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Environmental, Social and Governance Performance and Firm Value: A Bibliometric Review of Intellectual Structure and Emerging Research Trends (2015-2025)

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ABSTRACT

The issues of environmental, social, and governance (ESG) factors have gained much attention in terms of firm valuation and investment decisions. Although ESG has been extensively studied over the years, there is a lack of understanding in terms of the intellectual structure and thematic development of the relationship between ESG and firm value. To bridge this gap, this paper seeks to conduct a bibliometric analysis of the body of literature about ESG-firm value relationships from the year 2015 to 2025. The research will utilise a data set of 589 journal papers that were retrieved from the Scopus database for the purpose of investigating the publication dynamics, prominent contributors, citation network, and the intellectual/conceptual structure of the field. From the analysis of the science mapping results, it can be deduced that there are four major streams of research: (1) Relationship between ESG performance and firm value; (2) sustainability disclosures and transparency; (3) corporate governance structure; and (4) consequences of ESG factors on financial performance such as cost of capital and investment efficiency. In addition, through co-citations and bibliographic coupling, it is evident that the theories upon which the body of knowledge is built include not only finance but also stakeholder theory, agency theory, and sustainable perspectives. The contribution of this paper to the literature on ESG-firm value lies in synthesizing the existing works on the subject matter.

Keywords: ESG, Firm Value, Bibliometrics, VOSviewer, Tobin's Q, Firm Performance
JEL Classifications: G32, G34, Q56, M14

1. INTRODUCTION

Environmental, social, and governance (ESG) factors have gained importance in the formulation of corporate strategy, the evaluation of investments, and the establishment of regulatory regimes across the globe. Increasing public consciousness regarding environmental sustainability, social responsibility, and good corporate governance practices has prompted companies to adopt ESG factors in their organizational models (Bénabou and Tirole, 2010). On the other hand, the attention of investors, regulators, and policy-makers towards ESG disclosure as a measure of organizational transparency, risk management, and value creation has heightened (Eccles et al., 2014; Gillan et al., 2021). This trend has resulted in ESG performance becoming an important criterion for evaluating corporate sustainability and financial stability. The increased adoption of ESG practices has attracted considerable academic attention regarding the impact of sustainability measures on corporate financial performance. Specifically, numerous studies have investigated whether ESG performance improves corporate value through processes such as reputation management, stakeholder engagement, resource efficiency, and risk avoidance (Flammer, 2015; Friede et al., 2015; Gillan et al., 2021). Moreover, by engaging in ESG activities, companies can mitigate information asymmetry and increase transparency; this ultimately leads to reduction in the cost of capital and increases investors' confidence (Dhaliwal et al., 2011). Such viewpoints

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have been developed based on theories like the stakeholder theory, which focuses on the value of stakeholder engagement, and agency theory, which emphasizes the value of ESG activities through reducing information asymmetry.

In spite of the fast pace of scholarly interest in the field of ESG, there is still fragmentation of research within several disciplines such as finance, accounting, management, and sustainability studies. The current body of literature has been mainly centred around exploring empirical connections between ESG performance and firm value, paying little attention to the intellectual architecture and the evolving themes in the literature. Moreover, previous review works have been based on narrative or systematic reviews, which, while useful, could miss the intricate linkages, collaboration dynamics, and knowledge diffusion mechanisms within the literature on ESG-firm value.

Thus, the fast-growing body of literature on ESG calls for comprehensive analytical approaches that can consolidate the vast number of academic works. Bibliometric analysis offers a rigorous approach through which the evolution of research fields in science can be mapped. This is achieved through the analysis of patterns of publications, citations, and collaboration (Donthu et al., 2021). Through science mapping methods, bibliometric analysis allows researchers to pinpoint influential researchers, intellectual roots, and thematic clusters.

While previous studies in this area have explored the broad topics of ESG and sustainability in general, very little attention has been paid to the link between the performance of firms in terms of their ESG practices and firm value. This gap becomes important when considering that sustainable finance and ESG integration are gaining prominence in capital markets today. Thus, a dedicated bibliometric review of the literature related to the connection between ESG performance and firm value will offer important insights into how sustainability is perceived by the finance community in terms of research focus.

In this context, this study conducts an in-depth bibliometric review of ESG-firm value research that was published from 2015 to 2025. Through the use of a database containing 589 peer-reviewed articles extracted from the Scopus database, performance analysis and science mapping methods are employed using the VOSviewer tool to explore various trends in this body of literature.

This study makes several key contributions. Firstly, this paper gives an overview of the literature on the ESG-firm value relationship in terms of the intellectual foundation and thematic progression. Secondly, this paper highlights important researchers, institutions, and countries involved in this academic discourse, reflecting the global nature and collaboration trends in this research community. Thirdly, this paper explores new research directions within this academic discussion and points out some gaps in current knowledge which need further research work, especially regarding the underlying mechanisms and methodology.

The rest of the paper is organized as follows. The second section introduces the research methodology, such as data gathering and bibliometrics. The third section reports the results obtained through the bibliometric analysis. The fourth section discusses the results. Finally, the fifth section suggests possible research gaps and new research topics.

2. METHODOLOGY

2.1. Research Design and Bibliometric Approach

This paper uses a bibliometric research design to chart the intellectual landscape and development of the ESG-firm value research. Bibliometrics analysis is a quantitative and reproducible method of reviewing the scientific literature through analysis of publication patterns, citation relationships and thematic linkages in a research field. Bibliometric methods are more objective and scalable than traditional narrative and systematic literature reviews, which can be applied to analyze large groups of academic publications (Donthu et al., 2021). To find the most influential contributions, new themes, and collaborative frameworks, bibliometric methods have been used extensively in sustainability, corporate governance, and finance research (Aria and Cuccurullo, 2017). Similar to the previous literature, the study is based on two supplementary methods: performance analysis and science mapping. Performance analysis measures the productivity and impact of research field through analyzing the trends in publications, authors, journals, institutions, and countries. The methods of science mapping are applied to investigate the intellectual and conceptual structure of the field in terms of co-citation, bibliographic coupling, and co-occurrence networks of keywords. The methods allow identifying the prevailing research clusters, theoretical underpinnings, and new thematic trends within ESG-firm value scholarship.

2.2. Data Source and Search Strategy

The bibliometric dataset has been harvested out of the Scopus database, which is widely known as one of the most comprehensive multidisciplinary citation databases of peer-reviewed academic literature. Scopus was chosen because it is a relatively comprehensive index of high-quality journals, strong indexing of citation, and can be combined with bibliometric software, e.g. VOSviewer, making it specifically useful in the context of large-scale science mapping studies (Donthu et al., 2021). In order to obtain the predictive accuracy of the analysis, the search was limited to those publications that specifically addressed the concept of ESG and the concept of firm value. The search query was used to apply to the title, abstract and keywords fields (TITLE-ABS-KEY) which narrows down the search result to studies where ESG and firm valuation are major research topics. The search term that was used was as follows as presented in Table 1.

Additional filters were used to make sure that the dataset is relevant to the corporate finance and sustainability research. The search was restricted to peer-reviewed journal articles published in the last ten years (2015-2025), in the Business, Management, and Accounting and Econometrics and Finance subject areas. These filters were used to ensure that the final dataset was comprised of high quality scholarly publications that were directly related to the area of research of ESG -firm value.

Table 1: Article inclusion and exclusion criteria

Selection criteria	Exclude	Include
Database: "Scopus" Date of search: "February 14, 2026" Period of publications: 2015-2025 (TITLE-ABS-KEY ["ESG" OR "ESG performance" OR "Environmental Social Governance" OR "Environmental, Social and Governance"] AND TITLE-ABS-KEY ["Firm value" OR "Tobin's Q" OR "Tobins Q"])		720
(TITLE-ABS-KEY ["ESG" OR "ESG performance" OR "Environmental Social Governance" OR "Environmental, Social and Governance"] AND TITLE-ABS-KEY ["Firm value" OR "Tobin's Q" OR "Tobins Q"]) AND PUBYEAR>2014 AND PUBYEAR<2026 AND (LIMIT-TO [SUBJAREA, "BUSI"] OR LIMIT-TO [SUBJAREA, "ECON"] OR LIMIT-TO [SUBJAREA, "ENVI"] OR LIMIT-TO [SUBJAREA, "SOCI"]) AND (LIMIT-TO [DOCTYPE, "ar"])	131	589

2.3. Screening and Selection Process

To guarantee the reliability and transparency of the data, a systematic screening process was undertaken. The study was based on the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) framework (Page et al., 2021) that offers a structured methodology in writing the identification, screening, and selection of relevant studies. There were four stages in the screening process. The first step was to identify the records using Scopus database by means of predefined search query. Second, unnecessary and redundant records were eliminated. Third, inclusion criteria based on the type of publication, the area of subject matter and time were taken. Lastly, the rest of the articles were evaluated based on their relevance to ESGfirm value studies. The last data of 589 articles signifies the corpus to be used in further bibliometric analysis. The PRISMA flow diagram (Figure 1) shows the screening process, the number of records identified, screened, excluded, and included.

2.4. Bibliometric Analysis Techniques

In order to meet the research aims, several bibliometric approaches were utilized in this research. First of all, the publication trend analysis was carried out in order to assess the development pattern in time, thus giving the picture of field development dynamics. Secondly, the citation analysis was performed in order to find the leading scholars, journals, institutions, and countries in terms of their influence on the field development. Citation indicators can be used as substitutes for scholarly impact and can reveal leading players in the field (Donthu et al., 2021). Thirdly, the co-citation analysis was employed in order to find the scientific roots of the field, which include frequent citation together of pairs of publications in this field. This approach enables the researcher to discover theories that underlie research in ESG-firm value research (Small, 1973). The next approach was keyword co-occurrence analysis, the objective of which was to find prominent themes and conceptual clusters. With the help of analyzing relationships between particular keywords and their frequencies in publications, this technique gives an insight into the conceptual structure of the field. Lastly, bibliographic coupling analysis was used to find contemporary research streams in the ESG-firm value research field (Kessler, 1963).

2.5. Bibliometric Tools and Software

The bibliometric analyses were performed through the use of VOSviewer (V1.6.20), a popularly used software application that helps in the creation of bibliometric network maps (van Eck and Waltman, 2010). The software enables the mapping of publication networks on the basis of citation relations, co-citation relations, bibliographic coupling, and keyword co-occurrences. In this study, VOSviewer helped to map the intellectual and thematic structure of research on ESG-firm value. The software uses a clustering algorithm, which is responsible for clustering related elements together according to their relational proximity. In the networks created using the software, the size of nodes denotes the popularity or importance of the element being mapped, while the thickness of links denotes the degree of relation between two nodes.

3. FINDINGS

3.1. Evolution of ESG-Firm Value Research

Figure 2 shows the pattern of time series publications concerning the link between ESG performance and the value of the company during 2015-2025. As seen, there is a steady and continuous rise in academic research on the subject, pointing to the fast growth of the research area in corporate finance and sustainable business.

At the beginning stage (2015-2017), the number of publications was not high because ESG-based financial research was still new at the time. Yet, starting from 2018, the quantity of research work grew considerably, especially since 2019 when it accelerated. It is because sustainable finance started to be institutionalised, regulators increasingly focused on the disclosure of information about ESG activities, and ESG factors gained importance in investment decision-making models.

The growth since 2019 is also associated with the growing availability of ESG data from rating companies, as well as the rising demand of investors for socially responsible investment opportunities. Consequently, ESG research became integral to corporate finance, moving beyond its initial niche status.

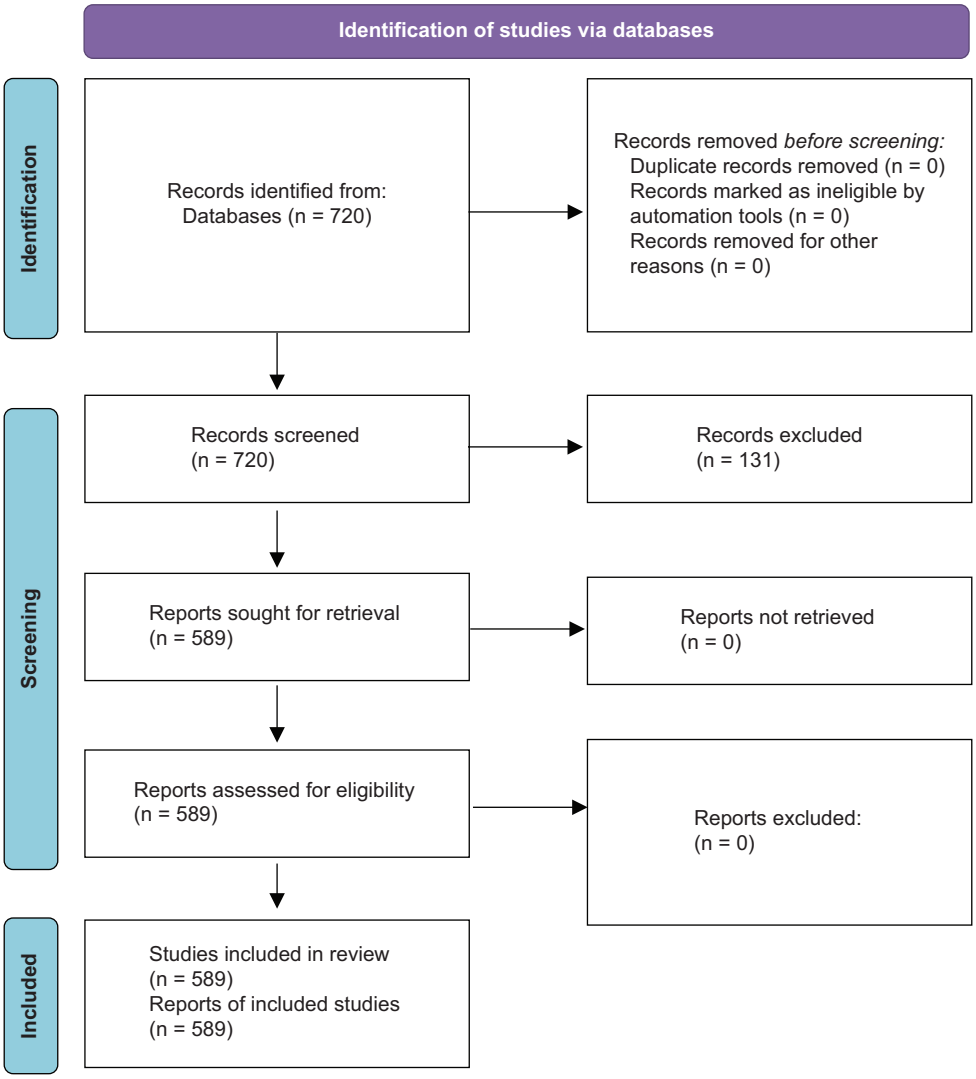
3.2. Influential Authors, Institutions, Countries, and Journals for ESG and Firm Value

In order to evaluate the contributions of authors, institutions, countries, and journals related to the productivity and influence of contributors in the field of ESG-firm value research, a performance study was conducted. The study takes into account the important metrics such as total publications (TP) and total citations (TC).

3.2.1. Influential authors and institutions

In Table 2, one can find the most prominent authors and organizations engaged in the study of ESG-firm value, with reference to TP and TC indicators. These metrics allow for a holistic approach to evaluating research activity and its impact.

Figure 1: PRISMA flow diagram illustrating the article selection process



Source: Adapted from Page et al. (2021).

Figure 2: ESG and firm value publication trend

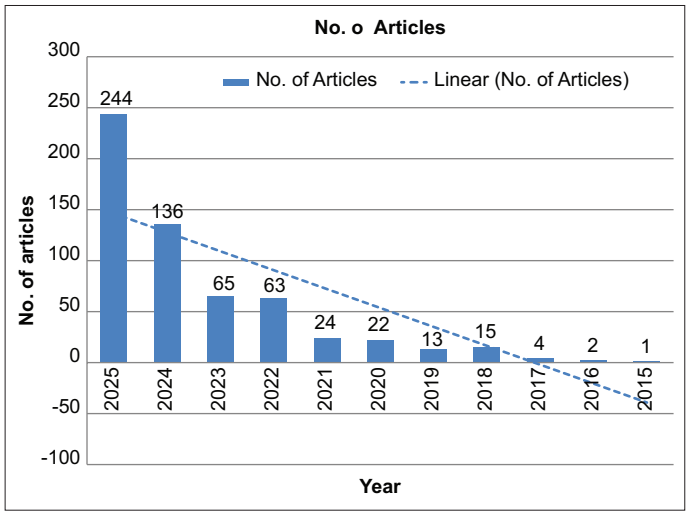


Table 2: Most influential author and institutions

TC	Author	TP	TC	Institution	TP
1538	Buallay, Amina Mohammed	14	1424	Ahlia University	14
169	Karaman, Abdullah S.	4	1596	Brunel University London	12
34	Lee, Jaehong	4	533	Hanyang University	9
428	Lee, Jeong Hwan	4	555	Universiti Teknologi MARA	8
70	Singh, Kuldeep	4	64	Imam Mohammad Ibn Saud Islamic University	7
169	Uyar, Ali	4	182	Universiti Malaya	7
128	Velasco, Pilar	4	135	Symbiosis International (Deemed University)	7
80	Alahdal, Waleed M.	3	400	Kangwon National University	6
40	Alsayegh, Maha Faisal	3	80	Jeonbuk National University	6
172	Bagh, Tanveer	3	111	Zhongnan University of Economics and Law	6

TP: Total publications, TC: Total citations

Based on the results, it becomes apparent that there is a reasonable amount of concentration concerning scholarly output within a specific set of researchers. Among these authors, the most productive is Amina Mohammed Buallay, who produced the largest number of papers (TP = 14) and achieved a significant

level of citations (TC = 1,538), which demonstrates her notable contributions to the field and its development. The relatively high dataset-specific impact of this researcher also proves that her contributions were sustained throughout years. Nevertheless, while looking through the presented data, one can notice significant differences regarding citation efficiency. For example, there are authors, whose citation counts are rather high compared to the number of their papers, which implies that their works had a significant impact on the field.

Institutional analysis results suggest a fragmented knowledge base due to the presence of geographic diversity within the literature on the topic. The leading publication performance belongs to Ahlia University (TP = 14), whereas Brunel University London demonstrates the strongest citation performance (TC = 1,596). This difference implies the presence of different levels of research visibility and high-impact publications within the field under analysis.

In general, the research results reveal that the field of ESG-firm value studies can be considered to have an unstable structure that is formed not by the dominating authors or institutions but through the joint efforts of prolific scholars and highly-cited studies. In other words, the literature on the topic of interest is characterised by its interdisciplinary nature.

3.2.2. Country-level contributions

Country contribution towards ESG-firm value studies are discussed in Table 3 and shown graphically in Figure 3 below. According to these data, China is the country with the largest number of publications (110 TP) followed by India (63 TP), South Korea (58 TP), the US (53 TP), and the UK (48 TP). It should be noted that the majority of countries contributing to the body of knowledge in ESG-firm value research belong to Asian economies due to the rise in significance of ESG issues and sustainable development among emerging economies where regulatory environment and sustainability measures are gaining a lot of attention in the modern world. In particular, the leadership of China can be explained by effective governmental support of sustainability reporting along with growing academic interest to ESG factors. Simultaneously, the involvement of developed countries such as the US and the UK in ESG-firm value researches shows the important role played by well-developed financial sectors in the development of the body of knowledge related to ESG issues. In summary, it can be noted that the studies on the relationship between ESGs and firm value are widely dispersed geographically, with more contributions from developing countries. Geographical diversification helps improve the applicability of the literature to different environments around the world.

Table 3: Global distribution of publications in ESG-firm value research (2015-2025)

Country/Territory	
China	110
India	63
South Korea	58
United States	53
United Kingdom	48
Indonesia	45
Malaysia	44
Saudi Arabia	26
Spain	24
France	23
Turkey	21
Australia	20

To improve visualization clarity, only countries with at least 20 publications were included in the country-level mapping.

3.2.3. Most influential journals

Journal productivity rankings can be seen in Table 4, which includes the most productive sources in terms of TP, TC, and AC per publication. Based on the table, it could be noted that Sustainability (Switzerland) has the greatest number of publications, reaching 65, which amounts to 11% of the total number of publications in the dataset. Productivity is not necessarily equal to scholarly contribution, as demonstrated by the Business Strategy and the Environment journal, which shows the greatest citation intensity, with 95 citations on average per paper. It also means that it is the source demonstrating the greatest influence on its field of studies and providing publications of the highest quality possible. Similarly, finance research letters ranks among the top sources according to average citation count, thus reflecting the increasing interest in the inclusion of ESG into mainstream finance studies. Another important journal in the field of sustainability is the corporate social responsibility and environmental management. Thus, ESG-firm value research involves both sustainability-oriented and finance-oriented sources, thereby proving that it is interdisciplinary. Most importantly, a great proportion of sources is Q1-ranked. This trend reflects the growing recognition of ESG as a critical factor in corporate valuation and financial decision-making.

3.3. Collaboration Structure: Co-Authorship Network Analysis

The collaboration network for ESG-firm value research is provided in Figure 4, where insights into the cooperation process are revealed through co-authorship relationships among scientists. Co-authorship analysis demonstrates the structure of collaborative research relationships and represents a mechanism of knowledge creation and diffusion in a certain field of science.

For making the analysis relevant, the minimum criterion of three publications per author has been set. Out of 1,519 researchers, only 28 have passed the criterion and were involved in creating the network. Hence, there is a very limited group of people, whose collaborations have been observed, which implies the low level of repeated collaborations among prolific scientists. The network obtained demonstrates a high fragmentation of the collaboration process. There are numerous clusters of researchers along with many individual authors. The biggest component consists of three authors, which shows the absence of a significant group of cooperating specialists in this field of science. Some clusters can be seen among researchers. One dyad can be mentioned between Abdullah S. Karaman and Ali Uyar, which demonstrates a stable partnership of researchers. Also, a cluster of researchers consists of Jaehong Lee, Suyon Kim, and Eunsoo Kim. A similar observation is seen in the collaboration network between Amina Mohammed Buallay and Jasim Yusuf Al-Ajmi as well as between Amina

Figure 3: Top countries

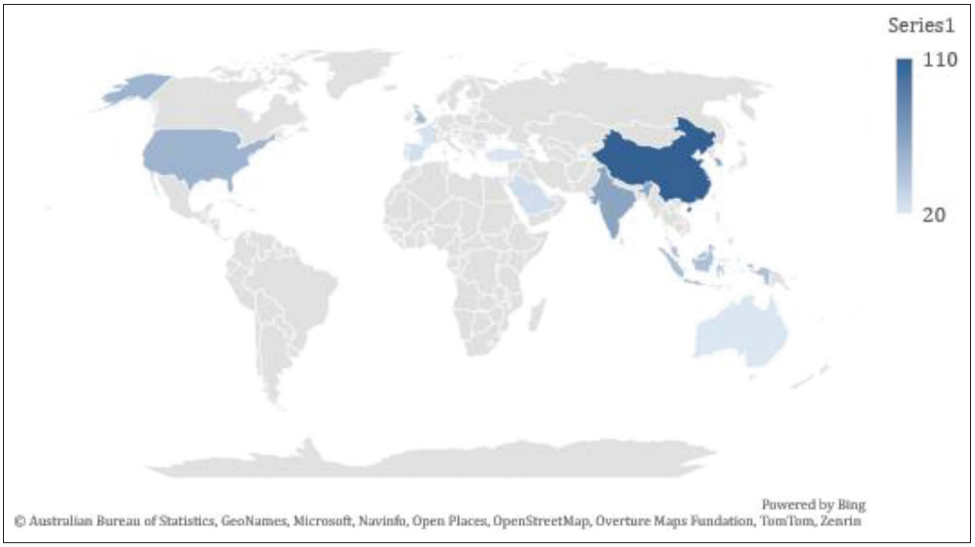


Table 4: Most influential journals

#	Journal	TP	TC	Average citations per paper	CiteScore 2025	Quartile - percentile	Subject category	Share of publications (%)
1	Sustainability (Switzerland)	65	2245	35	8.7	Q1-90th	Social science - Geography, Planning and Development	11.0
2	Corporate social responsibility and environmental management	21	482	23	14.2	Q1-93rd	Business, Management and Accounting - Strategy and Management	3.6
3	Journal of risk and financial management	17	199	12	5.2	Q1-77th business and 76th Finance	Business, Management and Accounting - Business, Management and Accounting (miscellaneous) Economics, Econometrics and Finance - Finance	2.9
4	Business strategy and the environment	14	1324	95	23.4	Q1-99th	Business, Management and Accounting - Business and International Management	2.4
5	Applied economics	12	145	12	4.3	Q2-68th	Economics, Econometrics and Finance - Economics and Econometrics	2.0
6	Finance research letters	11	679	62	9.9	Q1-94th	Economics, Econometrics and Finance - Finance	1.9

Mohammed Buallay and Allam Mohammed Mousa Hamdan, implying some form of regional collaboration trends within the academic environment of the Middle East. Despite these collaborations, there are some productive authors who remain unconnected to others, namely Pilar Velasco, Lee Jeong Hwan, and Maha Faisal Alsayegh, suggesting the existence of a lack of recurrent collaborations among some authors. As such, one can imply that the vast majority of scientific literature is produced not by means of ongoing cooperation but rather by individual or small group effort. This is further supported by the relatively low level of network density. This can be explained by the multidisciplinary character of ESG studies, which include multiple disciplines such as finances, management, and sustainability, as well as regional variation in regulatory frameworks and the prevalence of country-level case studies.

In sum, the results show that although the number of articles in this field grows rapidly, there is still a considerable lack of scholarly collaborations.

3.4. Intellectual Foundations: Author Co-Citation Analysis

The author co-citation network is illustrated in Figure 5. ACA analyzes the co-citation frequency of each pair of authors to reveal theoretical tradition and important authors that have influenced the field under investigation. A minimum of 20 citations per author was selected for the analysis as a cut-off point to make results more stable. In total, out of the full sample of authors, there are 13 authors that reached this citation criterion and were analyzed. As can be seen, the small size of authors included into the network shows that the theoretical foundation of ESG-firm value literature is based on a small group of authors. These groups include several conceptually different groups corresponding to important perspectives. First, the group of authors is related to financial economics and firm valuation studies, which illustrates a significant impact of mainstream finance literature on the development of ESG-firm value studies. This group of authors is highly co-cited in literature dealing with the consequences of ESG performance on the company's valuation, risk, and behavior

Figure 4: Co-authorship network

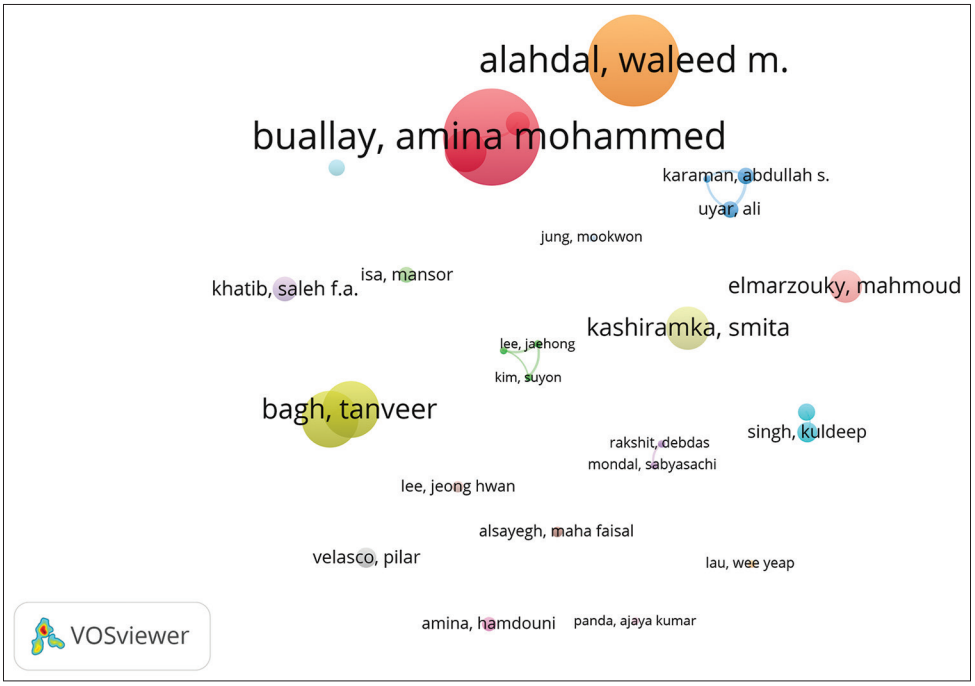
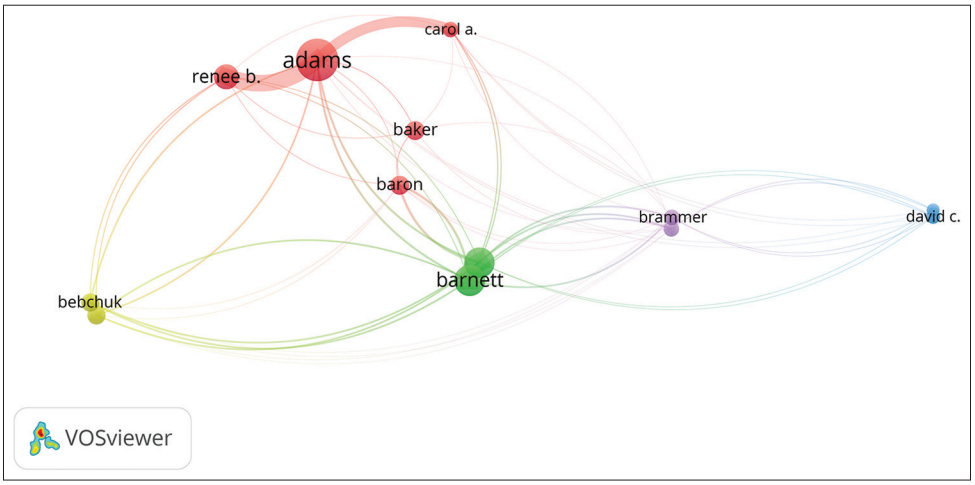


Figure 5: Author co-citation network



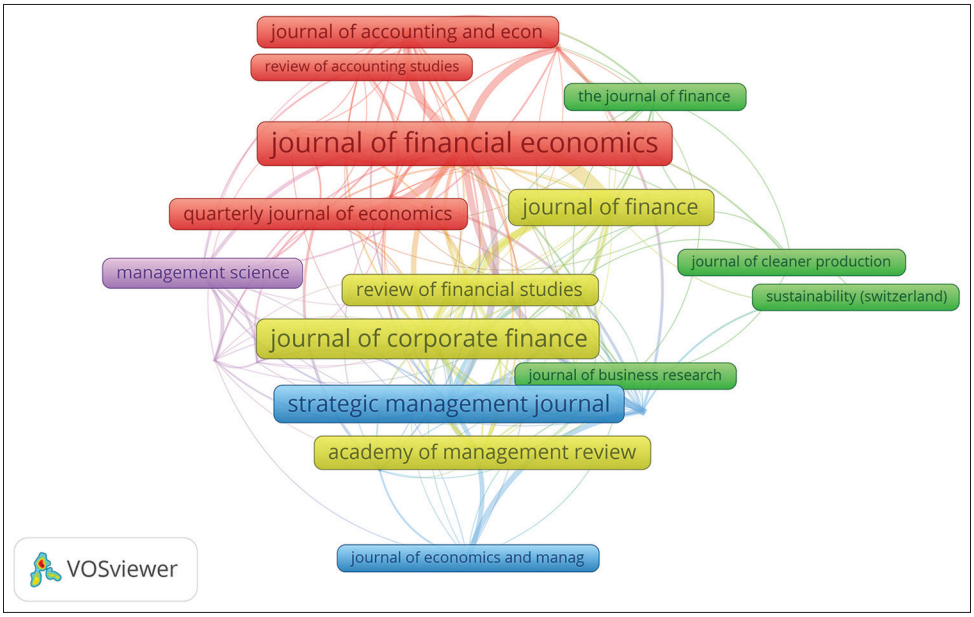
of investors. In such a case, ESG disclosure can be considered as an avenue for reducing information asymmetry and addressing agency issues that arise between the manager and the investor. Thirdly, the third cluster represents stakeholder theory and strategic management perspectives, in which ESG activities are seen as strategic investments, which result in building corporate reputation and legitimacy, and hence increasing the value of the company in the long-run. This perspective emphasizes the need for stakeholder involvement in affecting the value of a firm. Fourthly, there is another cluster, which relates to studies in sustainability reporting and disclosure.

This includes studies that look at the issue of information transparency, reporting on the environment and information quality. The presence of all these clusters shows that the research on ESG-firm value is theoretically grounded in financial economics but has expanded to include interdisciplinary approaches from areas such as governance and sustainability.

3.5. Intellectual Core of Journals: Source Co-Citation Analysis

Figure 6 shows the source co-citation network that pinpoints the core journals influencing the intellectual structure of ESG-firm value studies. Source co-citation analysis focuses on identifying the frequency of citation of journals, thus uncovering the base knowledge and disciplines in the research area. In order to make the analysis relevant, only those sources that are cited at least 10 times were used, thus generating a network of 25 journals. The small number of sources suggests a tightly focused intellectual structure where some very important journals play the dominant role in influencing the research area. The network possesses a core-periphery structure, with the center containing the most important

Figure 6: Source co-citation analysis



financial economics journals such as the Journal of Finance, Journal of Financial Economics, and Review of Financial Studies. The nodes corresponding to these journals have the largest size, while the connection strength is also large, indicating the high frequency of co-citations and the centrality of these journals in contributing to the theoretical basis of ESG-firm value research. A second cluster comprises journals from corporate finance and strategic management, such as the Journal of Corporate Finance, Strategic Management Journal, and Academy of Management Review. These journals occupy an intermediate position within the network, bridging core financial theories with broader organisational and governance perspectives. This cluster highlights the integration of ESG considerations into corporate strategy and governance research. The third group includes the journals focused on sustainability, such as Corporate Social Responsibility and Environmental Management, Journal of Cleaner Production, and Sustainability (Switzerland). They have a peripheral position in the network in comparison with finance journals; however, they make considerable contributions to the publication volume. The peripheral position implies that they complement the core of the intellectual network but do not constitute it. Moreover, there are journals that provide bridges between the clusters, such as the Journal of Business Research and Review of Financial Studies. Such journals facilitate information integration between finance, management, and sustainability fields. The existence of connecting journals evidences the interdisciplinary character of the research area. In general, the source co-citation pattern demonstrates that the core of ESG-firm value research is intellectually located in financial economics, yet it becomes supplemented by the knowledge from strategic management and sustainability studies.

3.6. Thematic Structure: Keyword Co-Occurrence Analysis

Figure 7 shows the keyword co-occurrence network, whereas Table 5 provides the summary of the thematic clusters, key variables, and future research opportunities that have been found in the literature on ESG-firm value. Keyword co-occurrence analysis allows for identifying the conceptual structure of research areas by analysing the frequency and patterns of co-occurrence of author keywords. In order to achieve conceptual accuracy, author keywords were utilised as the units of analysis. A thesaurus file was applied in VOSviewer to group synonymous concepts together. The minimum occurrence criterion was established at five, which led to the identification of 41 keywords in the network from 1,304 total terms. Such an approach ensures that only those concepts will be analysed that are relevant to the research area. Five thematic clusters have been identified through the analysis of keyword co-occurrence, representing the conceptual framework of the research area. The first cluster revolves around the ESG-firm value relationship and includes concepts like ESG performance, firm value, financial performance, and Tobin's Q. The significance of this cluster underscores the fact that the main emphasis in the literature is on understanding the effect of ESG practices on the outcome of corporate valuation. This is further underscored by the central location and size of the nodes representing these keywords in Figure 7. The second cluster revolves around the issue of corporate governance, such as the use of board diversity, ownership, and institutional investors. The cluster demonstrates an emerging trend in literature on the examination of governance as a vital moderating variable in the efficacy of ESG strategy. The inclusion of keywords related to governance implies an emerging recognition of the importance of internal organizational structure in the ESG-value nexus. Another cluster focuses on sustainable finance and capital market approach, with keywords like cost of capital, capital structure, and investment efficiency. This shows the emergence of finance-based analysis on how ESG performance can affect financial decisions and market outcomes. Cluster four centres on sustainability disclosure and reporting, encompassing CSR reporting, ESG disclosure, and transparency. Research under this cluster highlights information quality and disclosure credibility as key determinants of information asymmetry and investor perceptions. Keyword positioning demonstrates that these keywords serve as a crucial facilitating mechanism connecting ESG performance with firm value. Cluster five addresses ESG

Figure 7: Keyword co-occurrence network

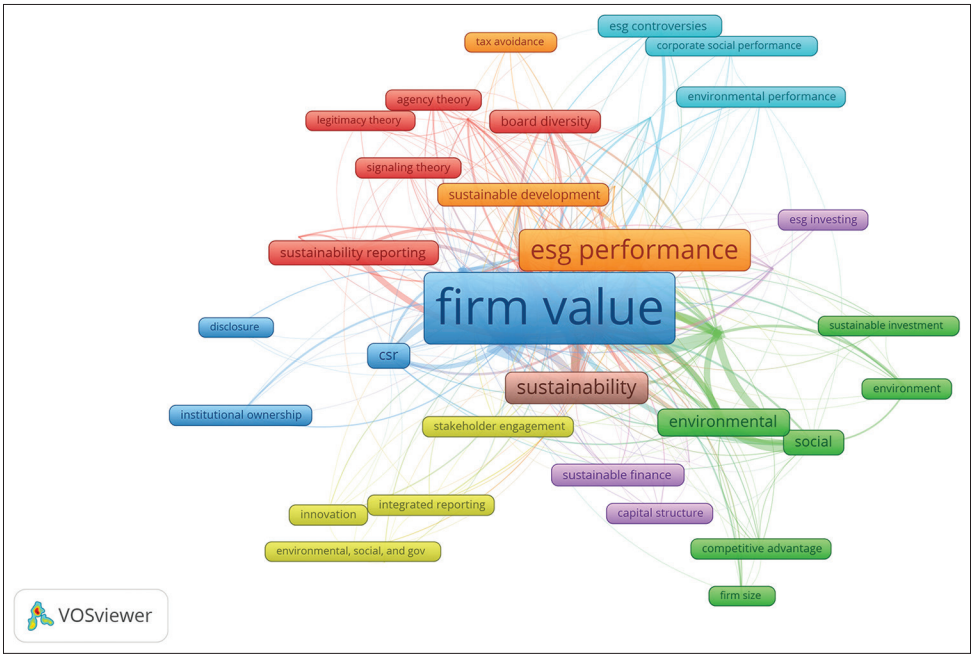


Table 5: Keyword co-occurrence network summary table

Cluster	Main topics	Key variables	Future research opportunities
ESG performance and firm value	ESG scores, Tobin's Q, financial performance	ESG rating, market valuation	Explore causal mechanisms linking ESG and firm value
Corporate governance and ESG	Board diversity, ownership structure, institutional investors	Governance quality, board composition	Investigate governance as moderator in ESG-value relationship
Sustainability disclosure	CSR reporting, ESG disclosure, transparency	Sustainability reporting quality	Examine disclosure credibility and investor response
Financial implications of ESG	Cost of capital, financing constraints, investment efficiency	Risk, capital market reaction	Analyse ESG impact on financial decision-making

performance outcomes, encompassing the topics of environmental performance, corporate social performance, and green innovation. This cluster is focused on the practical and result-oriented dimension of ESG research that concentrates on the translation of sustainability efforts into performance outcomes. Taken together, identified clusters show that ESG-firm value research became a multidisciplinary and multi-dimensional sphere that encompasses aspects of corporate finance, governance, sustainability reporting, and environmental performance. Increasing conceptual connections revealed in Figure 7 show that ESG research is shifting towards the concept of convergence, wherein ESG performance is no longer researched in a vacuum but rather in connection with multiple interlinking mechanisms. Finally, Table 5 reveals promising directions for future research in the area, including causal mechanisms, moderating effect of governance mechanisms, and influence of ESG on financial decisions. These trends imply a movement towards a more theoretical approach and greater empirical rigor in research design. In summary, the keyword co-occurrence analysis provides evidence supporting the maturity of ESG-firm value research, as defined by conceptualization and emerging research frontiers.

3.7. Emerging Research Themes: Overlay Visualization

Figure 8 depicts the overlay visualization for the keyword co-occurrence network, depicting the temporal development of research topics within the ESG-firm value literature review. The overlay visualization method employs colour schemes for each keyword depending on its average year of publication, allowing one to distinguish emerging and declining research areas. Under the current illustration, older research areas are coloured with cooler shades (blue), while newer areas are shaded with warmer tones (yellow). The visualization indicates a significant shift in the development of the research topics concerning ESG-firm value. Older research topics are depicted by keywords using the blue shade, such as corporate social responsibility (CSR), sustainability reporting, disclosure, and stakeholder engagement. The topics highlight corporate transparency, ethical responsibility, and stakeholder-oriented perspective, which is aligned with the initial stages of ESG literature under sustainability and corporate governance contexts. On the other hand, newer research topics are illustrated by the yellow and green-coloured keywords, signifying a change in the research area towards financial-oriented and mechanism-based approach. Keywords such as cost of capital, board diversity, institutional ownership, corporate governance, and financial performance are depicted as relatively newer topics. This change implies that the literature has moved from simple descriptions and disclosure-based analysis to more complex examinations of how the implementation of ESG practices affects firm value via certain finance-related and governance-related pathways. The appearance of concepts such as ESG controversy,

corporate sustainability, and emerging markets can be interpreted as an extension of the research scope. The fact that researchers have begun focusing on the risk involved in implementing ESG strategies and differences in institutional settings reflects a more complex and critically-minded approach in the existing literature as opposed to previous assumptions about positive effects of ESG practices. It should be noted, however, that firm value and ESG performance remain highly central to the literature, indicating the persistent relevance of these concepts for the existing research and positioning them as primary concerns of the field. The increased number of links related to financial and governance-related keywords shows that the conceptualization process and development of the theory is becoming more sophisticated in the studied area. Therefore, the visualization clearly proves that the field of research in question is evolving from rather elementary sustainability-related and disclosure-related research to more complex finance-oriented investigations.

3.8. Bibliographic Coupling Analysis

Figure 9 shows the network of bibliographic coupling, which can be used to find current streams of research in the ESG-firm value field. As the measure of bibliographic coupling shows how much two documents have been cited in common, this method helps to determine groups of papers that use the same ideas. Unlike the co-citation measure, the latter one is based on historical relations among publications in a particular scientific field, bibliographic coupling reflects its current development trends. In order to focus on those streams of research that have the highest impact, the following minimal number of citations was determined - 70. Based on this criterion, 79 papers were selected, from which the largest connected group containing 75 documents was chosen for further analysis. The network consists of several clusters, each of which corresponds to a particular stream of research that uses similar theoretical and empirical approaches. A prominent cluster of research focuses on the association between ESG performance

Figure 8: Overlay visualization (keyword co-occurrence)

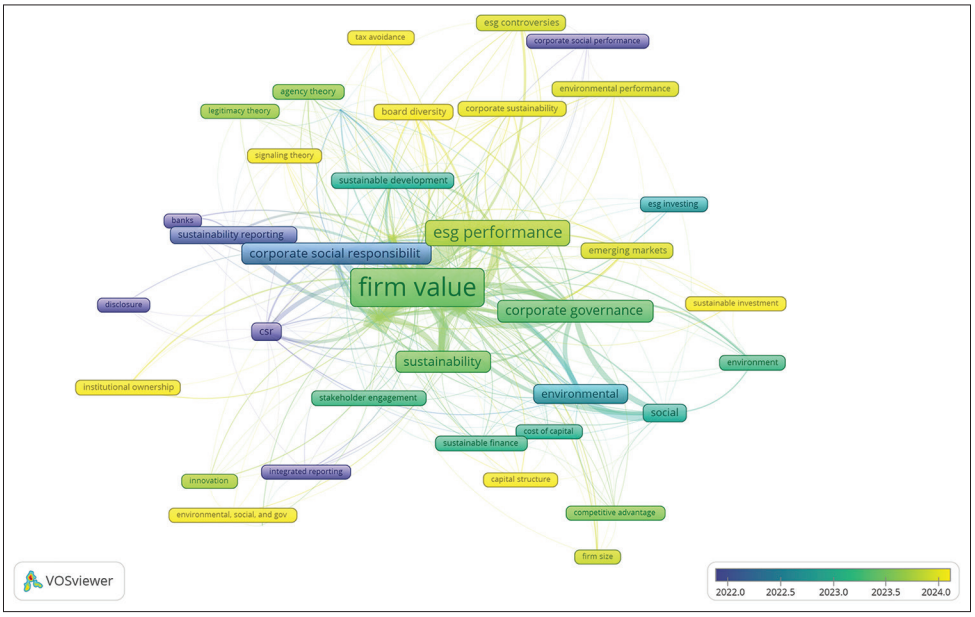
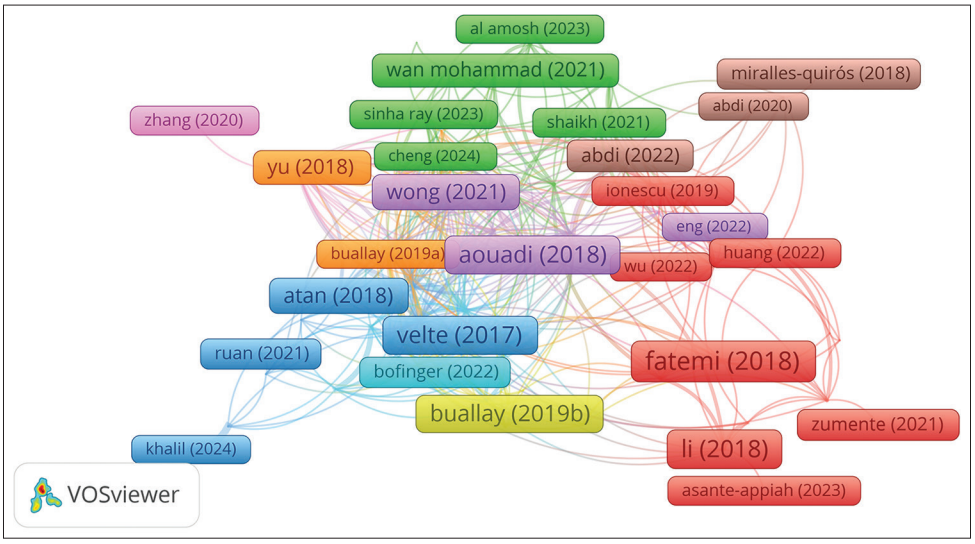


Figure 9: Bibliographic coupling (documents)



and financial consequences for firms, such as their valuation, return on investment, and profitability. Research papers within this cluster represent the foundation of modern ESG studies, as they explore the direct effect of sustainable practices on indicators of firm value, such as Tobin's Q. The second cluster is dedicated to corporate governance techniques, covering topics such as board composition, ownership structure, and monitoring institutions. This research trend is linked to the increased awareness among researchers that good governance can act as an important moderator that affects the efficiency of ESG practices. Furthermore, one of the most significant research clusters is concerned with sustainability disclosures and transparency, as it explores the influence of ESG disclosure practices on investors' perceptions and information asymmetries, as well as corporate reputations. This stream expands the scope of the core literature on ESG-firm value relationships, as it sheds light on the information channels that link ESG practices and indicators of firm value. Besides, emerging clusters show growing interest from scholars in financial mechanisms, such as the cost of capital, financial constraints, and capital markets' reaction to ESG practices. Furthermore, based on the visual structure presented in Figure 9, it can be observed that some significant studies, such as those by Fatemi et al. (2018), Velte (2017), and Aouadi and Marsat (2018), serve as pivotal nodes connecting different clusters of studies. Such studies act as bridges, enabling the combination of different research streams within the field. Overall, it can be concluded that the analysis of bibliographic coupling indicates that the field of ESG-firm value research continues evolving in a diversified and consolidated way. Although different research streams keep arising within the field, the rising connectivity between clusters signals the ongoing trend towards consolidation.

4. DISCUSSION

This study offers a systematic review of ESG-firm value research by synthesizing bibliometric data regarding publication trends, theoretical underpinning, collaborative structure, and thematic evolution. Instead of summarizing each piece of evidence, this section discusses the outcomes to illustrate the development of the field, prevailing theoretical orientations, and shifting research priorities.

The evidence suggests that ESG-firm value research has progressed from a nascent research area to an emergent research domain characterized by rapid expansion and consolidation since 2019. Such dynamics mirror the larger trends in global financial markets, in which sustainability considerations play a pivotal role in investment decision-making and corporate governance (Flammer, 2015). The growing prevalence of ESG reporting standards, rising regulatory pressures, and increasing demands among investors for sustainable investments have fueled the emergence and proliferation of ESG-firm value research (Friede et al., 2015; Gillan et al., 2021). Thematic evolution demonstrates that researchers have shifted their focus from descriptive studies aimed at investigating and explaining the practice of disclosure to sophisticated empirical analyses that seek to examine financial implications. While earlier studies focused on issues of corporate social responsibility, sustainability disclosure, and stakeholder involvement, later studies have increasingly concentrated on financial variables such as cost of capital, investment efficiency, and stock market response. This shows the evolution of the field of study and its adoption of ESG factors into corporate finance theory.

The results from the co-citation analysis show that ESG-firm value research is based on an interdisciplinary intellectual structure that incorporates financial economics, agency theory, and stakeholder theory. Financial economics forms the key analytical foundation that explains how ESG performance impacts firm value via risk, return, and asymmetric information. Agency theory complements this by explaining how governance structures impact the credibility and effectiveness of ESG practices (Shleifer and Vishny, 1997). Good governance can resolve agency problems and improve transparency, thus improving the linkage between ESG performance and firm value. On the other hand, poor governance allows companies to indulge in cosmetic ESG activities that fail to deliver economic gains (Dhaliwal et al., 2011). The stakeholder theory is another perspective that adds the dimension of stakeholder interaction to these theories as a means for value creation. Indeed, ESG-related programs might have positive implications for reputational gains, legitimization, and stakeholder trust, all of which are important determinants of superior financial performance (Eccles et al., 2014). Thus, the discussion of ESG and firm value relationships benefits from the use of these three theoretical perspectives due to the complex nature of value creation processes. Roslan et al. (2025) provide related evidence from Malaysia's ACE Market, showing that associations between governance mechanisms and firm performance vary across governance attributes and performance measures.

Undoubtedly, one of the key conclusions to be drawn from this paper is the move from a disclosure-oriented approach to studying ESG performance to the focus on underlying financial mechanisms of its influence on the value created by firms. As it was noted by Gillan et al. (2021), the first works on ESG examined issues of sustainable reporting and corporate transparency due to the relevance of information asymmetries and voluntary disclosure to ESG activities (Dhaliwal et al., 2011). However, later works paid attention to the ways through which ESG impacts firm value using certain financial mechanisms such as costs of capital, financing constraints, and capital markets behavior (Khan et al., 2016). This evolution becomes important to further the understanding of ESG research by developing a theoretical base and methodology rather than merely describing associations. In the related reporting literature, Abeywardana et al. (2023) find that prior sustainability reporting experience and internal organisational processes facilitate the adoption of integrated reporting among Sri Lankan listed companies.

Although a significant growth of ESG-firm value research has been observed, the results of the study suggest that there exists a fragmented collaboration pattern characterized by small research clusters and lack of large-scale international collaboration within the field. Thus, ESG research is at its developmental stage, where knowledge production occurs mostly through individual authors and small research groups. Such fragmentation can be explained by the interdisciplinary nature of the research and context-related

specifics of empirical analysis, which involves country and industry-specific cases. Although such variety adds to the richness of the field, it might not contribute to theoretical development. Larger collaboration would help to foster knowledge flow and methodological uniformity.

The study shows that ESG-firm value research has gone through a structural transformation into a finance-oriented framework with integrated themes and theoretical approaches. On the other hand, the existence of multiple research lines implies that the field is dynamic, with new topics like ESG risks, governance dynamics, and transmission mechanisms becoming increasingly important. This ongoing evolution emphasizes the importance of future research that integrates theory and delves into the relationship between sustainability activities and financial performance.

5. RESEARCH GAPS AND FUTURE RESEARCH DIRECTIONS

Based on the results from the bibliometric synthesis, this section will discuss some gaps that emerge from the thematic clusters, overlay visualization, and bibliographic coupling pattern obtained from this review.

Although there is substantial empirical support for the effect of ESG performance on firm value, how these factors affect each other is not well-understood. Although emerging themes like the cost of capital and financial constraints are gaining importance in recent times, they remain largely marginal in the overall conceptual framework. Future studies must address how the effect of ESG factors on firm value takes place by considering several mediating mechanisms.

While governance is a distinct theme obtained from the keywords, its inclusion in the overall conceptual structure of ESG-firm value framework remains limited. This factor is usually studied in isolation and not as a part of ESG performance. Therefore, future research should consider governance as a mediating or moderating mechanism in the context of board structure and institutional investor involvement. Roslan et al. (2024), for example, find no statistically significant relationship between female board representation and return on equity in their ACE Market sample, indicating that governance attributes should not be assumed to produce uniform performance benefits.

Most of the existing studies focus on the positive aspects of ESG engagement while ESG controversies and downside risks are understudied (Krüger, 2015). The presence of ESG controversies in the keyword list is a reflection of this gap in literature. For future research to be effective, it is important that a dual strategy be followed and the effects of positive ESG developments as well as negative sustainability incidents be studied, focusing on their influence on corporate value and the behavior of investors.

The use of composite ESG scores for research purposes can make it difficult to assess the independent impacts of the three main components of ESG. It is imperative for future researchers to study the impacts of the three aspects individually or together to find out how each affects business value. For example, Guo et al. (2024) report positive associations between both aggregate ESG performance and its individual dimensions and financial performance among Chinese A-share listed companies.

The geography of ESG studies is skewed towards countries in developed parts of the world. Developing economies receive insufficient attention even though their role in discussions concerning global sustainability is increasing by the day. Future research must ensure that more emphasis is placed on cross-country comparisons.

Two other issues that must be addressed are those of endogeneity and inconsistencies in ESG rating systems across different databases. In addition, studies on ESG need to rely on sophisticated econometric methods such as quasi-experiments and difference-in-difference methods.

6. CONCLUSION

This study is the first bibliometric review that gives an exhaustive analysis of the ESG-firm value topic, which includes 589 articles published from 2015 to 2025. Integrating the elements of performance evaluation with the methodology of science mapping helps to give a systematic description of the development of the field under consideration. It can be concluded that ESG-firm value research has become a quickly developing and multifaceted area. In particular, while at the beginning of the period under discussion, researchers were mainly interested in the issues related to sustainability disclosure and corporate social responsibility, now the emphasis is gradually shifting towards the examination of the relationship between the economic performance associated with the ESG factor and firm value.

Theoretical contribution of the paper comes from the integration of three main streams within the ESG-firm value topic - financial economics, stakeholder theory, and governance approach. Methodological contribution is seen in applying a novel technique of combining performance analysis with the tools used for science mapping in order to give a systemic view on the development of the ESG-firm value topic. Companies that successfully embed sustainability strategies could create additional value in the long run, whereas investors and policymakers would be able to gauge risks and company performance through the help of ESG metrics. While this study offers some advantages, there are several limitations that should be addressed in further researches, such as using only one database and restrictions posed by bibliometric techniques. The use of different databases and the combination of bibliometrics and systematic review/meta-analysis can eliminate the mentioned disadvantages. This article proves that studies in ESG-firm value area move towards integration.

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