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MAPPING THE NEXUS BETWEEN ESG AND INVESTOR SENTIMENT: A BIBLIOMETRIC AND THEMATIC ANALYSIS WITH A FUTURE RESEARCH AGENDA

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ABSTRACT DOI No: 10.36713/epra27604 Article DOI: https://doi.org/10.36713/epra27604

This paper discusses the changing academic environment linking Environmental, Social, and Governance (ESG) aspects to investor sentiment using bibliometric and thematic analysis. The data was retrieved from Scopus and Web of science (WoS) databases, which gave 152 articles after eliminating duplicates, filtering of titles and abstract, as per B-SLR framework. The bibliometric analysis was performed with the help of R (Biblioshiny) to visualize the publication trends, influential authors, and leading sources, and VOSviewer was used to visualize the networks of keywords co-occurrence. Thematic analysis revealed five conceptual themes that influence the research field of ESG-investor sentiment: ESG Impact on Financial Outcomes and Stakeholder Perceptions, Dynamics of ESG Ratings, Disagreement, and Investor Behavioral Responses, ESG and Sustainability in Financial Risk Management and Market Dynamics, Transparency, Authenticity, and Perceptual Challenges in ESG Disclosure. The paper also presents a detailed future research plan, which includes the development of new directions, including the inclusion of behavioral finance theories, the use of real-time sentiment data provided by other sources, and the investigation of the ESG sentiment dynamics in different market settings. This paper synthesized bibliometric trends and thematic revelations to add to a systematic comprehension of the ESG-investor sentiment nexus and offers a roadmap towards future studies in the same field.

KEYWORDS: *ESG, investor sentiment, investor behavior, thematic, ESG disclosure*

1. INTRODUCTION

Over the past few years, the concept of Environmental, Social and Governance (ESG) has emerged as a key focus in the context of investment decision making and has completely transformed the conventional paradigms of financial thinking. Investor's decision are no longer driven by financial returns alone but are turning more towards non-financial measures like environmental sustainability, social responsibility, and corporate governance practices as part of their appraisal systems. This prolonged change is part of a wider move towards responsible investment, which is being brought about by an increased focus on climate change, social inequalities, and corporate responsibility (Friede, Busch, and Bassen, 2015; Eccles, Ioannou, and Serafeim, 2014).

Behavioral finance contrasts with traditional finance theories in a way, as it emphasizes the fact, that investor sentiment is not always rational, as mispricing, volatility, and speculative tendencies do exist in the market (De Long, Shleifer, Summers, and Waldmann, 1990). The overall attitude or psychological bias of investors towards a given security or the financial market in general is known as investor sentiment, and it is a very important factor that determines the dynamics of the market (Baker and Wurgler, 2007). The varied number of ESG ratings and performance indicators have become one of the most important indicators to create such sentiment, as they influence how the investors views risk, long-term value, and ethical alignment (Fatemi, Glaum, and Kaiser, 2018).

ESG (Environmental, Social, Governance) is no longer a niche ethical issue but a mainstream investment factor. The concept of sustainable investing is expanding at a very high rate, which is fuelled by regulatory demands, expectations of stakeholders, and growing awareness of climate risks. As a result, investors are demanding greater transparency in ESG information to better assess risk and make informed decisions. Investor sentiment curates behavioral reactions to ESG information and has an impact on price formation, volatility, and capital flows particularly in short term. The interaction between ESG signals and sentiment assists in understanding why and when ESG transition to market value occurs.

The adoption of ESG factors in investment analysis has found a strong momentum in the world, especially with the emergence

of institutional investors, regulatory requirements and sustainability reporting systems (Khan, Serafeim, and Yoon, 2016). In India, regulatory paradigms such as Business Responsibility and Sustainability Reporting (BRSR) framework by the Securities and Exchange Board of India (SEBI) that has improved transparency and standardization of ESG disclosures (SEBI, 2021). These advancements allow investors to evaluate companies not only on profitability, but also on sustainability and the quality of governance, thus affecting their attitude and investment decisions.

Moreover, the empirical data indicate that the companies with high levels of ESG are more likely to perceived more positively by investors, which results in better stock performance, reduced cost of capital, and reputation (Lins, Servaes, and Tamayo, 2017; El Ghoul, Guedhami, Kwok, and Mishra, 2011). However, on the flip side, bad ESGs can cause negative sentiment, leading to investor withdrawal and reputational risks. Nevertheless, the interdependence between ESG and investor sentiment is still complicated and context-dependent, which depends on the market maturity, information asymmetry, and awareness of the investors (Aouadi and Marsat, 2018).

This field of research has not been explored before, with the few reviews conducted in this area focusing either on ESG investing through the lens of performance performance or broadly on the opinions of investors, but not directly on the relationship between investor sentiment and ESG investing. As an example, Kräussl et al. (2023) conducted a literature synthesis on the expectations, beliefs, and perceptions of ESG by investors highlighting the heterogeneous motives but devoid of bibliometric mapping and sentiment-based analytics. A systematic review with sentiment analysis were also used by Aggarwal et al. (2023), but their focus was not on the specific relationship between ESG and investor sentiment. Other reviews have also looked at determinants and outcomes of ESG practices and the heterogeneity of ESG indicators and their relationship with corporate performance, however, these studies do not interact with the ESG sentiment measures or behavioral reactions.

Theoretical Underpinning

This study employs four complementary theories to construct an integrated framework for the ESG investor sentiment nexus. Signaling Theory (Spence, 1973) explains how firms deploy voluntary ESG disclosures, third-party certifications, and adherence to reporting frameworks as signals of long-term quality and risk management capability (Connelly et al., 2011). Authentic signals generate positive investor sentiment, whereas performative disclosures erode trust (Lopatta et al., 2016), directly underpinning the thematic cluster on "Transparency, Authenticity, and Perceptual Challenges in ESG Disclosure." Stakeholder Theory (Freeman, 1984) complements this by providing the normative rationale for ESG engagement, positing that long-term corporate success depends on creating value for all stakeholders such as employees, customers, communities, and regulators, thereby supporting the cluster on "ESG Impact on Financial Outcomes and Stakeholder Perceptions," a relevance further reinforced by the institutional shift toward stakeholder capitalism (Eccles & Klimenko, 2019).

On the demand side, Behavioral Finance Theory (Kahneman & Tversky, 1979; Shiller, 2000; Thaler, 2015) demonstrates that investors are systematically influenced by cognitive biases and heuristics, as the emotional salience of ESG issues trigger affect-driven sentiment rather than performing a systematic materiality analysis (Serafeim & Yoon, 2022), making it central to the cluster on "Dynamics of ESG Ratings, Disagreement, and Investor Behavioral Responses". Information Asymmetry Theory (Akerlof, 1970; Myers & Majluf, 1984) addresses the informational friction, whereby firms possess private knowledge about their sustainability practices while investors rely on publically disclosed information which may be potentially incomplete or inconsistent (Healy & Palepu, 2001), creating uncertainty that distorts sentiment and it connects to the clusters on "Dynamics of ESG Ratings, Disagreement, and Investor Behavioral Responses" and "ESG and Sustainability in Financial Risk Management and Market Dynamics."

RQ1: What has changed in the intellectual organization of the ESG and investor sentiment research over the years in terms of publication trends, influential journals, authors and most frequently cited articles?
RQ2: Which nations are at the forefront in ESG and investor sentiment research, and how can global partnerships influence its knowledge network?
RQ3: How are ESG and investor sentiment research thematically clustered, and in what directions do they point to in the future?
The current research addresses this gap by sequentially searching both Scopus and Web of Science databases with ESG and investor sentiment articles, filtering them through the B-SLR framework to get 152 final articles, and conducting bibliometric analysis (R/Biblioshiny) and thematic clustering (VOSviewer). This will not only allow us to trace the structural development of the field but also determine the research themes and suggest a research agenda that looks outwardly to the future, specifically connecting ESG practices, investor sentiment, and market outcomes.

2. METHODOLOGY

Most of the existing literature is more focused on either ESG or specifically on any of its aspects like sustainability, CSR disclosures, corporate governance disclosures etc. Therefore, the present study aims focus on the nexus between ESG and Investor sentiment by mapping and synthesizing the scholarly landscape on ESG and investor sentiment and providing an integrated knowledge base along with future research agenda.

2.1 Selection of Database

There are various databases for published articles such as Scopus, Web of Science, Google Scholar etc and articles published have either open access or paid access. Basically, the database of Scopus and Web of Science provides superior quality articles with higher citations. So, most researchers, academicians and institutions prefer these databases for any sort of analysis. Therefore, in this study, Scopus and Web of Science databases have been selected for bibliometric analysis. These databases have been chosen as they provide comprehensive overview of research conducted in various domains across the world. These are the widely used databases with topmost articles in almost every domain. The database of Scopus and Web of Science was explored on 11 September 2025 to analyze the output of articles published.

2.2 Selection of Keywords

The keywords for the search query were identified and finalized after reading various articles which were related to ESG & investor sentiment. The search query was run in Scopus & Web of science database using the following keywords- (“environmental social governance" OR "ESG" OR "sustainability reporting" OR "environmental reporting") AND ("investor sentiment*" OR "investor behaviour" OR "investor psychology" OR "sentiment analysis" OR "investor perception" OR "market perception") in the title, abstract and keyword.

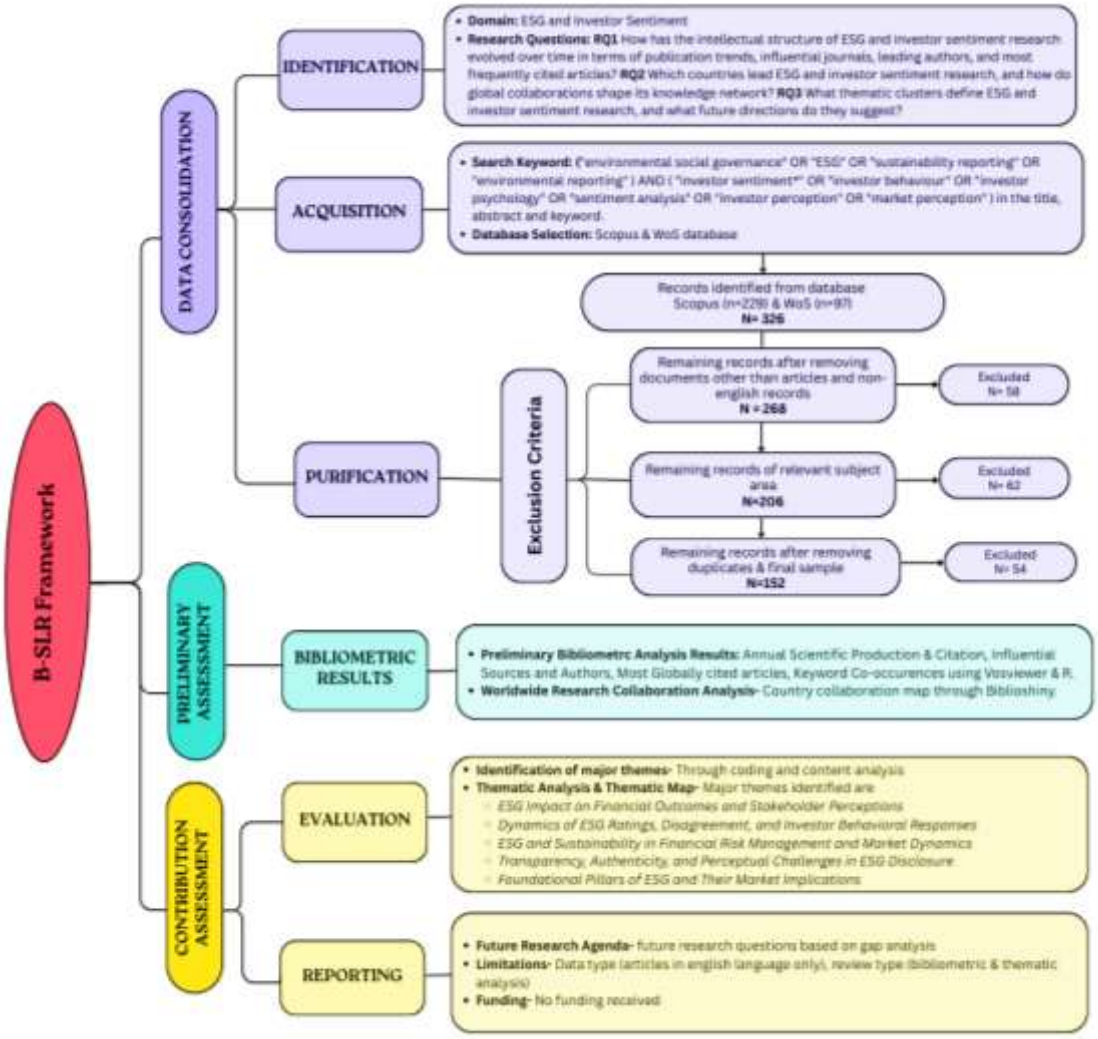


Figure 1 B-SLR framework

The initial results using the above search query were 229 documents in Scopus Database & 97 documents in Web of Science Database. Now out of 326 documents, documents in language other than English and document type other than articles were excluded (n=58) which resulted in 268 articles. Then, in order to get the precise sample, the search was restricted to subject domain of business, management and accounting & econometrics, economics and finance, so 206 articles remained. Now the duplicate articles were removed and the final sample for analysis has 152 articles. Figure 1 shows the entire process of identification, screening and analysis using Bibliometric – Systematic Literature Review (B-SLR) framework (Marzi et al., 2024).

The bibliometric analysis has been employed using Biblioshiny along with thematic clustering using VOSviewer. VOS Viewer was developed by Van Eck and Waltman (2010) and is a software widely used to construct network mapping of keywords, authors, countries, and journals. VOS Viewer can build network maps to visualize the relations of selected items, making it easier for interpretation (Gu et al., 2021). This enables us to not only trace the structural evolution of the field but also identify research themes and propose a forward-looking research agenda that explicitly links ESG practices, investor sentiment, and market outcomes.

3. RESULTS AND DISCUSSION

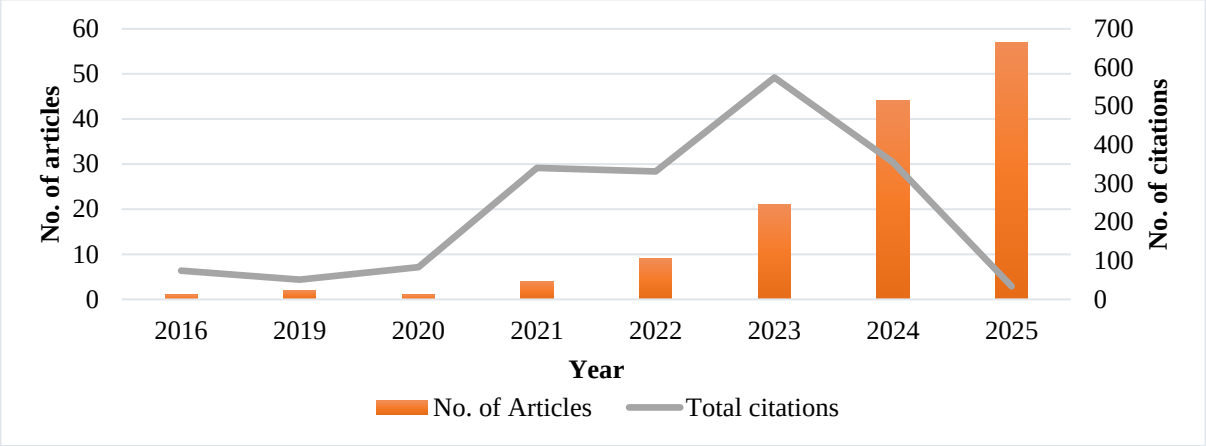
3.1 Temporal Trends in ESG & Investor Sentiment Research

The chart indicates a steep maturation of ESG and investor sentiment studies. In 2016-2020, the number of articles on ESG and investor sentiment as well as the number of citations were low, which suggests that the topic was still in its early development in academic literature. The field had an evident acceleration post-2021, with the number of articles increasing at a rapid rate, and citations with a 1-2 year lag, culminating in 2023. This is because a recently published work is a long time before it can be read, incorporated, and referred to in other studies. Since 2023 onwards, the amount of publications has been steadily increasing exponentially, as the field has become increasingly relevant, potentially due to global ESG regulations, investor activism, and sustainability reporting requirements. All in all, the evidence indicates that, within a short period of less than ten years, ESG and investor sentiment

have moved out of a niche subject of research and into a mainstream research stream. The highest citation in the year 2023 is probably the reflection of the fact that foundational works were well known and used as a reference, whereas the increase in publications in the year 2023 may signify the diversification of the themes and methods, which may define the next generation of high-impact literature.

Overall, the evidence indicates that, within a short period of less than ten years, ESG and investor sentiment have moved out of a niche subject of research and into a mainstream research stream. The highest citation in the year 2023 is probably the reflection of the fact that foundational works were well known and used as a reference, whereas the increase in publications in the year 2023 may signify the diversification of the themes and methods, which may define the next generation of high-impact literature.

Figure 2 Temporal Trends in ESG & Investor Sentiment Research



3.2 Influential Sources & Knowledge Dissemination

The table shows the 10 best-ranked Scopus-indexed journals in the area of research on ESG and investor sentiment, and it is evident that there are trends in the concentration of publications, impact of citation, and quality of the journal. In general, the distribution is highly biased towards Q1 journals, which means that the research on ESG-investor sentiment is published in the high-impact and internationally recognized journals. This indicates the sophistication and scholarly topicality of the theme in the literature of finance, sustainability, and strategic management. Elsevier becomes the most popular publisher, and most of the high-impact journals, including "Finance Research Letters, International Review of Financial Analysis, Journal of Cleaner Production, and Journal of Behavioural and Experimental Finance" are hosted. The journals have a high total citation (TC) to the number of publications (NP) which indicates that ESG-related articles published in the journal have high visibility and academic impact in the Scopus ecosystem.

"Journal of Cleaner Production" is one of the individual journals that have the highest total citations (TC = 219) with relatively few publications (NP = 3). It means that ESG and investor sentiment research in this journal is very cited and cross-disciplinary and may find readership outside of the finance industry in the sustainability, environmental economics, and policy fields. On the same note, "Finance Research Letters and International Review of Financial Analysis" demonstrate moderate performance with moderate NP and high TC, which indicate research volume and citation strength respectively. The h-index and g-index values of journals are moderate, which is not surprising considering the novelty of ESG–investor sentiment studies as a narrow subdiscipline. Nevertheless, the fact that some of the journals have an m-index value of 1 or less, indicates a high rate of citation growth, which supports the relevance and currency of the subject. ESG research has been framed strategically and sustainably, as seen in journals like "Business Strategy and the Environment and Corporate Social Responsibility and Environmental Management". Their Q1 position suggests that investor sentiment studies are gradually being considered in terms of long-term value creation, governance, and environmental strategy, as opposed to strictly market-based ones. The journals such as "Journal of Risk and Financial Management (Q2), Borsa Istanbul Review" and others show regional and applied finance focus, indicating an increasing interest of emerging markets and policy-relevant settings, although their citation impact is relatively low.

Table- 1 Top 10 Influential Sources

Source	Publisher	NP	TC	h	g	m	SJR
Finance Research Letters	Elsevier	13	125	3	11	1	Q1
International Review of Financial Analysis	Elsevier	8	112	3	8	0.75	Q1
Corporate Social Responsibility and Environmental Management	Wiley	6	21	2	4	0.666667	Q1
Journal of Risk and Financial Management	MDPI	4	11	2	3	0.666667	Q2
Business Strategy and the Environment	Wiley	3	63	3	3	0.75	Q1
Journal of Cleaner Production	Elsevier	3	219	3	3	1	Q1
Journal of Behavioral and Experimental Finance	Elsevier	3	60	2	3	0.5	Q1
Borsa Istanbul Review	Borsa Istanbul Anonim Sirketi	3	24	1	3	0.25	Q1
Research in International Business and Finance	Elsevier	3	2	1	1	0.5	Q1
Economic Analysis and Policy	Elsevier	2	28	2	2	0.666667	Q1

Note: This table presents the top 10 journals publishing research on ESG & Investor sentiment, along with their respective publishers, the number of publications (NP), and total citations (TC). Additionally, the table includes three metrics representing the journal's impact factor: the h-index (h), g-index (g), m-index (m) and Scimago's Quartile Rank (SJR).

3.3 Influential Authors & Intellectual Contribution

The Table 2 indicates that the influence in ESG-investor sentiment research is determined mainly by citation impact, instead of publication volume. The majority of the authors have 2-4 publications, but some of them have high total citations, which proves the existence of highly impactful and popular studies. Wenjiao Wang, Haijun Wang and Ziyuan Sun are also distinguished by their good citation performance even with low output implying that their work has a formative contribution towards the literature. Seema Gupta, having the most publications and h-index, represents a steady interest in the theme.

Table- 2 Top 10 Most Influential Authors

Author	NP	TC	h	g	m
Seema Gupta	4	30	3	4	1
Rachana Jaiswal	2	17	2	2	1
Hoje JO	2	36	2	2	0.5
Hee-Eun Kim	3	36	2	3	0.5
Xinqi Li	2	52	2	2	0.666667
Ziyuan Sun	2	97	2	2	0.666667
Aviral Kumar Tiwari	2	17	2	2	1
Haijun Wang	2	140	2	2	1
Shaolin Wang	2	69	2	2	1
Wenjiao Wang	3	192	2	3	0.666667

Note: Here, number of publications (NP) included in the study, and the total number of citations (TC) attributed to the authors. The remaining columns show the author's h-index (h), g-index (g), and m-index (m), respectively.

Altogether, the comparatively low h- and g- indices prove that ESG and investor sentiment is a new, niche study field, whereas the m-index scores near 1 demonstrate its swift increase in citations and topicality. It is therefore a field where a few influential authors have contributed seminal works as opposed to high-volume publishing.

3.4 Most Frequently cited articles & Knowledge Base

Table 3 determines the basic knowledge base of ESG and investor sentiment research that mentions the most common articles. The prevalence of the papers published in 2016-2023 suggests that the sphere is new, developing quickly, and highly modern.

The studies that have been cited most of all focus on the relationship between ESG performance, disclosure, and investor decision-making, which validates that the intellectual basis of this literature is market valuation, investor perceptions, and information processing. The high-quality publications like Park and Yang (2021) and Bofinger and colleagues (2022) emphasize the role of institutional investor perceptions, ESG misvaluation, and market efficiency, making ESG a financially significant aspect instead of an ethical issue.

Table- 3 Top 10 Most Cited Articles

Author(s) & Year	Title	Source	TC
Park & Yang (2021)	"The Impact of ESG Management on Investment Decision: Institutional Investors' Perceptions of Country-Specific ESG Criteria"	International Journal of Financial Studies	150
Bofinger et al. (2021)	"Corporate Social Responsibility and Market Efficiency: Evidence from ESG and Misvaluation Measures"	Journal of Banking & Finance	149
Liu et al. (2023)	"Public perceptions of environmental, social, and governance (ESG) based on social media data: Evidence from China"	Journal of Cleaner Production	120
Nekhili et al. (2021)	"ESG Performance and Market Value: The Moderating Role of Employee Board Representation"	The International Journal of Human Resource Management	117
Wang et al. (2023)	"The impact of environmental uncertainty on ESG performance: Emotional vs. rational"	Journal of Cleaner Production	95
Chen & Yang (2020)	"Do Investors exaggerate corporate ESG information? Evidence of the ESG momentum effect in the Taiwanese market"	Pacific-Basin Finance Journal	83
Wang et al. (2023)	"Corporate ESG rating divergence and excess stock returns"	Energy Economics	76
Fazzini & Maso (2016)	"The value relevance of "assured" environmental disclosure: The Italian experience"	Sustainability Accounting, Management and Policy Journal	74
Ademi & Klungseth (2022)	"Does it pay to deliver superior ESG performance? Evidence from US S&P 500 companies"	Journal of Global Responsibility	67
Wang et al. (2023)	"ESG rating disagreement and stock returns: Evidence from China"	International Review of Financial Analysis	64

One of the most interesting findings is that the representation of emerging and Asian markets (China, Taiwan) is very high, which implies that the dynamics of ESG-investor sentiment are context-specific and are especially applicable in markets that are in the process of changing their disclosure regimes. The combination of finance, sustainability, and behavioural views is

evidenced in articles published in interdisciplinary, high-impact journals like the Journal of Cleaner Production and Journal of Banking & Finance.

In general, the citation pattern reveals that the knowledge base is defined by few seminal empirical studies that correlated ESG ratings, disclosure quality, uncertainty and disagreement to stock returns, investor sentiment and market efficiency. All these articles present the theoretical and empirical foundation of further Scopus-indexed studies in this field.

3.5 Top Countries publishing on ESG & Investor Sentiment

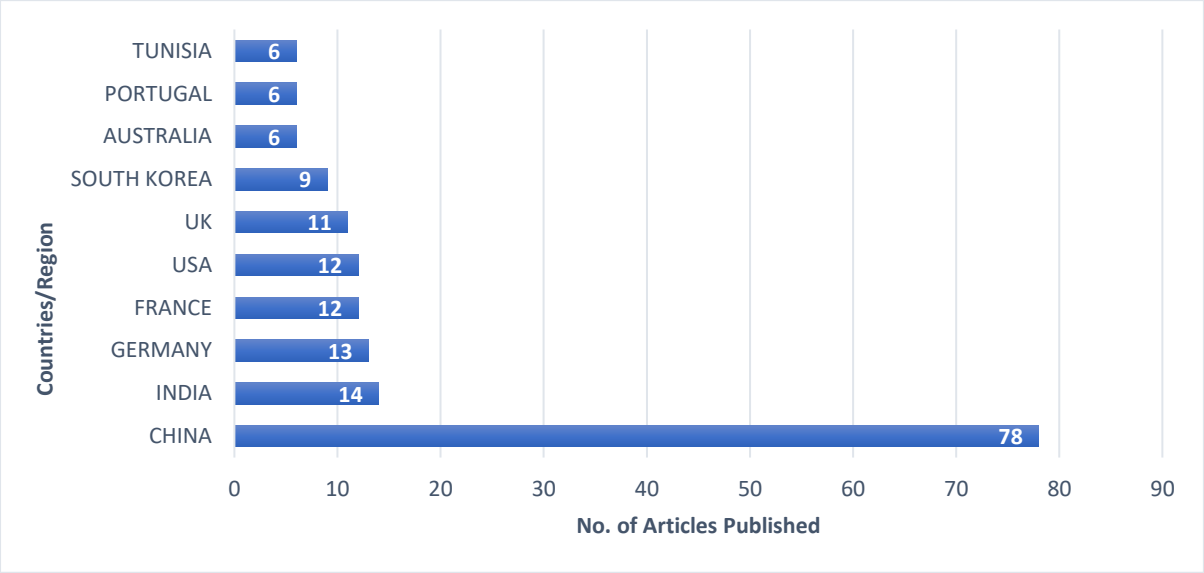


Figure 3 Top Countries on the basis of articles published

3.6 Global collaborations & Research Networks

The international collaboration map shows that the research network in the sphere of ESG and investor sentiment is highly internationalized. The outputs in research are also centralized in Asia, Europe, and North America, which shows that the subject has received the attention of scholars all over the world and has not been limited to any specific region.

China becomes a core center, indicating the highest level of research and a broad network of collaboration, which is the result of its increasingly strong focus on ESG regulation, the development of capital markets, and disclosure of sustainability. The close linkages between Asia and Europe, and Asia and North America imply that there is a cross-continent knowledge flow, especially in the field of empirical finance and sustainability studies.

European nations are characterized by a close cooperation, which emphasizes their dominance in ESG regulation and governance frameworks and sustainable finance, and North American involvement emphasizes the contribution of developed capital markets and institutional investors to the literature. New contributions by areas like South Asia, the Middle East and Oceania are signs of a slow expansion of the research network.

In general, the pattern of collaboration is an indication of a globally connected but regionally based knowledge structure, with major economies serving as the centers of collaboration. Such a network structure augments methodological diversity, contextual richness, and the global applicability of ESG-investor sentiment studies.

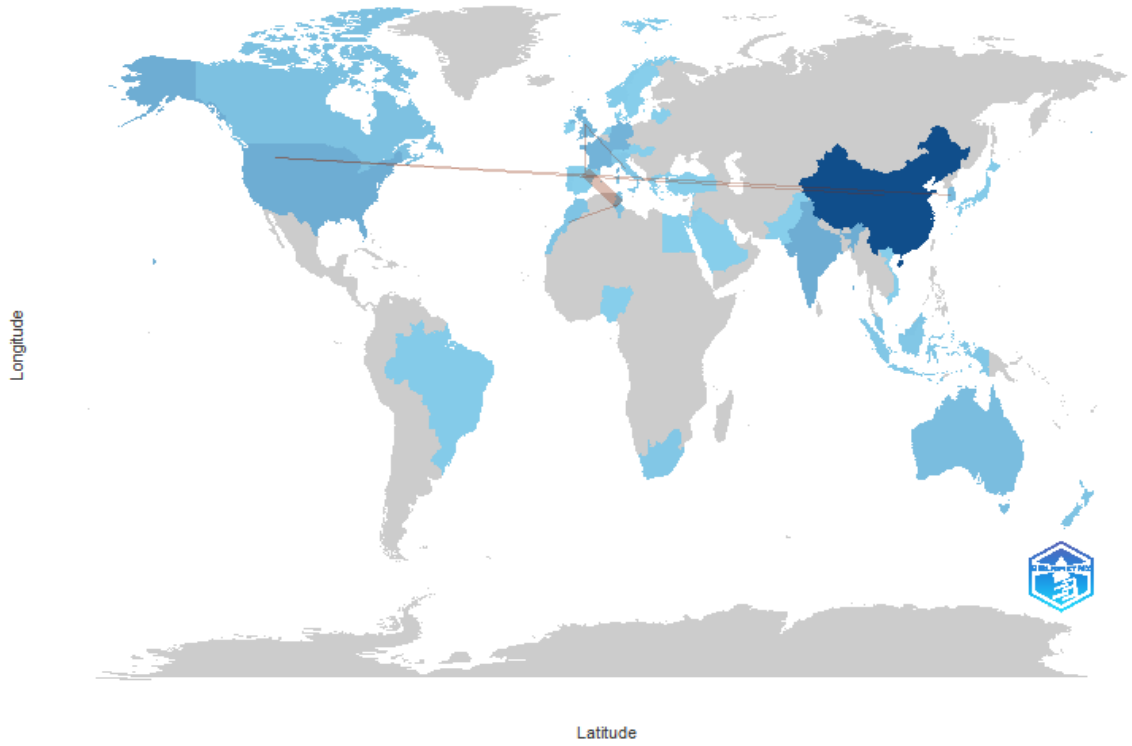
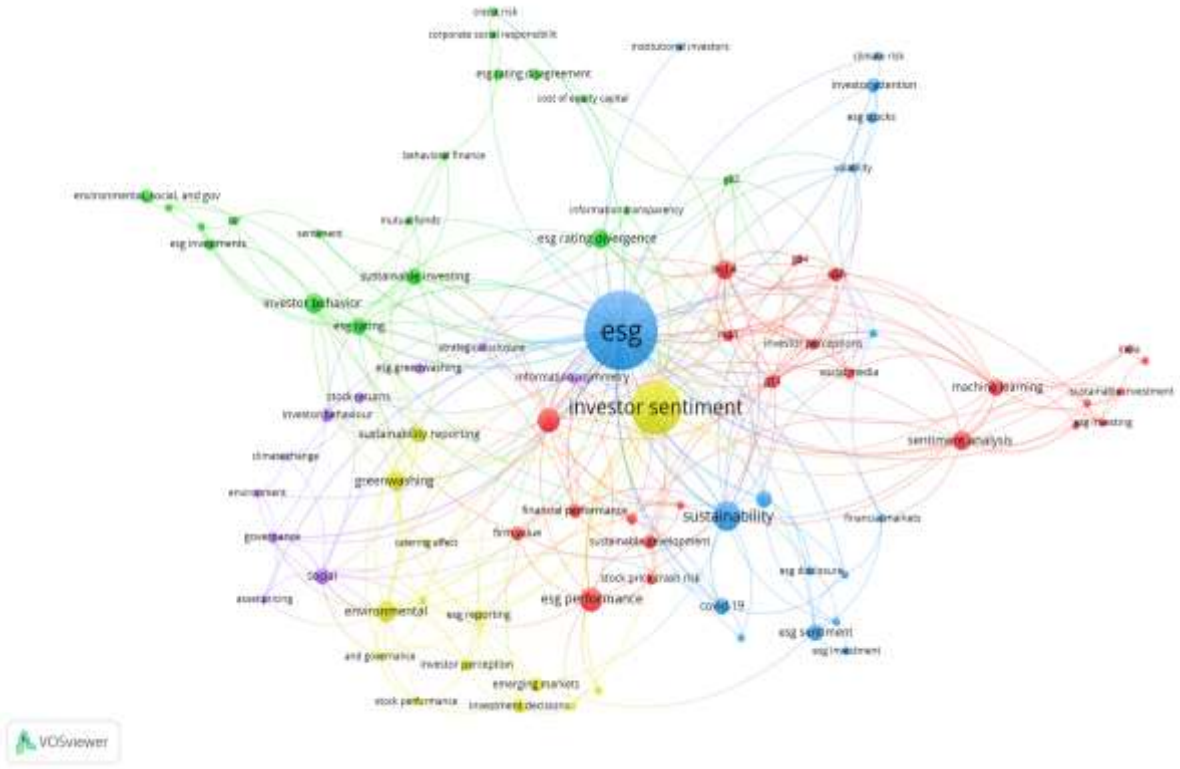


Figure 4 Global Collaboration Map

Therefore, ESG and investor sentiment research is globally collaborative but unevenly distributed research. China is the largest producer of publications and it has the largest international research networks making it the main knowledge centre on the subject. Close collaborative connections among Asia, Europe, and North America are the signs of the active cross-border knowledge sharing. A secondary level includes countries like India, USA, Germany, France, and the UK, which bring a moderate contribution, but still play a significant role in international cooperation and method development. Emerging participation can be seen in other countries, indicating that the research on ESG is slowly spreading globally. The field is generally Asia-centric in size but globally interconnected, and there is a definite opportunity to achieve a better geographical balance and more comparative cross-country studies.

4. THEMATIC ANALYSIS

The intellectual structure of ESG and investor sentiment research was identified through a thematic analysis based on the co-occurrence of key words, which was clustered through the use of key word co-occurrence analysis. This method allows identifying prevailing research themes, conceptual connections, and new research priorities by clustering commonly co-occurring keywords into specific groups. The clusters are reflective of coherent thematic domains that share common theoretical underpinnings, methodological, and empirical concerns in the literature. The analysis by studying the composition and interrelationships of these clusters transcends descriptive bibliometrics to demonstrate how ESG research has developed, how central debates are organised, and how investor sentiment is situated in terms of financial performance, risk, disclosure, and sustainability facets. The clusters that result give a systematic point of departure in the identification of core and emergent themes that define the current and future direction of ESG-investor sentiment scholarship.



4.1. Cluster 1: Financial Performance and Investor Relations in ESG Context

Cluster 1 (red cluster) is tightly located in the main nodes of the terms of ESG and investor sentiment which signifies its centrality in the intellectual framework of the literature. The cluster mainly gathers the studies that analyze the financial consequences of ESG initiatives and how these initiatives are perceived and appreciated by investors and other market actors. The popularity of the term corporate social responsibility indicates that it is more of a conceptual predecessor to ESG, the term that was used at the beginning of the discussion of ethical and responsible business practices. Intimately connected, the construct of ESG performance arises as a central concept, with a significant scholarly focus on the measurement of ESG outcomes and their impact on the financial indicators on the firm level. Its strong citation intensity suggests that the ESG performance has turned into a critical prism according to which financial implications of sustainability efforts are measured.

The inclusion of financial performance and firm value also supports the relevance of value as the core of the cluster, as the interest in the topic of whether ESG engagement can be converted into high market valuation and economic returns has been maintained. Complementing this, the behavioural aspect of the cluster is signalled by the investor perceptions which focuses on the way the market participants digest the information related to ESG and integrate it into investment decisions. One of the unique characteristics of this cluster is a high degree of integration of advanced methodological tools, such as machine learning, sentiment analysis, natural language processing, and topic modelling. The fact that they are closely related to the ESG performance and investor sentiment suggests a methodological change towards data-driven and AI-based approaches, which allow researchers to work with substantial amounts of unstructured data, including corporate disclosures, news, and social media content. The average years of publication of these keywords are recent, which indicates the new analytical trends defining the modern research on ESG.

On the whole, the theme of this cluster is the ESG Impact on Financial Outcomes and Stakeholder Perceptions. It is indicative of an emerging research trend shifting past conventional financial studies to behavioural and tech-heavy research. The intersection of financial performance, investor interpretation, and advanced analytics indicates a futuristic trend in ESG studies, which is more focused on predictive and data-driven information on market responses and investor decision-making.

4.2. Cluster 2: ESG Rating Divergence and Investor Behaviour

Cluster 2 (green cluster) focuses on the measurement, interpretation and implications of ESG ratings, specifically rating divergence and disagreement and how it affects investor decision making. The fact that it is closely connected with the central node that is ESG indicates the relevance of the cluster to the main debates in the literature. The prevailing notion in this cluster is the presence of an ESG rating divergence, which has a high occurrence and linkage, and a very recent average year of publication. This highlights its status as an up-and-coming and hotly contested field of research. The terms ESG rating, ESG ratings, and ESG rating disagreement are closely interrelated and can be used to reflect the issue of inconsistency, comparability, and credibility of ESG assessment frameworks. They are interconnected as the structural constraints of the ESG metrics are increasingly studied by scholars, and there is no standardization among rating agencies.

These measurement challenges are manifested through the behavioural implications of the issues, as the saliency of the interest in investor behaviour directly relates the inconsistencies in ESG ratings to the investment decision-

making processes. The fact that there is such a concept as sustainable investing puts these problems in the context of the actual capital allocation, which suggests that the rating divergence has practical implications on portfolio decisions, risk evaluation, and long-term investment policies. In the meantime, behavioural finance offers the theoretical basis of the explanation of investor reactions to ambiguous or conflicting ESG data, especially in uncertain circumstances.

In general, the theme of this cluster can be described as Dynamics of ESG Ratings, Disagreement, and Investor Behavioural Responses. It is an indication of the change in the literature whereby it no longer focuses on merely analyzing the availability of ESG ratings but reviews critically their reliability and market implications. The excessive focus on the rating divergence is indicative of a larger issue that the lack of consistency in the ESG ratings can dilute investor trust, disrupt market efficiency, and reduce the usefulness of sustainable finance programs. As a result, this cluster points to a pressing research and policy agenda of enhancing ESG rating methodologies, increasing transparency, and promoting regulatory harmonization of the ESG ecosystem.

4.3. Cluster 3: Market Volatility, Risk, and ESG Integration

Cluster 3 (blue cluster) connects ESG and sustainability to the overall financial market dynamics, with an emphasis on risk, volatility, and the incorporation of ESG considerations into investment strategies. The close distance between it and the central node of ESG is indicative of the significance of ESG as a market-level phenomenon and not a firm-specific or ethical one. The prevalence of the term sustainability indicates its status as the general goal of ESG-based financial activity, and high citation rates suggest its continued popularity among scholars. The addition of financial markets places ESG in the context of systemic market behaviour, and the addition of volatility emphasizes the increasing concern of whether ESG integration can affect market volatility and downside risk.

Another remarkable aspect of this cluster is that the name of the cluster is Covid-19, which indicates a distinct line of research that analyzes the resilience and performance of ESG-integrated portfolios during times of intense market stress. The fact that it has been co-occurred with ESG and sustainability implies that crises are becoming empirical environments to be used to test the risk-reducing and stabilizing impact of ESG factors. Keywords like ESG investment and ESG investing focus on the applied aspect of this cluster, which highlights the studies on portfolio construction, asset allocation and risk-adjusted performance. The very recent publication year of the emergence of climate risk suggests a progressive turn towards the explicit modelling of environmental risks as financial material factors.

In general, the theme of this cluster can be defined as the theme of ESG and Sustainability in Financial Risk Management and Market Dynamics. It represents a definite shift in the literature of considering ESG as a normative or reputational issue to considering it as a volatility management tool, resilience, and a systemic risk, especially when facing a crisis and in the climate change context. The increasing popularity of climate risk is also an indicator of a shift towards the consideration of long-term environmental risks in financial decisions, disclosure, and regulatory regimes.

4.4. Cluster 4: ESG Reporting, Greenwashing, and Investor Perception

Cluster 4 (yellow cluster) deals with the communication, credibility, and interpretation of corporate ESG disclosures, especially greenwashing and its impact on investor sentiment and decision-making. Its high connectedness with the central node of investor sentiment demonstrates the behavioural applicability of the quality of ESG reporting to financial markets. The popularity of the term ESG reporting indicates the academic interest to the content, structure, and transparency of sustainability reporting. Tightly linked, a phenomenon known as greenwashing comes to the fore as a pressing issue, meaning that a plethora of academic studies question the validity of false or inflated ESG statements. The close relationship of greenwashing and the perception of investors is a significant indicator of the role that disclosure credibility plays in influencing investor judgments and trust. The prevalence of the term environmental implies that the environmental aspect of ESG is especially prone to selective disclosure and symbolic efforts, thus a center of greenwashing-related analysis. Such disclosure practices eventually affect the investment decisions, and the actual financial implications of the quality and authenticity of information in ESG communication.

The theme that best defines this cluster is Transparency, Authenticity and Perceptual Challenges in ESG Disclosure. It indicates an increasing awareness that the success of ESG investing is not just dependent on the performance of firms but also on whether the reported information is accurate or not. The high level of greenwashing is an indicator of a systemic issue, which has consequences on information asymmetry, investor confidence, and market efficiency. Taken together, the results suggest that there is an urgent necessity to improve the quality of reporting, the level of verification, and the regulation of the quality of ESG reporting to protect the legitimacy of the disclosure and to ensure the effective distribution of funds in the sustainable finance markets.

4.5. Cluster 5: Governance, Social, and Environmental Dimensions of Sustainability

Cluster 5 (purple cluster) is the pillars of ESG: Environmental, Social and Governance and how they are interconnected with the overall sustainability and market performance. Although comparatively independent of the central ESG node, this cluster relates to each other by their emphasis on the fundamental elements that form ESG frameworks. The popularity of Social accentuated academic interest in the area of social responsibility, stakeholder well-being, and consideration of human capital. The high normalized citation intensity and strong representation of Environment and Environmental, highlight the centrality of ecological issues in sustainability research. The fact that climate change was included is an indication that the general environmental awareness is shifting to specific environmental risks, which are of a financial material nature. On the same note, Governance demonstrates the value of corporate control, responsibility, and institutional frameworks in the development of sustainable business practices. In addition to conceptual pillars, this cluster directly connects ESG pillars with market behaviour and financial performance. The existence of investor behaviour demonstrates that investors react differently to environmental, social and governance signals, and stock returns is an empirical endeavour to determine the relevance of each of the ESG dimensions

independently. The high citation intensity of these words is an indicator of the increased awareness that the pillars of ESG are not only a normative construct but also an economically significant factor.

On the whole, the theme Foundational Pillars of ESG and Their Market Implications can be regarded as the most typical of this cluster. It involves a movement beyond viewing ESG as a single aggregate measure to disaggregated, component-based analysis in recognition that the environmental, social, and governance aspects may have varied impacts on investor behaviour and financial performance. This granular strategy indicates a valuable research direction in the future, with pillar-specific sources of risk, value-generating, and investor-response under different industries and institutional settings. The thematic analysis reveals that ESG-investor sentiment research has developed into a financially important and behaviourally-based discipline. The literature unanimously associates ESG performance with firm value, financial performance, and investor perceptions, and more sophisticated and data-intensive approaches to measure market responses.

Simultaneously, the increasing interest in ESG rating divergence shows the concern about the reliability of metrics and its effects on investor confidence and market efficiency. The ESG is also deeply integrated in risk management and market dynamics, especially in terms of crisis resilience and new climate risks. The ongoing issues with the quality of ESG reporting and greenwashing highlight the significance of transparency in influencing investment decisions. Lastly, the trend of disaggregated analysis of environmental, social and governance pillars is indicative of a transition of aggregated ESG scores to a more sophisticated interpretation of value creation and risk. In general, the discipline is moving towards more rigor in the analytical approach, standardization, and policy relevance in sustainable finance studies.

5. FUTURE RESEARCH AGENDA

Future ESG and investor sentiment studies need to proceed in a number of related directions. First, there remains room to further expand the knowledge about the connection between ESG initiatives, firm value, and investor sentiment by using sophisticated data-driven methods, including artificial intelligence, natural language processing, and big data analytics, in various market settings. Second, the increasing issue of ESG rating divergence warrants research on institutional, methodological and regulatory mechanisms that can minimize inconsistency and also study the effects of rating disagreement on investor trust, decision-making under uncertainty and efficiency in capital allocation. Third, the role of ESG integration in dealing with market volatility and risk, including its ability to improve portfolio resilience in case of systemic shocks like pandemics, financial crises, and climate-related disruptions, should be further researched. Fourth, with the growing popularization of ESG investing, the credibility of ESG reporting should be the subject of future research, and the risks of greenwashing and their implications on investor sentiment, market confidence, and the results of sustainable finance should be considered. Lastly, studies need to shift away for aggregated ESG scores to disaggregated interactive analysis of the environmental, social, and governance pillars, and how the dimensions of these pillars individually and together impact investor behaviour, stock returns, and long-term value creation. Together, these guidelines are indicating a stricter, behaviourally based, and policy-relevant research agenda of ESG-driven financial markets.

- How can high-tech data-driven methods (AI, NLP, big data) be used to further our knowledge of how ESG affects the value of firms and investor sentiment in different markets?
- What processes can be used to minimise ESG rating divergence, and how rating inconsistency affects investor trust, decision-making, and capital allocation?
- How well ESG integration can improve portfolio resilience to systemic shocks like pandemics and climate crises?
- What is the impact of credibility of ESG reporting and especially the risk of greenwashing on investor sentiment and sustainable finance performance?
- What impact do the environmental, social, and governance pillars have on investor behaviour, stock returns and value creation in the long-term, and are the impacts of the pillars interactive?

6. CONCLUSION

This paper presents a synthesis of the literature on ESG and investor sentiment in a comprehensive manner through a combination of bibliometric and thematic cluster analysis. The results indicate an advanced but fast developing research field where ESG is no longer a normative or an ethical factor but a financially material, behaviourally relevant, and strategically important construct of capital markets. The clusters of themes all illustrate that the ESG performance is becoming more closely associated with the firm value, financial results, and investor perceptions, and the increased use of more sophisticated, data-oriented techniques supports such a development. Meanwhile, the salience of the ESG rating deviation points to a significant structural issue, as the discrepancies in measurement models affect the investor confidence, decision-making, and market efficiency. The literature also confirms that ESG is a significant element of risk management and portfolio resilience especially when faced with systemic stress and in the face of growing climate risks. Other issues that are equally critical are the quality of ESG reporting and greenwashing that highlight the pivotal role of transparency and credibility to influence investor sentiment and a productive allocation of capital. The disaggregation of environmental, social and governance pillars indicates a movement to more subtle, component-based analysis, acknowledging that each of the dimensions can have different and context-specific implications on investor behaviour and financial performance.

In general, it can be stated that the analysis points to a more and more integrative, critical, policy-relevant field, but it also reveals the ongoing issues regarding standardization, integrity of disclosures, and methodological rigor. By resolving these problems, further study can enhance the validity and efficacy of ESG-based investment activities, which will help to make better decisions and promote sustainable finance.

Limitations of the Study

Despite offering a comprehensive bibliometric and thematic synthesis, this study suffers from several limitations. First, the exclusive reliance on Scopus and Web of Science databases,

while ensuring quality, excludes potentially relevant studies indexed in other databases, as well as grey literature including working papers, conference proceedings, and policy reports. Second, the keyword-based search strategy, inherent to the B-SLR framework, may have inadvertently omitted studies using alternative terminology such as "responsible investing," "ethical investing," or "socially responsible investment (SRI)."

Third, the application of language and subject-domain filters restricted the sample to English-language journal articles within business, management, accounting, economics, and finance, potentially excluding valuable interdisciplinary contributions from fields such as environmental science, psychology, or public policy. Fourth, the final sample of 152 articles, though methodologically sound, represents a modest and time-bound corpus, as studies published after the database extraction date are not captured. Fifth, the bibliometric and thematic analyses are dependent on the accuracy of indexed metadata, and the interpretation of thematic clusters involves a degree of researcher subjectivity. Finally, the geographical concentration of the dataset is predominantly from China, the United States, and select European nations which may limit the generalizability of findings to underrepresented regions, particularly developing and emerging economies with distinct ESG landscapes and investor behaviour patterns.

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