

Green Finance and ESG Strategy Under Environmental Governance Systems: A Bibliometric and Systematic Review (2015–2026)

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Abstract. Evidence on green finance, environmental, social and governance (ESG) strategy, and environmental governance has expanded rapidly, but it remains fragmented across finance, management, sustainability, and regulatory research. No prior bibliometric review has systematically integrated the three domains as a single field. This study addresses that gap through a hybrid bibliometric and systematic review of 2,500 English-language peer-reviewed journal articles retrieved from Dimensions for 2015 to the 2026 extraction date, interpreted through Institutional Theory, Stakeholder Theory, Legitimacy Theory, and the Natural Resource-Based View. Publication activity accelerated sharply after 2020, reaching 1,043 articles in 2025; the 424 records for 2026 represent only a partial year. Four interconnected thematic clusters structure the field: green finance and sustainable investment; ESG strategy and corporate sustainability; environmental governance and regulatory systems; and green innovation and sustainable development. Green finance, ESG, sustainability, environmental governance, and green innovation are the most central concepts, while disclosure, regulation, climate finance, and sustainable development bridge the clusters. Research output is geographically concentrated, with China accounting for 987 publications, whereas African scholarship remains underrepresented. The evidence therefore points to an emerging sustainability-governance domain in which finance, regulation, disclosure, and firm-level environmental capabilities increasingly interact. However, participation remains uneven because institutional capacity, data availability, and research infrastructure differ across jurisdictions. The review contributes a multi-theoretical synthesis and a research agenda focused on comparative institutional analysis, credible disclosure, regulatory capacity, data infrastructure, and firm-level capability development. These priorities are particularly relevant to emerging-economy scholarship and policy. The review also clarifies the field's relevance to SDGs 7, 12, 13, and 17.

Keywords: Bibliometric analysis, corporate sustainability, ESG strategy, environmental governance, green finance.

INTRODUCTION

Sustainability is no longer confined to corporate responsibility; it now shapes financial, strategic, and regulatory decision-making. In particular, the interaction among environmental governance systems, green finance instruments,

and environmental, social and governance (ESG) strategy has become central to contemporary sustainability debates (Organisation for Economic Co-operation and

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Development [OECD], 2020; United Nations Environment Programme [UNEP], 2023).

Over the past decade, green finance has developed from a policy-specific instrument into a broader framework for directing capital toward environmentally beneficial investment. Green bonds, sustainability-linked loans, climate funds, and related mechanisms support the low-carbon transition, while their credibility and market impact depend on pricing, certification, institutional design, and financial-policy settings (Campiglio, 2016; D'Orazio & Popoyan, 2019; Flammer, 2021; Tang & Zhang, 2020; Zerbib, 2019). In parallel, ESG strategy has become embedded in investment, risk, and governance decisions as investors and regulators place greater weight on environmental and social dimensions of corporate performance (Friede et al., 2015; Gillan et al., 2021).

Environmental governance systems comprise the laws, institutions, enforcement arrangements, and policy frameworks that shape how firms and financial markets respond to sustainability challenges. Strong governance is associated with better environmental outcomes, greater transparency, and more effective use of green capital (World Bank, 2022). However, institutional and enforcement capacity differs substantially between developed and emerging economies, creating uneven conditions for implementation (Li & Ullah, 2023).

Although green finance and ESG strategy have been widely reviewed, the literature remains fragmented across disciplines. Finance research often emphasises investment performance and risk management, while management scholarship focuses more on ESG integration and firm-level strategy. Environmental law and policy research, by contrast, typically examines regulatory effectiveness without fully integrating financial or strategic dimensions. This disciplinary separation limits the development of a coherent framework for understanding how environmental governance, financial innovation, corporate strategy, and sustainability outcomes interact.

A growing body of empirical research examines specific relationships, including ESG disclosure and firm performance, green finance and carbon reduction, and regulation and environmental outcomes. However, no broad review has mapped the intellectual structure and thematic development of this interdisciplinary field. In particular, bibliometric evidence has not yet systematically integrated green finance, ESG

strategy, and environmental governance within a single analytical framework.

Bibliometric analysis and systematic literature review provide complementary approaches for tracing publication flows, knowledge structures, and thematic development in a rapidly expanding field (Donthu et al., 2021). Used together, they offer a more structured and reproducible synthesis than a conventional narrative review alone, particularly in dynamic areas such as sustainability and climate finance.

Accordingly, this study combines bibliometric analysis with a systematic literature review to examine research on green finance and ESG strategy under environmental governance systems from 2015 to the 2026 extraction date. The study focuses on two objectives:

1. To analyse publication trends and growth patterns in research on green finance, ESG strategy, and environmental governance.
2. To identify the intellectual structure and thematic clusters shaping the field.

These objectives aim to provide an integrated view of the relationship among sustainability-oriented financial systems, ESG strategy, and environmental governance, while identifying priorities for future research, policy, and practice.

LITERATURE REVIEW

Green Finance and the Transition Toward Sustainable Capital Allocation

Green finance has become an important mechanism for supporting the transition to low-carbon and environmentally sustainable economies. It generally refers to financing for environmentally beneficial projects and activities, including climate mitigation, renewable energy, resource efficiency, and low-carbon development (OECD, 2020). Its importance has increased as climate change and environmental degradation have become more prominent on the global agenda and as conventional financial systems have been criticised for failing to price environmental externalities adequately (UNEP, 2023).

Financial instruments such as green bonds, sustainability-linked loans, and climate funds have become increasingly important in capital markets. They reflect a broader shift in capital allocation toward explicit consideration of environmental risk and impact (Bolton &

Kacperczyk, 2021; Krueger et al., 2020; Zhou et al., 2020). The Paris Agreement and the Sustainable Development Goals further support this transition, particularly SDGs 7, 12, 13, and 17 through clean energy, responsible consumption, climate action, international partnership, and mobilisation of sustainable capital.

Institutional Theory also helps explain the evolution of green finance by emphasising the influence of regulatory pressures, normative expectations, and legitimacy requirements on organisations (DiMaggio & Powell, 1983). As environmental sustainability becomes more deeply embedded in global governance, firms and financial institutions increasingly adopt green-finance practices to maintain legitimacy and respond to changing societal expectations.

Research on green finance has expanded rapidly but remains diverse in focus. Some studies examine financial-performance implications, while others concentrate on policy implementation, environmental impact, or investor behaviour. The connections among green finance, ESG strategy, and environmental governance remain underdeveloped.

Existing evidence also does not show a uniformly positive relationship between green finance and long-term sustainability outcomes. Weak regulatory frameworks and greenwashing can reduce effectiveness, even though other studies identify benefits for carbon reduction and sustainable innovation (UNEP, 2023). These mixed findings reinforce the need for an integrated approach that considers institutional design and firm-level strategy alongside financial instruments.

ESG Strategy and Corporate Sustainability Transformation

Environmental, social and governance (ESG) strategy has become an important component of corporate sustainability. It refers to integrating ESG principles into corporate decision-making, strategic planning, governance, and investment assessment (Gillan et al., 2021). ESG is therefore increasingly embedded in long-term value-creation processes rather than treated solely as an extension of traditional corporate social responsibility.

Stakeholder activism, regulatory attention, investor expectations, and reputational risk have increased demand for stronger ESG practices. Investors use ESG information in investment decisions, and evidence suggests that financially material sustainability practices and transparent

disclosure are more closely associated with firm value than generic or immaterial disclosure (Amel-Zadeh & Serafeim, 2018; Fatemi et al., 2018; Khan et al., 2016). At the same time, divergence among ESG ratings creates measurement uncertainty and complicates comparisons across firms and jurisdictions (Berg et al., 2022).

ESG strategy aligns closely with Stakeholder Theory, which argues that organisations should consider stakeholders beyond shareholders, including groups affected by corporate activities (Freeman, 1984). From this perspective, ESG practices help firms manage stakeholder relationships, reduce legitimacy risk, and strengthen long-term sustainability.

Empirical research suggests that effective ESG integration can improve financial resilience, reduce the cost of capital, and strengthen corporate reputation (Eccles et al., 2014; Gillan et al., 2021). Implementation nevertheless remains challenging because sustainability impacts are difficult to measure consistently across industries and jurisdictions, and disclosure and rating systems are not fully harmonised.

ESG implementation also varies substantially across countries. Many developing economies have less mature sustainability-reporting frameworks than developed economies, where reporting expectations and institutional infrastructure are generally stronger (Ioannou & Serafeim, 2012; Li & Ullah, 2023). These differences highlight the importance of the environmental-governance systems within which firms develop and implement ESG strategy.

Although ESG research has expanded considerably, much of it still focuses on firm performance and disclosure quality. Less attention has been given to how environmental-governance structures shape ESG adoption or to how ESG practices interact with green-financial systems. This fragmentation makes it difficult to develop an integrated framework for sustainability governance.

Environmental Governance Systems and Regulatory Influence

Environmental governance refers to the institutional frameworks, laws, regulations, and enforcement mechanisms used to govern environmental resources and activities that affect the environment (World Bank, 2022). These systems operate at local, national, and

international levels and influence corporate environmental practices and sustainability outcomes.

The importance of environmental governance has grown as governments and international organisations respond to climate change, biodiversity loss, pollution, and resource depletion. Policy initiatives increasingly include environmental standards, carbon-disclosure requirements, and sustainability-reporting frameworks designed to strengthen responsible business practice (UNEP, 2023).

The institutional strength of environmental-governance systems varies considerably. Economies with established sustainability-reporting frameworks and monitoring systems generally have stronger enforcement capacity. In many emerging markets, by contrast, regulatory uncertainty, weak enforcement, and limited environmental-accountability mechanisms remain significant constraints (Li & Ullah, 2023).

Institutional Theory provides a useful basis for understanding the relationship between firms and environmental-governance systems through coercive, normative, and mimetic pressures. Coercive pressures arise from laws and disclosure requirements; normative pressures reflect professional standards and stakeholder expectations; and mimetic pressures encourage firms to adopt recognised ESG and green-finance practices. Beyond formal regulation, organisations must implement credible environmental controls and sustainability reporting to maintain legitimacy within their organisational fields (Berrone et al., 2013; Delmas & Toffel, 2008; DiMaggio & Powell, 1983).

Financial systems and corporate strategy can both respond to and shape sustainability transitions under environmental governance. However, the direct mechanisms through which governance systems influence green finance and ESG strategy remain insufficiently explained. This gap is increasingly important because environmental regulation, sustainable finance, and corporate governance are becoming more closely interconnected.

Integrating Green Finance, ESG Strategy, and Environmental Governance

Although green finance, ESG strategy, and environmental governance are well represented in the sustainability literature, many studies examine only one dimension or a single bilateral relationship, such as ESG and firm

performance, green finance and environmental investment, or governance and regulatory compliance. Relatively few studies integrate all three domains within one analytical framework.

These domains are nevertheless highly interdependent. Environmental-governance systems establish rules and compliance expectations that shape organisational sustainability behaviour. ESG strategy provides a managerial response to those expectations, while green finance supplies financial mechanisms that can support sustainability projects and organisational transition.

The relationship among green finance, ESG strategy, and firm governance can also create competitive advantage, consistent with the Natural Resource-Based View (NRBV). Hart (1995) identifies pollution prevention, product stewardship, and sustainable development as capabilities that can improve efficiency, legitimacy, innovation, and long-term competitiveness. Green finance can provide resources for developing these capabilities, ESG strategy can embed them within organisational decision-making, and environmental governance can create the institutional conditions through which they are encouraged, rewarded, or enforced.

Despite this conceptual convergence, an important theoretical and empirical gap remains. Existing studies examine aspects of the relationships among environmental governance, green finance, and ESG strategy but do not provide a comprehensive synthesis of the field. Because the literature is still developing across multiple disciplines, its intellectual foundations and thematic boundaries remain insufficiently mapped.

Theoretical Synthesis and Research Gap

The literature on green finance, ESG strategy, and environmental governance draws on four complementary theoretical perspectives. Institutional Theory explains how macro-level regulatory constraints, standards, and expectations shape organisational and financial responses to sustainability (DiMaggio & Powell, 1983). Stakeholder Theory explains how investors, employees, customers, communities, and regulators influence firm-level ESG initiatives and disclosure (Freeman, 1984). Legitimacy Theory emphasises the need for organisations to align activities with changing social values and to use credible ESG reporting and green-finance practices to maintain their licence to operate (Suchman, 1995). Building on

the Resource-Based View (Barney, 1991), the Natural Resource-Based View explains how environmental action can be transformed into valuable organisational capabilities that support efficiency, innovation, and future competitiveness (Hart, 1995). These perspectives have often been applied separately, leaving scope for a more integrated theoretical synthesis.

Together, these perspectives connect macro-level institutional pressures with firm-level strategic capabilities, yet they are rarely integrated within a single analytical framework. The empirical evidence is likewise dispersed across finance, management, sustainability, and environmental-policy research. This disciplinary separation weakens understanding of the interdependence among environmental governance systems, ESG strategy, and green-finance mechanisms. A structured bibliometric and systematic review is therefore needed to reveal the field's intellectual structure, thematic development, and emerging research directions and to provide a stronger basis for subsequent scholarship and policy development.

METHODOLOGY

Research Design

This study adopts a hybrid bibliometric and systematic literature review design to examine the development, intellectual structure, and thematic evolution of research on green finance, ESG strategy, and environmental-governance systems. The design is appropriate because the field spans finance, strategic management, environmental policy, and governance and therefore requires both quantitative mapping and qualitative interpretation.

Bibliometric analysis quantitatively examines publication trends, citation patterns, thematic structures, and scholarly networks (Donthu et al., 2021). Its standardised procedures can improve reproducibility and reduce some of the subjectivity associated with purely narrative synthesis, particularly when large publication sets are analysed. Systematic review complements this mapping by providing qualitative interpretation of the patterns and themes identified in the literature.

The combination of bibliometric and systematic review methods is increasingly used in sustainability research because it can identify underlying intellectual structures, emerging

themes, and research gaps in dispersed fields of knowledge (Baier-Fuentes et al., 2019). The hybrid approach is therefore suitable for the rapidly expanding literature linking green finance, ESG strategy, and environmental governance.

Data Source and Database Selection

The study used Dimensions, a multidisciplinary scholarly database that provides broad coverage of peer-reviewed publications across business, finance, environmental science, public policy, and sustainability research (Digital Science, 2024).

Dimensions was selected for three reasons. First, its multidisciplinary coverage and bibliographic metadata suit an interdisciplinary review. Second, its exported metadata can be analysed with tools such as VOSviewer and Biblioshiny for citation mapping, keyword co-occurrence analysis, and thematic clustering (Donthu et al., 2021). Third, its broad disciplinary coverage supports analysis of research spanning green finance, ESG strategy, and environmental-governance systems.

Although Scopus and Web of Science are also widely used in bibliometric research, this study relied on Dimensions because it was accessible, multidisciplinary, and suitable for large-scale bibliometric mapping and systematic literature analysis.

Search Strategy and Data Retrieval Process

A systematic search strategy was developed to retrieve relevant literature across the three conceptual domains underpinning the study: green finance, ESG strategy, and environmental governance.

The following combinations of keywords and Boolean operators were used to develop the search string:

(“green finance” OR “sustainable finance” OR “climate finance” OR “green investment”)
 AND
 (“ESG” OR “environmental social governance” OR “ESG strategy” OR “sustainability strategy”)
 AND
 (“environmental governance” OR “environmental regulation” OR “environmental policy” OR “climate governance”)

To maximise thematic coverage, the search string was applied to article titles, abstracts, and author keywords. The search

covered the Dimensions database from 2015 to the 2026 extraction date. This period was selected because sustainability reporting, climate finance, and ESG-linked investment practices expanded substantially following the Paris Agreement and the adoption of the Sustainable Development Goals in 2015 (OECD, 2020).

The initial search returned a broad set of publications, which was filtered using the predefined methodological and conceptual criteria. The retained records were exported as a CSV file for bibliometric mapping and analysis with the selected visualisation tools.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were established before screening to improve transparency, consistency, relevance, and reproducibility.

Inclusion criteria:

- Peer-reviewed journal articles
- Publications written in the English language
- Articles published between 2015 and 2026
- Studies focusing on green finance, ESG strategy, or environmental governance
- Publications retrieved from the Dimensions database

Exclusion criteria:

- Conference papers, editorials, book chapters, notes, and review comments
- Duplicate publications
- Articles lacking abstracts or complete bibliographic information
- Studies unrelated to sustainability finance, ESG systems, or environmental governance

Applying inclusion and exclusion criteria is essential in systematic reviews because it enhances conceptual consistency and minimises the inclusion of irrelevant or low-quality publications (Snyder, 2019).

Screening and Data Cleaning Procedure

After applying the date, language, and document-type filters, 2,500 records were exported from Dimensions. A post-export duplicate check found no additional duplicates. Titles, abstracts, and metadata were then checked for consistency with the search domains, and all 2,500 exported records were retained for bibliometric mapping and systematic analysis. Because the database interface did not preserve an auditable count of preliminary pre-filter search hits, no unverifiable pre-filter total was reconstructed. The PRISMA

diagram therefore begins with the final filtered export and presents the auditable screening flow (Page et al., 2021).

Data cleaning was undertaken to reduce metadata inconsistencies and prevent synonymous terms from fragmenting the bibliometric maps. Terms such as 'ESG', 'environmental social governance', and 'ESG practices' were harmonised for analytical purposes, while the original wording was retained in the supplementary CSV. The quantitative selection process was: 2,500 records in the filtered Dimensions export; 0 post-export duplicates; 2,500 records screened; 0 records excluded after export; and 2,500 records retained in the bibliometric and systematic dataset.

Keyword harmonisation was also used to improve consistency in thematic mapping and reduce artificial fragmentation in co-occurrence analysis. Equivalent expressions, including 'ESG', 'environmental social governance', and 'ESG practices', were standardised where appropriate for clustering and interpretation.

Bibliometric Analysis Techniques

The study used both performance analysis and science-mapping techniques to examine publication characteristics and the intellectual structure of the field. Performance analysis focused on:

- annual publication trends,
- citation patterns,
- influential journals,
- and major contributing countries.

Science mapping techniques were employed to visualise conceptual relationships within the literature. These techniques include:

- keyword co-occurrence analysis,
- citation analysis,
- and thematic clustering.

Keyword co-occurrence analysis was used to identify dominant and emerging concepts within the literature (van Eck & Waltman, 2010). Thematic clustering grouped related concepts, while citation analysis helped identify influential publications and the field's intellectual structure. Together, these techniques addressed the study's objectives of analysing performance patterns and identifying thematic structure.

Analytical Tools

Two widely used tools supported the analysis: VOSviewer for science mapping and Biblioshiny for bibliometric analysis and visualisation.

VOSviewer was used to generate network visualisations of citation relationships and

keyword co-occurrence patterns. Its clustering and mapping functions are particularly useful for visualising large bibliometric networks (van Eck & Waltman, 2010).

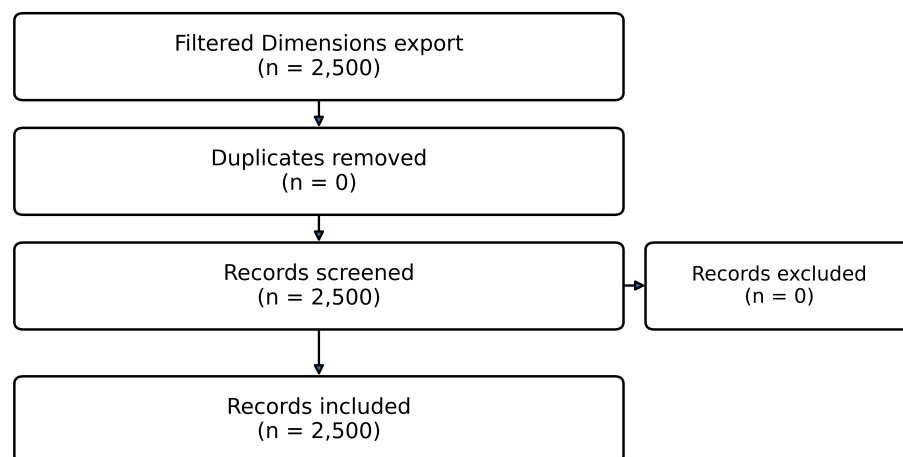
Biblioshiny, the web interface for the bibliometrix R package, supported descriptive bibliometric statistics and thematic analysis (Aria & Cuccurullo, 2017). Together, VOSviewer and Biblioshiny strengthened the analytical process by supporting complementary mapping, descriptive, and thematic outputs.

The tools were used to identify publication trends, thematic clusters, and the intellectual structure of research connecting green finance, ESG strategy, and environmental-governance systems.

Reliability and Validity Considerations

Several measures supported reliability and validity. Dimensions provided broad multidisciplinary coverage and standardised bibliographic metadata. Predefined inclusion and exclusion criteria strengthened construct validity by limiting the dataset to publications relevant to the study's conceptual scope.

Transparent screening and data-cleaning procedures improved methodological consistency and reproducibility. VOSviewer and Biblioshiny provided established analytical workflows for network and thematic mapping, while systematic thematic interpretation strengthened the interpretive validity of the bibliometric results. The hybrid design therefore combined quantitative mapping with qualitative synthesis to provide a comprehensive account of the research field.



Flow begins with the final filtered export; no unverifiable pre-filter total was reconstructed.

Figure 1. PRISMA flow diagram of the literature retrieval and screening process.

Source: Authors' compilation using the Dimensions database (2026).

RESULTS AND DISCUSSION

Overview of the Retrieved Literature

The analytical corpus comprises 2,500 peer-reviewed English-language journal articles published between 2015 and the 2026 extraction date. Other document types, including conference papers, editorials, book chapters, notes, and review comments, were excluded during screening. No post-export duplicates were found. The dataset is interdisciplinary, spanning environmental management,

sustainability, corporate governance, finance, public policy, and strategic management. The annual publication counts, leading journals, major contributing countries, and thematic areas reported below are verified from the retained manuscript outputs. However, the original Dimensions CSV and Biblioshiny summary files were not retained in the revision package, so aggregate citation totals, mean citations per document, and exhaustive counts of sources and countries cannot be reproduced reliably. These unavailable metrics are reported transparently rather than estimated.

Table 1. Verified descriptive profile of the bibliometric corpus

Corpus characteristic	Verified profile
Records analysed	2,500
Publication period	2015–2026 extraction date
Document type	Peer-reviewed journal articles (100%)
Language	English
Database	Dimensions
Post-export duplicates	0
Aggregate/mean citation counts	Not recoverable from the retained manuscript package
Exact number of sources/countries	Not recoverable from the retained manuscript package

Source: Authors' summary of the retained Dimensions and bibliometric outputs (2026).

Publication Trends and Growth Patterns

As shown in Table 2, publication output on green finance, ESG strategy, and environmental governance increased

substantially over the review period. Growth accelerated after 2020, indicating rapidly expanding scholarly interest in sustainability-oriented financial systems and governance.

Table 2. Annual Publication Output (2015–2026)

Year	Number of Publications
2015	1
2016	1
2017	1
2018	4
2019	7
2020	27
2021	56
2022	128
2023	279
2024	529
2025	1,043
2026	424
Total	2,500

Source: Authors' bibliometric analysis using the Dimensions database (2026).

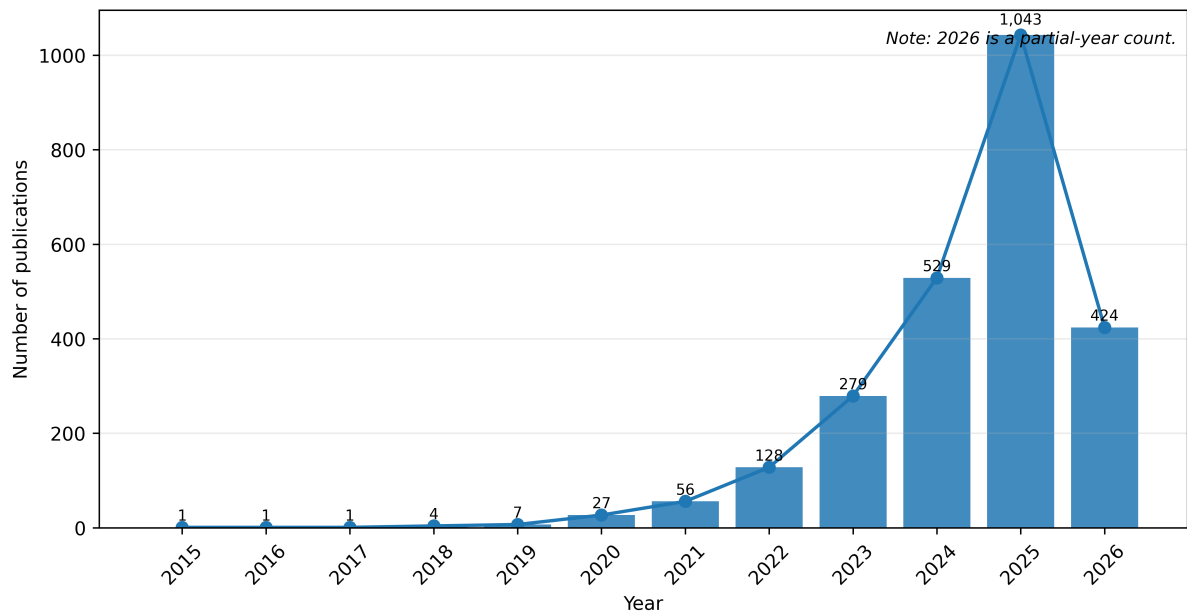


Figure 2. Annual publication trends in green finance, ESG strategy, and environmental governance research (2015–2026)

Source: Authors' bibliometric analysis using the Dimensions database (2026).

Figure 2 indicates a slight increase in publications during 2015–2019 that was followed by a steady rise in publications following 2020. Output rose from 27 publications in 2020 to 56 in 2021, 128 in 2022, 279 in 2023 and 529 in 2024, before reaching 1,043 publications in 2025. The 424 records reported for 2026 are only for the first half of the year and do not necessarily indicate a year-on-year drop.

The acceleration coincides with stronger international climate-policy commitments, growing attention to ESG disclosure and sustainable-finance regulation, increased investor focus on climate risk, and greater availability of bibliometric data and analytical

tools. The pattern therefore reflects both substantive changes in sustainability governance and increased scholarly capacity to study an interdisciplinary field spanning finance, management, and environmental policy.

The publication trajectory also shows that green finance has moved from relatively fragmented discussions toward a rapidly developing interdisciplinary space linking finance, ESG strategy, and environmental governance. The scale of the increase should nevertheless be interpreted in light of database coverage and the fact that 2026 represents only a partial year.

Leading Journals and Source Distribution

Table 3. Leading Journals in the Dataset

Rank	Journal	Number of Publications
1	Journal of Environmental Management	376
2	Environmental Science and Pollution Research	177
3	Sustainability	135
4	PLOS ONE	106
5	Heliyon	92

Source: Authors' computation from the Dimensions dataset (2026).

Table 3 shows that the literature is concentrated in outlets that connect environmental management and sustainability with finance and governance. The Journal of Environmental Management leads with 376

publications, followed by Environmental Science and Pollution Research (177), Sustainability (135), PLOS ONE (106), and Heliyon (92). This distribution reflects the field's strong environmental orientation while also

showing increasing incorporation of corporate, financial, and institutional analysis.

The distribution also indicates a widening journal landscape. Multidisciplinary outlets such as PLOS ONE and Heliyon show that research on green finance and ESG governance is no longer confined to specialist finance or environmental-policy journals. Instead, the field increasingly spans organisational strategy, disclosure, regulation, innovation, and sustainable development.

Concentration in a small number of high-output journals may nevertheless influence which concepts and approaches receive the

greatest visibility. Future work should therefore consider source-level citation influence and thematic specialisation when the complete Dimensions export becomes available, because publication volume alone does not establish intellectual influence.

Overall, the source distribution reinforces the conceptual links among environmental governance, sustainability policy, corporate responsibility, and responsible finance and suggests increasing diffusion of ideas across disciplinary boundaries.

Geographic Distribution of Research Output

Table 4. Major Contributing Countries

Rank	Country	Number of Publications
1	China	987
2	India	98
3	Italy	41
4	United Kingdom	37

Source: Authors' computation from the Dimensions dataset (2026).

As shown in Table 4, China is by far the largest contributor to the dataset, reflecting substantial research activity around green finance, ESG systems, and sustainability-governance reform. Contributions from both developed and emerging economies are also visible, although output remains highly concentrated.

The geographic distribution shows a strong concentration of research output in a small number of countries. China accounts for 987 publications, far more than any other country represented in the verified table.

India ranks second with 98 publications, followed by Italy with 41 and the United Kingdom with 37. The pattern indicates that sustainability-oriented finance and governance research is spreading across developed and

emerging economies, but the distribution remains uneven.

China's large research footprint may partly reflect the country's extensive green-finance initiatives, climate-governance reforms, and transition policies, which create sustained demand for research on carbon neutrality, sustainable investment, and environmental responsibility.

Although sustainability research has become more international, output from many developing countries, particularly in Africa and other lower-income regions, remains comparatively limited. This underrepresentation indicates that the evidence base does not yet reflect the full diversity of institutional settings in which sustainability governance operates.

Intellectual Structure and Thematic Clusters

Table 5. Major Thematic Clusters Identified in the Literature

Cluster	Major Keywords	Research Focus
Cluster 1	Green finance, green bonds, climate finance, sustainable investment	Sustainable financial systems and climate-oriented investment
Cluster 2	ESG, ESG disclosure, corporate governance, sustainability strategy	Corporate sustainability and ESG integration
Cluster 3	Environmental governance, environmental regulation, climate governance	Governance systems and environmental accountability
Cluster 4	Green innovation, sustainable development, environmental technology	Sustainability innovation and organisational adaptation

Source: Authors' thematic clustering from bibliometric mapping using the Dimensions database (2026).

The thematic clustering analysis identifies four interconnected sustainability themes linking

finance, governance, corporate strategy, and environmental innovation, as shown in Table 5.

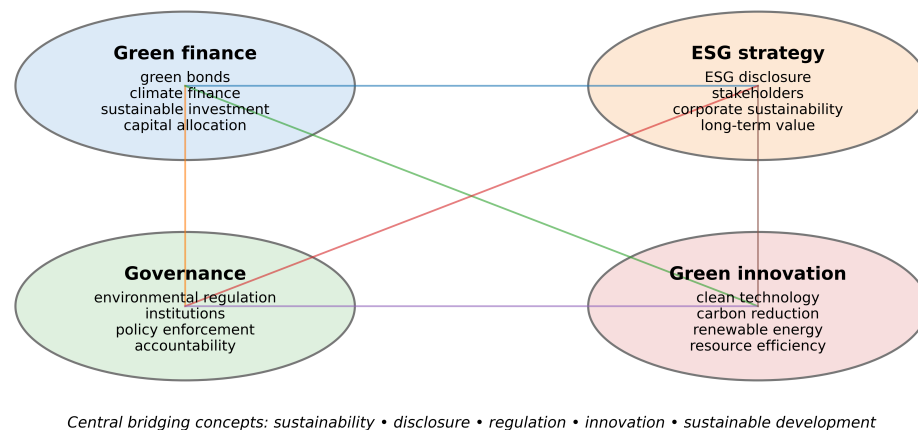


Figure 3. Major thematic clusters identified in the literature

Source: Authors' bibliometric mapping using the Dimensions database (2026).

Keyword co-occurrence analysis and thematic mapping show four interconnected clusters rather than isolated topic groups. Green finance, ESG, sustainability, environmental governance, and green innovation occupy central positions and connect financial, strategic, regulatory, and technological discussions.

The green-finance/sustainable-investment and ESG/corporate-sustainability clusters are especially dense and closely connected to disclosure, performance, and investment. These themes connect to environmental governance through regulation, accountability, policy, and institutional pressure, and to green innovation through environmental technology and sustainable-development pathways that shape firm-level capabilities and outcomes.

Prominent bridging concepts include sustainability, sustainable development, disclosure, climate finance, regulation, and corporate governance. Disclosure connects ESG strategy with environmental accountability; climate finance links investment and governance; and sustainable development connects green innovation with broader policy objectives. Their bridging role helps explain why the field is increasingly developing as an integrated domain rather than as four separate literatures.

Bibliometric mapping therefore indicates strong conceptual connections among sustainable finance, governance systems, and corporate sustainability practices. It also shows a shift from general sustainability discussion

toward more multidisciplinary research on accountability, institutional governance, and environmental-finance mechanisms.

The thematic timeline suggests a progression from foundational sustainability and environmental-policy concepts during 2015–2019 toward ESG disclosure and green bonds around 2020, followed by increasing attention to climate risk and institutional governance. More recent research emphasises carbon neutrality, green innovation, digital finance, transition policy, and integrated sustainability governance. This evolution reflects a shift from describing the field to examining the mechanisms linking finance, governance, and organisational capability.

Cluster One: Green Finance and Sustainable Investment

The first thematic cluster focuses on green finance and sustainable investment systems. Core topics include green bonds, climate finance, sustainable investment, carbon finance, and environmentally responsible financial systems. Research in this cluster examines how financial institutions and investment mechanisms can support environmental objectives and the transition to a lower-carbon economy.

Cluster Two: ESG Strategy and Corporate Sustainability

The second cluster focuses on ESG strategy, sustainability disclosure, corporate governance, and stakeholder accountability. Research in this area examines how ESG considerations are embedded in corporate

decision-making and sustainability-reporting processes and reflects growing academic interest in firm-level ESG integration and performance.

Cluster Three: Environmental Governance and Regulatory Systems

The third cluster centres on environmental-governance systems, environmental-policy frameworks, climate governance, and regulatory compliance. Its central concern is how institutional and regulatory arrangements shape sustainability

practices and environmental accountability across organisations and financial systems.

Cluster Four: Green Innovation and Sustainable Development

The fourth cluster focuses on green innovation, sustainability-oriented technology, and organisational transformation. An important emerging theme is the role of innovation and environmental capabilities in helping firms achieve sustainable environmental and economic outcomes.

Table 6. Highly cited anchor works supporting the intellectual structure of the review

Anchor work	Approx. cited-by indicator	Intellectual contribution
Donthu et al. (2021)	20,633	Bibliometric-analysis methodology
Friede et al. (2015)	8,750	ESG–financial performance synthesis
Berg et al. (2022)	5,800	Divergence of ESG ratings
Bolton & Kacperczyk (2021)	4,483	Pricing and relevance of carbon risk
Gillan et al. (2021)	4,091	Corporate-finance review of ESG/CSR
Flammer (2021)	3,917	Corporate green-bond effects
Krueger et al. (2020)	3,854	Institutional investors and climate risk

Source: Authors' compilation (2026).

DISCUSSION OF FINDINGS

The findings suggest that green finance, ESG strategy, and environmental governance are converging into an integrated sustainability-governance field. The four theoretical lenses help explain this convergence: Institutional Theory captures regulatory and normative pressures; Stakeholder Theory explains the expectations of investors, employees, communities, and regulators; Legitimacy Theory highlights credible disclosure and the organisational licence to operate; and the Natural Resource-Based View explains how environmental practices can become firm-level capabilities and sources of competitive advantage.

The post-2020 acceleration is analytically significant. It coincides with rising investor attention to climate risk and carbon exposure, wider use of sustainable-finance instruments, stronger expectations for ESG reporting, and increased policy engagement with net-zero commitments, green recovery, and transition finance (Bolton & Kacperczyk, 2021; Dikau & Volz, 2021; Krueger et al., 2020). The growth also reflects expanding international commitments under the SDGs and Paris

Agreement and greater availability of structured sustainability data and analytical tools. Publication growth therefore captures both institutional change and increased visibility of the research field.

China's high publication output is consistent with its extensive green-credit, green-bond, industrial-transition, and environmental-governance policies, which create policy variation, data demand, and sustained research opportunities. Research funding, large university networks, and publication infrastructure may further amplify this output. The concentration should not be interpreted as evidence that sustainability-governance challenges are unique to China; rather, China provides a comparatively visible and data-rich setting in which these issues can be studied.

Africa's underrepresentation is more plausibly explained by limited standardisation of ESG reporting, weaker availability of firm-level environmental and financial data, smaller green-capital markets, differences in regulatory enforcement, constraints on research funding, and lower representation in indexed journals than by an absence of relevant sustainability-governance issues. Existing African evidence demonstrates substantial research potential:

green finance can support industrial development, but outcomes depend on transition costs, institutional capacity, and policy design (Hilbrich et al., 2025; Nchofoung et al., 2024). Broader African representation would help test whether relationships observed in China and other large economies generalise across different institutional settings.

Taken together, the findings show a shift from parallel debates on finance, governance, and strategy toward analysis of how these domains interact. The next research phase should move beyond documenting publication growth to comparing institutional settings, examining causal mechanisms, evaluating disclosure and regulation, and identifying the conditions under which green finance produces measurable organisational and environmental change.

Conclusion and Future Research Directions

This study conducted a hybrid bibliometric and systematic review of 2,500 journal articles published between 2015 and the 2026 extraction date and retrieved from Dimensions. Publication output increased sharply after 2020, reaching 1,043 articles in 2025; the 2026 count is partial. The field is organised around four interconnected clusters: green finance and sustainable investment; ESG strategy and corporate sustainability; environmental governance and regulation; and green innovation and sustainable development.

The clusters are connected by concepts including disclosure, regulation, climate finance, corporate governance, and sustainable development. Their integration is explained through a multi-theoretical framework in which institutional and stakeholder pressures shape expectations, legitimacy depends on credible organisational response and disclosure, and the Natural Resource-Based View explains how environmental action can become firm-level capability. Geographic concentration remains pronounced, with China accounting for 987 publications and Africa comparatively underrepresented.

The study's principal contribution is a coherent map of an emerging sustainability-governance field together with a transparent account of its intellectual and geographic imbalances. The findings support further comparative and institution-specific research, stronger data infrastructure, more credible disclosure, greater regulatory capacity, and

deeper development of firm-level environmental capabilities. Bibliometric growth alone should not be interpreted as evidence of policy effectiveness; future research must connect the mapped knowledge structure to measurable organisational, financial, and environmental outcomes.

Implications of the Study

The findings have academic, policy, and managerial implications. The four-cluster structure and bridging concepts can help researchers position new studies without treating green finance, ESG, and environmental governance as isolated topics. Policymakers should coordinate sustainable-finance rules, environmental regulation, disclosure requirements, and verification capacity so that capital flows are tied to measurable transition outcomes. Financial institutions and firms should embed ESG information in risk assessment, investment decisions, governance systems, and capability development rather than treating reporting as a symbolic exercise.

The review also clarifies SDG alignment. Renewable energy and energy efficiency support SDG 7; resource-efficient production, disclosure, and circularity support SDG 12; climate finance and environmental governance support SDG 13; and international standards, cross-border capital, and research collaboration support SDG 17. Future empirical work should specify these links through measurable outcome indicators rather than relying on general statements of alignment.

Limitations of the Study

The study has five main limitations. First, it relies on a single database, so relevant publications indexed only in Scopus, Web of Science, or regional databases may be omitted. Second, restricting the corpus to English-language publications may underrepresent scholarship from non-English-speaking jurisdictions. Third, the 2026 publication count is incomplete and cannot be compared directly with full calendar years. Fourth, bibliometric relationships describe structures in publications, keywords, and citations but do not establish causal effects on organisational or environmental performance. Fifth, the original Dimensions CSV and Biblioshiny summary files were not retained in the revision package, so aggregate citation totals, mean citations, exhaustive source and country counts, numeric cluster-density measures, and a complete within-corpus citation ranking cannot be reproduced.

This constraint is reported explicitly, and no values have been imputed or invented.

Suggestions for Future Research

Future research should address four priorities. First, bibliometric studies should integrate Dimensions, Scopus, Web of Science, and relevant regional databases and retain complete export files so that database-specific citation indicators can be reproduced. Second, comparative research should place greater emphasis on Africa and other underrepresented institutional contexts to determine how data availability, capital-market development, regulatory capacity, and research infrastructure shape observed geographic differences. Third, longitudinal and quasi-experimental studies should test the effects of green-finance instruments, ESG systems, and environmental-governance reforms on firm behaviour, innovation, financial performance, and climate outcomes. Fourth, emerging themes such as transition finance, digital ESG reporting, artificial intelligence, nature-related financial

risk, and interoperability among sustainability taxonomies should be examined as the field matures.

Conflict of Interest Statement

The authors hereby declare no competing interests.

Data Availability

All data generated or analysed during the study are included in this published work (see attached supplementary file)

CRedit (Contributor Roles Taxonomy)

MCM: Conceptualisation, Methodology, Writing-original Draft

FIO: Investigation, Data Curation, Writing-review & editing, Supervision.

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