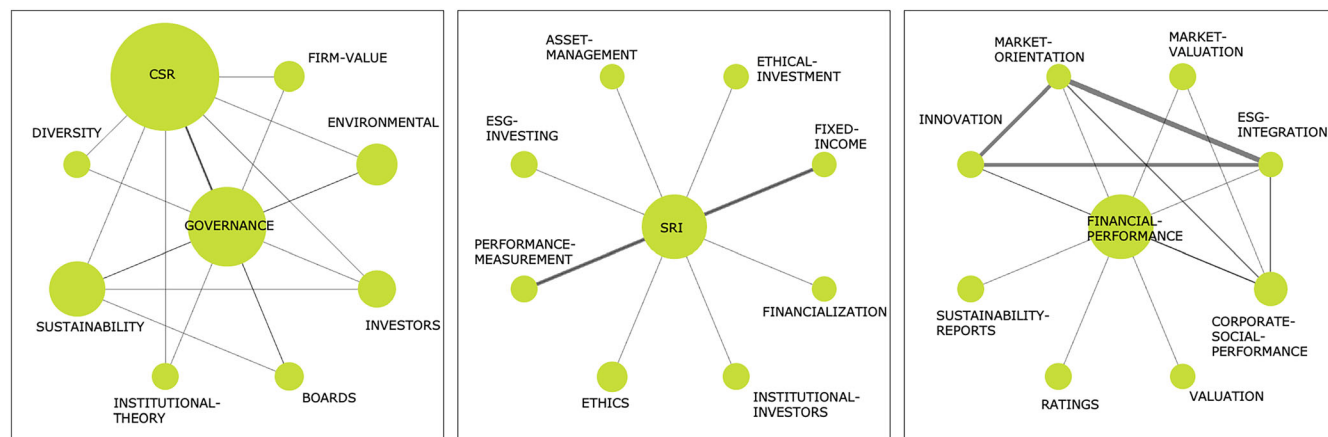
corporate reputation (Barnett et al., 2006), social norms might have a positive impact on financial markets (Hong & Kacperczyk, 2009). Nevertheless, these kinds of investments, measured by KLD variables as forerunner ESG items or sustainability indices, could turn into outcomes of different sign (Bauer et al., 2005; Statman, 2000; Statman & Glushkov, 2009). The summary of the themes and the intellectual framework is shown in Table 3.



(a) Strategic Diagram – Themes until 2018 (Number of Documents)

(b) Strategic Diagram – Themes until 2018 (Sum of citations)

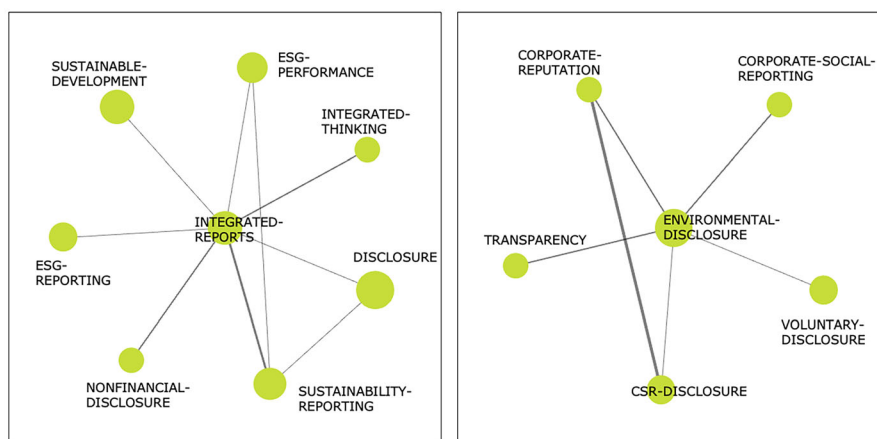
(c) Strategic Diagram – Themes until 2018 (H-index)

FIGURE 6 Strategic diagram of the most relevant clusters of topics until 2018. Source: Own elaboration with SCImat.

(a) Thematic network associated with the term 'Governance'

(b) Thematic network associated with the term 'SRI'

(c) Thematic network associated with the term 'Financial Performance'



(d) Thematic network associated with the term 'Integrated Reports'

(e) Thematic network associated with the term 'Environmental Disclosure'

FIGURE 7 Thematic network by cluster—Period until 2018. Source: Own elaboration with SCImat.

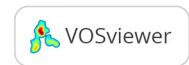
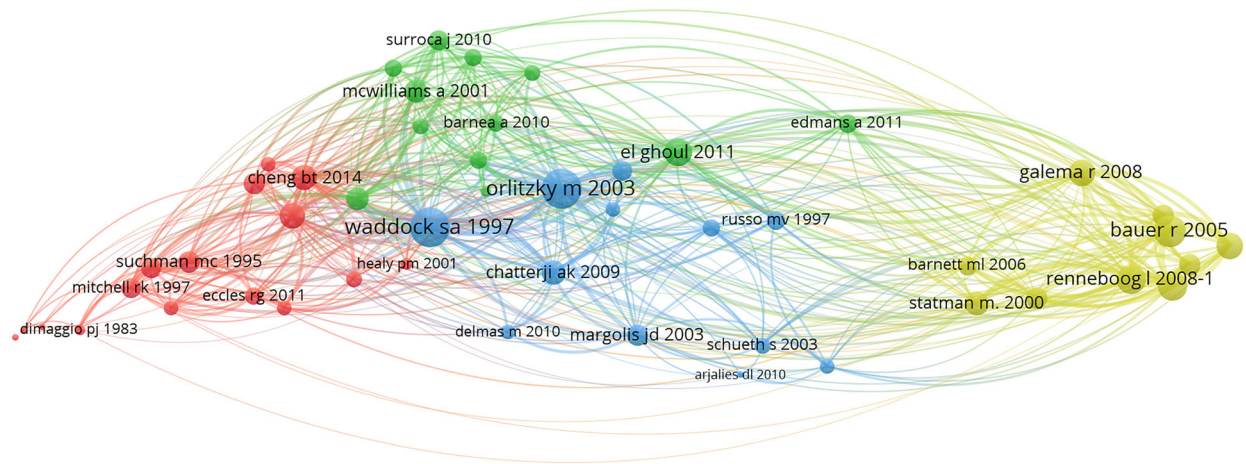


FIGURE 8 Intellectual framework. Map of the main clusters of co-cited references in documents until 2018. *Source:* Own elaboration with bibliometrix and VOSviewer.

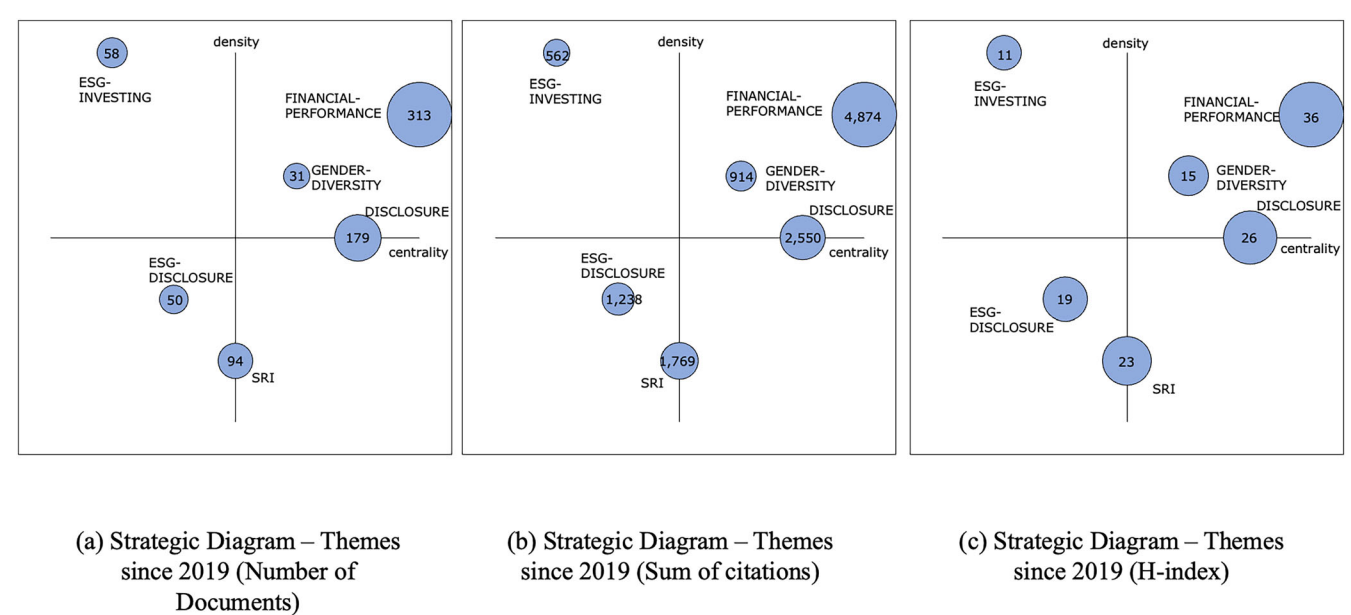


FIGURE 9 Strategic diagram of the most relevant clusters of topics since 2019. *Source:* Own elaboration with SCLmat.

3.4.2 | Themes and intellectual framework since 2019

The period covering the recent years, including all the articles since 2019, shows an entirely different shape. The number of published documents allows a maturation process of the study of ESG, increasing the variety of topics addressed in the contributions, and yielding

new motor and emerging themes (see strategic diagram in Figure 9). As a result, we can identify six thematic clusters in this period: Financial performance, disclosure, SRI, gender diversity, ESG investing, and disclosure.

The “Financial Performance” cluster stays as a motor theme, and bridges different types of performance (environmental, corporate social, firm, and ESG) in relation to their governance and firm's CSR,

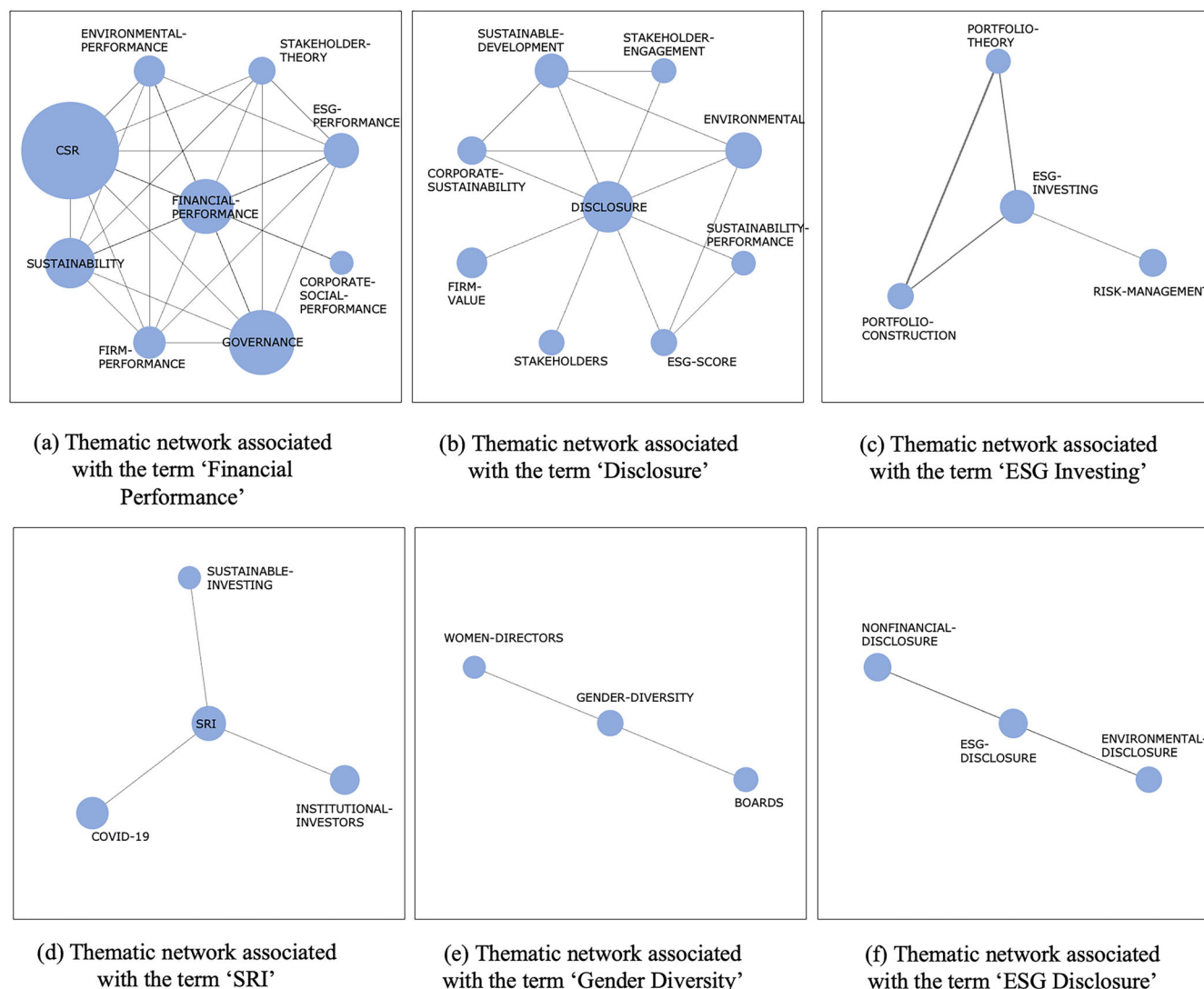


FIGURE 10 Thematic network by cluster—Period since 2019. Source: Own elaboration with SCLmat.

and considering the grounds established by the stakeholder theory (Figure 10a). The “gender diversity” cluster is also a motor in this period of analysis and centers the presence of women on boards (Figure 10e). We find the “Disclosure” cluster between the motor and the basic themes. While it remains as a key element fostering and enabling the analysis of ESG, it is becoming a basic theme for other contributions. In this period, besides being related to sustainability topics, it relates to the management of stakeholders and ESG scores (Figure 10b). There is one specialized theme in this period: “ESG investing.” Its thematic network basically groups portfolio theory and construction, as well as risk management (Figure 10c). In this occasion, the “SRI” concentrates topics that involve institutional investors and Covid-19 pandemic. That event triggered multiple analysis and could be used as natural experiment for the purposes of diverse empirical studies (Figure 10d). Finally, another major thematic cluster links topics connected to ESG, environmental, and nonfinancial disclosures (Figure 10f). Therefore, we appreciate the evolution of contributions' themes towards new avenues for research on topics beyond the

environmental arena. At the same time, basic topics such as disclosure and SRI are kept, suggesting the orientation of studies relies on public transparency exercises and is also pulled by increasing demands of socially responsible investments. The need to link the topic to financial performance is still relevant, specially because it is a key goal for investors.

Once the most relevant topics have been identified, our analysis moves towards depicting the intellectual framework that helps elaborate research literature on ESG in this period. We computed the most co-cited references and visualized them in network form (see Figure 11).

As performed in the previous period, we clustered references of this period's contributions to identifying four main groups of highly co-cited documents which configure the intellectual pillars. The first pillar (cluster colored in red in Figure 11) provides theoretical background and estates the positive associations of CSR with financial performance measured in different ways. It also places ESG as a topic that is closely related and needs to be analyzed in terms of

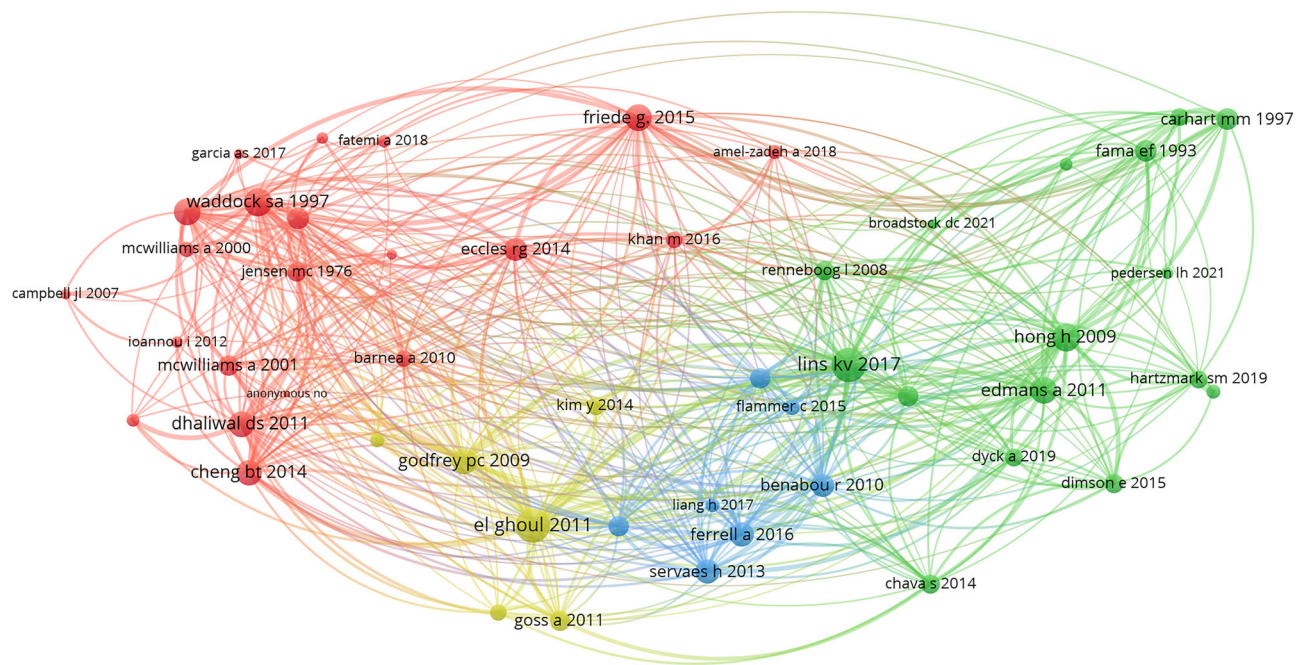


FIGURE 11 Intellectual framework. Map of the main co-cited references since 2019.

performance and disclosure. Thus, it gathers the Stakeholders' Theory (Freeman, 1984), the Institutional Theory (Campbell, 2007), the Agency Theory (Jensen & Meckling, 1976), and the Theory of the Firm Perspective (McWilliams & Siegel, 2001). This theoretical set helps to address the relationship between CSR and financial performance (Orlitzky et al., 2003; Waddock et al., 1997), CSR and access to finance (Cheng et al., 2014), and the nation-level determinants of CSP (Ioannou & Serafeim, 2012). It also lays ESG as a core topic. Hence, the work of Friede et al. aggregates empirical evidence on the relationship between ESG and financial performance (Friede et al., 2015) whereas (Fatemi et al., 2018) links it to firm value, Garcia et al. refer it to sensitive industries (Garcia et al., 2017), and Eccles et al. associate it to organizational processes and performance (Eccles et al., 2014). Besides, this cluster includes the issue of comparability of ESG information and its integration in positive and negative screening (Amel-Zadeh & Serafeim, 2017), conceding relevance to the corporate sustainability materiality (Khan et al., 2016), transparency in nonfinancial disclosure (Dhaliwal et al., 2011, 2012) due to a growing interest in the market (Eccles et al., 2011), and making reference to the usefulness of ESG controversies in relation with firm market value (Aouadi & Marsat, 2018).

The second pillar in this period, in green-colored nodes in Figure 11, is centered on investing. In this realm, two main models to assess returns (Carhart, 1997; Fama & French, 2015) are in place in addition to the one elaborated by Fama and French (1993) as a basic

construction in the methodology process. Besides, socially responsible investing is set as a way to achieve financial goals and social objectives (Renneboog et al., 2008a), among which environmental issues are crucial (Riedl & Smeets, 2017). SRI funds with a focus on ESG factors are better performers during crises (Nofsinger & Varma, 2014). This pillar also links lower risk to CSR measured by ESG indicators (Albuquerque et al., 2019), and environmental issues to reduced cost of capital (Chava, 2014). Therefore, the investors drive firms to become more responsible in environmental and social aspects (Dyck et al., 2019), and, at the same time, the markets positively react to those intangible factors (Edmans, 2011; Lins et al., 2017).

The third pillar in this period, with nodes colored in blue in Figure 11, might be labeled as CSR context in terms of reputation, determinants of adoption, and stakeholder orientation of the firm. Thus, the CSR orientation of the firm is posed as a way to foster distributive justice beyond the firm (Ferrell & Ferrell, 2008), motivated by the firm's adoption of a long-term perspective, the delegation of prosocial behavior on behalf of the stakeholders, or a sort of corporate philanthropy (Benabou & Tirole, 2010). Then, it is established a relationship between CSR and firm value via customer awareness and reputation (Servaes & Tamayo, 2013), within a context of stakeholder maximization (Deng et al., 2013), where the legal system plays a key role in determining CSR adoption (Liang & Renneboog, 2017). In this context, CSR might be serving as an offsetting factor for poor performers in stakeholder management, triggering agency issues in

market perception on positive news (Krüger, 2015), but stating at the same time a positive “causal” relationship between CSR shareholders' proposals adoption and shareholder value creation (Flammer, 2015).

The fourth pillar, with nodes in yellow in Figure 11, associates CSR with risk and stakeholder value. In that sense, grounds the positive link between socially responsible practices and higher valuation and lower risk via a lower cost of capital (El Ghoul et al., 2011; Goss & Roberts, 2011; Sharfman & Fernando, 2008), the mitigation of crash risk in different contexts of governance efficiency and ownership configuration (Kim et al., 2014). CSR activities are considered within an extended risk model and constitute goodwill and “insurance-like” protection if they target secondary stakeholders (Godfrey et al., 2009). The summary of the themes and the intellectual framework is shown in Table 4. Table 5 shows the summary of themes and the intellectual framework of the whole set of documents.

4 | CONCLUSIONS

Research literature addressing ESG configures a solid corpus of contributions over the last two decades, following increasing social and industry demands and interests. These works have significantly increased since 2019, enhanced by journals addressing specific social, environmental, and ethical issues in the management arena which join a topic widely approached from financial disciplines. As a result, socially responsible investments have brought a change in the design of strategies and modes of operation of companies, where ESG factors play a bridging role between the investment side and the CSR implementation within companies. However, due to its short life or the diversity of factors to be considered, there are many challenges to address.

Amidst the rise of ESG-focused investments, several controversies have emerged that question the efficacy and authenticity of these initiatives. First, the potential vagueness and inconsistency in the metrics: A major concern revolves around the inconsistency in how ESG metrics are defined and measured across companies and sectors. This lack of a universal standard can lead to exaggerating or falsely claiming sustainable practices to attract investors or reporting differently to different agents assessing their performance. In this sense, there is divergence in ESG rating across agencies due to varying criteria, leading to the same company receiving dissimilar scores. This inconsistency can confuse investors and reduce trust in the ratings system. Besides, trade-offs between profit and purpose may rise. While many argue that sustainable practices lead to long-term profitability, there are concerns about potential trade-offs between ESG goals and immediate financial performance. There is also criticism of the aimed impact results. The questionable impact appears when some ESG funds include companies that might not align with a strict interpretation of sustainability, raising doubts about the actual environmental or social impact of these investments. As regards governance, there are also concerns, since the environmental and social aspects often dominate the discourse, potentially overshadowing its relevance. Nevertheless, issues like board diversity, executive pay, and corporate transparency

are still critical among the topics under study. These controversies underscore the need for clearer taxonomies and regulations, more transparent disclosures, and rigorous due diligence in the ESG realm.

Thus, the most relevant authors point to the trade-offs between financial and ESG performance, the market reaction to certain accomplishments, and the importance of handling proper information through disclosure and reporting. Also, they relate it to a general need for transparency when identifying and targeting impact investments, and in the event of curbing risks. The use of indicators to measure each one of the ESG factors and be able to link them to market performance appears as a relevant topic that needs further development since it is still a subject of controversy. In fact, long-term reliability, divergences in ratings, and specific ESG categories configure elements enough to consider delving into the process of measurement, the way indicators are built, weighted, and tested. The maturation of the research has also led to contributions highlighting the importance of innovation.

The themes contributors refer to when studying ESG lead to a landscape where the impact, mainly driven by market returns, is finding ways to embrace an investment sense for these factors. These factors are mostly addressed from the environmental side. Social and governance elements are less developed in conjunction with the others and might be facing issues regarding taxonomy in the first and weighting in the second. Nevertheless, there is an evolution in the topics over time that might also be observed in the intellectual framework.

In the first period of the analysis, intellectual framework pillars refer to the impact, mainly driven by market returns, addressed from the environmental side and reputational angle. A strategy of avoidance and good image is perceived, but not in the direction of developing environmental, social, and good governance policies.

After 2018, there is an evolution from securing a positive alignment among CSR, intangibles, and performance to specific support for the study of associated risks, and environmental-related impacts. The intellectual framework opens different fields centered on investing, the CSR orientation of the firm, and the relationship between CSR and risks. Reputation, which already appeared in the initial stage, still underlays as a relevant matter for contributions published in this period.

In both periods, the main theories providing a framework are the Stakeholders Theory, Institutional Theory, Theory of the Firm perspective, and Agency Theory. We found that the evolution of publications depicts these theories consolidated in a unique intellectual pillar, and showed, this way, a certain degree of academic consensus around their integration.

Socially responsible investments have undergone major development in recent years and have brought about a change in the design of strategies and modes of operation of companies. In this context, ESG factors play a bridging role between the investment side and the CSR implementation within companies. However, due to its short life or the wide variety of factors to be considered, there are still challenges that authors and practitioners are currently perceiving in the early stages. In this sense, there are practitioners, and some authors,

who already state a certain lack of clearness in the use of terminology and the elaboration of scores, or debate weights and timeframes in ratings elaboration. On the other hand, it will be necessary to be able to identify, measure, and manage the impact that the ESG strategy and products generate at a financial level using alternate indicators. Besides, since the non-accounting information factor is crucial, shareholders still keep a relevant role, and they might face additional issues that arise from the need for further assessing of metrics. Therefore, it is foreseeable an increasing demand for advancement in specific training and adequate communication of more transparent and properly weighted criteria. In this sense, improved tools need to be developed to measure and quantify the performance of ESG investments and be based on reliable data, so that it will be possible to reconcile ethical values and responsibility with the creation of long-term value.

In the realm of ESG literature, the intricacies and rapidly evolving nature of the field demand frequent reassessments. A primary contribution of our work points to a further exploration of the controversies surrounding ESG metrics. Recognizing the extant discrepancies across sectors and businesses, it paves the way for future research to delve into creating standardized, universally applicable ESG metrics. Furthermore, it highlights the crucial role of non-accounting information and the potential it holds for shareholders. This aspect compels a deeper examination into developing reliable data sources and tools for more informed decision-making. Lastly, we underscore the need to reconcile ethical values with long-term value creation. By pinpointing these areas, we offer some research avenues for academics and discussing points for practitioners, calling for an integrated approach to ESG research that considers both the micro and macro aspects of socially responsible investments.

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REFERENCES

Acedo, F., Barroso, C., & Galan, J. L. (2006). The resource-based theory: Dissemination and main trends. *Strategic Management Journal*, 27(7), 621–636. <https://doi.org/10.2307/20142363>

Akhtaruzzaman, M., Boubaker, S., & Umar, Z. (2022). COVID-19 media coverage and ESG leader indices. *Finance Research Letters*, 45, 102170. <https://doi.org/10.1016/j.frl.2021.102170>

Albuquerque, R., Koskinen, Y., & Zhang, C. (2019). Corporate social responsibility and firm risk: Theory and empirical evidence. *Management Science*, 65(10), 4451–4469. <https://doi.org/10.1287/mnsc.2018.3043>

Alexander, J. C., & Mabry, R. H. (1994). Relative significance of journals, authors, and articles cited in financial research. *The Journal of Finance*, 49(2), 697–712. <https://doi.org/10.2307/2329169>

Amel-Zadeh, A., & Serafeim, G. (2017). *Why and how investors use ESG information: Evidence from a global survey* (17-079).

Amir, A.-Z., & Serafeim, G. (2018). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, 74(3), 87–103.

Aouadi, A., & Marsat, S. (2018). Do ESG controversies matter for firm value? Evidence from international data. *Journal of Business Ethics*, 151(4), 1027–1047. <https://doi.org/10.1007/s10551-016-3213-8>

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975.

Arvidsson, S., & Dumay, J. (2022). Corporate ESG reporting quantity, quality and performance: Where to now for environmental policy and practice? *Business Strategy and the Environment*, 31(3), 1091–1110. <https://doi.org/10.1002/bse.2937>

Åström, F., Danell, R., Larsen, B., & Schneider, J. W. (2009). How to use bibexcel for various types of bibliometric analysis. In *Celebrating scholarly communication studies: A festschrift for Olle Persson at his 60th birthday, 05-S June 2009*.

Bailón-Moreno, R., Jurado-Alameda, E., Ruiz-Baños, R., & Courtial, J. P. (2005). Analysis of the field of physical chemistry of surfactants with the unified Scientometric model. Fit of relational and activity indicators. In *Budapest scientometrics* (Vol. 63 (2)). Springer.

Baker, M., Bergstresser, D., Serafeim, G., & Wurgler, J. (2018). *Financing the response to climate change: The pricing and ownership of U.S. green bonds* (25194). <https://climate.nasa.gov/evidence/>

Baker, M., Bergstresser, D., Serafeim, G., & Wurgler, J. (2022). The pricing and ownership of US green bonds. *Annual Review of Financial Economics*, 14, 415–437.

Barnea, A., & Rubin, A. (2010). Corporate social responsibility as a conflict between shareholders. *Journal of Business Ethics*, 97(1), 71–86. <https://doi.org/10.1007/s10551-010-0496-z>

Barnett, M. L., Henriques, I., & Husted, B. W. (2020). Beyond good intentions: Designing CSR initiatives for greater social impact. *Journal of Management*, 46(6), 937–964. <https://doi.org/10.1177/0149206319900539>

Barnett, M. L., Jermier, J. M., & Lafferty, B. A. (2006). Corporate reputation: The definitional landscape. *Corporate Reputation Review*, 9(1), 26–38. <https://doi.org/10.1057/palgrave.crr.1550012>

Bauer, R., Koedijk, K., & Otten, R. (2005). International evidence on ethical mutual fund performance and investment style. *Journal of Banking and Finance*, 29(7), 1751–1767. <https://doi.org/10.1016/j.jbankfin.2004.06.035>

Benabou, R., & Tirole, J. (2010). Individual and corporate social responsibility. *Economica*, 77(305), 1–19. <https://doi.org/10.1111/j.1468-0335.2009.00843.x>

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>

Boerner, H. (2011). Sustainability and ESG reporting frameworks: Issuers have GAAP and IFRS for reporting financials—What about reporting intangibles and non-financials? *Corporate Finance Review*, 15(5), 34–37.

Broadstock, D. C., Chan, K., Cheng, L. T. W., & Wang, X. (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. *Finance Research Letters*, 38, 101716. <https://doi.org/10.1016/j.frl.2020.101716>

Broadstock, D. C., Managi, S., Matousek, R., & Tzeremes, N. G. (2019). Does doing “good” always translate into doing “well”? An eco-efficiency perspective. *Business Strategy and the Environment*, 28(6), 1199–1217. <https://doi.org/10.1002/bse.2311>

Broadstock, D. C., Matousek, R., Meyer, M., & Tzeremes, N. G. (2020). Does corporate social responsibility impact firms' innovation capacity? The indirect link between environmental & social governance implementation and innovation performance. *Journal of Business Research*, 119, 99–110. <https://doi.org/10.1016/j.jbusres.2019.07.014>

Brogi, M., & Lagasio, V. (2019). Environmental, social, and governance and company profitability: Are financial intermediaries different? *Corporate*

- Social Responsibility and Environmental Management*, 26(3), 576–587. <https://doi.org/10.1002/csr.1704>
- Busch, T., Bauer, R., & Orlitzky, M. (2016). Sustainable development and financial markets: Old paths and new avenues. *Business and Society*, 55(3), 303–329. <https://doi.org/10.1177/0007650315570701>
- Callon, M., Courtial, J. P., & Laville, F. (1991). Co-word analysis as a tool for describing the network of interactions between basic and technological research: The case of polymer chemistry. *Scientometrics*, 22(1), 155–205.
- Callon, M., Courtial, J.-P., & Penan, H. (1993). *La scientométrie* (Vol. 2727). Presses Universitaires de France.
- Callon, M., Courtial, J.-P., Turner, W. A., & Bauin, S. (1983). From translations to problematic networks: An introduction to co-word analysis. *Social Science Information*, 22(2), 191–235.
- Camilleri, M. A. (2021). The market for socially responsible investing: A review of the developments. *Social Responsibility Journal*, 17(3), 412–428. <https://doi.org/10.1108/SRJ-06-2019-0194>
- Campbell, J. L. (2007). Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *The Academy of Management Review*, 32(3), 946–967. <https://www.jstor.org/stable/20159343>
- Capelle, G., Capelle-Blancard, G., Crifo, P., Oueghliissi, R., Scholtens, B., & Diaye, M.-A. (2017). *Environmental, social and governance (ESG) performance and sovereign bond spreads: An empirical analysis of OECD countries* (2017-07).
- Capelle-Blancard, G., Crifo, P., Diaye, M. A., Oueghliissi, R., & Scholtens, B. (2019). Sovereign bond yield spreads and sustainability: An empirical analysis of OECD countries. *Journal of Banking and Finance*, 98, 156–169. <https://doi.org/10.1016/j.jbankfin.2018.11.011>
- Carhart, M. M. (1997). On persistence in mutual fund performance. *Journal of Finance*, 52(1), 57–82. <https://doi.org/10.1111/j.1540-6261.1997.tb03808.x>
- Carroll, A. B. (1979). A Three-Dimensional Conceptual Model of Corporate Performance. *The Academy of Management Review*, 4(4), 497. <https://doi.org/10.2307/257850>
- Casillas, J., & Acedo, F. (2007). Evolution of the intellectual structure of family business literature: A bibliometric study of FBR. *Family Business Review*, 20(2), 141–162.
- Charvet, F. F., Cooper, M. C., & Gardner, J. T. (2008). The intellectual structure of supply chain management: A bibliometric approach. *Journal of Business Logistics*, 29(1), 47–73. <https://doi.org/10.1002/j.2158-1592.2008.tb00068.x>
- Chatterji, A. K., Levine, D. I., & Toffel, M. W. (2009). How well do social ratings Actually Measure corporate social responsibility? *Journal of Economics & Management Strategy*, 18(1), 125–169. <http://www.sec.gov/news/extra/credrate/moodys.htm>
- Chava, S. (2014). Environmental externalities and cost of capital. *Management Science*, 60(9), 2223–2247. <https://doi.org/10.1287/mnsc.2013.1863>
- Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, 35(1), 1–23. <https://doi.org/10.1002/smj.2131>
- Christensen, D., Serafeim, G., & Sikochi, A. (2019). Why is corporate virtue in the eye of the beholder? The case of ESG ratings.
- Cicchello, A. F., Marrazza, F., & Perdicchi, S. (2023). Non-financial disclosure regulation and environmental, social, and governance (ESG) performance: The case of EU and US firms. *Corporate Social Responsibility and Environmental Management*, 30(3), 1121–1128. <https://doi.org/10.1002/csr.2408>
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, 33(4–5), 303–327. <https://doi.org/10.1016/j.aos.2007.05.003>
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011a). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the fuzzy sets theory field. *Journal of Informetrics*, 5(1), 146–166. <https://doi.org/10.1016/j.joi.2010.10.002>
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011b). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62(7), 1382–1402. <https://doi.org/10.1002/asi.21525>
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2012). SciMAT: A new science mapping analysis software tool. *Journal of the American Society for Information Science and Technology*, 63(8), 1609–1630. <https://doi.org/10.1002/asi.22688>
- Crifo, P., Diaye, M. A., & Oueghliissi, R. (2017). The effect of countries' ESG ratings on their sovereign borrowing costs. *Quarterly Review of Economics and Finance*, 66, 13–20. <https://doi.org/10.1016/j.qref.2017.04.011>
- Crifo, P., Durand, R., & Gond, J. P. (2019). Encouraging investors to enable corporate sustainability transitions: The case of responsible investment in France. *Organization and Environment*, 32(2), 125–144. <https://doi.org/10.1177/1086026619848145>
- Crifo, P., Escrig-Olmedo, E., & Mottis, N. (2019). Corporate governance as a key driver of corporate sustainability in France: The role of board members and investor relations. *Journal of Business Ethics*, 159(4), 1127–1146. <https://doi.org/10.1007/s10551-018-3866-6>
- Crifo, P., Forget, V. D., & Teyssier, S. (2015). The price of environmental, social and governance practice disclosure: An experiment with professional private equity investors. *Journal of Corporate Finance*, 30, 168–194. <https://doi.org/10.1016/j.jcorpfin.2014.12.006>
- Cucari, N., Esposito De Falco, S., & Orlando, B. (2018). Diversity of Board of Directors and Environmental Social Governance: Evidence from Italian listed companies. *Corporate Social Responsibility and Environmental Management*, 25(3), 250–266. <https://doi.org/10.1002/csr.1452>
- Culnan, M. J. (1987). Mapping the intellectual structure of MIS, 1980-1985: A co-citation analysis. *MIS Quarterly*, 11(3), 341–353. <https://doi.org/10.2307/248680>
- Culnan, M. J., O'Reilly, C. A., III, & Chatman, J. A. (1990). Intellectual structure of research in organizational behavior, 1972-1984: A cocitation analysis. *Journal of the American Society for Information Science*, 41(6), 453–458. [https://doi.org/10.1002/\(SICI\)1097-4571\(199009\)41:6<453::AID-AS113>3.0.CO;2-E](https://doi.org/10.1002/(SICI)1097-4571(199009)41:6<453::AID-AS113>3.0.CO;2-E)
- D'Amato, D., Droste, N., Allen, B., Kettunen, M., Lähtinen, K., Korhonen, J., Leskinen, P., Matthies, B. D., & Toppinen, A. (2017). Green, circular, bio economy: A comparative analysis of sustainability avenues. *Journal of Cleaner Production*, 168, 716–734. <https://doi.org/10.1016/j.jclepro.2017.09.053>
- D'Amato, V., D'Ecclesia, R., & Levantesi, S. (2022). ESG score prediction through random forest algorithm. *Computational Management Science*, 19(2), 347–373. <https://doi.org/10.1007/s10287-021-00419-3>
- Danilovic, M., Hensbergen, M., Hoveskog, M., & Zadayannaya, L. (2015). Exploring diffusion and dynamics of corporate social responsibility. *Corporate Social Responsibility and Environmental Management*, 22(3), 129–141. <https://doi.org/10.1002/csr.1326>
- Danvila-del-Valle, I., Estévez-Mendoza, C., & Lara, F. J. (2019). Human resources training: A bibliometric analysis. *Journal of Business Research*, 101, 627–636. <https://doi.org/10.1016/j.jbusres.2019.02.026>
- De Bakker, F. G. A., Groenewegen, P., & Den Hond, F. (2005). A bibliometric analysis of 30 years of research and theory on corporate social responsibility and corporate social performance. *Business & Society*, 44(3), 283–317.
- De Giuli, M. E., Grechi, D., & Tanda, A. (2024). What do we know about ESG and risk? A systematic and bibliometric review. *Corporate Social Responsibility and Environmental Management*, 31(2), 1096–1108. <https://doi.org/10.1002/csr.2624>
- De Jong, M., Joss, S., Schraven, D., Zhan, C., & Weijnen, M. (2015). Sustainable-smart-resilient-low carbon-eco-knowledge cities: making



- sense of a multitude of concepts promoting sustainable urbanization. *Journal of Cleaner Production*, 109, 25–38. <https://doi.org/10.1016/j.jclepro.2015.02.004>
- Delmas, M., & Blass, V. D. (2010). Measuring corporate environmental performance: The trade-offs of sustainability ratings. *Business Strategy and the Environment*, 19(4), 245–260. <https://doi.org/10.1002/bse.676>
- Deng, X., Kang, J. K., & Low, B. S. (2013). Corporate social responsibility and stakeholder value maximization: Evidence from mergers. *Journal of Financial Economics*, 110(1), 87–109. <https://doi.org/10.1016/j.jfineco.2013.04.014>
- Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *Accounting Review*, 86(1), 59–100. <https://doi.org/10.2308/accr.00000005>
- Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *Accounting Review*, 87(3), 723–759. <https://doi.org/10.2308/accr-10218>
- Diez-Vial, I., & Montoro-Sanchez, A. (2017). Research evolution in science parks and incubators: Foundations and new trends. *Scientometrics*, 110(3), 1243–1272. <https://doi.org/10.1007/s11192-016-2218-5>
- Dimaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
- Dinh, T., Husmann, A., & Melloni, G. (2023). Corporate sustainability reporting in Europe: A scoping review. *Accounting in Europe*, 20(1), 1–29. <https://doi.org/10.1080/17449480.2022.2149345>
- Diodato, V. P., & Gellatly, P. (1994). *Dictionary of bibliometrics*. Routledge.
- Donthu, N., Kumar, S., Pandey, N., Pandey, N., & Mishra, A. (2021). Mapping the electronic word-of-mouth (eWOM) research: A systematic review and bibliometric analysis. *Journal of Business Research*, 135, 758–773. <https://doi.org/10.1016/j.jbusres.2021.07.015>
- Donaldson, T., & Preston, L. E. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. *The Academy of Management Review*, 20(1), 65. <https://doi.org/10.2307/258887>
- Dyck, A., Lins, K. V., Roth, L., & Wagner, H. F. (2019). Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics*, 131(3), 693–714. <https://doi.org/10.1016/j.jfineco.2018.08.013>
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835–2857. <https://doi.org/10.1287/mnsc.2014.1984>
- Eccles, R. G., Serafeim, G., & Krzus, M. P. (2011). Market interest in nonfinancial information. *Journal of Applied Corporate Finance*, 23(4), 113–127.
- Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, 101(3), 621–640. <https://doi.org/10.1016/j.jfineco.2011.03.021>
- Edmans, A. (2023). The end of ESG. *Financial Management*, 52(1), 3–17. <https://doi.org/10.1111/fima.12413>
- Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, 69(1), 131–152.
- El Ghoul, S., Guedhami, O., Kwok, C. C. Y., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking and Finance*, 35(9), 2388–2406. <https://doi.org/10.1016/j.jbankfin.2011.02.007>
- Estevez-Mendoza, C. (2022). Is it all said on diversity?: A bibliometric study of research literature on diversity in management. In *Global perspectives on maintaining gender, age, and religious diversity in the workplace* (pp. 1–29). IGI Global.
- Etemad, H., & Lee, Y. (2003). The knowledge network of international entrepreneurship: Theory and evidence. *Small Business Economics*, 20(1), 5–23. <https://doi.org/10.1023/A:1020240303332>
- Fagerberg, J., Fosaas, M., & Sappasert, K. (2012). Innovation: Exploring the knowledge base. *Research Policy*, 41(7), 1132–1153. <https://doi.org/10.1016/j.respol.2012.03.008>
- Fama, E. F., & French, K. R. (1993). Common risks factors in the returns on stock and bonds. *Journal of Financial Economics*, 33, 3–56.
- Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116(1), 1–22. <https://doi.org/10.1016/j.jfineco.2014.10.010>
- Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, 38, 45–64. <https://doi.org/10.1016/j.gfj.2017.03.001>
- Fernandez-Alles, M., & Ramos-Rodríguez, A. (2009). Intellectual structure of human resources management research: A bibliometric analysis of the journal human resource management, 1985–2005. *Journal of the American Society for Information Science and Technology*, 60(1), 161–175. <https://doi.org/10.1002/asi.20947>
- Ferrell, O. C., & Ferrell, L. (2008). A macromarketing ethics framework: Stakeholder orientation and distributive justice. *Journal of Macromarketing*, 28(1), 24–32. <https://doi.org/10.1177/0276146707311290>
- Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science*, 61(11), 2549–2568. <https://doi.org/10.1287/mnsc.2014.2038>
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance and Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- Galbreath, J. (2013). ESG in focus: The Australian evidence. *Journal of Business Ethics*, 118(3), 529–541. <https://doi.org/10.1007/s10551-012-1607-9>
- Galema, R., Plantinga, A., & Scholtens, B. (2008). The stocks at stake: Return and risk in socially responsible investment. *Journal of Banking and Finance*, 32(12), 2646–2654. <https://doi.org/10.1016/j.jbankfin.2008.06.002>
- Galletta, S., Mazzù, S., & Naciti, V. (2022). A bibliometric analysis of ESG performance in the banking industry: From the current status to future directions. *Research in International Business and Finance*, 62, 101684. <https://doi.org/10.1016/j.ribaf.2022.101684>
- Gao, S., Meng, F., Gu, Z., Liu, Z., & Farrukh, M. (2021). Mapping and clustering analysis on environmental, social and governance field a bibliometric analysis using scopus. *Sustainability*, 13(13), 7304. <https://doi.org/10.3390/su13137304>
- Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production*, 150, 135–147. <https://doi.org/10.1016/j.jclepro.2017.02.180>
- Gibson Brandon, R., Glossner, S., Krueger, P., Matos, P., & Steffen, T. (2022). Do responsible investors invest responsibly? *Review of Finance*, 26(6), 1389–1432. <https://doi.org/10.1093/rof/rfac064>
- Gibson Brandon, R., Krueger, P., & Schmidt, P. S. (2021). ESG rating disagreement and stock returns. https://ssrn.com/abstract_id=3433728www.ecgi.global/content/working-papers
- Giese, G., Lee, L.-E., Melas, D., Nagy, Z., & Nishikawa, L. (2019). *Foundations of ESG investing: How ESG affects equity valuation, risk, and performance* (Vol. 45 (5)).
- Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. *Strategic Management Journal*, 30(4), 425–445. <https://doi.org/10.1002/smj.750>
- Goss, A., & Roberts, G. S. (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking and Finance*, 35(7), 1794–1810. <https://doi.org/10.1016/j.jbankfin.2010.12.002>

- Gray, R., Kouhy, R., & Lavers, S. (1995). Methodological themes constructing a research database of social and environmental reporting by UK companies. *Accounting, Auditing & Accountability Journal*, 8(2), 78–101.
- Grewal, J., Riedl, E. J., & Serafeim, G. (2019). Market reaction to mandatory nonfinancial disclosure. *Management Science*, 65(7), 3061–3084. <https://doi.org/10.1287/mnsc.2018.3099>
- Groos, O. V., & Pritchard, A. (1969). Documentation notes. *Journal of Documentation*, 25(4), 344–349. <https://doi.org/10.1108/eb026482>
- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1–3), 405–440. [https://doi.org/10.1016/S0165-4101\(01\)00018-0](https://doi.org/10.1016/S0165-4101(01)00018-0)
- Hillman, A. J., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line? *Strategic Management Journal*, 22(2), 125–139. [https://doi.org/10.1002/1097-0266\(200101\)22:2<125::AID-SMJ150>3.0.CO;2-H](https://doi.org/10.1002/1097-0266(200101)22:2<125::AID-SMJ150>3.0.CO;2-H)
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America*, 102(46), 16569–16572.
- Hong, H., & Kacperczyk, M. (2009). The price of sin: The effects of social norms on markets. *Journal of Financial Economics*, 93(1), 15–36. <https://doi.org/10.1016/j.jfineco.2008.09.001>
- Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies*, 43(9), 834–864. <https://www.jstor.org/stable/41674526>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency cost and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Kempf, A., & Osthoff, P. (2007). The effect of socially responsible investing on portfolio performance. *European Financial Management*, 13(5), 908–922. <https://doi.org/10.1111/j.1468-036X.2007.00402.x>
- Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. *Accounting Review*, 91(6), 1697–1724. <https://doi.org/10.2308/accr-51383>
- Khan, M. A. (2022). ESG disclosure and firm performance: A bibliometric and meta analysis. *Research in International Business and Finance*, 61, 101668. <https://doi.org/10.1016/j.ribaf.2022.101668>
- Khanra, S., Kaur, P., Joseph, R. P., Malik, A., & Dhir, A. (2022). A resource-based view of green innovation as a strategic firm resource: Present status and future directions. *Business Strategy and the Environment*, 31(4), 1395–1413. <https://doi.org/10.1002/bse.2961>
- Kiernan, M. J. (2007). Universal owners and ESG: Leaving money on the table? *Corporate Governance: An International Review*, 15(3), 478–485. <https://doi.org/10.1111/j.1467-8683.2007.00580.x>
- Kim, Y., Li, H., & Li, S. (2014). Corporate social responsibility and stock price crash risk. *Journal of Banking and Finance*, 43(1), 1–13. <https://doi.org/10.1016/j.jbankfin.2014.02.013>
- Kocmanová, A., & Dočekalová, M. (2012). Construction of the economic indicators of performance in relation to environmental, social, and corporate governance (ESG) factors. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 60(4), 195–206. http://www.mfcr.cz/cps/rde/xbcr/mfcr/KODEX_KCP_2004_pdf.pdf
- Kocmanova, A., Dočekalova, M. P., & Šimanaviciene, Z. (2017). Corporate sustainability measurement and assessment of Czech manufacturing companies using a composite indicator. *Engineering Economics*, 28(1), 88–100. <https://doi.org/10.5755/j01.ee.28.1.15323>
- Kocmanova, A., & Šimberova, I. (2012). Kolektyvinio valdymo veiklos rodiklių modeliavimas. *Engineering Economics*, 23(5), 485–495. <https://doi.org/10.5755/j01.ee.23.5.2865>
- Kocmanová, A., & Šimberová, I. (2014). Determination of environmental, social and corporate governance indicators: Framework in the measurement of sustainable performance. *Journal of Business Economics and Management*, 15(5), 1017–1033. <https://doi.org/10.3846/16111699.2013.791637>
- Kölbel, J. F., Busch, T., & Jancso, L. M. (2017). How media coverage of corporate social irresponsibility increases financial risk. *Strategic Management Journal*, 38(11), 2266–2284. <https://doi.org/10.1002/smj.2647>
- Krueger, P., Sautner, Z., & Starks, L. T. (2019). The importance of climate risks for institutional investors (619). http://ssrn.com/abstract_id=3235190www.ecgi.org/wp
- Krueger, P., Sautner, Z., Yongjun Tang, D., & Zhong, R. (2021). The effects of mandatory ESG disclosure around the world (754). http://ssrn.com/abstract_id=3832745www.ecgi.global/content/working-papers
- Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics*, 115(2), 304–329. <https://doi.org/10.1016/j.jfineco.2014.09.008>
- Landström, H., Harirchi, G., & Åström, F. (2012). Entrepreneurship: Exploring the knowledge base. *Research Policy*, 41(7), 1154–1181. <https://doi.org/10.1016/j.respol.2012.03.009>
- Liang, H., & Renneboog, L. (2017). On the foundations of corporate social responsibility. *Journal of Finance*, 72(2), 853–910. <https://doi.org/10.1111/jofi.12487>
- Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *Journal of Finance*, 72(4), 1785–1824. <https://doi.org/10.1111/jofi.12505>
- Long, H., Feng, G. F., Gong, Q., & Chang, C. P. (2023). ESG performance and green innovation: An investigation based on quantile regression. *Business Strategy and the Environment*, 32(7), 5102–5118. <https://doi.org/10.1002/bse.3410>
- López-Herrera, A. G., Cobo, M. J., Herrera-Viedma, E., Herrera, F., Bailón-Moreno, R., & Jiménez-Contreras, E. (2009). Visualization and evolution of the scientific structure of fuzzy sets research in Spain. *Information Research*, 14(4), 9–31. <http://informationr.net/ir/14-4/paper421.html>
- Margolis, J. D., & Walsh, J. R. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, 48, 268–305.
- Marie, M., Qi, B., Gerged, A. M., & Nobanee, H. (2024). Exploring environmental, social and governance research in the wake of COVID-19: A bibliometric analysis of current trends and recommendations for future research. *Corporate Social Responsibility and Environmental Management*, 1–19. <https://doi.org/10.1002/csr.2909>
- Martins, R., Serra, F. R., Leite, A. L. D. S., Ferreira, M. M. P., & Li, D. (2010). Transactions cost theory influence in strategy research: A review through a bibliometric study in leading journals. *Journal of Strategic Management Education*, 6(3), 177–197.
- McCain, K. W. (1996). Dictionary of bibliometrics—Diodato, V. *Journal of the American Society for Information Science*, 47, 716–717.
- McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *The Academy of Management Journal*, 31(4), 854–872. <https://about.jstor.org/terms>
- McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *The Academy of Management Review*, 26(1), 117–127. <https://about.jstor.org/terms>
- Merigó, J. M., Yang, J.-B., & Xu, D.-L. (2015). A bibliometric overview of financial studies. In J. Gil-Aluja, A. Terceño-Gómez, J. C. Ferrer-Comalat, J. M. Merigó-Lindahl, & S. Linares-Mustarós (Eds.), *Scientific methods for the treatment of uncertainty in social sciences SE–20* (Vol. 377, pp. 245–254). Springer International Publishing. https://doi.org/10.1007/978-3-319-19704-3_20
- Mervelskemper, L., & Streit, D. (2017). Enhancing market valuation of ESG performance: Is integrated reporting keeping its promise? *Business Strategy and the Environment*, 26(4), 536–549. <https://doi.org/10.1002/bse.1935>



- Mitchell, R. K., Wood, D. J., & Agle, B. (1997). Toward a theory of stakeholder identification and salience. *Academy of Management Review*, 22(4), 853–886. <https://doi.org/10.5465/AMR.1997.9711022105>
- Mura, M., Longo, M., Micheli, P., & Bolzani, D. (2018). The evolution of sustainability measurement research. *International Journal of Management Reviews*, 20(3), 661–695. <https://doi.org/10.1111/ijmr.12179>
- Nerur, S. P., Rasheed, A. A., & Natarajan, V. (2008). The intellectual structure of the strategic management field: An author co-citation analysis. *Strategic Management Journal*, 29(3), 319–336. <https://doi.org/10.2307/20142019>
- Nofsinger, J., & Varma, A. (2014). Socially responsible funds and market crises. *Journal of Banking and Finance*, 48, 180–193. <https://doi.org/10.1016/j.jbankfin.2013.12.016>
- Nollet, J., Filis, G., & Mitrocostas, E. (2016). Corporate social responsibility and financial performance: A non-linear and disaggregated approach. *Economic Modelling*, 52, 400–407. <https://doi.org/10.1016/j.econmod.2015.09.019>
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403–441. www.sagepublications.com
- Pedersen, L. H., Fitzgibbons, S., & Pomorski, L. (2021). Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics*, 142(2), 572–597. <https://doi.org/10.1016/j.jfineco.2020.11.001>
- Petersen, M. A. (2008). Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. *Review of Financial Studies*, 22(1), 435–480. <https://doi.org/10.1093/rfs/hhn053>
- Pilkington, A., & Liston-Heyes, C. (1999). Is production and operations management a discipline? A citation/co-citation study. *International Journal of Operations & Production Management*, 19(1), 7–20. <https://doi.org/10.1108/01443579910244188>
- Pilkington, A., & Meredith, J. (2009). The evolution of the intellectual structure of operations management—1980–2006: A citation/co-citation analysis. *Journal of Operations Management*, 27(3), 185–202. <https://doi.org/10.1016/j.jom.2008.08.001>
- Porter, M. E., & Kramer, M. R. (2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78–92.
- Pu, R., Chankoson, T., Dong, R. K., & Song, L. (2022). Bibliometrics-based visualization analysis of knowledge-based economy and implications to environmental, social and governance (ESG). *Library Hi Tech*, 41(2), 622–641. <https://doi.org/10.1108/LHT-05-2022-0241>
- PwC (2022). Paying for good for all. <https://www.pwc.com/gx/en/services/paying-for-good-for-all/Paying-for-good-for-all.pdf>
- Ramos-Rodríguez, A. R., & Ruiz-Navarro, J. (2004). Changes in the intellectual structure of strategic management research: A bibliometric study of the strategic management journal, 1980–2000. *Strategic Management Journal*, 25(10), 981–1004. <https://doi.org/10.1002/smj.397>
- Reber, B., Gold, A., & Gold, S. (2022). ESG disclosure and idiosyncratic risk in initial public offerings. *Journal of Business Ethics*, 179(3), 867–886. <https://doi.org/10.1007/s10551-021-04847-8>
- Renneboog, L., Ter Horst, J., & Zhang, C. (2008a). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking and Finance*, 32(9), 1723–1742. <https://doi.org/10.1016/j.jbankfin.2007.12.039>
- Renneboog, L., Ter Horst, J., & Zhang, C. (2008b). The price of ethics and stakeholder governance: The performance of socially responsible mutual funds. *Journal of Corporate Finance*, 14(3), 302–322. <https://doi.org/10.1016/j.jcorpfin.2008.03.009>
- Richardson, B. J. (2009). Keeping ethical investment ethical: Regulatory issues for investing for sustainability. *Journal of Business Ethics*, 87(4), 555–572. <https://doi.org/10.1007/s10551-008-9958-y>
- Riedl, A., & Smeets, P. (2017). Why do Investors hold socially responsible mutual funds? *Journal of Finance*, 72(6), 2505–2550. <https://doi.org/10.1111/jofi.12547>
- Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *The Academy of Management Journal*, 40(3), 534–559. <https://about.jstor.org/terms>
- Santana, M., & Lopez-Cabrales, A. (2019). Sustainable development and human resource management: A science mapping approach. In *Corporate social responsibility and environmental management* (Vol. 26 (6), pp. 1171–1183). John Wiley and Sons Ltd. <https://doi.org/10.1002/csr.1765>
- Schaltegger, S., Gibassier, D., & Zvezdov, D. (2013). Is environmental management accounting a discipline? A bibliometric literature review. *Meditari Accountancy Research*, 21(1), 4–31.
- Schildt, H. A., Zahra, S. A., & Sillanpää, A. (2006). Scholarly communities in entrepreneurship research: A co-citation analysis. *Entrepreneurship Theory and Practice*, 30(3), 399–415.
- Schueth, S. (2003). Socially responsible investing in the United States. *Journal of Business Ethics*, 43, 189–194.
- Senadheera, S. S., Gregory, R., Rinklebe, J., Farrukh, M., Rhee, J. H., & Ok, Y. S. (2022). The development of research on environmental, social, and governance (ESG): A bibliometric analysis. *Sustainable Environment*, 8(1), 2125869. <https://doi.org/10.1080/27658511.2022.2125869>
- Serafeim, G. (2020). Public sentiment and the price of corporate sustainability. *Financial Analysts Journal*, 76(2), 26–46. <https://doi.org/10.1080/0015198X.2020.1723390>
- Serafeim, G., & Yoon, A. (2021). Which corporate ESG news does the market react to? (21–115).
- Serafeim, G., & Yoon, A. (2022). Stock price reactions to ESG news: The role of ESG ratings and disagreement. *Review of Accounting Studies*, 28(3), 1500–1530. <https://doi.org/10.1007/s11142-022-09675-3>
- Servaes, H., & Tamayo, A. (2013). The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science*, 59(5), 1045–1061. <https://doi.org/10.1287/mnsc.1120.1630>
- Sharfman, M. P., & Fernando, C. S. (2008). Environmental risk management and the cost of capital. *Strategic Management Journal*, 29(6), 569–592. <https://doi.org/10.1002/smj.678>
- Singhania, M., & Chadha, G. (2023). Thirty years of sustainability reporting research: A scientometric analysis. *Environmental Science and Pollution Research*, 30(46), 102047–102082. <https://doi.org/10.1007/s11356-023-29452-2>
- Sparkes, R., & Cowton, C. J. (2004). The maturing of socially responsible investment: A review of the developing link with corporate social responsibility. *Journal of Business Ethics*, 52, 45–57.
- Statman, M. (2000). Socially responsible mutual funds. *Financial Analysts Journal*, 56(3), 30–39.
- Statman, M., & Glushkov, D. (2009). The wages of social responsibility. *Financial Analysts Journal*, 65(4), 33–46.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *The Academy of Management Review*, 20(3), 571–610.
- Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, 31(5), 463–490. <https://doi.org/10.1002/smj.820>
- Tahai, A., & Meyer, M. J. (1999). A revealed preference study of management journals' direct influences. *Strategic Management Journal*, 20(3), 279–296.
- Tolliver, C., Fujii, H., Keeley, A. R., & Managi, S. (2021). Green innovation and finance in Asia. *Asian Economic Policy Review*, 16(1), 67–87. <https://doi.org/10.1111/aepr.12320>
- Umar, Z., & Gubareva, M. (2021). The relationship between the Covid-19 media coverage and the environmental, social and governance leaders equity volatility: A time-frequency wavelet analysis. *Applied Economics*, 53(27), 3193–3206.
- Umar, Z., Gubareva, M., Tran, D. K., & Teplova, T. (2021). Impact of the Covid-19 induced panic on the environmental, social and governance

- leaders equity volatility: A time-frequency analysis. *Research in International Business and Finance*, 58, 101493. <https://doi.org/10.1016/j.ribaf.2021.101493>
- Umar, Z., Kenourgios, D., & Papathanasiou, S. (2020). The static and dynamic connectedness of environmental, social, and governance investments: International evidence. *Economic Modelling*, 93, 112–124. <https://doi.org/10.1016/j.econmod.2020.08.007>
- UN – The Global Compact. (2004). Who cares wins. In *Connecting financial markets to a changing world*. UN – The Global Compact.
- Van Eck, N., & Waltman, L. (2014). Visualizing bibliometric networks. In *Measuring scholarly impact: Methods and practice* (pp. 285–320). Springer.
- Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*, 118, 253–261. <https://doi.org/10.1016/j.jbusres.2020.06.057>
- Vogel, R., & Güttel, W. H. (2013). The dynamic capability view in strategic management: A bibliometric review. *International Journal of Management Reviews*, 15(4), 426–446. <https://doi.org/10.1111/ijmr.12000>
- Waddock, S. A., Graves, S. B., & Carroll, W. E. (1997). The corporate social performance—Financial performance link. *Strategic Management Journal*, 18, 303–319.
- Weerakkody, V., Dwivedi, Y. K., & Irani, Z. (2009). The diffusion and use of institutional theory: A cross-disciplinary longitudinal literature survey. *Journal of Information Technology*, 24(4), 354–368. <https://doi.org/10.1057/jit.2009.16>
- Wu, B., Gu, Q., Liu, Z., & Liu, J. (2023). Clustered institutional investors, shared ESG preferences and low-carbon innovation in family firm. *Technological Forecasting and Social Change*, 194, 122676. <https://doi.org/10.1016/j.techfore.2023.122676>
- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? *Business Strategy and the Environment*, 28(2), 286–300. <https://doi.org/10.1002/bse.2224>
- Yang, C., Zhu, C., & Albitar, K. (2024). ESG ratings and green innovation: A U-shaped journey towards sustainable development. *Business Strategy and the Environment*, 33(5), 4108–4129. <https://doi.org/10.1002/bse.3692>
- Yu, E. P.y., & Van Luu, B. (2021). International variations in ESG disclosure—Do cross-listed companies care more? *International Review of Financial Analysis*, 75, 101731. <https://doi.org/10.1016/j.irfa.2021.101731>
- Yu, E. P.y., Van Luu, B., & Chen, C. H. (2020). Greenwashing in environmental, social and governance disclosures. *Research in International Business and Finance*, 52, 101192. <https://doi.org/10.1016/j.ribaf.2020.101192>
- Yu, E. P. y., Tanda, A., Van Luu, B., & Chai, D. H. (2021). Environmental transparency and investors' risk perception: Cross-country evidence on multinational corporations' sustainability practices and cost of equity. *Business Strategy and the Environment*, 30(8), 3975–4000. <https://doi.org/10.1002/bse.2852>
- Yu, E. P.y., Guo, C. Q., & Van Luu, B. (2018). Environmental, social and governance transparency and firm value. *Business Strategy and the Environment*, 27(7), 987–1004. <https://doi.org/10.1002/bse.2047>
- Zupic, I., & Cater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>

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APPENDIX A

See Table A1.

TABLE A1 Search strategy.

Stage	Scope	Search contents	Documents
1	ESG term in SCI and SSCI	ESG OR "environment*", social, governance" (Topic) Editions: WOS.SCI, WOS.SSCI	2656
2	Limitation of periods: exclusion of 2023 and 2024	ESG OR "environment*", social, governance" (Topic) and 2024 or 2023 (Exclude—Publication Years) Editions: WOS.SCI, WOS.SSCI	1906
3	Narrow the search to articles	ESG OR "environment*", social, governance" (Topic) and 2024 or 2023 (Exclude—Publication Years) and Business Finance or Business or Management or Economics or Ethics (Web of Science Categories) and Editorial Material or Proceeding Paper (Exclude—Document Types) Editions: WOS.SCI, WOS.SSCI	746
4	Refining of categories	(TS = (ESG OR "environment*", social, governance")) AND ((TASCA==("BUSINESS FINANCE" OR "BUSINESS" OR "MANAGEMENT" OR "ECONOMICS" OR "ETHICS") AND TASCA==("ETHICS" OR "ENVIRONMENTAL STUDIES" OR "ECONOMICS" OR "BUSINESS" OR "BUSINESS FINANCE" OR "MANAGEMENT")) NOT (PY==("2024" OR "2023") OR FPY==("2023" OR "2024") OR DT==("EDITORIAL MATERIAL" OR "PROCEEDINGS PAPER")))) and Women S Studies or Urban Studies or Transportation or Sociology or Social Sciences Mathematical Methods or Social Sciences Biomedical or Social Issues or Public Administration or Multidisciplinary Sciences or Medical Ethics or Health Policy Services or Geography or Education Educational Research or Health Care Sciences Services or Development Studies or Communication or Agricultural Economics Policy or Regional Urban Planning or Mathematics Interdisciplinary Applications or International Relations or Hospitality Leisure Sport Tourism (Exclude—Web of Science Categories) Editions: WOS.SCI, WOS.SSCI	608
5	Final revision of articles		594