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Sustainable Finance and ESG Investment: A Global Bibliometric Review of Research Trends and Policy Implications

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ABSTRACT

This study conducts a global bibliometric review of research on sustainable finance and ESG investment using data from the Scopus database for the period 2000–2025. Descriptive indicators and science-mapping techniques—co-authorship, co-citation, and keyword co-occurrence analyses—were applied through VOSviewer and Bibliometrix. The results show that "sustainable development," "ESG," "sustainable finance," "finance," and "investments" constitute the main intellectual core of the field, with strong emphasis on the ESG–financial performance nexus. Density and overlay maps highlight emerging research fronts on green bonds, green innovation, climate change, fintech, and artificial intelligence. Author, institutional, and country networks reveal highly internationalized collaboration patterns, with China, the United States, and several European and Asian countries acting as key hubs. The study offers practical insights for investors and policymakers seeking to align capital allocation with sustainability goals and provides a roadmap for future research on technology-enabled ESG analytics, transition finance, and the experiences of developing economies.

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1. INTRODUCTION

In the last 20 years, global financial markets have started to take sustainability into account when making investment decisions. This is because environmental concerns, social inequality, and governance failures have become more obvious [1]. People are starting to expect that financial systems will help fight climate change and support fair development. This is why Environmental, Social, and Governance (ESG) standards are becoming mor e popular. These changes fit well with global goals like the Paris Agreement and the UN Sustainable Development Goals [2]. which stress the importance of financial actors in getting money for long-lasting changes. As a result, ESG investment has gone from being a small niche to a global trend that affects investor s, businesses, and regulators [3].

The growth of sustainable finance has also sparked a lot of interest in academics from fields like finance, accounting, environmental economics, and public policy. Studies have inv estigated the impact of ESG performance on financial returns [4], the effect of sustainability disclosures on business valuation and

transparency [5], and the role of legislative frameworks on market adoption [6]. The numerous aspects of ESG—encompassing environmental performance, social responsib ility, and governance frameworks—have furth er encouraged interdisciplinary collaboration and methodological diversification. Consequently, the corpus of literature on su stainable finance has expanded swiftly, necess itating a thorough delineation of its intellectual framework.

At the same time, global legislative frameworks have sped up the process of making sustainability-oriented financial systems more common. The EU Taxonomy, the Task Force on Climate-related Financial Disclosures (TCFD), and the International Sustainability Standards Board (ISSB) are all examples of regulatory efforts that have changed how companies report and how investors make decisions [7]–[9] These frameworks show that the world is committed to making things more open, reducing clima te-related financial risks, and promoting sustainable capital flows. Scholars have r esponded by examining the impact of such fra meworks on investing behavior, company strat egy, and market stability [10]. thereby enhancing the field and underscoring the policy significance of ESG research.

Technological progress has also been a big part of how sustainable finance research ha s changed over time. Big data analytics, machine learning, and artificial intelligence have made it easier to monitor ESG performance and model complex sustainability-related financial risks [11]. Researchers can use these tools to work with big datasets from climate databases, social media, and sustainability disclosures. This lets them do more thorough and predictive analysis. Consequently, contemporary ESG studies are progressively integrating quantitative mode ling, text mining, network analysis, and pred ictive analytics, indicating a transition towards data-driven evidence in sustainable finance research.

Because the literature is growing quic kly and in many different ways, a rigorous bibliometric assessment is needed to chart the field's intellectual path. Bibliometric techniques facilitate the identification of significant public ations, authors, institutions, and theme clusters, while also illustrating the temporal evolution of the research landscape [12].They also let you see collaborative networks and intellectual links, which can help you find new study areas and gaps. A bibliometric review can help us understand how ESG investment research is structured, how it has changed over time, and how it relates to policy at the global level as sustainable finance becomes more important to global economic governance.

The literature on sustainable finance and ESG investing is growing quickly, but it is still spread out across many fields, regions, and ways of doing things. There are conceptual d ifficulties since there are different definitions of ESG, inconsistent disclosure standards, and different regulatory environments [13]. Many existing evaluations only look at certain subtop ics, such green bonds, climate finance, or ESG-financial performance. They don't put together a full picture of global trends, intellectual structures, and policy consequences. Additionally, no current bibliometric analysis reflects the evolution of ESG scholarship in reaction to significant regulatory changes such as SFDR, TCFD, and ISSB. This gap highlights the necessity for a comprehensive global bib liometric evaluation to furnish evidence-based insights for scholars, policymakers, and practitioners.

The goal of this study is to do a full bib liometric analysis of research around the world on sustainable finance and ESG investment. In particular, it aims to (1) examine publication t rends, citation patterns, and primary sources; (2) pinpoint significant authors, institutions, and nations; (3) delineate the intellectual struct ure via co-citation, co-authorship, and keyword co-occurrence networks; (4) reveal principal thematic clusters and their development over time; and (5) connect bibliometric data to evolv ing global policy frameworks. The report offers a comprehensive overview of

scientific advancement, conceptual evolution, and policy ramifications in sustainable finance and ESG investment through these objectives.

2. METHOD

This study utilized a quantitative bibliometric methodology to thoroughly analyze the global research environment concerning sustainable finance and ESG investment. Bibliometric analysis is a well-known and objective way to find research trends, map scientific knowledge, and find intellectual structures in a topic [12]. The Scopus database was chosen as the main source of data because it has a lot of information, good standards for indexing, and a lot of articles from many fields that are useful for finance, economics, business, and sustainability studies [14]. A systematic search strategy was establi shed utilizing combinations of keywords like "sustainable finance," "ESG investment," "responsible investment," "environmental social governance," and "green finance." The search was limited to papers from 2000 to 2025 to document the progression of sus tainable finance research in contemporary time s. To keep the academic rigor, only peer-reviewed journal articles, reviews, and conference papers written in English were included. Book chapters, editorials, and non-scholarly things were not.

After getting the first dataset, a number of steps were taken to screen and clean it. We got rid of duplicate entries and then looked at the remaining records by reading the titles, abstracts, and keywords of the authors to make sure they were relevant to sustainable finance and ESG investment. Bibliographic information, such as authors, affiliations, year of publication, source title, citations, abstracts, and indexed keywords, was exported for additional examination. A normalization process was performed to rectify discrepancies in author names, institutional differences, and keyword wording (e.g., ESG vs. environmental-social-governance), which is crucial for preventing interpretive bias in network analysis [15]. After the dataset was finished, it was utilized to produce descriptive metrics such yearly publishing trends, citation performance, top journals, prolific authors, and the geographic distribution of research output.

We used VOSviewer [16]and the Bibliometrix R package [17]. to show the conceptual, intellectual, and social structures in the field. Co-authorship analysis was conducted to delineate collaborative networks among academics, institutions, and nations, and to comprehend the global distribution of scholarly activity. Co-citation analysis was employed to uncover the intellectual roots of the discipline by identifying documents and writers that are frequently mentioned in conjunction, thereby uncovering underlying theoretical connections. Keyword co-occurrence analysis made it possible to find the most important themes, groups of themes, and new areas of research. We made network maps, density diagrams, and temporal evolution plots as visualization outputs to show how concepts have changed and how themes have changed over time. This methodological approach offers a thorough, evidence-based summary of research trends and policy-relevant insights in sustainable finance and ESG investment.

3. RESULT AND DISCUSSIONS

3.1 Network Visualization

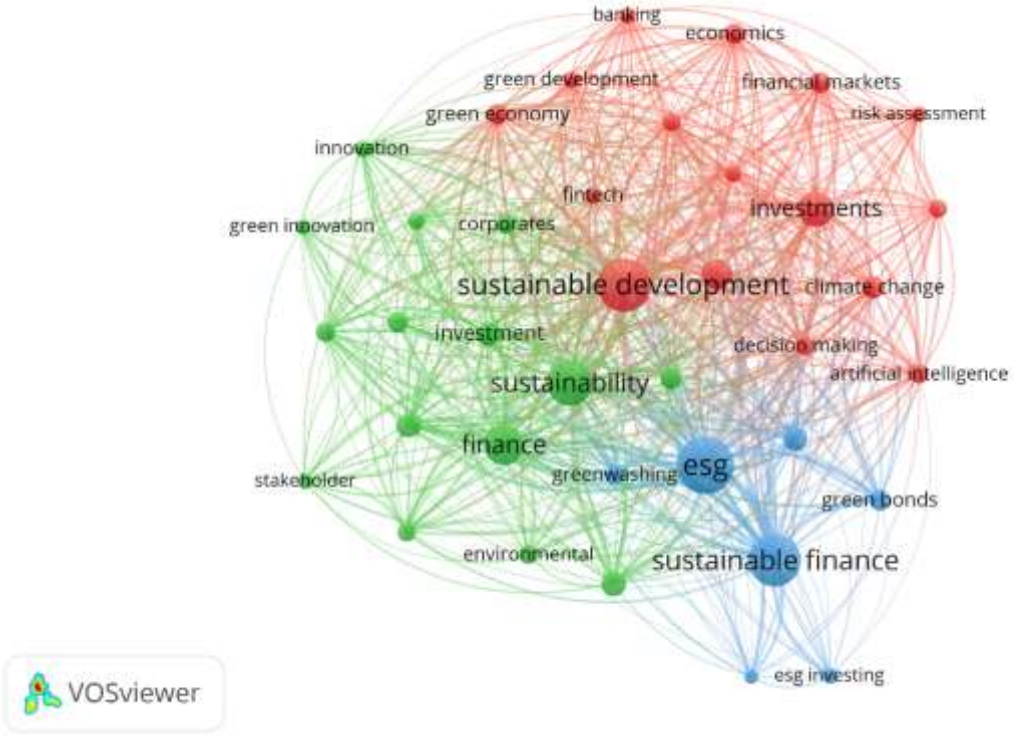

Figure 1. Network Visualization
Source: Data Analysis Result, 2025

The VOSviewer network map shows three main theme clusters in global research on sustainable finance and ESG investment. The green cluster contains the main ideas about sustainability, including phrases like sustainability, sustainable development, green innovation, stakeholders, and environmental. This group seems to be the intellectual basis of the discipline, showing that a lot of the research is based on broad ideas of sustainability and environmental issues. Its many connections show that sustainability is a big idea that connects different subtopics, such as environmental management, green innovation, and stakeholder perspectives. This shows how sustainability has become a central point of discussion in finance, governance, and corporate behavior.

The red cluster is linked to economic and financial systems that put sustainability ideas into action. Some of the most important keywords are investments, financial markets, economics, risk assessment, climate change, and making decisions. The importance and centrality of "investments" and "financial markets" indicate that ESG factors are becoming more common in mainstream financial decision-making. The link between climate change and financial markets in this group also shows how environmental and transition risks are directly affecting investment strategies. This shows that both research and practice have changed, and climate-related financial risks are no longer seen as unimportant. Instead, they are now seen as important for assessing economic performance, pricing assets, and reducing systemic market weaknesses.

The blue cluster shows more specific themes that are strongly related to ESG practices and tools for sustainable finance. The terms

ESG, sustainable finance, green bonds, and ESG investing show that a new area of research is developing that looks at how sustainability principles may be utilized to create real financial tools, regulatory frameworks, and investment strategies. The strong links in this cluster show that people are becoming more specialized in ESG measures, green finance tools, and ways to measure ESG performance. The links between this cluster and the red and green clusters indicate how ESG research connects theoretical ideas about sustainability (green cluster) with real-world financial uses (red cluster).

"Sustainable development" is the biggest and most central node in the network. This shows that it is the main idea that ties the whole area together. Its links reach across all clusters, showing that the sustainable development goals (SDGs) are the theoretical and policy-driven backbone that guides research in ESG, green finance, risk assessment, innovation, and business strategy. "ESG" and "sustainable finance" both show up as big nodes, which shows that more and more academics are looking into how to make financial systems more sustainable. The inclusion of terms like "artificial intelligence" and "fintech" indicates that technological innovation is becoming a new area of research, especially when it comes to monitoring ESG performance and using data analytics to make sustainable investment decisions.

In general, the network shows that the research landscape is becoming more mature but is still changing quickly, with significant links between different fields. The close clustering and dense co-occurrence lines demonstrate that scholars are linking environmental issues, financial systems, and governance frameworks more and more. This shows that sustainability science and financial economics are coming together. Both well-known topics (like sustainability, investments, and financial markets) and new ones (like AI, greenwashing, and fintech) are included. This means that future research will probably become more methodologically advanced, technologically integrated, and relevant to policy. This network map clearly shows that sustainable finance and ESG investment have become a clear and connected subject that is becoming more important around the world.

3.2 Overlay Visualization

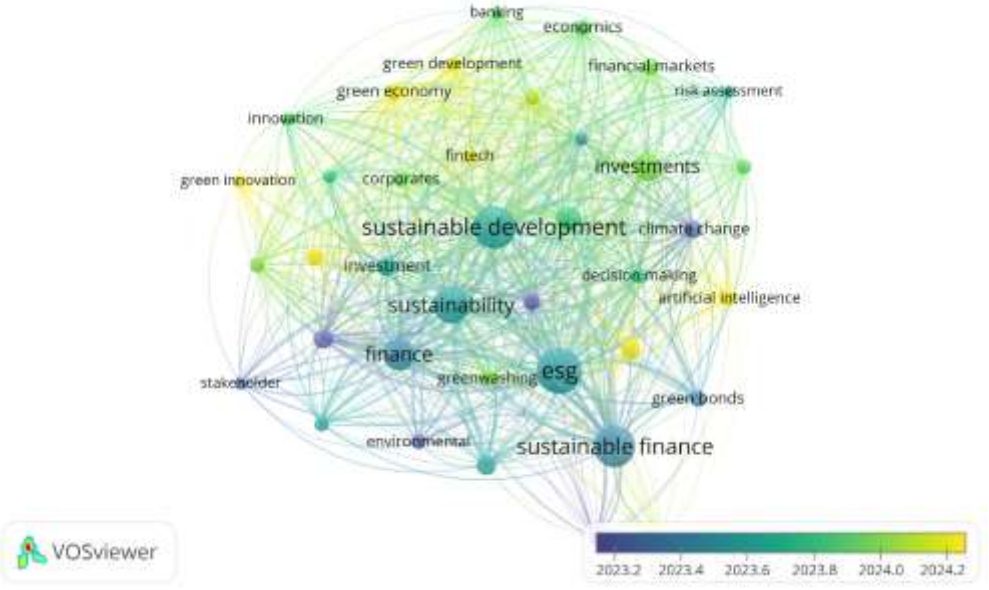

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2025

The overlay visualization shows how sustainable finance and ESG research have changed over time. The colors of the nodes show the average year of publication for each keyword. The words "sustainability," "finance," "stakeholder," "environmental," and "sustainable finance" are in blue to turquoise tones, which means they are older topics (about early 2023). These subjects constitute the conc eptual foundation of the discipline and have h istorically initiated dialogues regarding the inco rporation of environmental and social factors into financial decision-making. The significant links between these previous terms show that the academic work on sustainable finance was done before newer, more specific concerns came out.

On the other hand, keywords that are light green to yellow, such "green economy," "green development," "green innovation," "fintech," "artificial intelligence," "green bonds," and "risk assessment," signal that the research is more recent (mid-2023 to early 2024). The rise of the green economy and green development shows that there is a shift toward big changes in the economy and sustainability efforts led by policy. The use of fintech and artificial intelligence in yellow, on the other hand, shows how technology-driven techniques are becoming more important in sustainable finance, especially in ESG data analytics, automated screening of sustainability disclosures, and climate-risk modeling. These changes illustrate how the field is putting digital transformation along with ESG monitoring and investment strategies more and more.

The node "climate change" also stands out more, which shows that climate-related hazards have become a major and current area of research as global rules like ISSB and TCFD continue to affect disclosure requirements. In the same way, yellow nodes like "decision making," "innovation," and "corporates" show that researchers are looking more and more into how ESG factors affect business strategy and financial evaluations. In general, the overlay visualization shows that while basic ideas about sustainability and finance are still important, the newest research is moving toward technology integration, green economic transitions, and climate-risk analytics. This shows that the global sustainable finance literature is moving in a dynamic and forward-moving direction.

3.3 Citation Analysis

An examination of the seminal studies in sustainable finance and ESG literature offers essential insights into the philosophical underpinnings that inform corporate sustainability research, financial performance evaluation, and green investment approaches. Works that are often cited in this area talk about things like the importance of ESG in business value, access to financing, innovation, disclosure quality, and the rise of green financial instruments like green bonds. These publications illustrate the progression of methodological approaches, transitioning from econometric modeling to bibliometric and meta-analytic techniques. They also signify the growing significance of ESG factors in corporate decision-making, investor behavior, and policy formulation in global markets. The table below lists ten of the most important studies that have changed the way people talk about ESG and sustainable finance in academia.

Table 1. Top Cited Research

Citations	Authors and year	Title
2440	Cheng, B., Ioannou, I., Seafeim, G., 2014	Corporate social responsibility and access to finance
911	Drempetic, S., Klein, C., Zwergel, B., 2020	The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review

Citations	Authors and year	Title
749	Xie, J., Nozawa, W., Yagi, M., Fujii, H., Managi, S., 2019	Do environmental, social, and governance activities improve corporate financial performance?
519	Zhou, G., Liu, L., Luo, S., 2022	Sustainable development, ESG performance and company market value: Mediating effect of financial performance
372	Khan, M.A., 2022	ESG disclosure and Firm performance: A bibliometric and meta-analysis
325	Lee, K.-H., Cin, B.C., Lee, E.Y., 2016	Environmental Responsibility and Firm Performance: The Application of an Environmental, Social and Governance Model
307	Bhutta, U.S., Tariq, A., Farrukh, M., Raza, A., Iqbal, M.K., 2022	Green bonds for sustainable development: Review of literature on development and impact of green bonds
253	Tolliver, C., Fujii, H., Keeley, A.R., Managi, S., 2021	Green Innovation and Finance in Asia
237	Xu, J., Liu, F., Shang, Y., 2021	R&D investment, ESG performance and green innovation performance: evidence from China
211	Adams, C.A., 2017	Conceptualising the contemporary corporate value creation process

Source: Scopus, 2025

The papers enumerated above jointly constitute the fundamental tenets of modern ESG and sustainable finance scholarship. Initial fundamental research, exemplified by [18], demonstrated the correlation between corporate social responsibility and enhanced access to finance, thereby recontextualizing ESG as a strategic asset rather than a compliance obligation. Further research elucidated this association by investigating the factors of ESG scores, the influence of firm size, and the complexities associated with sustainability ratings [19]. A significant segment of the literature investigates the impact of ESG activities on financial performance, with studies like [20] and [21] offering empirical data and mediation-based perspectives on the ESG–performance relationship. More focused areas of study have developed around green financial tools [22], green innovation [23], [24]and ideas for creating sustainable value [25]. These widely referenced publications show how ESG research has moved from finding basic connections to looking at more complex ways that sustainability practices, market value, innovation, and global financial systems are all connected.

3.4 Density Visualization

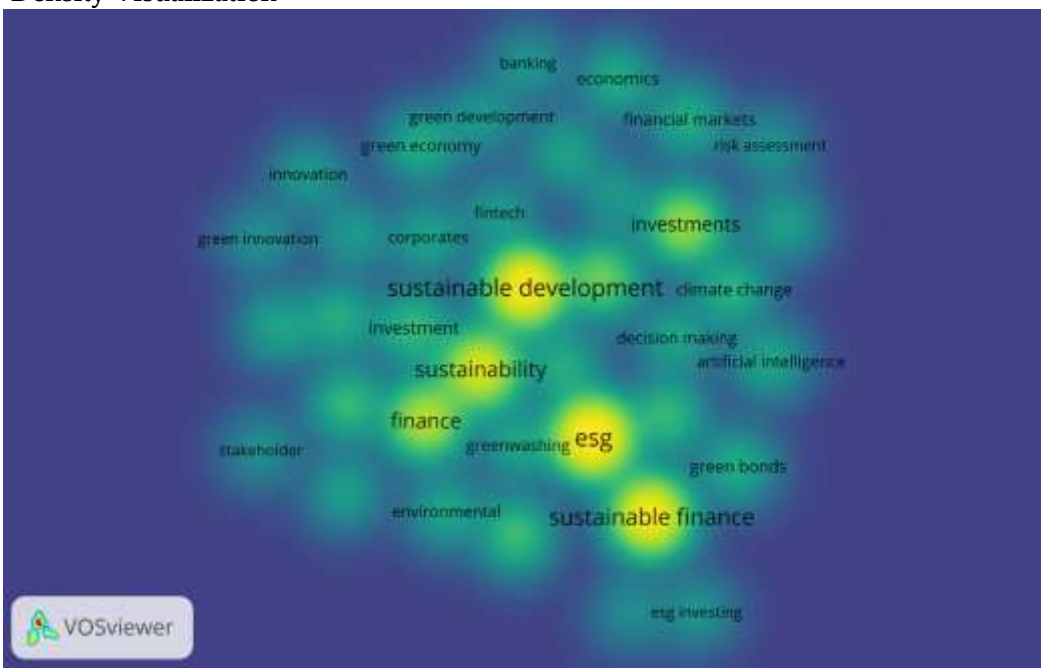

Figure 3. Density Visualization
Source: Data Analysis Result, 2025

The density map clearly illustrates that there are a few main research hotspots in sustainable finance and ESG scholarship. The brightest yellow areas, which show the most keyword co-occurrence, are around "sustainable development," "ESG," and "sustainable finance." These sections show that these ideas are the most important ones in the field because they show up the most in the literature. The prominence of "finance," "sustainability," and "investments" in high-density areas suggests that most empirical studies look at how ESG performance, sustainability initiatives, and financial outcomes are related. This means that academics are very interested in company financial performance, how ESG factors into investment decisions, and how sustainability principles affect financial markets as a whole.

The map changes from a dense cluster to green and blue zones as you go away from it. These zones show moderate to low research activity around terms like green innovation, fintech, climate change, green bonds, risk assessment, and artificial intelligence. These new topics are less common, but they are nonetheless closely related to the main ideas. This suggests that they are becoming more important areas of study within ESG research. Their presence near the core shows that the literature is moving beyond standard ESG-performance relationships to include subjects like digital transformation, climate-risk modeling, and green finance tools. The density graphic shows that the discipline has set up stable, high-intensity research hubs, but it is also branching out into new and important areas.

3.5 Co-Authorship Network

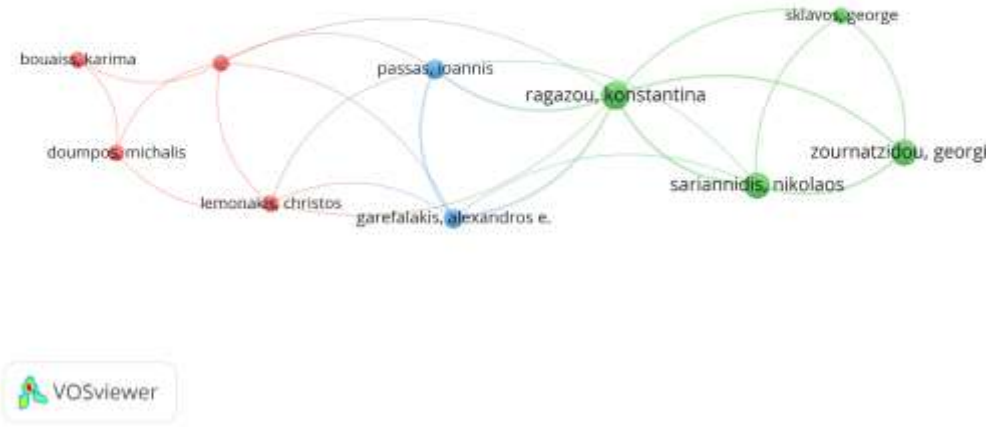

Figure 4. Author Visualization
Source: Data Analysis Result, 2025

The co-authorship network graphic shows three separate groups of authors that make up the collaboration links in ESG and sustainable finance research. Ragazou, Konstantina is the main intellectual bridge that connects several author groups in the network. Her close ties to Garafalkis, Alexandros E., Passas, Ioannis, and the green-cluster writers, such as Sariannidis, Nikolaos, Zournatzidou, Georgia, and Sklavos, George, show that she is a key player in making it easier for teams to work together and share information. This centrality indicates that her work is significant within the developing research agenda, facilitating the integration of diverse methodological techniques or topic focuses. The red cluster on the left side, made up of Bouaiss, Karima, Doumpos, Michalis, and Lemonakis, Christos, shows a group that works well together and seems to be focused on their own work. Their close connections show that they are all working on the same study issue, which could be quantitative finance, performance measurement, or multi-criteria decision-making. In the meantime, the blue cluster, which includes Passas, Ioannis, and Garafalkis, Alexandros E., seems to be an intermediary group that connects the red and green clusters. These researchers cooperate together across institutional and thematic lines, which helps the network come together and spreads knowledge across research groups. In general, the graphic reveals a collaborative ecosystem where a few key scholars serve as structural links, allowing different research teams to share ideas. The presence of separate yet interrelated clusters signifies both specialization and cross-pollination, illustrating that ESG and sustainable finance studies flourishes through c ollaborative synergies and interdisciplinary relationships.

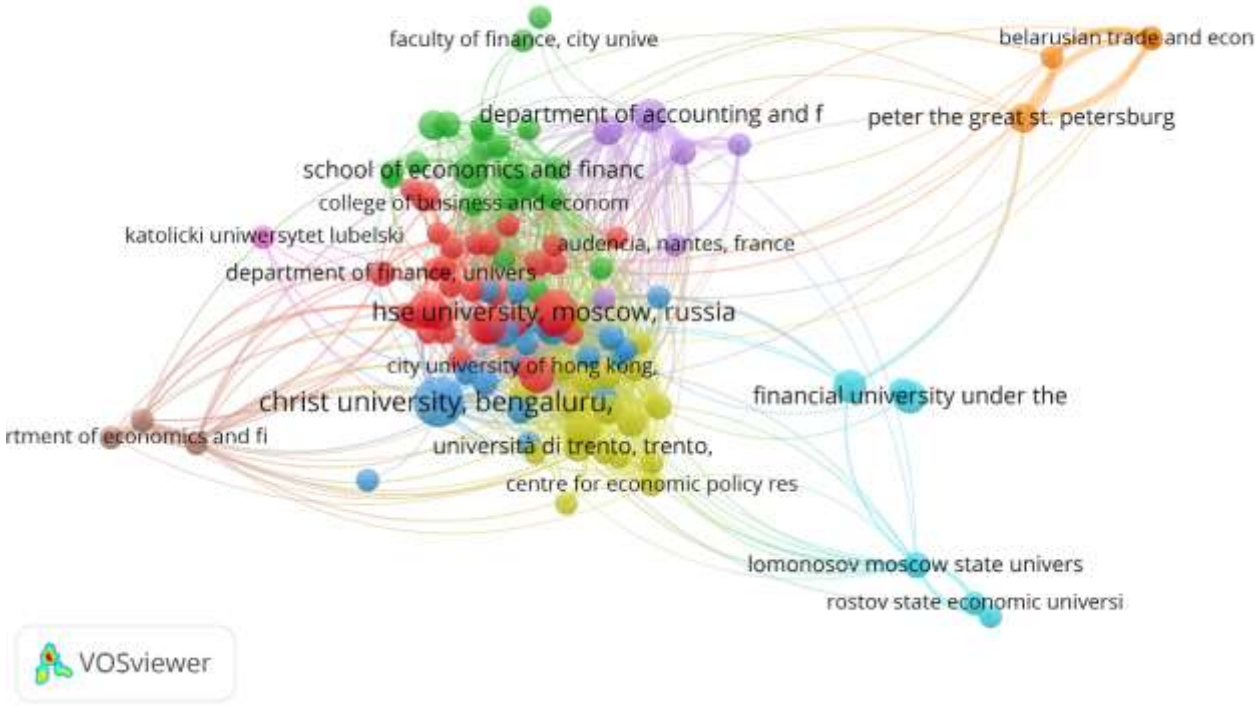

Figure 5. Affiliation Visualization

Source: Data Analysis Result, 2025

The institutional partnership map shows a large and integrated global network in sustainable finance and ESG research. Several universities are becoming major nodes that drive scholarly cooperation. HSE University in Moscow, Russia, is the most important hub. It is in the middle of the graphic, which shows that it works closely with many other schools in Europe and Asia. Nearby, Christ University in Bengaluru and Università di Trento in Italy are two other important nodes that show how engaged they are in cross-border research relationships. The clustering patterns also show distinct regional groups: the green cluster represents European institutions specializing in finance and economics; the yellow cluster connects institutions from Italy, the UK, and Hong Kong; and the blue cluster includes Russian research universities like Lomonosov Moscow State University and Rostov State Economic University, highlighting strong intra-regional collaboration.

The orange cluster on the far right, which includes schools like Belarusian Trade and Economics University and Peter the Great St. Petersburg Polytechnic University, shows a tightly knit network of Eastern European partnerships with few links to the outside world. This suggests that the research themes are focused on specific areas or regions. The purple cluster, on the other hand, is made up of accounting and finance departments from different schools and serves as a methodological bridge between research teams from Europe, Asia, and Russia. Overall, this picture shows a research landscape with strong regional clusters and a lot of knowledge sharing between regions. The central positioning of various universities signifies that sustainable finance and ESG scholarship gain from varied international cooperation, illustrating the increasing worldwide interest in promoting sustainability-focused financial research.

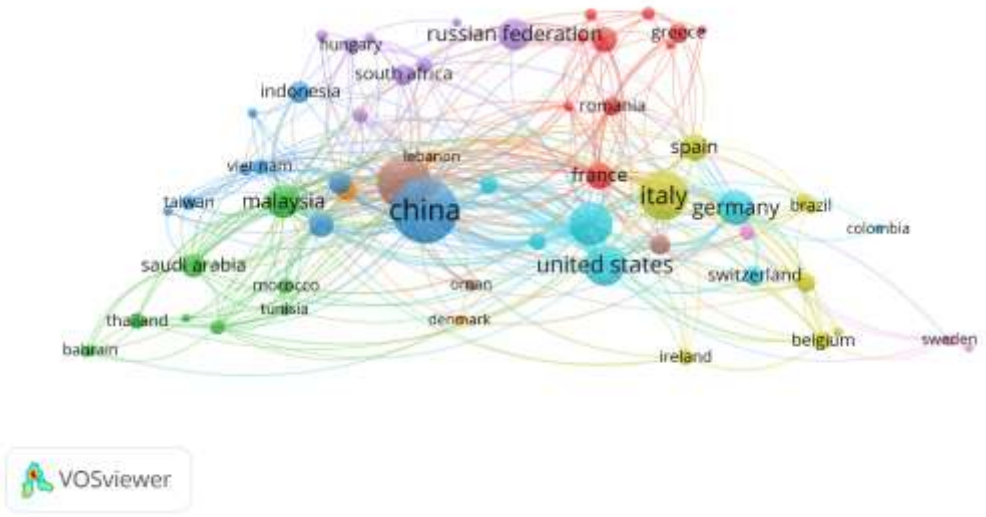

Figure 6. Country Visualization
Source: Data Analysis Result, 2025

The country collaboration network shows that there is a lot of research going on thr oughout the world in sustainable finance and ESG. China, the United States, Italy, Germany, a nd France are the most important and fundamental contributors. China is the largest node, which means it has the most publications and works with a lot of people from Asia, Europe, and the Middle East. The US and major European countries like Italy and Germany are also strong hubs. This is because they play a big role in defining global ESG discussions, financial policy, and research on green inve stments. At the same time, strong ties between European countries, especially Greece, Spain, Romania, and the Russian Federation, show that there are active regional collaboration clusters with long-standing academic and institutional exchanges. The map also indicates how growing economies like Malaysia, Saudi Arabia, Vietnam, Indonesia, and South Africa are becoming more involved. These countries work together with China and European hubs in important ways. This shows that Western countries are no longer the only ones doing research on sustainable finance. Instead, it shows that interest and ability are growing throughout Asia, the Middle East, and Africa. Smaller but connected nodes, like Sweden, Be lgium, Colombia, and Oman, show how specialized or policy-driven contributions fit int o the bigger picture. Overall, the picture shows that the research ecosystem is becoming more worldwide, with both established and new c ountries working together to learn more about ESG, green finance, and sustainable devel opment. This is making the academic community more diverse and connected.

Discussions

Practical Implications

The results of this bibliometric review have important effects for practitioners, regul ators, and institutional investors. The significa nt focus of research on topics like sustainable development, ESG, sustainable finance, finance, and investments demonstrates that ESG integration has emerged as a prevalent issue in capital allocation and risk management. This information can help asset managers and banks make the case for making ESG criteria a regular component of portfolio development,

credit evaluation, and product design. They should not just be an extra feature for reputation, but a key part of financial analysis. The popularity of topics like green bonds, green innovation, and climate change also shows that there are more chances to create new sustainable financial products, create investment strategies that take climate risk into account, and make products that are more appealing to investors who care more about social and environmental outcomes. Second, the author, institutional, and country collaboration networks demonstrate that knowledge prod uction in sustainable finance is predominantly transnational and concentrated around many key hubs, such as China, the United States, and prominent European and Asian universities. This means that policymakers and regulators need to work together across borders to development standards, harmonize data, and make regulations more similar for ESG disclosure and sustainable finance taxonomy. People who work in emerging economies and people who study them can use these networks to make connections, cooperate on projects together, and apply best practices from around the world to their own situations. The emergence of themes like fintech, artificial inte lligence, and the green economy indicates that market participants ought to invest in data infr astructure, digital tools, and analytical capabilit ies to enhance ESG assessment, scenario analysis, and decision support systems.

Theoretical Contributions

The study enhances theoretical f rameworks by methodically delineating the intellectual architecture of sustainable finance and ESG investment, thereby elucidating the integration of previously disjointed research components. The cluster and density analyses demonstrate that ESG literature is structured around a central nexus that connects sustainability theory, corporate finance, and institutional/agency viewpoints on governance and stakeholder interactions. The review aids in the establishment of an integrative theoretical framework by illustrating the interrelation and evolution of concepts such as sustainable development, ESG performance, financial performance, and innovation. In this framewor k, ESG is regarded not as an external constraint but as an intrinsic aspect of value creation, risk assessment, and long-term organizational performance. This synthesis enhances the literature by moving beyond unidimensional models (e.g., solely environmental or solely f inancial) to a multi-capital perspective of the company, which is consistent with modern ideas of integrated reporting and stakeholder-fo cused corporate governance. Additionally, the bibliometric data shows that new theoretical connections are forming between sustainability, technology, and financial economics. The incr easing prevalence of terms like fintech, artificial intelligence, and risk assessment suggests that academics are starting to rethink ESG as a data-heavy, tech-enabled area where theories about information asymmetry, market efficiency, and behavioral finance can be looked at again through the lens of sustainability. Finding the matic fronts around green bonds and green innovation also helps create theoretical models that link environmental policy, the growth of financial markets, and systems of innovation. In this way, the study lays the groundwork for future theories that connect macro-level sustainability changes with micro-level business behavior and meso-level financial market structures.

Limitations and Future Research Directions

This study, despite its extensive reach, has numerous limits that must be recognized and can inform future research endeavors. First, the analysis is based on only one bibliographic database and English-language publications. This could mean that important work published in other languages or indexed in other databases is missing, especially from places where sustainable finance is growing but not yet widely covered in mainstream journals. Second, bibliometric and network-based methods focus on patterns of publication, co-

citation, and keyword co-occurrence, but they don't directly look at the quality, methodological rigor, or causal validity of each empirical study. Consequently, the review pro vides a macro-level overview of the field instead than a critical evaluation of particular findings or theoretical assertions. Subsequent research may rectify these constraints by integrating bibliometric mapping with systematic literature reviews, meta-analyses, and qualitative e valuations of seminal studies. Adding more data sources and literature in languages other th an English would make the representation of regional views, especially from developing economies, more complete. Moreover, as nascent themes like AI-driven ESG analytics, transition finance, and social impact measurement gain prominence, more nuanced bibliometric research concentrating on these subfields may yield profound insights into their theoretical underpinnings and practical implementations. Together, these additions would make the evidence basis stronger for both researchers and practitioners and help su stainable finance and ESG investment grow into a well-defined field of study.

4. CONCLUSIONS

This bibliometric assessment gives a full picture of how sustainable finance and ESG investment have grown into a clear and quickly growing discipline. The keyword, density, and overlay visualizations demonstrate that the research is structured around a robust conceptual foundation, with sustainable development, ESG, sustainable finance, finance, and investments serving as the principal intellectual anchors. A lot of the literature looks at how ESG performance, disclosure, and governance systems affect access to finance, business value, and risk-return profiles. This shows that sustainability issues are now part of mainstream financial research instead of being seen as side issues. The research additionally uncovers significant changes in topic priorities. New areas of study in green bonds, green innovation, climate change, fintech, and artificial intelligence show that researchers are becoming more interested in how new technology and financial tools may help speed up the shift to low-carbon and socially respon sible economies. These themes link big-picture discussions about green growth and the shift to cleaner energy with smaller-picture questions about how companies plan, how well they can innovate, and how investors act. The way w riters, institutions, and countries work together shows how global and networked the field is. China, the United States, and major European and Asian nations serve as principal hubs, bolstered by extensive institutional networks that promote the dissemination of ideas and methodologies. At the same time, the growing involvement of emerging nations like Malaysia, Saudi Arabia, Vietnam, and Indonesia indicates a slow expansion of the research community and the placement of ESG discussions in different types of financial systems. In general, the results show that sustainable finance and ESG investing have gone from being isolated case studies to being part of a larger study area with identifiable themes and strong inte rnational cooperation. Nonetheless, deficiencies persist in the examination of emer ging nations, social impact facets, and technolo gy-driven ESG analytics, underscoring promising opportunities for forthcoming empirical and theoretical research.

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