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Mapping The Shifting Trends in ESG Research Across Countries, Pillars and Industries

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ABSTRACT

This study conducts a Systematic Literature Review (SLR) of Environmental, Social, and Governance (ESG) research published between January 2015 - June 2025. Using the PRISMA 2020 protocol, 129 Scopus-indexed articles were analyzed through thematic mapping and bibliometric visualization. The analysis shows that ESG research remains geographically concentrated in developed economies such as China, the United States, and Europe, while contributions from emerging markets are still limited. Thematic patterns indicate an evolution from an early emphasis on environmental concerns to heightened attention on social issues during the COVID-19 pandemic. It is also followed by a growing focus on governance and integrated approaches in recent years. Sectoral industries perspectives reveal that most studies adopt a cross-industry orientation with particular attention given to banking and technology. Meanwhile, industries that play central role to developing countries remain largely overlooked. These findings emphasize the importance of broadening geographical coverage and sectoral depth to enhance both theoretical contributions and policy relevance in ESG research.

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SARI PATI

Penelitian ini menggunakan pendekatan Systematic Literature Review (SLR) terhadap studi mengenai Environmental, Social, and Governance (ESG) yang dipublikasikan pada periode Januari 2015–Juni 2025. Dengan berlandaskan protokol PRISMA 2020, sebanyak 129 artikel yang terindeks Scopus dianalisis melalui pemetaan tematik dan visualisasi bibliometrik. Hasil analisis menunjukkan bahwa riset mengenai ESG didominasi secara geografis oleh negara-negara maju seperti Tiongkok, Amerika Serikat, dan Eropa, sementara kontribusi dari negara-negara berkembang masih terbatas. Secara tematik, perkembangan riset ESG menunjukkan pergeseran fokus dari isu lingkungan, kemudian meningkat pada isu sosial selama pandemi COVID-19, lalu bergeser ke aspek tata kelola dalam beberapa tahun terakhir. Dari perspektif sektor industri, sebagian besar penelitian mengadopsi pendekatan lintas-industri, dengan perhatian utama pada sektor perbankan dan teknologi. Namun, industri yang menjadi penopang utama perekonomian negara berkembang masih kurang mendapat perhatian. Temuan ini menegaskan pentingnya perluasan cakupan geografis dan pendalaman kajian sektor untuk meningkatkan kontribusi teoretis sekaligus memperkuat relevansi kebijakan dalam penelitian ESG

INTRODUCTION

Sustainable development has long been recognized as a global priority since the Brundtland Commission defined it as meeting present needs without compromising the ability of future generations to meet their own needs. The growing urgency of climate change, social inequality, and corporate governance failures has intensified calls for businesses to embed sustainability into their strategies. Within this context, the Environmental, Social, and Governance (ESG) framework has emerged as a dominant paradigm for evaluating corporate practices beyond financial performance (United Nations Global Compact, 2004; OECD, 2022).

Over the past decade, ESG has become increasingly significant in corporate and regulatory domains as investors, policymakers, and stakeholders demand greater transparency and accountability. Firms are now assessed not only on profitability but also on their environmental stewardship, social responsibility, and governance structures (Giese et al., 2019). Integrating ESG into corporate strategies is widely regarded as a driver of long-term value creation, risk management, and sustainable competitiveness. Prior studies highlight that ESG adoption enhances corporate resilience by reducing risk exposure, strengthening stakeholder trust, and fostering innovation (Giese et al., 2019; OECD, 2022). Empirical evidence further suggests that ESG performance is positively associated with corporate value creation and competitive advantage, though the magnitude of this relationship differs across institutional settings (Bigelli et al., 2023; Abate et al., 2021).

Despite its growing adoption in both practical and academic context, ESG research remains fragmented. Geographically, most studies are concentrated in developed economies where regulatory frameworks and investor demand have accelerated ESG implementation (Wan et al., 2023; Cui & Li, 2024). In contrast, emerging economies in Southeast Asia, Latin America, and Africa remain underrepresented, largely due to data limitations and weaker institutional infrastructures (Rojo-Suárez et al., 2024).

Thematically, ESG studies have evolved across its three pillars. Early studies primarily emphasized environmental concerns, particularly climate change and ecological responsibility (Wen et al., 2025). The COVID-19 pandemic redirected attention toward the social dimension, emphasizing employee welfare, diversity, and social justice (Khan et al., 2024). Recently governance issues have gained prominence, with regulatory reforms mandating greater transparency, board diversity, and accountability (Bigelli et al., 2023; Fernández-Méndez & Pathan, 2025). This shift illustrates a growing recognition of ESG as an integrated management agenda rather than a collection of isolated concerns.

Sectoral perspectives in the literature remain limited. Although most studies adopt cross-industry approaches, industry-specific insights are limited to banking, information technology, and energy sectors (Wanday & Ajour El Zein, 2022; Paolone et al., 2024). These sectors attract attention due to their strategic importance in sustainable finance, digital innovation, and climate transition. Despite their critical role in the economies of developing countries, industries such as agriculture, manufacturing, and extractives remain underexplored in ESG research. The lack of sectoral depth constrains the practical relevance of ESG research for industry-specific policymaking and strategy development.

This fragmented development poses challenges in evaluating the trajectory of ESG research and constructing integrative frameworks to guide future inquiry. To address this gap, the present study conducts a Systematic Literature Review (SLR) of ESG research published between 2015 and 2025, with publications from 2025 representing partial data collected up to June 2025. This study differs from previous ESG bibliometric reviews by examining the geographical distribution of

publications, the thematic evolution across ESG pillars, and the sectoral orientation of existing studies within a single systematic framework. Rather than providing descriptive mapping alone, the review highlights structural gaps in emerging markets and sector-specific research, offering a more policy-relevant and conceptually integrated synthesis of ESG scholarship.

METHODS

This study employs a Systematic Literature Review (SLR) following the PRISMA 2020 guidelines to ensure a clear and structured review process (Page et al., 2021; Moher et al., 2009) To support the thematic analysis, a bibliometric mapping was also carried out using VOSviewer to show keyword patterns and topic groupings in ESG research.

Scopus was selected as the primary data source due to its broad and consistent coverage of peer-reviewed journals in business, management, and sustainability studies. Prior comparative studies indicate that Scopus provides substantial and reliable citation coverage across subject categories and is widely used in systematic literature reviews and bibliometric analyses (Martín-Martín et al., 2021). This study using literature search with Boolean operators to target studies within three conceptual domains: ESG measurement, corporate ESG attributes, and causal relationships. The query included keywords such as «ESG score» and «ESG rating,» combined with terms referring to firm-level characteristics including "sustainable business," "board composition," "gender diversity," "green innovation," "governance," and "ownership structure." These were further paired with relational expressions such as "influence," "determinant," "impact," "effect," and "people relation." This approach was designed to identify studies that explicitly examined the determinant factors that influencing ESG scores. The search resulted in 1,485 records from the Scopus database.

A structured inclusion and exclusion process was applied to refine the initial search results. The publication year was restricted to 2015–2025, with publications from 2025 representing partial data covering the period up to June 2025. Non-English publications, grey literature, and duplicate records were removed, reducing the dataset to 1,509 articles. A subsequent screening of titles, abstracts, and full texts was conducted to exclude studies that did not empirically examine factors influencing ESG score. This process yielded 153 relevant articles, of which 129 were selected for final analysis based on their thematic relevance and analytical clarity. Analytical clarity refers to studies that clearly state their research objectives, explicitly describe their ESG focus, and provide sufficient methodological transparency to support thematic and bibliometric analysis. The complete screening workflow is presented in Figure 1.

Selected articles were analyzed using a qualitative-descriptive approach supported by structured thematic mapping. Each study was reviewed and categorized based on three primary dimensions: the geographical scope of the research, its thematic orientation along the ESG pillars, and the industrial sector addressed. Coding was performed manually to ensure a nuanced interpretation of ESG research themes that may not be fully captured by automated bibliometric tools. The coding process followed a structured, multi-stage thematic procedure. Each article's title and abstract were systematically reviewed to identify its primary focus in terms of geographical scope, ESG pillar orientation (environmental, social, governance, or integrated), and sectoral context. Full-text screening was conducted to validate the initial classification and to refine thematic assignments based on the study's research objectives, variables examined, and empirical setting. No inferential statistical analyses or effect size aggregation were conducted, as the purpose of this review was to identify knowledge patterns and research gaps.

RESULTS AND DISCUSSION

The review analyzes 129 Scopus-indexed articles to examine how ESG research has evolved over time,

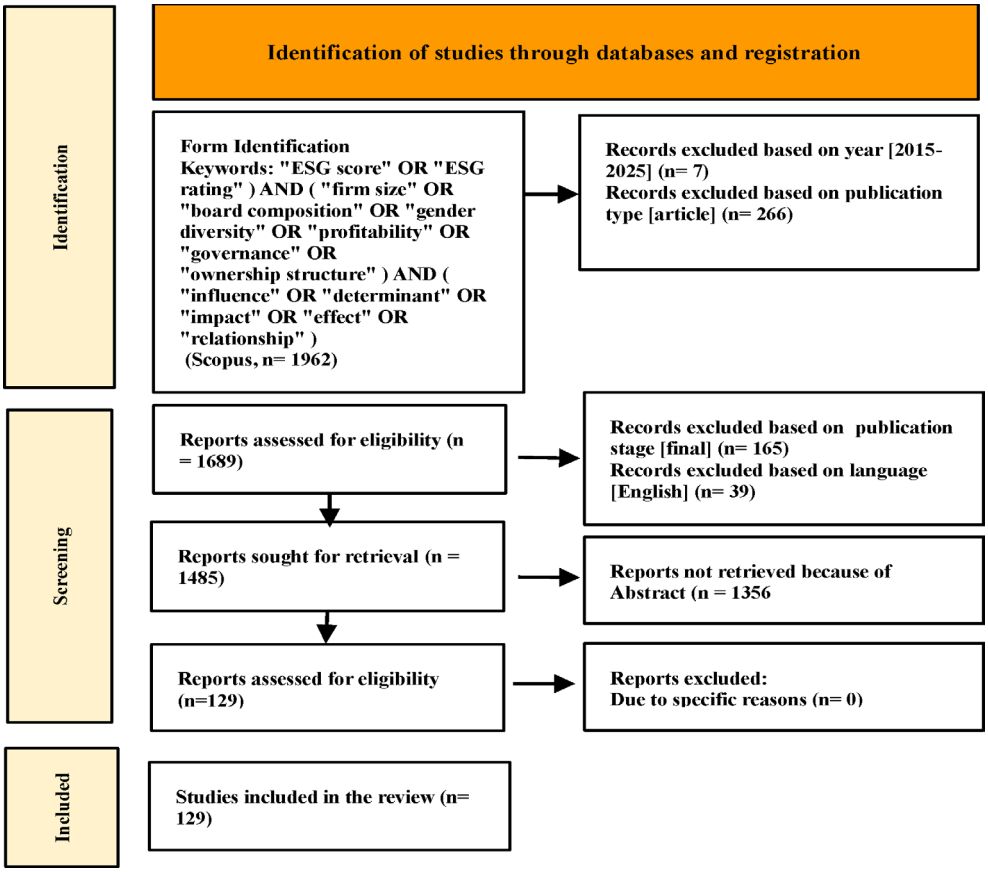

Figure 1. PRISMA flow diagram

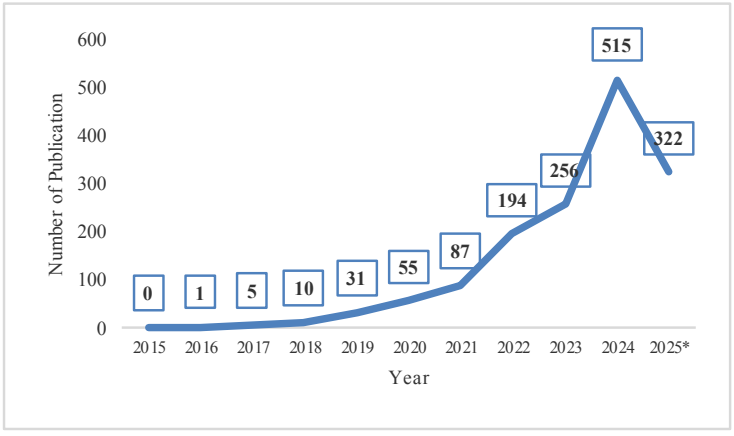

Figure 2. Trend of ESG publications 2015–2025
Note: * = June 2025

across themes, and across regions. The findings highlight rapid growth in publications alongside persistent geographical and sectoral gaps. The distribution of ESG-related publications reveals a steep upward trend in scholarly interest. As shown in Figure 2.

Figure 2 shows that ESG research was limited in the early years, with only a few studies published in 2015–2016, followed by steady growth between 2017 and 2019 and a sharp acceleration from 2020 onward. Publications peaked in 2024, and despite covering only the first half of the year, 2025 already

records substantial output, indicating sustained momentum. While Figure 2 captures this temporal growth, Figure 3 reveals that ESG research remains concentrated in Economics, Econometrics and Finance (27.2%) and Business, Management and Accounting (21.6%), with emerging interdisciplinary contributions from Social Sciences, environmental science, energy, and public policy.

To support the thematic analysis of ESG research, a bibliometric mapping of author keywords was conducted using VOSviewer. Figure 4 presents the co-occurrence network of 23 frequently used keywords in the selected articles. The analysis reveals four major thematic clusters within the ESG literature.

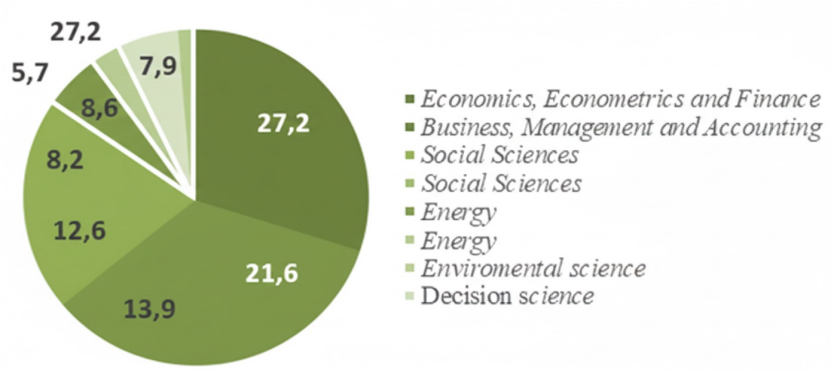

Figure 3. Distribution of ESG research by subject area

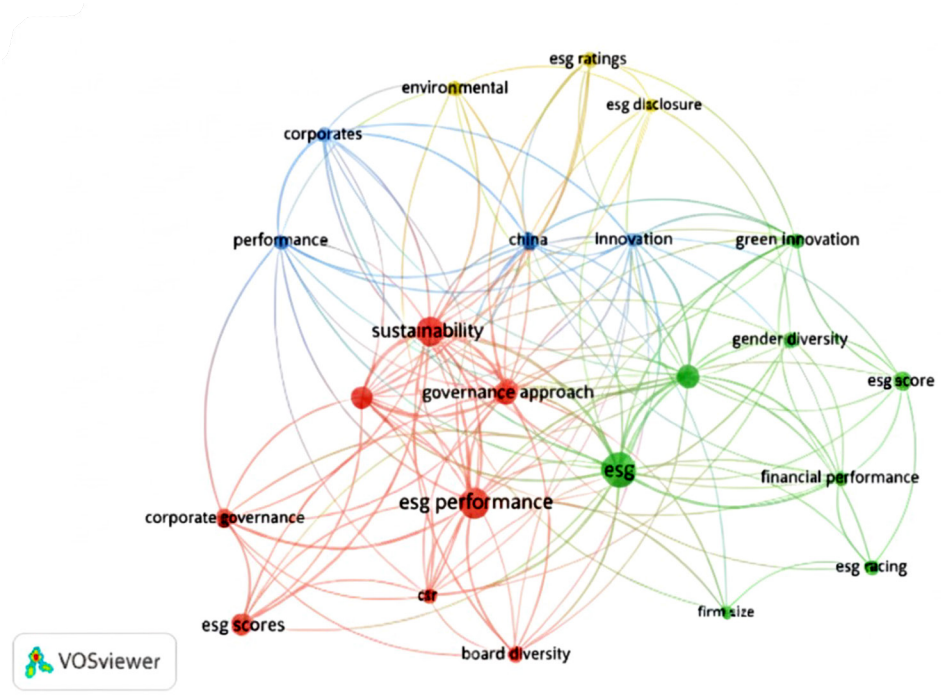

Figure 4. Keyword co-occurrence network map of ESG research (2015–2025)

Note: Colors indicate thematic clusters. Red represents governance and CSR-related themes; green indicates performance and innovation; blue reflects geographical and organizational contexts; and yellow refers to environmental disclosure and ESG ratings.

Four keyword clusters emerge from the bibliometric mapping, as shown in Figure 4. The red cluster focuses on governance and CSR, the green cluster on performance and innovation, the blue cluster on geographical and organizational contexts, and the yellow cluster on environmental disclosure and ESG ratings. Overall, the network suggests increasing integration across ESG themes rather than siloed discussions.

1. **Geographical Distribution of ESG Research**

Result analysis from 129 selected articles reveals a geographically uneven distribution of ESG research, with a strong concentration in specific regions and countries. The largest share of studies, approximately 26.5% adopts a global or cross-country perspective. These studies typically utilize multinational datasets and aim to identify universal or comparative patterns in ESG determinants and impacts across institutional environments, shown in Table 1.

Table 1. ESG Geographical distribution

Geographical Distribution	Article (%)	Article (Count)
Global	26.5	34
China	20.9	27
Europe	11.8	15
United States	9.8	13
South Korea	4.2	5
Emerging Markets	5.4	7
Germany	3.5	5
Russia	2.1	3
Africa	2.1	3
Asia	3.5	5
India	2.1	3
United Kingdom	2.1	3
ASEAN	2.1	3
Indonesia	1.4	2
Hong Kong	0.7	1
Iberian Companies	0.7	1
C40 Countries	0.7	1

Table 1 shows a geographical concentration of ESG research, with China accounting for 20.9% of the sample. This pattern reflects China's rapid institutional development in ESG governance, including the Green Credit Guidelines and the national carbon neutrality target for 2060, which together provide a strong policy foundation for empirical ESG research (F. Chen et al., 2024; S. Chen et al., 2023; Cui & Li, 2024; Ji et al., 2023; Suhrab et al., 2024; Wong & Li, 2024; Zhang & Lai, 2024; Zheng et al., 2023).

European countries contribute 11.8% of the reviewed studies, supported by mandatory sustainability reporting frameworks such as the Non-Financial Reporting Directive (NFRD) and the Corporate Sustainability Reporting Directive (CSRD), which enhance ESG disclosure consistency and data comparability (Thomson Reuters, 2022; Bigelli et al., 2023; Abate et al., 2021; Bax et al., 2024; Candio, 2024; Chiaramonte et al., 2022; Gavrilakis & Floros, 2023; Ktit & Abu Khalaf, 2024; Matos et al., 2020; Nicolò et al., 2022; Teti et al., 2024).

The United States represents 9.8% of the sample, where ESG research is largely driven by investor demand and regulatory debate on climate risk disclosure. Firm-level governance attributes, such as executive leadership, play an important role in shaping ESG outcomes in this context (Esparcia et al., 2025; Helhel et al., 2024; Lisin et al., 2022; Rojo-Suárez et al., 2024; Aabo & Giorici, 2023).

Other countries including South Korea (4.2%), Germany (3.5%), India (2.1%), Russia (2.1%), and the United Kingdom (2.1%) show moderate representation, while Africa, Southeast Asia, and Latin America remain underrepresented. Studies grouping multiple economies under "Emerging Markets" (5.4%) highlight ongoing challenges related to inconsistent ESG reporting standards and limited data availability.

2. **Thematic Evolution Across ESG Pillars**

Academic attention toward the three ESG has evolved over the past decade. Based on the classification of 129 articles published between

2015 and 2025, annual trends were mapped to assess shifts in thematic focus. While only a subset of these articles will undergo in-depth analysis in later sections, the full dataset is used here to ensure broader representativeness and avoid bias in identifying longitudinal patterns. The classification was performed using thematic cues from article titles and abstracts.

Figure 5 shows analysis of the 2019-2025 period of a dynamic evolution in ESG research themes across Environmental (E), Social (S), and Governance (G) pillars. The overall pattern follows a three-phase trajectory: a sharp rise during the "bandwagon era" (2019-2020), a momentary decline amid skepticism and regulatory adjustment (2021-2023), and a strong resurgence aligned with the institutionalization of ESG standards in 2024-2025. This progression reflects both external shocks such as the COVID-19 pandemic and structural shifts in global ESG frameworks, such as the adoption of the ISSB standards. Studies like Zhang & Lai (2024) further support the notion that institutional and governance dynamics fluctuate across these phases, with corporate leadership structures playing a critical role in ESG responsiveness.

Early Focus and the Rise of the Social Pillar (2019–2020)

In the initial years, particularly 2019, academic focus remained limited, with environmental concerns slightly more prominent than the other pillars. However, COVID-19 pandemic in 2020 radically shifted priorities. The Social pillar gained traction due to widespread disruptions in public health, labor rights, and social equity, amplified by events such as the Black Lives Matter movement. These phenomena compelled corporations and scholars alike to focus on health security, employee welfare, and diversity, as a result, 2020 marked a peak in socially oriented ESG studies, while Environmental and Governance topics also rose concurrently due to climate emergencies and risk management imperatives. This trend is mirrored in studies by Aabo & Giorici (2023) and Khan et al. (2024) both of which highlight the increasing impact of gender diversity and social responsibility on ESG scores during this period. For instance Khan et al., (2024) find a significant positive effect of female board presence on ESG performance in the automotive industry, reinforcing the surge in socially driven ESG research post-COVID

Post-Crisis Regression and the Risk of Greenwashing (2021)

By contrast, 2021 witnessed a regression across all ESG pillars, signaling a post-crisis fatigue and emerging backlash, especially in jurisdictions such as the United States. Companies increasingly adopted "greenhushing" strategies to downplay

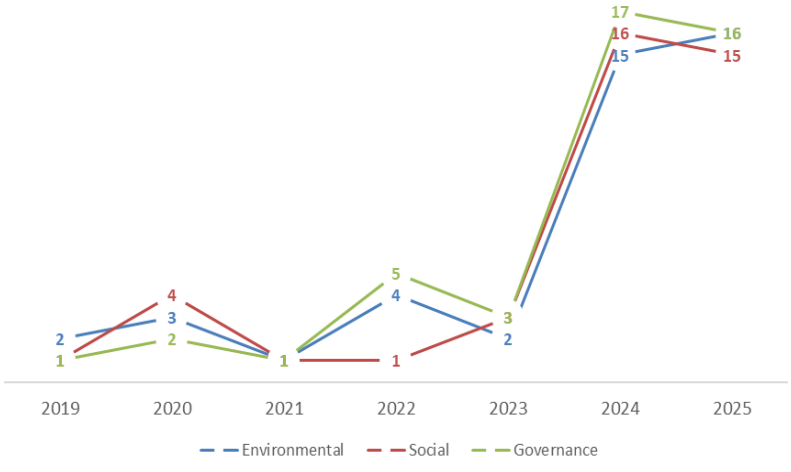

Figure 5. Evolution Across ESG Pillars (2019-2025)

their ESG commitments amid political scrutiny. Nevertheless, this period coincided with the foundational launch of the International Sustainability Standards Board (ISSB), laying groundwork for a renewed regulatory focus. Treepongkaruna et al., (2024) reveals that without credible verification, increased ESG claims in this period risked falling into greenwashing territory, particularly in high-carbon industries.

Governance and Environmental Resurgence (2022)

ESG agenda rebounded in 2022, particularly in the Governance and Environmental domains. Governance surged as firms needed to comply with new regulatory frameworks such as the EU's CSRD and the US SEC's climate disclosure draft. This resurgence is consistent with findings by Bigelli et al. (2023) who noted that post-directive periods in the EU saw significant improvements in ESG scores, especially when companies established CSR committees and increased board independence, highlighting governance structures as central. At the same time, escalating climate risks highlighted by IPCC's urgent warnings and extreme weather events rekindled attention on environmental strategy (IPCC, 2023). This is in line with Wen et al. (2025) who found that environmental tax reform in China stimulated ESG performance via increased green innovation and environmental investment. Moreover Zheng et al. (2023) provided evidence that green innovation directly enhances environmental ESG ratings, further reinforcing the thematic rise of the "E" pillar in corporate strategies during this period. The Social pillar, however, plateaued due to the absence of major global humanitarian shocks comparable to 2020.

Toward Integrated ESG Practices (2023)

The year 2023 marked a shift toward integrated ESG practices. Although the number of initiatives slightly declined, all three pillars showed balanced attention, indicating movement from disjointed approaches toward more interconnected approaches. The introduction of ISSB's IFRS S1 and S2, along with partial CSRD adoption, encouraged unified ESG disclosure (IFRS 2021). This aligns with findings by Lee et al., 2024; Lin et al., 2024; Lu, 2024; Peng & Kong, 2024 who emphasize that integrated governance structures support consistent ESG performance across pillars. Moreover, the emergence of just transition and supply chain human rights issues bridged the Environmental and Social domains. Studies by Fernández-Méndez & Pathan, 2025; Paolone et al., 2024 highlight that ethical leadership and gender diversity help connect environmental goals with social accountability, reinforcing the shift toward holistic ESG implementation.

Institutionalization and Maturity of ESG Research (2024–2025)

By 2024 and 2025, ESG research surged to its highest levels, driven by the full institutionalization of mandatory reporting regimes and increased stakeholder pressure. For the first time, all three pillars reached high volumes simultaneously: Environmental initiatives responded to the IPCC synthesis report and global climate action; Social topics gained visibility through new due diligence legislation and public expectations on labor welfare; Governance matured as companies embedded ESG into executive KPIs, assurance frameworks, and board oversight. The data indicate that beyond quantitative leap in publication, ESG has undergone a qualitative maturation as an integrated management paradigm.

Beyond temporal patterns, the observed shifts in ESG research reflect broader institutional, regulatory, and socio-economic dynamics. Early emphasis on environmental issues was largely driven by global climate agendas and environmental policy initiatives that positioned environmental performance as the entry point of corporate sustainability. The subsequent rise

of social themes during the COVID-19 period reflects heightened societal awareness of labor protection, social resilience, and inequality, which reshaped stakeholder expectations toward corporate responsibility. More recently, the growing prominence of governance-related themes corresponds to increasing regulatory standardization, mandatory disclosure regimes, and concerns over greenwashing, highlighting governance as a critical mechanism to ensure ESG credibility and accountability. These dynamics suggest that ESG research evolves not only in response to external shocks, but also as part of a broader process of institutionalization.

3. Sectoral Focus in ESG Literature

The majority of ESG studies adopt a general corporate perspective rather than focusing on specific industries, with listed general companies dominating the sample. This reflects the widespread availability of standardized ESG ratings across publicly listed firms, which facilitates cross-industry analysis of ESG performance, financial outcomes, and governance quality. However, this dominance also limits sector-specific insights, particularly for industries that are critical to developing economies, as shown in Table 2.

Table 2. Sectoral Focus in ESG Literature

Sector	Articles (%)	Articles (count)
Listed General Company	71.3	92
Banking	8.5	11
Information Technology	7.8	10
Energy	3.1	4
Financial	4.7	6
Supply Chain	1.6	2
Hospitality/Tourism	0.8	1
Education	0.8	1
Automotive Industry	0.8	1
Manufacturing	0.8	1

Banking and information technology emerge as the most frequently examined sectors in ESG research. In contrast, industries such as energy, manufacturing, supply chains, hospitality, education, and automotive are addressed in only one or two studies each. This uneven distribution highlights a substantial sectoral imbalance, particularly affecting industries that are highly relevant to emerging economies.

The prevalence of cross-sectoral samples can be explained by both methodological and theoretical considerations. Multisector datasets allow scholars to examine the general effects of ESG on firm performance, risk, and market valuation, thereby enhancing external validity. Consequently, many studies prioritize aggregate ESG trends over sector-specific institutional dynamics.

Despite this tendency, the growing focus on banking and technology suggests that sectoral characteristics meaningfully shape ESG implementation and outcomes. The banking sector is especially salient due to its central role in sustainable finance and climate risk management. Beyond adopting ESG practices internally, banks influence ESG diffusion across the economy through responsible lending and investment activities. Regulatory initiatives, including sustainable finance taxonomies and macroprudential guidelines, have further positioned banking as a key arena for ESG policy experimentation, particularly in emerging markets.

The technology sector attracts scholarly attention because of its dual ESG challenges: digital ethics and data privacy, alongside environmental concerns related to energy-intensive infrastructure. At the same time, technology firms are often perceived as ESG frontrunners, advancing innovations such as green fintech, energy-efficient platforms, and digital inclusion. This contrast indicates that ESG effects may differ substantially between technology-driven firms and traditional industries, underscoring the moderating role of sector-specific dynamics.

Although the energy sector remains underrepresented in the 2019–2025 literature, its high carbon intensity, resource dependence, and environmental externalities place it at the core of global climate policy debates. As Wanday and Ajour El Zein (2022) note, heightened ESG scrutiny has direct implications for energy firms' governance structures and strategic decision-making. Given the accelerating transition toward clean energy and stricter climate regulations, sector-specific ESG research in this area is likely to expand in future studies

MANAGERIAL IMPLICATIONS

This study offers actionable implications for multiple stakeholder groups actively involved in the development, assessment of ESG practices, such as corporate managers, regulators and policymakers, and institutional investors. This study underscores the need to adopt dynamic and context-sensitive ESG strategies. The shifting dominance across ESG pillars particularly the rising prominence of the Governance dimension in recent years. Signals that firms can no longer treat social issues as secondary. Corporate leaders should integrate governance and social performance into their sustainability strategies to respond to stakeholder expectations and avoid reputational risks.

The geographical disparities in ESG research highlight the importance of strengthening ESG infrastructures in emerging markets. The underrepresentation of regions such as Southeast Asia and Latin America reflects not a lack of ESG relevance, but often a deficiency in regulatory clarity, disclosure standards, or accessible ESG data. As a result, strengthening ESG infrastructure becomes a strategic priority for both corporate leaders and regulators in emerging markets. Policymakers in these contexts should focus on building capacity for ESG reporting, incentivizing transparency, and harmonizing local frameworks with global standards such as the ISSB or CSRD. Additionally, the increasing emphasis on social issues and just transition indicates that policy interventions should extend beyond environmental and climate disclosures to include social protections, labor regulation, and corporate accountability in global supply chains.

The findings also point to the need for greater nuance in sectoral assessments. The literature's overconcentration on general listed companies suggests a gap in understanding the ESG risks and materiality specific to sectors such as agriculture, extractives, or heavy manufacturing sectors that are particularly critical in developing economies. Investors should demand more granular and forward-looking ESG disclosures that reflect sector-specific realities and not merely rely on standardized reporting metrics.

CONCLUSION

This study addresses key gaps in ESG research by examining its geographical distribution, thematic evolution across ESG pillars, and sectoral orientation. The findings align with the expectations outlined in the Introduction: ESG research remains concentrated in developed economies, exhibits a shift in emphasis from environmental issues toward social and governance dimensions, and shows limited sectoral depth beyond banking, technology, and energy. Collectively, these patterns reflect a body of literature that is evolving but remains uneven, underscoring the need for a more balanced and inclusive research agenda.

Future ESG research should expand toward underrepresented regions such as Southeast Asia, Latin America, and Africa to capture broader institutional and cultural contexts. The limited representation of emerging markets is largely attributable to data constraints, fragmented regulatory environments, and the absence of standardized ESG disclosure frameworks. In developing economies such as Indonesia, future studies could focus on sector-specific ESG materiality, the role of state-owned enterprises in sustainability initiatives, and the effectiveness of domestic regulations in shaping ESG performance.

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