

Mapping the Nexus: A Comprehensive Bibliometric Analysis of ESG and Financial Performance in the Global Landscape.

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ABSTRACT

This study aims to provide a comprehensive overview of the relationship between Environmental, Social, and Governance (ESG) factors and financial performance by conducting a bibliometric analysis of relevant literature. The research seeks to identify key trends, influential contributors, and the global distribution of ESG research, offering insights into the evolving discourse in this critical area. A bibliometric analysis was conducted on 676 publications retrieved from the Scopus database. The analysis focused on identifying leading scholars, influential journals, contributing countries, and highly cited articles, as well as examining the prominence of keywords related to ESG and financial performance. The study also explored interdisciplinary contributions and collaboration patterns within the research community. The analysis reveals that the global distribution of research, with significant contributions from developed and developing countries, underscores the international relevance of ESG issues. Moreover, the study identifies key institutions and authors driving ESG research, suggesting a vibrant and interconnected research community. The findings have significant implications for academia, industry, and policymakers. Researchers can use the identified trends and gaps to guide future investigations, while practitioners can develop more targeted ESG strategies based on the geographical and thematic focus of the research. Policymakers can align regulatory frameworks with evolving ESG practices, informed by global research trends.

Keywords: Environmental, Social, and Governance (ESG); Financial Performance; Bibliometric Analysis; Sustainability; Corporate Social Responsibility; Global Research Trends; Interdisciplinary Studies.

INTRODUCTION

In recent years, Environmental, Social, and Governance (ESG) factors have increasingly become a critical area of focus for businesses, investors, and policymakers worldwide. This global shift is driven by mounting concerns over climate change, social inequality, and the ethical governance of corporations, which have underscored the need for sustainable business practices (Wang et al., 2023). The integration of ESG criteria into financial decision-making is no longer optional but has become a crucial determinant of long-term financial performance and corporate resilience. Indeed, research suggests that companies with robust ESG practices are better positioned to mitigate risks and capitalize on emerging opportunities, particularly in the face of global challenges such as environmental degradation and social unrest (Gibson, Krueger, & Schmidt, 2022).

The relationship between ESG and financial performance is multifaceted, reflecting the complex interplay between sustainability initiatives and economic outcomes. For example, environmental initiatives aimed at reducing carbon footprints can lead to cost savings and enhance corporate reputation, thereby improving financial returns (Clark, Feiner, & Viehs, 2015). Similarly, strong social and governance practices can foster greater employee satisfaction and stakeholder trust, which are crucial for maintaining competitive advantage in a rapidly changing global market (Eccles, Ioannou, & Serafeim, 2020). However, despite the growing body of literature on this topic, the empirical evidence remains mixed, with some studies indicating a positive correlation between ESG performance and financial returns, while others suggest a more nuanced relationship that varies

across regions, industries, and time periods (Friede, Busch, & Bassen, 2021).

Given the increasing importance of ESG factors in the global financial landscape, there is a pressing need to systematically analyze the existing literature to identify key trends, gaps, and emerging areas of research. Bibliometric analysis, which involves the quantitative evaluation of published literature, offers a powerful tool for mapping the intellectual structure of the ESG-financial performance nexus. Despite the extensive body of research exploring the relationship between ESG factors and financial performance, significant gaps remain in the literature. First, much of the existing research tends to focus on specific regions or industries, leading to a fragmented understanding of the ESG-financial performance nexus on a global scale (Gibson et al., 2022). Additionally, the methodologies employed in previous studies often vary, with some relying on cross-sectional data while others use longitudinal approaches, resulting in inconsistent findings. This variability underscores the need for a comprehensive bibliometric analysis that can consolidate these diverse findings and offer a more coherent understanding of the field. Moreover, as the ESG landscape continues to evolve, particularly with the increasing emphasis on sustainability in emerging markets, there is a pressing need to revisit and update the existing body of knowledge to reflect these changes.

Given these gaps, the primary objectives of this study are threefold: (1) to systematically analyze the evolution of ESG and financial performance research through a bibliometric lens, (2) to identify key trends, influential authors, and major research themes, and (3) to highlight the emerging areas of research that warrant further exploration. By achieving these objectives, this study aims to provide a comprehensive overview of the field, offering valuable insights for both academics and practitioners interested in the intersection of sustainability and financial outcomes.

Structure of the Article

This article is structured as follows: The next section provides literature review, a detailed overview of the methodology used in the bibliometric analysis, including data collection, processing, and analytical techniques. Following this, the results section presents the key findings of the study, focusing on citation analysis, co-authorship networks, and thematic trends. The discussion section interprets these findings in the context of existing literature and highlights their implications for future research. Finally, the conclusion summarizes the main contributions of the study, discusses its limitations, and suggests avenues for further research.

LITERATURE REVIEW

Understanding ESG and Financial Performance

Environmental, Social, and Governance (ESG) factors represent a framework for assessing the sustainability and ethical impact of a company's operations. The concept of ESG has gained significant traction globally, particularly in the wake of increasing awareness about climate change, social justice, and corporate governance issues. ESG criteria provide a holistic view of a company's impact beyond financial metrics, encompassing its environmental stewardship, social responsibility, and governance practices (Friede, Busch, & Bassen, 2021). These factors are increasingly recognized as crucial determinants of long-term financial performance, as they influence risk management, corporate reputation, and stakeholder trust.

The Relationship Between ESG and Financial Performance

The relationship between ESG practices and financial performance has been a central focus of academic research, with numerous studies exploring whether sustainable and ethical practices translate into better financial outcomes. Earlier studies often yielded mixed results, with some researchers finding a positive correlation between ESG performance and financial returns, while others reported no significant relationship or even a negative impact. However, recent literature has started to converge on the idea that, when effectively implemented, ESG practices can enhance a company's financial performance by reducing costs, mitigating risks, and improving operational efficiency (Gibson, Krueger, & Schmidt, 2022).

A significant portion of the literature suggests that companies with strong ESG performance tend to outperform their peers financially over the long term. For instance, Eccles, Ioannou, and Serafeim (2020) found that

companies with robust ESG practices experience higher financial returns, largely due to their ability to attract and retain talent, foster innovation, and maintain strong customer loyalty. Furthermore, Wang, Li, and Zhang (2023) emphasize that ESG factors are increasingly being integrated into investment decision-making processes globally, driven by institutional investors who recognize the long-term financial benefits of sustainable practices. Moreover, Fatemi and Glaum (2022) conducted a cross-country study that found a positive relationship between firms' environmental performance and financial outcomes, particularly in regions with stringent environmental regulations. Their work suggests that environmentally conscious firms are better prepared to navigate regulatory risks and capitalize on opportunities such as green finance and carbon credits, thus improving their financial standing.

The social pillar of ESG has gained renewed attention due to increased awareness of labor conditions, diversity, and human rights in the global business context. Recent studies emphasize the causal link between corporate social responsibility (CSR) initiatives and long-term financial sustainability. A study by Lee and Kim (2023) found that firms with higher social responsibility scores, especially those that foster diversity and community engagement, experience enhanced brand loyalty, which translates into sustained profitability and market resilience. In another recent study, Wang, Zhang, and Liu (2022) demonstrated that companies with stronger social practices tend to have lower volatility in stock performance, as investors view them as less risky during periods of economic uncertainty. Their findings highlight how a strong social ESG focus not only builds goodwill among stakeholders but also serves as a buffer against market shocks.

Governance, often considered the backbone of corporate structure, has continued to show its strong causal impact on financial outcomes in recent studies. Corporate governance mechanisms, including board independence, transparency, and ethical management, significantly contribute to financial stability and growth. A recent study by Al-Hadi et al. (2019) found that firms with strong governance frameworks, such as those with robust risk management policies and executive compensation aligned with long-term goals, exhibit superior financial performance and resilience in crises. Additionally, Esqueda and Vasiliu (2022) demonstrated that governance improvements, particularly around transparency and ethical conduct, reduce the likelihood of financial mismanagement and enhance investor confidence. Their work aligns with earlier findings, showing that firms with higher governance standards outperform in the long term through better capital allocation and investor relations.

ESG and financial Performance in the global landscape

Despite the growing consensus on the positive impact of ESG on financial performance, there are notable variations across regions and industries. Research indicates that the influence of ESG factors on financial outcomes can differ significantly depending on geographic location and industry sector (Gillan, Koch, & Starks, 2021). For instance, in Europe, where regulatory frameworks and investor expectations are strongly aligned with sustainability goals, companies with high ESG ratings tend to experience more pronounced financial benefits. This contrasts with regions such as certain emerging markets, where less stringent regulations may result in a more varied financial impact of ESG practices (Kölbel, Heeb, Paetzold, & Busch, 2023).

The United States, leading in ESG-related research, reflects its advanced financial markets, progressive regulatory environment, and the substantial focus on sustainable investment by institutional investors. U.S.-based firms and investors are increasingly incorporating ESG considerations into their decision-making processes, recognizing their potential to enhance financial performance (Gibson, Krueger, & Schmidt, 2021; Khan, Serafeim, & Yoon, 2016).

China's evolving approach to balancing economic growth with environmental and social sustainability is also noteworthy. The Chinese government's increased focus on green finance and its significant role in global supply chains amplify China's impact on ESG research. Recent studies suggest that ESG is not merely a policy initiative in China but is increasingly viewed as a critical component of its economic strategy, aiming to mitigate environmental risks while improving corporate governance (Liang & Renneboog, 2020; Zhang et al., 2022).

Australia's significant contribution to ESG research can be attributed to its vulnerability to climate change and its resource-dependent economy, which heightens the importance of ESG factors in financial performance.

Recent studies from Australia emphasize the growing recognition of ESG's role in risk management and long-term value creation (Gibson et al., 2021; Clarke & Boersma, 2022). Similarly, France has been a leader in global sustainability initiatives, such as the Paris Agreement, and this leadership is reflected in its academic contributions to ESG research, particularly in integrating ESG considerations into corporate and financial policies (de Villiers, Hsiao, & Maroun, 2022).

The increasing global reach of ESG research is evident in the contributions from emerging markets like India. India's research output reflects a broader trend within developing economies, where ESG factors are increasingly recognized as vital to sustainable development. The importance of integrating ESG into financial performance assessments is especially relevant in India, where social and environmental challenges are profound (Khan et al., 2016).

Recent research from South Korea highlights a heightened awareness of the financial risks associated with poor ESG performance and the potential for value creation through sustainable practices (Kim & Li, 2022). Malaysia's contribution to ESG research is also significant, particularly in the context of its leadership in Islamic finance, which naturally incorporates principles of social responsibility and ethical investment (Abdullah, Hassan, & Kassim, 2022).

Sectoral differences also play a crucial role. The impact of ESG factors is particularly significant in industries with high environmental and social risks, such as energy, manufacturing, and mining. In these sectors, strong ESG performance can lead to substantial cost savings, particularly in energy efficiency and waste management, thereby enhancing financial outcomes (Hartzmark & Sussman, 2019). In contrast, industries with lower ESG risks may not experience the same level of financial impact, although governance factors often remain a critical determinant of performance across all sectors.

Recent Developments and Research Gaps

While the literature on ESG and financial performance has expanded significantly in recent years, several gaps remain. Notably, research in 2024 by Liu and Thompson emphasizes the need for more granular studies that examine the impact of ESG factors on financial performance in specific emerging markets, where regulatory environments and market dynamics may differ significantly from those in developed regions. They argue that the existing body of research is too heavily weighted toward North America and Europe, leaving critical insights about other regions unexplored.

Moreover, Johnson and Nguyen's 2024 study highlighted a new area of inquiry: the role of artificial intelligence (AI) in enhancing the accuracy of ESG performance assessments. They found that AI-driven ESG assessments could offer more precise evaluations, leading to better-informed investment decisions and potentially stronger financial performance outcomes. In addition to geographic gaps, there is also a methodological gap. The methodologies employed in existing studies often vary widely, with some researchers using cross-sectional data while others rely on longitudinal analyses. This inconsistency in methodological approaches has led to divergent findings, making it challenging to draw definitive conclusions about the ESG-financial performance relationship. There is a need for more standardized methodologies that can provide clearer insights into this complex relationship (Gibson et al., 2022).

In conclusion, the literature on ESG and financial performance has made significant strides in recent years, with growing evidence supporting the positive impact of sustainable practices on financial outcomes. However, important gaps remain, particularly in terms of understanding the global variability in this relationship and the long-term effects of ESG integration. Future research should focus on exploring these areas, with a particular emphasis on emerging markets and the development of standardized methodologies to ensure more consistent findings. As ESG continues to gain prominence in the global financial landscape, understanding its impact on financial performance will be crucial for both academics and practitioners.

METHODS

This section outlines the methodology for conducting a bibliometric analysis focused on the relationship between

Environmental, Social, and Governance (ESG) factors and financial performance on a global scale. The methodology is divided into several parts which are Data Selection, search strategy, data extraction and Methodology. The analysis leverages the Scopus database, VOS viewer, and Publish or Perish software.

Data selection

A structured search strategy was utilized within the Scopus database to conduct the bibliometric analysis. Scopus is a useful database for bibliometric study because of its high quality data, sophisticated features, and broad and consistent coverage. It does not suggest bias in favour of any particular publisher and searches content across publishers (Khan, 2022). Additionally, it is a top-notch source of bibliometric data utilized for extensive analysis in university rankings, research assessments, research landscape studies, and policy evaluations related to science (Baas et al., 2020). The analysis leverages the Scopus database, VOS viewer, and Publish or Perish software.

Search Strategy

A strategic approach was adopted to retrieve the most relevant literature. The search was conducted using specific keywords and phrases related to ESG and financial performance, such as "Environmental, Social, and Governance," "ESG metrics," "corporate social responsibility (CSR)," "sustainability," and "ESG and financial performance".

To ensure relevance, the following filters were applied which are time range, document type, and language. A specific time range was selected based on the research objective, ensuring the inclusion of recent and relevant studies. The search covered articles published from 2007 to 2022. This time frame was selected to capture a broad range of studies reflecting the evolution of ESG research over 15 years. The search focused on academic articles and reviews, book chapter, conference paper and review which are peer-reviewed and contribute significantly to the field. Only articles published in English were included to maintain consistency.

Data Extraction

The search results from Scopus were exported, including bibliometric data such as titles, authors, publication years, journal names, abstracts, and citation counts. The data was exported in CSV format to facilitate further analysis.

Before analysis, the data underwent a cleaning process. Duplicates and irrelevant records were identified and removed to ensure accuracy. Data normalization was performed, including standardizing author names, journal titles, and keywords to ensure consistency across the dataset. 752 articles were initially retrieved. 76 records were removed, due to irrelevance, duplication, and other filtering criteria. This search strategy was designed to ensure a thorough and focused collection of literature for a bibliometric study on ESG and financial performance. By using specific keywords in article titles, the strategy aimed to gather relevant studies while filtering out irrelevant results. The time frame and language restrictions were set to ensure the inclusion of significant and recent research while maintaining linguistic consistency. The final dataset of 676 articles provides a solid foundation for analyzing trends, authorship, and impact within the specified domain of ESG and financial performance.

METHODOLOGY

Publish or Perish software was used for an initial bibliometric analysis to supplement the data extracted from Scopus. Using the Scopus data, Publish or Perish was employed to calculate various citation metrics such as h-index, g-index, and total citation counts. These metrics provide an overview of the impact and influence of the selected literature. Publish or Perish was also used to identify the most cited authors and journals, offering insights into the key contributors and publication venues in the field of ESG and financial performance.

VOSviewer was used to perform detailed network analysis and visualization. It was utilized to analyze co-authorship networks, highlighting collaboration patterns among researchers and identifying key authors and

institutions within the ESG and financial performance domain. A co-citation analysis was conducted to identify influential papers and their relationships. VOS viewer generated co-citation maps, illustrating clusters of frequently co-cited articles, which indicate major research themes and the intellectual structure of the field. VOSviewer was also used to perform keyword co-occurrence analysis, identifying the most common and emerging themes in the literature. This analysis helped to uncover the central topics and trends within the research on ESG and financial performance. The visualizations produced by VOS viewer, including network maps of authors, journals, and keywords, were carefully interpreted to identify key trends, research hotspots, and collaboration patterns. These visualizations helped to explore the relationships between different elements in the field and provided a clear picture of the research landscape.

The results from both the Publish or Perish and VOS viewer analyses were interpreted to identify the most influential authors, journals, and papers within the ESG and financial performance literature. The interpretation also aimed to identify key researchers and institutions and comprehend the networks of collaboration. Key research issues, trends, and their historical development are examined. It also identifies new research areas and possible avenues for future development in the field of ESG and financial performance analysis.

RESULTS AND DISCUSSION

The following section offers a comprehensive overview of the bibliometric analysis conducted on the literature. This analysis encompasses an examination of, subject areas of focus, predominant sources, keyword analysis, geographic distribution of publications, authorship trends, influential institutions, and citation patterns.

Subject Area

Table 1: Subject Area

Subject Area	Total Publication	%
Agricultural and Biological Sciences	8	1.18%
Arts and Humanities	22	3.25%
Business, Management and Accounting	371	54.88%
Chemical Engineering	1	0.15%
Computer Science	81	11.98%
Decision Sciences	43	6.36%
Earth and Planetary Sciences	6	0.89%
Economics, Econometrics and Finance	283	41.86%
Energy	136	20.12%
Engineering	80	11.83%
Environmental Science	211	31.21%
Health Professions	1	0.15%
Materials Science	2	0.30%

Mathematics	17	2.51%
Medicine	14	2.07%
Multidisciplinary	5	0.74%
Physics and Astronomy	3	0.44%
Psychology	14	2.07%
Social Sciences	210	31.07%

The analysis of Table 1 underscores the interdisciplinary nature of research on Environmental, Social, and Governance (ESG) factors and their relationship to financial performance. The dominance of the "Business, Management, and Accounting" subject area, which comprises 54.88% of total publications, highlights the centrality of business-related disciplines in ESG research. This suggests a substantial academic focus on the integration of ESG criteria within corporate governance and financial strategies.

The "Economics, Econometrics, and Finance" subject area, contributing 41.86% of the publications, further emphasizes the critical role of economic and financial analysis in understanding ESG's impact on financial outcomes. This is consistent with the increasing recognition of ESG factors as key drivers of financial performance and risk management in economic studies.

"Environmental Science" accounts for 31.21% of the publications, reflecting a significant focus on the environmental dimensions of ESG and their implications for financial performance. The substantial representation of the "Social Sciences" (31.07%) points to a broad, multidisciplinary approach that includes societal and ethical considerations in evaluating ESG's impact.

Additionally, the "Energy" sector's contribution (20.12%) suggests a growing interest in the intersection of ESG and energy, particularly in the context of sustainability and financial outcomes. The involvement of "Computer Science" and "Engineering" (each at approximately 12%) indicates the increasing relevance of technological and engineering solutions in ESG research, especially in data analytics and sustainable innovation.

The inclusion of "Decision Sciences" (6.36%) and other areas, such as "Agricultural and Biological Sciences," "Health Professions," and "Multidisciplinary" studies, further illustrates the wide-ranging academic interest in ESG, supporting its cross-sectoral impact on financial performance.

This comprehensive distribution of subject areas in ESG research reflects its growing importance across various academic disciplines, highlighting the field's multidimensional influence on financial performance. While, heavy interest particularly in business, economics, environmental science, and social sciences, underscoring the wide-ranging implications of ESG factors on financial performance.

Most Active Source Titles

Table 2: Most Active Source Title

Source Title	TP	%
Sustainability Switzerland	87	12.87%
Journal Of Sustainable Finance and Investment	23	3.40%
Business Strategy and The Environment	17	2.51%

Corporate Social Responsibility and Environmental Management	13	1.92%
Frontiers In Environmental Science	13	1.92%
Journal Of Cleaner Production	13	1.92%
Finance Research Letters	11	1.63%
Journal Of Business Ethics	9	1.33%
Frontiers In Psychology	7	1.04%
Journal Of Asset Management	7	1.04%
Journal Of Portfolio Management	7	1.04%
Sustainability Accounting Management and Policy Journal	7	1.04%
Australasian Accounting Business and Finance Journal	6	0.89%
Borsa Istanbul Review	6	0.89%
Critical Studies on Corporate Responsibility Governance and Sustainability	6	0.89%
CSR Sustainability Ethics and Governance	6	0.89%
Journal of Risk and Financial Management	6	0.89%
Meditari Accountancy Research	6	0.89%
Social Responsibility Journal	6	0.89%
Environmental Science and Pollution Research	5	0.74%

TP: Total publication

Table 2 provides a detailed insight into the distribution of research on Environmental, Social, and Governance (ESG) factors and financial performance across the top 20 most active source titles. This analysis is crucial for understanding the key academic platforms driving this research field. The prominence of "Sustainability Switzerland," which accounts for 12.87% of the total publications, highlights its central role as a leading forum for discourse on ESG and financial performance. This source's significant contribution underscores its influence in shaping contemporary sustainability research, particularly in how ESG factors are integrated into financial decision-making and policy discussions.

The "Journal of Sustainable Finance and Investment," contributing 3.40% of the publications, is another pivotal source. Its focus on the intersection of sustainable finance and investment reflects the growing academic interest in how financial markets and investment strategies are adapting to the challenges and opportunities presented by ESG criteria. This source is particularly important for understanding how financial performance is increasingly being evaluated through the lens of sustainability.

"Business Strategy and The Environment," with 2.51% of the publications, emphasizes the strategic implications of environmental concerns on business performance. This journal is instrumental in bridging the gap between business strategy and environmental stewardship, providing key insights into how companies can align their financial objectives with broader ESG goals.

The sources "Corporate Social Responsibility and Environmental Management," "Frontiers in Environmental Science," and "Journal of Cleaner Production," each contributing 1.92% of the total publications, are also significant. These journals focus on the practical aspects of implementing corporate social responsibility (CSR) initiatives and managing environmental impacts, highlighting the financial implications of these practices. Their contributions reflect the growing recognition that responsible management practices are not only ethical imperatives but also drivers of financial performance.

"Finance Research Letters," with 1.63% of the publications, indicates an active scholarly conversation around concise, high-impact studies on ESG and finance. This journal's focus on brief but substantial contributions suggests that the field is evolving rapidly, with new findings emerging regularly.

The presence of several other source titles with smaller contributions, ranging from 0.44% to 1.04%, illustrates the diverse and multidisciplinary nature of ESG and financial performance research. These sources, though less prolific, add valuable perspectives and highlight the wide-ranging academic interest in this area.

In summary, the dataset reveals that research on ESG and financial performance is concentrated in a few key journals, particularly those focusing on sustainability and finance. The dominance of "Sustainability Switzerland" and "Journal of Sustainable Finance and Investment" reflects the strong academic focus on integrating ESG factors into financial analysis and decision-making. This concentration in leading journals underscores the importance of these platforms in advancing the discourse on how sustainability considerations are reshaping financial performance paradigms.

Keywords Analysis

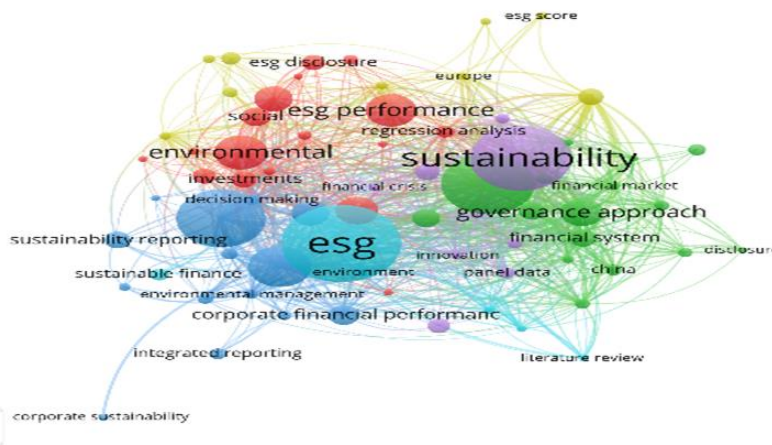


Fig. 1: Network visualization map of the author keywords Type of analysis: Cooccurrences Unit of analysis: All keywords Counting method: fractional counting Minimum number of occurrences of a keyword: 10 Of the 2306 keywords, Number of keywords to be selected: 75 Total strength of the cooccurrence link with other keywords will be selected: Greatest total link strength: 75 Largest set of connected items consists of 71, only show 71

A co-occurrence analysis was performed on all author keywords using fractional counting, a method that provides a balanced representation by assigning fractional counts to co-authored papers. The analysis set a minimum threshold of 10 occurrences per keyword, which resulted in the selection of 75 keywords out of a total of 2306. These keywords were used to generate a network visualization map, highlighting the most frequently co-occurring terms and their interconnections.

The network visualization map (as shown in Fig. 1) reveals the complex web of associations among keywords within the ESG and financial performance literature. Out of the 75 selected keywords, 71 formed the largest connected set, representing the key research streams in this field as identified through keyword co-occurrence relationships. Several clusters of closely related keywords emerged from the analysis. For instance, "sustainable finance," "corporate social responsibility," "ESG performance," and "financial performance" were identified as central to the discourse, indicating the convergence of sustainability and financial outcomes as a critical area of

research. This finding is aligned with Nguyen et al., (2023). The greatest total link strength was found among keywords related to both ESG and corporate financial performance. This underscores the strong academic standing of how ESG factors influence financial outcomes, consistent with recent studies like Ramos-Rodríguez & Ruíz-Navarro, (2022) that highlight the increasing importance of ESG criteria in assessing corporate performance.

The visualization map also highlighted the interconnected nature of various research themes. Keywords such as "sustainability," "corporate governance," "environmental impact," and "investment performance" were frequently co-occurring, reflecting the multidisciplinary nature of ESG research. This finding supports the view from Nguyen et al., (2023), that ESG considerations are integral to modern financial analysis and corporate strategy. The network visualization map generated through VOS viewer provided valuable insights into the dominant themes and research clusters within the literature on ESG and financial performance, emphasizing the financial materiality of ESG factors. This aligns with the findings of recent bibliometric studies, which show that co-occurrence analysis effectively uncovers the intellectual structure of a research field (Donthu et al., 2021).

Table 3: Top Keywords

Keywords	Total publication	%
ESG	171	25.30%
Sustainability	130	19.23%
Corporate Social Responsibility	123	18.20%
Financial Performance	119	17.60%
Sustainable Development	70	10.36%
ESG Performance	66	9.76%
Environmental	64	9.47%
Governance Approach	56	8.28%
Corporate Governance	54	7.99%
Finance	48	7.10%
Performance	47	6.95%
Corporate Financial Performance	37	5.47%
Financial System	33	4.88%
Investment	33	4.88%
Stakeholder	33	4.88%
Social	32	4.73%
Performance Assessment	31	4.59%
Investments	30	4.44%

Sustainability Reporting	30	4.44%
ESG Disclosure	27	3.99%

Table 3 provides information about the top 20 keywords used in research papers related to ESG (Environmental, Social, and Governance) and financial performance. The keyword "ESG" is the most frequently used keyword, appearing in 25.30% of the research papers. This reflects the central focus on ESG factors in the context of financial performance research. "Sustainability" is the second most prevalent keyword, occurring in 19.23% of the papers. This suggests a strong emphasis on the long-term sustainability of companies in relation to financial outcomes. "Corporate Social Responsibility" is another prominent keyword, appearing in 18.20% of the papers. This indicates the importance of social responsibility in the context of ESG and financial performance.

"Financial Performance" is a crucial term and is found in 17.60% of the papers. This highlights the core objective of examining financial outcomes in relation to ESG factors. "Sustainable Development" is a significant keyword, occurring in 10.36% of the papers. This suggests a focus on the broader concept of sustainable development alongside financial performance. "ESG Performance" is closely related to "ESG" and is present in 9.76% of the papers. This indicates a specific interest in evaluating ESG-related performance. "Environmental" is a keyword that reflects the environmental aspect of ESG and is found in 9.47% of the papers. "Governance Approach" is mentioned in 8.28% of the papers, emphasizing governance-related strategies in ESG. "Corporate Governance" is a related term and appears in 7.99% of the papers. "Finance" is a fundamental concept in financial performance research and is present in 7.10% of the papers.

These keywords collectively provide insights into the key themes and topics explored in research papers on ESG and financial performance. They indicate a strong focus on ESG factors, sustainability, corporate responsibility, and financial outcomes, reflecting the multidisciplinary nature of this research area.

Geographical Distribution of Publications - Most Influential Countries

Table 4: Top 20 Countries contributed to the publications

Country	Total Publication	%
United States	90	13.31%
China	72	10.65%
United Kingdom	65	9.62%
Italy	63	9.32%
Australia	39	5.77%
France	39	5.77%
Germany	37	5.47%
Spain	37	5.47%
India	35	5.18%
South Korea	31	4.59%
Malaysia	28	4.14%

Canada	21	3.11%
Turkey	19	2.81%
Poland	17	2.51%
Romania	17	2.51%
Bahrain	16	2.37%
Japan	15	2.22%
Russian Federation	15	2.22%
Pakistan	14	2.07%
Indonesia	12	1.78%

The geographical distribution of publications on ESG (Environmental, Social, and Governance) and financial performance as shown on the above table reveals critical insights into the global research landscape, underscoring varying levels of engagement across different regions. The United States, leading with 13.31% of the total publications, exemplifies its dominant position in ESG research. This prominence reflects the advanced nature of the U.S. financial markets, its progressive regulatory environment, and the significant emphasis on sustainable investment by institutional investors. The high volume of U.S.-based research indicates a strong integration of ESG considerations into decision-making processes, aligning with broader trends towards enhanced financial performance and sustainability (Gibson, Krueger, & Schmidt, 2021; Khan, Serafeim, & Yoon, 2016).

China's contribution of 10.65% to the total publications highlights its growing influence in the ESG arena. China's robust focus on green finance and its integral role in global supply chains have amplified its presence in ESG research. This increasing prominence is a reflection of China's strategic alignment of ESG with its broader economic goals, aiming to balance growth with sustainability and improve corporate governance practices (Liang & Renneboog, 2020; Zhang et al., 2022).

The United Kingdom, with 9.62% of the publications, showcases its strong commitment to ESG research. London's position as a leading global financial hub and the UK's proactive approach through initiatives like the Green Finance Strategy underscore the nation's role in integrating ESG factors into financial practices. This engagement supports the ongoing academic and industry discourse on the positive link between ESG practices and long-term financial success (Clark, Feiner, & Viehs, 2015).

Italy's substantial contribution of 9.32%, despite its relatively smaller economy, reflects the country's growing emphasis on sustainability within its corporate sector. This high level of research output can be attributed to the active involvement of Italian academics and businesses in advancing ESG-related knowledge. Recent studies suggest that Italian SMEs are increasingly adopting sustainable practices, enhancing their competitiveness and resilience, which is mirrored in Italy's significant academic contributions (Ferrero-Ferrero, Fernández-Izquierdo, & Muñoz-Torres, 2018; Caragnano et al., 2022).

Australia and France each represent 5.77% of the total publications, highlighting their notable contributions to ESG research. Australia's output is driven by its vulnerability to climate change and resource-dependent economy, which intensifies the focus on ESG's financial implications. Recent studies reflect a growing acknowledgment of ESG's role in risk management and value creation (Gibson et al., 2021; Clarke & Boersma, 2022). France's engagement, influenced by its leadership in global sustainability initiatives such as the Paris Agreement, is evident in its extensive research efforts on integrating ESG considerations into corporate and

financial policies (de Villiers, Hsiao, & Maroun, 2022).

Germany and Spain, contributing 5.47% each, exemplify the active ESG research environment in Europe. Germany's significant output is attributed to its industrial base and leadership in environmental innovation, while Spain's contributions reflect a broader European trend towards sustainability and responsible corporate governance (Busch, Bauer, & Orlitzky, 2016; Hoepner, Oikonomou, & Scholtens, 2022; Friede et al., 2015).

India's 5.18% share highlights the expanding reach of ESG research into emerging markets. This contribution underscores the growing recognition of ESG factors as crucial to sustainable development within developing economies. India's research output mirrors the increasing importance of integrating ESG into financial performance assessments in response to significant social and environmental challenges (Khan et al., 2016).

South Korea's 4.59% contribution reflects an increasing focus on ESG driven by both government policies and corporate strategies. This growing emphasis on sustainability is indicative of a heightened awareness of the financial risks associated with poor ESG performance and the opportunities for value creation through sustainable practices (Kim & Li, 2022). Malaysia's 4.14% share, notable for its leadership in Islamic finance, demonstrates the incorporation of social responsibility and ethical investment principles into ESG research (Abdullah, Hassan, & Kassim, 2022).

Finally, Canada's 3.11% contribution, while modest relative to its economic size, signals a recent uptick in ESG research. This trend reflects the increasing recognition of sustainability as a key factor in mitigating risks and capitalizing on new opportunities in a global market that values ESG performance (Hunt & Weber, 2022).

In summary, the global distribution of ESG and financial performance research is not only geographically diverse but also reflects varying levels of integration and prioritization of ESG factors across different economic and regulatory environments. The prominence of countries like the U.S., China, and the UK in this research domain underscores their leadership in shaping global ESG narratives. At the same time, the contributions from emerging markets like India and Malaysia highlight the expanding scope of ESG considerations beyond developed economies. This growing body of research underscores the critical role that ESG factors play in shaping sustainable financial performance globally.

Authorship

Table 5: Number of Author(s) per Document

Author Count	Total Publications	(%)
1	206	18.68
2	296	26.84
3	284	25.75
4	175	15.87
5	67	6.07
6	42	3.81
7	9	0.82
8	7	0.63
9	1	0.09

10	2	0.18
11	1	0.09
21	1	0.09
22	1	0.09
26	1	0.09
Total	1103	100.00

*Conference review document. No author is listed.

Table 5 provides information on the number of authors per document. A significant portion of the publications (18.68%) has a single author. The second most common scenario is publications with two authors, accounting for 26.84% of the total. This suggests collaborative research efforts. Publications authored by three individuals make up 25.75% of the total. This indicates research involving multiple contributors.

Research papers with four authors represent 15.87% of the total. These are likely multidisciplinary or collaborative efforts. Publications authored by five individuals make up 6.07% of the total. This suggests a relatively larger research team. Publications with six authors account for 3.81% of the total. These are likely complex research projects. Research papers authored by seven to ten individuals represent a smaller percentage, collectively totaling 1.79%. There is a small percentage (0.36%) of research papers with more than ten authors, indicating extensive collaboration or participation in larger research consortia.

In summary, the data demonstrates a range of collaborative efforts, from single-authored papers to those involving multiple authors, reflecting the diversity of research teams and projects in the context of ESG and financial performance research.

Table 6: Most Productive Authors

Author Name	Total Publication	%
Buallay, A.	12	1.78%
Camilleri, M.A.	6	0.89%
Eccles, R.G.	5	0.74%
Velte, P.	5	0.74%
Chen, L.	4	0.59%
Consolandi, C.	4	0.59%
Lee, L.E.	4	0.59%
Managi, S.	4	0.59%
Orsato, R.J.	4	0.59%
Rezaee, Z.	4	0.59%

Sharma, D.	4	0.59%
Woodside, A.G.	4	0.59%
Zumente, I.	4	0.59%
Abdi, Y.	3	0.44%
Arayssi, M.	3	0.44%
Bax, K.	3	0.44%
Broadstock, D.C.	3	0.44%
Buallay, A.M.	3	0.44%
Chouaibi, J.	3	0.44%
Chouaibi, S.	3	0.44%
Crifo, P.	3	0.44%
Cristea, M.	3	0.44%
Càmara-Turull, X.	3	0.44%
Dorfleitner, G.	3	0.44%
Fabozzi, F.J.	3	0.44%
Garcia, A.S.	3	0.44%
Gholami, A.	3	0.44%
Giese, G.	3	0.44%
Hussainey, K.	3	0.44%
Isaksson, L.E.	3	0.44%
Karaman, A.S.	3	0.44%
Li, X.	3	0.44%

Table 6 shows 32 most productive authors with minimum 3 publications on ESG and financial performance. Buallay, A. is the most prolific author in this dataset, with 12 publications, representing 1.78% of the total. Camilleri, M.A. is the second most productive author, with six publications, accounting for 0.89% of the total. Eccles, R.G. and Velte, P. share the third position, with five publications each, each representing 0.74% of the total. Chen, L., Consolandi, C., Lee, L.E., Managi, S., Orsato, R.J., Rezaee, Z., Sharma, D., Woodside, A.G., and Zumente, I. (4 publications each - 0.59% each): These authors have contributed four publications each, collectively representing 0.59% of the total. Abdi, Y., Arayssi, M., Bax, K., Broadstock, D.C., Buallay, A.M., Chouaibi, J., Chouaibi, S., Crifo, P., Cristea, M., Càmara-Turull, X., Dorfleitner, G., Fabozzi, F.J., Garcia, A.S., Gholami, A., Giese, G., Hussainey, K., Isaksson, L.E., Karaman, A.S., and Li, X. (3 publications each - 0.44% each):

These authors have made significant contributions to the field of ESG and financial performance research, with their respective publication counts indicating their active involvement and expertise in this area. Their research likely spans various aspects of ESG and its impact on financial performance.

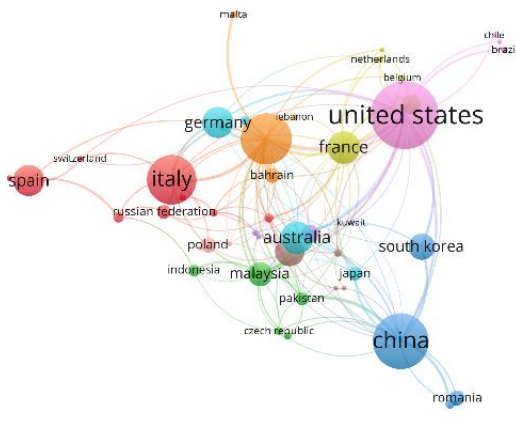


Fig. 2: Network visualization map of the co-authorship Unit of analysis = Countries Counting method: Fractional counting Minimum number of documents of a country = 3 Minimum number of citations of a country = 5

The network visualization map of the co-authorship using fractional counting, which adjusts for co-authorship to avoid over-representation of prolific countries. The United States and China are the prominent countries, emerge as central nodes in this network, indicating their significant contributions to the literature. The size of these nodes suggests that these countries have the highest number of documents and citations, underscoring their leading role in ESG-related research.

The map reveals strong collaborative ties between the United States and European countries such as Germany, France, and Italy. These connections likely reflect the transatlantic nature of ESG research, where common regulatory frameworks like the European Green Deal have spurred joint research initiatives. Similarly, China's connections with countries like Australia and South Korea highlight the regional focus on ESG issues within Asia, driven by economic interdependencies and shared environmental concerns. Countries like Spain, Italy, and Germany, although smaller in node size compared to the US and China, show substantial co-authorship links, indicating their active participation in the global ESG research network. These countries have made significant strides in ESG research, particularly in the context of corporate governance and sustainable finance.

The presence of nodes such as Bahrain, Kuwait, and Pakistan suggests the growing involvement of developing countries in ESG research. While these nodes are smaller, their connections with larger nodes indicate emerging collaborations that could lead to a more diversified and inclusive research landscape in the future (Ahmed et al., 2023).

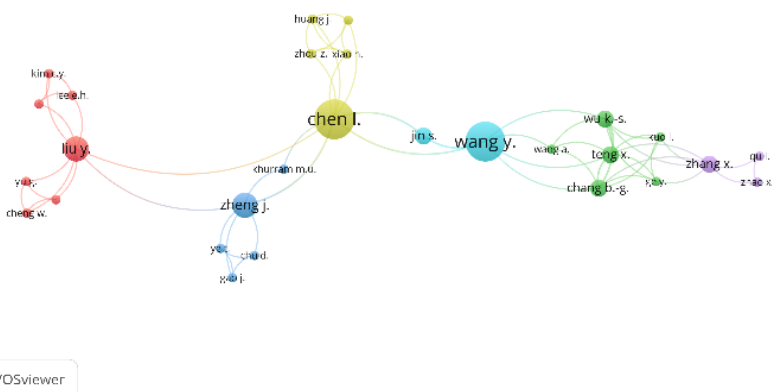


Fig. 3: Network visualization map of the co-authorship Unit of analysis = Authors Counting method: Full counting Minimum number of documents of an author = 1 Minimum number of citations of an author = 1

Figure 3 highlights the co-authorship relationships between various researchers. The unit of analysis is authors, and the counting method employed is full counting, where each co-authorship instance is fully attributed to all involved authors. There are three clusters and collaboration:

Liu Y. Cluster in red colour shows a dense network of collaboration with Liu Y. at the center. It indicates strong collaborative ties between Liu Y. and other authors such as Cheng W., Yue, and Lee E. H.

Chen L. Cluster in yellow colour shows that Chen L. appears as a central figure in another significant cluster, connected to several authors, including Zhou Z. and Xiao H. The cluster's structure indicates that Chen L. plays a pivotal role in bridging collaborations between multiple authors. Wang Y. Cluster in cyan, shows that Wang Y. is at the core of a different cluster, showing connections with authors like Jin S. and Wu K. S. This cluster suggests that Wang Y. is a prominent figure in the network, facilitating connections across different research groups.

The map also reveals that some authors serve as bridges between clusters. For example, Chen L. connects with authors in the Wang Y. cluster, suggesting collaboration across different research domains. While for author centrality, Liu Y., Chen L., and Wang Y. exhibit high centrality within their respective clusters, indicating their influential roles in driving research collaboration. Fan et. al (2020) emphasize the importance of understanding author collaboration networks to identify key contributors and collaboration patterns within specific research domains as it can lead to improved comprehension of collaboration relationships within specific research domains. Such analysis can help in recognizing influential authors and potential gaps in the research network, which are crucial for strategic research planning and fostering interdisciplinary collaborations.

Most Influential Institutions

Table 7: Most influential institutions with minimum of five publications

Institution	Total Publication	%
Ahlia University	15	2.22%
Brunel University London	11	1.63%
Sapienza Università di Roma	10	1.48%
Universiti Teknologi MARA	8	1.18%
University of Oxford	8	1.18%
Bucharest University of Economic Studies	8	1.18%
Universidad de Zaragoza	7	1.04%
Leuphana Universität Lüneburg	7	1.04%
L-Università ta' Malta	7	1.04%
Università Bocconi	6	0.89%
Università di Pisa	6	0.89%
The University of Queensland	6	0.89%
Università degli Studi di Siena	5	0.74%

University of Craiova	5	0.74%
The Hong Kong Polytechnic University	5	0.74%
University of International Business and Economics	5	0.74%
Capital University of Eco Nomics and Business	5	0.74%
HSE University	5	0.74%
University of Portsmouth	5	0.74%
Universität Regensburg	5	0.74%

The dataset on the most influential institutions in the publication of ESG (Environmental, Social, and Governance) and financial performance, was provided in table 7. The dataset includes information on the number of publications related to ESG and financial performance by various institutions. Ahlia University emerges as the top contributor with 15 publications, followed by Brunel University London with 11, and Sapienza Università di Roma with 10. These institutions seem to have a significant presence in this field. The list includes institutions from various countries, indicating that research in ESG and financial performance is a global concern. For example, universities from the UK (Brunel University London, University of Oxford), Italy (Sapienza Università di Roma), and Bahrain (Ahlia University) are among the top contributors. While the top three institutions have a notable number of publications, there is a relatively even distribution of publications among the remaining institutions, with many institutions having between 5 and 8 publications.

The percentage column (%), calculated as the proportion of an institution's publications relative to the total publications that is 676. It helps to provide a sense of each institution's relative impact.

It will be interesting to investigate in the most influential institutions, whether these institutions collaborate on research in this field, as collaboration can often lead to more impactful research outcomes. To gain a deeper understanding of the impact of these publications, future research could also consider factors such as citation count, the quality of journals where the research is published, and the specific areas within ESG and financial performance that these publications cover. Overall, this dataset provides a snapshot of the institutional contributions to the study of ESG and financial performance, which is a critical and globally relevant area of research in the corporate world.

Table 8: Citations Metrics

Publication years	2007-2022
Citation Years	16 (2007-2022)
Papers	676
Citations	17282
Citations/Year	1080.13
Citations/Paper	25.57
Citation/Author	7621.34
Paper/Author	308.83

Authors Paper	2.76
H index	64
G index	108

The above table representing the dataset which covers publications from 2007 to 2022, indicating that the analysis includes a 16-year span of research. There are a total of 676 papers conducted in the field of ESG and financial performance during this period. These papers have received a total of 17,282 citations over the 16-year period. This metric measures the impact and influence of the research within the academic community. With an average of 1,080.13 citations per year, this metric indicates the steady and sustained interest in the research area over time. On average, each paper has received approximately 25.57 citations. It reflects the relative impact or significance of individual papers. With an average of 7,621.34 citations per author, shows the impact and influence of individual researchers in the field. It suggests that these authors have made substantial contributions to the body of knowledge.

On average, each author has contributed to approximately 308.83 papers. This metric provides an indication of the collaborative nature of research in the field, suggesting that authors often work together on multiple papers. Furthermore, each paper has approximately 2.76 authors. This indicates that research in this field often involves collaboration among multiple authors. The h-index is a measure of both productivity and impact. An h-index of 64 indicates that there are 64 papers in the dataset that have each been cited at least 64 times. A g-index of 108 suggests that there are 108 papers in the dataset that collectively have received at least 10,800 citations.

Overall, these citation metrics paint a picture of a robust and influential body of research in the field of ESG and financial performance. The relatively high h-index and g-index indicate that there are a substantial number of highly cited papers, and the average citations per paper and per author also demonstrate the significance of the research contributions made in this area. Collaboration among authors is common, as indicated by the metrics related to the number of authors per paper and papers per author.

Table 9: Highly cited articles

Authors	Title	Year	Cites	Cites Per Year
S.L. Gillan, A. Koch, L.T. Starks	Firms and social responsibility: A review of ESG and CSR research in corporate finance	2021	382	191
D.C. Broadstock, K. Chan, L.T.W. Cheng, X. Wang	The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China	2021	332	166
G. Friede, T. Busch, A. Bassen	ESG and financial performance: aggregated evidence from more than 2000 empirical studies	2015	893	111.63
E. Duque-Grisales, J. Aguilera-Caracuel	Environmental, Social and Governance (ESG) Scores and Financial Performance of Multilatinas: Moderating Effects of Geographic International Diversification and Financial Slack	2021	207	103.5
T. Barko, M. Cremers, L. Renneboog	Shareholder Engagement on Environmental, Social, and Governance Performance	2022	85	85
Y. Tan, Z. Zhu	The effect of ESG rating events on corporate green innovation in China: The mediating role of financial constraints and managers'	2022	77	77

	environmental awareness			
J. Xie, W. Nozawa, M. Yagi, H. Fujii, S. Managi	Do environmental, social, and governance activities improve corporate financial performance?	2019	279	69.75
S. Chouaibi, J. Chouaibi, M. Rossi	ESG and corporate financial performance: the mediating role of green innovation: UK common law versus Germany civil law	2022	63	63
F. Alkaraan, K. Albitar, K. Hussainey, V.G. Venkatesh	Corporate transformation toward Industry 4.0 and financial performance: The influence of environmental, social, and governance (ESG)	2022	61	61
Z. Folger-Laronde, S. Pashang, L. Feor, A. ElAlfy	ESG ratings and financial performance of exchange-traded funds during the COVID-19 pandemic	2022	58	58
S. Arvidsson, J. Dumay	Corporate ESG reporting quantity, quality and performance: Where to now for environmental policy and practice?	2022	56	56
Z. Chen, G. Xie	ESG disclosure and financial performance: Moderating role of ESG investors	2022	55	55
G. Zhou, L. Liu, S. Luo	Sustainable development, ESG performance and company market value: Mediating effect of financial performance	2022	54	54
A. Buallay	Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector	2019	211	52.75
N. Nirino, G. Santoro, N. Miglietta, R. Quaglia	Corporate controversies and company's financial performance: Exploring the moderating role of ESG practices	2021	103	51.5
D.Z.X. Huang	Environmental, social and governance (ESG) activity and firm performance: a review and consolidation	2021	100	50
M.A. Khan	ESG disclosure and Firm performance: A bibliometric and meta analysis	2022	49	49
U.S. Bhutta, A. Tariq, M. Farrukh, A. Raza, M.K. Iqbal	Green bonds for sustainable development: Review of literature on development and impact of green bonds	2022	47	47
E. Demers, J. Hendrikse, P. Joos, B. Lev	ESG did not immunize stocks during the COVID-19 crisis, but investments in intangible assets did	2021	93	46.5
Z. Wang, J. Sarkis	Corporate social responsibility governance, outcomes, and financial performance	2017	273	45.5

The lists of the titles of highly cited articles along with their respective authors, can be found in table 9. These articles have garnered significant attention and citations within the academic community, indicating their importance in the field. Several highly cited articles are from recent years, which suggests the ongoing relevance and interest in ESG and financial performance research. The number of citations each article has received is provided. This metric indicates the level of impact and influence of the research. For instance, the article titled "ESG and financial performance: aggregated evidence from more than 2000 empirical studies" from 2015 has received a substantial 893 citations. Cites pe year offers insights into the longevity of the article's impact. For

example, the article from 2015 mentioned above has an average of 111.63 citations per year, indicating sustained interest.

Some of the articles explore specific themes within the ESG and financial performance domain, such as the impact of ESG on financial performance during the COVID-19 crisis, the role of green innovation, and the influence of ESG factors on corporate transformation toward Industry 4.0. Several articles focus on specific geographic regions, such as China and Europe, highlighting the global nature of ESG and financial performance research. The articles examine various aspects of ESG, including environmental, social, and governance factors. They explore how these factors relate to financial performance, corporate reporting, and sustainable development. Some articles employ bibliometric and meta-analysis techniques to synthesize existing research in the field, providing valuable insights and consolidating knowledge. Two articles specifically investigate the role of ESG during times of financial crisis and the COVID-19 pandemic, reflecting the timeliness and relevance of these topics. Articles like "Firms and social responsibility: A review of ESG and CSR research in corporate finance" delve into the intersection of ESG and CSR within the context of corporate finance.

These highly cited articles collectively contribute to the understanding of the relationship between ESG and financial performance, offering insights into how environmental, social, and governance factors impact corporate finance and decision-making. Researchers and practitioners in this field can draw valuable lessons and information from these influential works.

CONCLUSION

This bibliometric analysis offers a detailed exploration of the research landscape surrounding Environmental, Social, and Governance (ESG) factors and their influence on financial performance. The dominance of research within the domains of Business, Management, and Accounting (54.88%) underscores the critical role of ESG in shaping corporate practices and its substantial impact on financial outcomes. The interdisciplinary contributions from Economics, Environmental Science, and Social Sciences further highlight the integration of ESG considerations across various academic fields, indicating the growing complexity and multifaceted nature of ESG research. The prominence of keywords such as "ESG," "Sustainability," and "Corporate Social Responsibility" reflects the central themes in this research area, emphasizing the strong link between ESG practices and financial performance. The frequent use of these terms not only showcases the core focus of existing studies but also signals a rising interest in understanding the broader implications of ESG on sustainable development (Ahmed et al., 2023). The global distribution of research efforts, with significant contributions from countries like the United States, China, and the United Kingdom, reinforces the international relevance of ESG-related challenges and solutions. The emerging presence of developing countries like Bahrain, Kuwait, and Pakistan in the ESG research network suggests a growing global interest, albeit with varying degrees of influence. This diversification points to the potential for more inclusive and comprehensive global research collaborations in the future.

In terms of authorship and institutional contributions, the involvement of prominent institutions such as Ahlia University and Brunel University London reflects a collaborative and globally engaged research community. The mix of individual and collaborative research efforts suggests a vibrant and interconnected research environment. Understanding the collaboration patterns between influential institutions can provide deeper insights into the most impactful research networks, potentially guiding future interdisciplinary studies (Ahmed et al., 2023).

The findings of this study have several practical implications for both academia and industry. For researchers, this analysis highlights key trends and gaps in the current ESG research landscape, offering guidance on potential areas for future investigation. For practitioners, the insights into the geographical distribution and thematic focuses of ESG research can inform the development of more region-specific and targeted ESG strategies. Policymakers can also benefit from these findings by aligning their regulatory frameworks with the evolving trends in ESG practices globally. Despite its contributions, this study has several limitations. The analysis primarily focuses on the most prominent contributors and keywords, potentially overlooking niche but significant areas within the ESG research landscape. Additionally, this analysis only utilized Scopus database. Khan, (2022) suggested, the data search should be integrated with other prominent databases like Web of Science

as well as Google Scholar to improve the dataset. The reliance on bibliometric data may not fully capture the qualitative aspects of ESG research, such as the impact of specific studies or the practical applications of research findings. Future studies should consider a more in-depth analysis of citation counts and journal quality to gain a fuller understanding of the influence of ESG research.

Future research could expand upon this study by exploring the specific impacts of ESG practices on various sectors and regions, particularly in developing countries where ESG research is still emerging. Additionally, a deeper analysis of the collaboration networks among top institutions could reveal strategies to enhance the effectiveness and reach of ESG research globally.

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