

Cognitive Analytics in ESG Performance Measurement and Investment Decision-Making: The Moderating Role of Corporate Governance

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377

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ABSTRACT

This study aims to examine the role of cognitive analytics in measuring Environmental, Social, and Governance performance and its influence on investment decisions with corporate governance as a moderating variable. This study uses a qualitative approach in the form of library research with a systematic, analytical, and critical descriptive analysis method of relevant literature. Data were collected from 100 articles indexed in the Scopus database for the period 2022-2025, then analyzed using bibliometric analysis and data visualization through Harzing's Publish or Perish and VOSviewer software. Governance was the most discussed topic, followed by ESG performance and investment decisions. English was the dominant language in publications, with the main fields of study being Business, Management, and Accounting. Publication trends showed a significant increase from year to year, especially in 2024 and 2025. Factors that shape ESG performance, as well as governance aspects such as board size and diversity. Investment decision-making, behavioral factors such as prospects, heuristics, and herding are the main focus. Corporate governance acts as a moderator that strengthens the relationship between ESG performance and investment decisions. An integrative conceptual model linking these three variables with cognitive analytics as a measurement and analysis tool is proposed to improve sustainable decision-making.

Keywords: Corporate Governance, ESG Performance, Investment Decisions, Sustainable Decision-Making, Systematic Literature Review.

INTRODUCTION

Environmental, Social, and Governance (ESG) has grown rapidly in recent decades, evolving from a straightforward idea of generating profits to a broader awareness of the impact of economic, social, and environmental activities (Alqudah et al., 2025). As attention to sustainability issues has grown, it has become apparent that traditional Performance Measurement System (PMS) models are unable to capture the complexity and interrelationships between ESG dimensions. To address these limitations, a more comprehensive Sustainable Performance Measurement System (SPMS) has been developed to assess company performance (Dauerer, 2025). However, to date the factors that have the biggest influence on ESG criteria have not yet been thoroughly examined (Martiny et al., 2024).

ESG variables have become crucial indicators for evaluating investor choices, national advancement, and company sustainability (Park & Jang, 2021; Weston & Nnadi, 2023;

JIAKES

Fildisi et al., 2025). ESG initiatives can benefit the economy and the environment, however meeting ESG investment standards requires sufficient financial resources, since financial instruments are necessary to meet the resource requirements of ESG operations and resource availability can drive ESG development (Wang et al., 2022; Chen et al., 2023). At the same time, both progressive and conventional investors are rapidly embracing the expanding ESG movement, recognizing that climate-related risks directly translate into investment risks, which has intensified the demand for a more comprehensive understanding of ESG performance (Arvidsson & Dumay, 2022).

Aligning global sustainability discourse through AI-enhanced topic modeling provides a comprehensive approach that bridges international policy agendas, while revealing unexplored opportunities in the ESG dimensions, enabling the creation of data-driven and adaptive strategies (Fildisi et al., 2025). Although AI technologies hold significant promise for strengthening ESG implementation, they may simultaneously encourage increased consumption patterns that can undermine socio-economic and environmental sustainability (Deberdt et al., 2025; Akash & Kumari, 2025). Other practices in ESG portfolio management impact investors in Sustainable and Socially Responsible Investment, many existing frameworks have yet to effectively incorporate AI to enhance ESG portfolio optimization (Kanikanti, 2022; Gaurav et al., 2025).

Drawing on a systematic literature review (SLR) by Kogi et al. (2025), four principal streams of ESG accounting research related to ESG disclosure in primary-based economies were identified, concentrating on Corporate Governance (CG) dynamics through both external and internal ESG disclosure and reporting systems. Furthermore, the study by Alqudah et al. (2025) note that most existing bibliometric studies examine ESG and technology as separate domains, whereas their study integrates multiple technology clusters into a comprehensive ESG framework, offering a cross-cluster view encompassing sustainable financial technology (FinTech), sustainable AI, big data, and cryptocurrency.

The purpose of this study is to examine and analyze the role of cognitive analytics in measuring esg performance and investment decisions, with corporate governance acting as a moderator, with the aim of identifying research gaps and formulating a future research agenda. This study employs a qualitative approach based on a systematic literature review (SLR) and bibliometric analysis to investigate trends and developments in the related body of publications during the period 2022–2025.

Specifically, the study explores the types of sources and documents commonly used in published articles, the most frequently employed publication languages, and the overall trends in article publications over time. It also examines the research fields associated with esg performance, investment decisions, and corporate governance studies, as well as the key factors and conceptual models that shape these areas. Furthermore, this study identifies the most active sources and journals, the educational institutions contributing to the publications, the most widely cited and influential articles, and the leading authors in this research domain. By combining systematic literature review and bibliometric analysis, the study provides a comprehensive understanding of the current landscape of research on ESG performance, investment decisions, and corporate governance, highlighting trends, influential contributors, and gaps that offer opportunities for further investigation.

LITERATURE REVIEW

Cognitive Analytics

Cognitive analytics stems from the study of how individuals process information, form perceptions, and make decisions in complex and uncertain conditions (Feinnudin & Wahono, 2025). In the field of economics and finance, cognitive analytics is used to understand the mental processes of investors in assessing both quantitative and qualitative information (Noch & Rumasukun, 2024). Non-financial information, such as issues of sustainability and corporate social responsibility, often requires deeper interpretation because it is not always standardized and is subjective in nature.

Advances in information technology have encouraged the use of AI-based cognitive analytics, such as natural language processing (NLP) and machine learning (ML), to extract meaning from company reports (Sereati et al., 2020). This approach facilitates a more comprehensive analysis of the narratives, sentiments, and consistency of the information presented by companies (Arunthavanathan et al., 2020). In ESG studies, cognitive analytics helps identify how companies frame sustainability issues and how this information is perceived by investors (Dawar et al., 2025).

However, cognitive analytics is not without methodological challenges. Investors' cognitive processes are influenced by bias, experience, and socio-cultural factors, so the results of interpretation may vary (Noch & Rumasukun, 2024). Therefore, the literature emphasizes the importance of combining cognitive analytics with a strong institutional and governance framework so that the results of the analysis can provide a more objective and reliable picture in assessing a company's sustainability performance.

Environmental, Social, and Governance (ESG) Performance

ESG performance reflects how effectively a firm embeds environmental, social, and governance considerations into its strategic direction and operational practices (Noch, 2025). The environmental component concerns the management of environmental impacts, the social component addresses interactions with employees, communities, and broader stakeholders, and the governance component emphasizes corporate oversight mechanisms and transparency (Hoang, 2018). These three dimensions are important indicators in assessing a company's long-term sustainability (Aldowaish et al., 2022). High ESG performance can enhance a company's reputation, attract socially conscious investors, and improve risk management by addressing potential environmental and social challenges. Furthermore, firms with strong ESG practices are often better positioned to achieve regulatory compliance and maintain competitive advantage in markets increasingly focused on sustainability. Consequently, ESG performance has become a critical metric for both investors and corporate decision-makers seeking long-term value creation.

In financial literature, ESG performance is increasingly seen as a relevant factor in managing risk and creating value. Firms with good ESG performance tend to have a stronger reputation, higher operational stability, and better adaptability to regulatory changes (Khalil et al., 2024). Therefore, ESG is no longer positioned as merely an ethical issue, but as an integral part of company performance assessment. However, measuring ESG performance faces various obstacles, such as differences in reporting standards and inconsistencies between rating agencies. This situation causes variations in ESG assessments and increases reliance on subjective interpretations. In this situation, cognitive analytics becomes relevant to understand how investors interpret inconsistent ESG information and how these perceptions influence their assessment of company performance.

Investment Decisions

Investment Decisions (ID) are the result of an evaluation process that involves consideration of risk, return, and investor preferences (Suriyanti et al., 2024; Herijawati & Wi, 2025). In the traditional approach, investment decisions are based on financial information and rationality assumptions. However, recent literature shows that investors also consider non-financial factors, including ESG performance, as part of their long-term investment strategy (Rahmaniati & Ekawati, 2024). This shift reflects a broader trend toward sustainable finance, where non-financial metrics increasingly influence portfolio allocation. As a result, companies with strong ESG performance may enjoy lower capital costs and greater access to long-term investors.

The integration of ESG into investment decisions is greatly influenced by investors' cognitive processes (Young-Ferris & Roberts, 2023). The way investors process ESG information, assess its relevance, and relate it to investment objectives greatly determines the final decision. A convincing sustainability narrative can increase investor confidence,

while ambiguous ESG information can cause doubt and slow down decision-making (Aich et al., 2021). Cognitive factors, such as attention, memory, and judgment, play a critical role in how ESG information is interpreted. Consequently, understanding these cognitive mechanisms is essential for designing effective ESG reporting and communication strategies.

In addition, investor responses to ESG information are not homogeneous. Institutional investors generally have greater analytical resources and a more systematic approach, while individual investors tend to be more influenced by perceptions, emotions, and cognitive biases (Zahera & Bansal, 2018; Badola et al., 2024). These differences underscore the importance of a cognitive analytics approach to understanding the dynamics of ESG-based investment decisions more comprehensively. Tailored strategies may therefore be needed to address the unique decision-making patterns of different investor types. Moreover, integrating behavioral insights with ESG data can enhance predictive accuracy in investment analysis and portfolio management.

Corporate Governance

Corporate Governance is a framework that structures and oversees the relationships among management, the board of directors, shareholders, and other relevant stakeholders. Good governance aims to ensure transparency, accountability, and protection of shareholder interests (Rudyanto & Veronica Siregar, 2018; Zulfikar et al., 2020). As a moderating variable, corporate governance can strengthen or weaken the relationship between cognitive analytics, ESG performance, and investment decisions. An effective board structure, strong oversight mechanisms, and transparent reporting practices can reduce information asymmetry and investor cognitive bias. This allows investors to process ESG information more rationally and accurately, ultimately supporting better decision-making and long-term value creation. Furthermore, firms with robust governance practices are generally more resilient to regulatory scrutiny and market volatility, reinforcing investor confidence.

Conversely, weaknesses in corporate governance can open up opportunities for ESG information manipulation or greenwashing practices. This can mislead investors' cognitive analytics and reduce the quality of investment decisions. In such cases, even high-quality ESG data may be misinterpreted or undervalued, undermining sustainable investment objectives. Therefore, the literature emphasizes that strong corporate governance is an essential prerequisite for ensuring that ESG information serves as a reliable foundation for sustainable investment decisions. Strengthening governance mechanisms can also promote ethical corporate behavior and align management incentives with long-term sustainability goals (Sarma et al., 2024).

RESEARCH METHODS

This study uses a qualitative approach in the form of library research, employing a systematic, analytical, and critical descriptive analysis of relevant literature. The data collection process involved retrieving article documents from the Scopus database on October 1, 2025. Scopus was selected as it provides comprehensive coverage of peer-reviewed journals and high-quality publications suitable for bibliometric analysis. The search was conducted based on specific criteria, including document type, source, language, subject area, publication year, country, institutional affiliation, prominent authors, most productive sources, highly cited articles, and relevant keywords. Only publications whose titles, abstracts, and keywords addressed themes related to Environmental, Social, and Governance (ESG) performance, investment decisions (ID), and corporate governance (CG) within the 2022–2025 period were included. The 2022–2025 period was chosen to capture the most recent trends and developments in the research area. The database search was carried out using the TITLE-ABS-KEY function to ensure that articles were directly relevant to the study topic.

To maintain the quality of the dataset, duplicate records from journal-sourced documents were removed, resulting in a final sample of 100 unique articles. These articles

were exported from Scopus in the research information systems (.ris) format, which allowed for further bibliometric processing and analysis. The analysis combined quantitative bibliometric techniques with qualitative interpretation. Harzing’s Publish or Perish (PoP) software was employed to examine citation metrics and evaluate the impact of publications, while VOSviewer was used to create bibliometric maps and visualizations that illustrate relationships among authors, institutions, and keywords. Harzing’s Publish or Perish (PoP) software was employed to measure citation impact, while VOSviewer was used to visualize relationships among authors, institutions, and keywords due to its clear mapping capabilities. Descriptive statistics were also processed using Microsoft Excel to summarize publication trends, such as annual output, country and institutional contributions, and the most influential journals.

The integration of bibliometric analysis with a systematic literature review provided a comprehensive understanding of the current landscape of research on ESG performance, investment decisions, and corporate governance. By combining critical qualitative insights with quantitative bibliometric measures, this approach allowed the identification of research gaps, influential contributors, and emerging trends. Figure 1 presents the overall document retrieval and selection process, detailing each stage from initial search to final analysis, which ensured transparency and replicability in the research methodology. This methodology supports a robust, evidence-based evaluation of the literature in a structured and systematic manner.

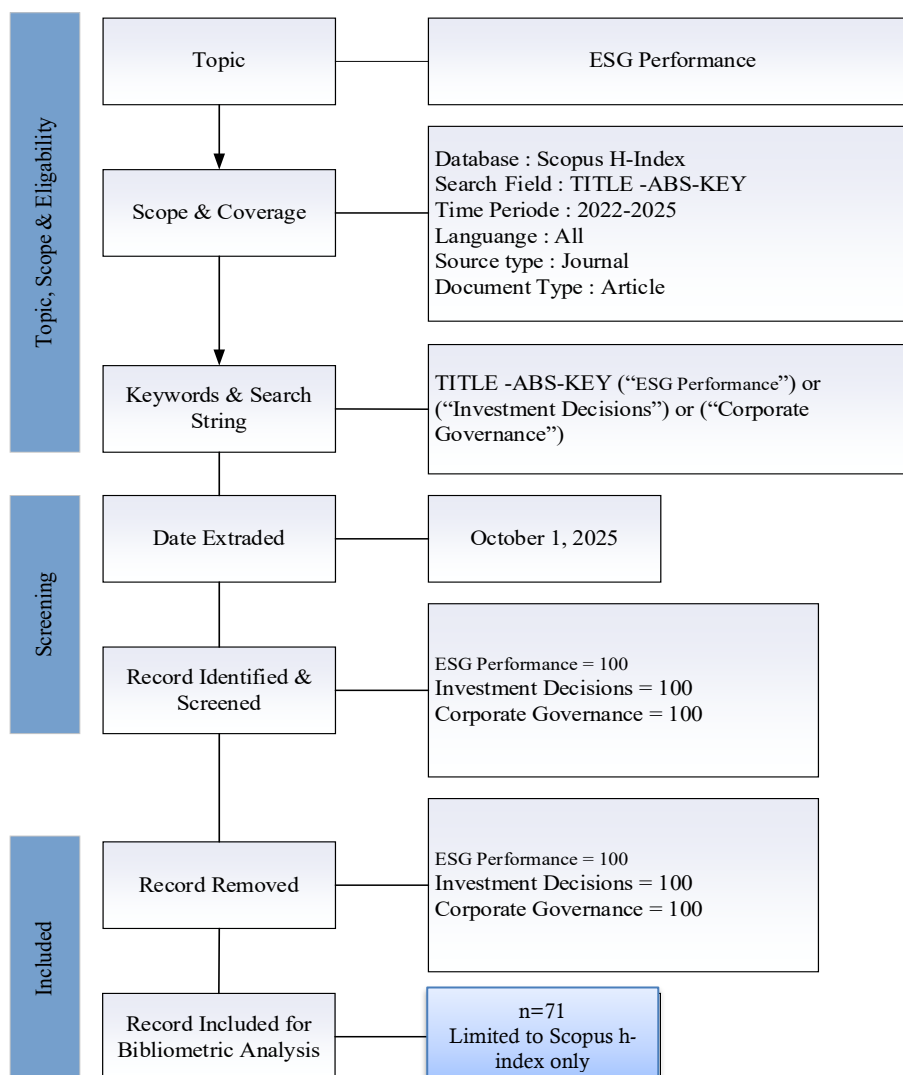


Figure 1. PRISMA Flowchart of the Study Selection Process

RESULTS

Publication Trends, Sources, and Institutional Contributions

The development of scholarly articles on Environmental, Social, and Governance (ESG) performance, Investment Decisions (ID), and Corporate Governance (CG) from 2022 to 2025 demonstrates a growing interest in these interconnected topics. This study focused exclusively on journal-based articles that directly addressed the search terms TITLE-ABS-KEY (“ESG Performance, Investment Decisions, and Corporate Governance”), resulting in a total of 100 publications. By limiting the analysis to peer-reviewed journal articles, the study ensures that the data reflects high-quality and rigorously vetted research, providing a reliable basis for bibliometric and systematic literature analysis. The selection process also allowed for a clear focus on research that explicitly engages with ESG, investment, and governance themes, ensuring relevance to the study objectives.

In terms of publication language, English emerged as the dominant medium across all analyzed articles. This predominance is consistent with the role of English as the primary language of international academic communication, which facilitates broader dissemination and accessibility of research findings. Publishing in English allows authors to reach a wider global audience, increasing the potential for citations and academic influence, which is reflected in the high h-index values observed in the analyzed publications. Consequently, the use of English not only enhances the visibility and impact of research but also promotes international collaboration and the exchange of knowledge across diverse research communities.

Regarding academic fields, the majority of the articles fall within the disciplines of business, management, and accounting, highlighting the centrality of these domains in ESG, investment, and governance studies. Other related fields include economics, finance, and broader Business & Industry studies, reflecting the multidimensional nature of the topics under investigation. This disciplinary distribution indicates that ESG performance and its integration into investment decisions are primarily examined through managerial and financial perspectives, while corporate governance remains a crucial framework for understanding organizational oversight and accountability. The focus on these academic fields underscores the practical and theoretical importance of ESG, investment, and governance issues within contemporary business research.

Table 1. Subject Area

Subject Area	Number of Publications	Percentage (%)
Business, Management and Accounting	63	88.73%
Economics, Finance, Business & Industry	3	4.23%
Economics, Econometrics and Finance	5	7.04%

Based on subject area in Table 1, with the aim of selecting journals based on the subjects of ESG performance, investment decisions, and corporate governance, we obtained 63 (88.73%) journals in the discipline of business, management and accounting, 3 (4.23%) journals in the discipline of economics, finance, business & industry, and 5 (7.04%) journals in the discipline of economics, econometrics and finance.

Table 2. Year of Publication

Year	Subject	Total Publications	Publications Cited	Citations	Average Citations $f = e/c$	Average Citations $g = e/d$
a	b	c	d	e	f = e/c	g = e/d
2022	ESG Performance	0	0	0	0	0
	Investment Decisions	3	3	36	12	12
	Corporate Governance	12	11	774	64.5	70.36
2023	ESG Performance	1	1	7	7	7

Year	Subject	Total Publications	Publications Cited	Citations	Average Citations	Average Citations
2022	Investment Decisions	0	0	0	0	0
	Corporate Governance	9	9	245	27.22	27.22
	ESG Performance	4	4	241	60.25	60.25
2023	Investment Decisions	0	0	0	0	0
	Corporate Governance	18	15	148	8.2	9.87
	ESG Performance	7	7	66	9.43	9.43
2024	Investment Decisions	1	1	3	3	3
	Corporate Governance	16	11	129	8.06	11.72
	ESG Performance	23	23	241	10.48	10.48
2025	Investment Decisions	1	1	3	3	3
	Corporate Governance	24	19	190	7.92	7.92
	ESG Performance	24	24	241	10.04	10.04

To examine the annual trends in publications on ESG performance, investment decisions, and corporate governance from 2022 to 2025, the analysis considered both the number of articles published each year and their citation patterns. In 2022, a total of 15 articles were published, followed by a slight decline to 10 articles in 2023. However, publication activity increased significantly in 2024 with 23 articles, and continued to grow in 2025 with 24 articles, indicating a rising scholarly interest in these interconnected research areas. This upward trajectory suggests that ESG, investment decision-making, and corporate governance have become increasingly prominent topics within the academic community over the examined period. Table 2 presents the detailed distribution of publications by year, including the number of articles in each subject area, citation counts, and average citations per publication, providing a comprehensive overview of the evolving research landscape.

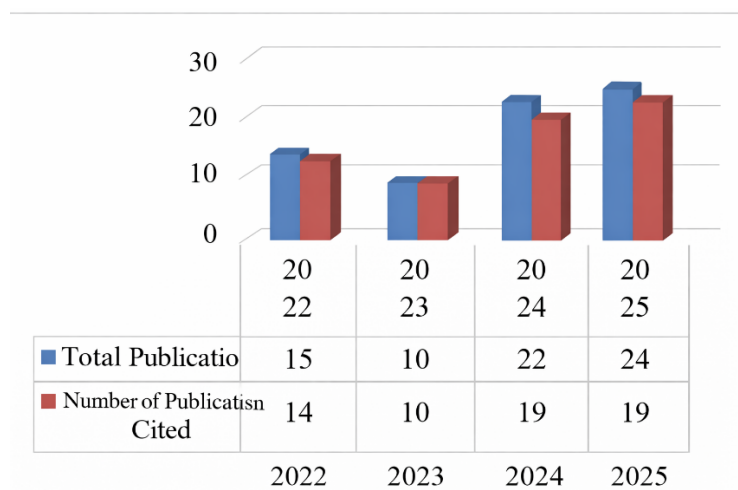


Figure 2. Annual Trends in Publication Volume and Citation Counts

Based on Figure 2, the trend of publications on ESG performance, investment decisions, and corporate governance articles collected in 2022–2025 shows a clear increase in scholarly attention to these topics. This growth reflects the rising importance of integrating sustainability and governance considerations into investment and corporate decision-making processes. Moreover, the increasing number of publications suggests that researchers are progressively exploring the interactions between ESG performance, investor behavior, and corporate governance mechanisms, highlighting emerging research gaps and opportunities for further investigation.

The mapping of institutional contributions to ESG performance, investment decisions, and corporate governance research during the 2022–2025 period reveals a broad but uneven global distribution of scholarly output. India emerges as the most dominant contributor, with 22 educational institutions actively publishing in this field. Several Indian universities demonstrate notable productivity, including the Xavier Institute of Social Service, VIT-AP University, and various national and state universities, indicating a strong academic interest in sustainability, governance, and responsible investment issues within the country. This dominance suggests that ESG-related research has become a strategic academic focus in India, possibly driven by growing regulatory attention, corporate sustainability initiatives, and the expansion of capital markets.

Malaysia ranks second with 10 contributing institutions, such as Universiti Teknologi Malaysia, Universiti Kebangsaan Malaysia, and Monash University Malaysia, reflecting increasing regional engagement in ESG and governance discourse within Southeast Asia. Other countries including Brazil, China, Germany, Greece, Portugal, South Africa, the United Kingdom, the United States, and several others show more limited representation, generally with only one or two institutions contributing publications. This pattern indicates that while ESG, investment, and governance research is globally dispersed, it remains concentrated in specific academic hubs, particularly in emerging economies like India and Malaysia. The data highlight a growing international interest in ESG-related themes, yet also reveal disparities in research intensity and institutional participation across countries.

The distribution of influential publication outlets in corporate governance (CG), ESG, and related research during the 2022–2025 period demonstrates a strong concentration among several major international publishers. Based on the Scopus h-index criteria, Emerald Group Publishing Ltd emerged as the leading publisher, contributing nine articles with a total of 401 citations. Several Emerald journals, such as *Corporate Governance*, *Journal of Global Responsibility*, and *Journal of Advances in Management Research*, recorded substantial citation counts, indicating both productivity and academic impact. In particular, corporate governance showed multiple contributions with high citation figures, reinforcing Emerald's dominance in governance-related scholarship.

The journal of cleaner production, published by Elsevier, also stands out as a highly influential outlet, producing three articles that collectively received 232 citations, including one article with 175 citations, highlighting its strong impact in sustainability and ESG-related discussions. Meanwhile, the *IUP Journal of Corporate Governance* (ProQuest) contributed five articles, although with a relatively lower citation total of five citations. Other prominent publishers such as Springer, Wiley Online Library, Taylor & Francis, MDPI, Sage Journals, and Inderscience also featured in the dataset, with journals like *Journal of Management and Governance* (Springer) recording notably high citations (324). The findings indicate that while research output is distributed across various international publishers, citation impact is concentrated in a limited number of high-reputation journals, particularly those published by Emerald and Elsevier (McKelvey & Rake, 2020).

Influential Articles and Factors Shaping Research

This section presents the most influential articles on ESG performance, investment decisions, and corporate governance, identified through citation analysis. Highly cited studies reveal the research that has shaped current knowledge and guided further investigations. Key factors influencing ESG, investment, and governance outcomes are also examined, including firm characteristics, board composition, and investor behavior. These factors highlight the main determinants of sustainable practices and decision-making. Together, the influential studies and their identified factors provide a clear overview of the current research landscape.

Table 3. Articles with the Highest Citations

Topic	Authors	Title	Year	Citations	Citation per Year
ESG Performance	Belli et al. (2023)	The relationship between ESG and financial performance: a review of research in Latin America and worldwide	2023	7	3.5
	Martiny et al. (2024)	Determinants of environmental social and governance (ESG) performance: A systematic literature review	2024	175	44
	Cardillo and Basso (2025)	Revisiting knowledge on ESG/CSR and financial performance: A bibliometric and systematic review of moderating variables	2025	35	18
Investment Decisions	Rao and Lakkol (2022)	A review on personality models and investment decisions	2022	28	9.33
	Gautam and Kumar (2025)	Prominent behavioural biases affecting investment decisions: a systematic	2025	3	3
Corporate Governance	Naciti et al. (2022)	Corporate governance and sustainability: a review of the existing literature	2022	324	108
	Velte (2023)	Does sustainable board governance drive corporate social responsibility? A structured literature review on European archival research	2023	60	30
	Teixeira and Carvalho (2024)	Corporate governance in SMEs: a systematic literature review and future research	2024	50	50
	Khatib (2025)	An assessment of methods to deal with endogeneity in corporate governance and reporting research	2025	51	51

Table 3 shows the most cited articles on ESG performance, investment decisions, and corporate governance based on bibliometric analysis. These studies highlight the research that has most influenced the field and guided subsequent investigations. Citation counts indicate their significance and impact within the academic community. The table includes authors, publication year, and citation metrics to provide a clear overview of the most influential publications.

Table 4. Factors Shaping ESG Performance, Investment Decisions, and Corporate Governance

Topic	Authors	Title	Factors Forming the Variable
ESG Performance	Martiny et al. (2024)	Determinants of environmental, social and governance (ESG) performance: A systematic literature review	<ol style="list-style-type: none"> 1. Firm Strategy 2. Firm characteristics 3. CEO features 4. Corporate Governance 5. Audit Committees 6. Directors' and officers' liability 7. Family Firms 8. Investors' relationship
	Cardillo and Basso (2025)	Revisiting knowledge on ESG/CSR and financial performance: A bibliometric and systematic review of moderating variables	<ol style="list-style-type: none"> 1. General ESG 2. Governance 3. Environmental 4. Expenditures <p>Moderating Variables</p> <ol style="list-style-type: none"> 1. Firm Characteristics

Topic	Authors	Title	Factors Forming the Variable
			<ol style="list-style-type: none"> 2. Industry-Level Indicators 3. Institutional/Legal Environment 4. Corporate Governance 5. Social/Culture Indicators 6. CSR Engagement 7. Firm Strategy 8. Economic Indicators
	Belli et al. (2023)	The relationship between ESG and financial performance: a review of research in Latin America and worldwide	Temporal and cross-sectional dimensions
Investment Decisions	Gautam and Kumar (2025)	Prominent behavioural biases affecting investment decisions: a systematic	<ol style="list-style-type: none"> 1. Prospek 2. Heuristik 3. Herding
	Rao and Lakkol (2022)	A review on personality models and investment decisions	<ol style="list-style-type: none"> 1. Investment avenues 2. Financial control 3. The importance given to financial information 4. Thinking in financial matters 5. Behavioral biases.
	Khatib (2025)	An assessment of methods to deal with endogeneity in corporate governance and reporting research	<ol style="list-style-type: none"> 1. Board Size 2. Board Diversity
Corporate Governance	Teixeira and Carvalho (2024)	Corporate governance in SMEs: a systematic literature review and future research	<ol style="list-style-type: none"> 1. Board 2. Ownership 3. CEO 4. Audit 5. Age
	Velte (2023)	Does sustainable board governance drive corporate social responsibility? A structured literature review on European archival research	<ol style="list-style-type: none"> 1. Board gender diversity; 2. (Institutionalized) sustainability board expertise (e.g. CSR committee implementation); 3. Sustainability-related executive compensation.
	Naciti et al. (2022)	Corporate governance and sustainability: a review of the existing literature	<ol style="list-style-type: none"> 1. Corporate social responsibility and reporting, 2. Corporate governance strategies, 3. Board composition.

Based on Table 4 of factors shaping ESG Performance, ID, and CG, the title of the research on ESG Performance from the study by Martiny et al. (2024) relates ESG performance to CG; Cardillo and Basso (2025) General ESG is moderated by CG. The investment decisions were studied by Gautam and Kumar (2025) emphasizes prospects, heuristics, and herding; the study by Rao and Lakkol (2022) emphasizes investment opportunities, financial oversight, the significance placed on financial information, financial thinking patterns, and behavioral biases. Meanwhile, CG emphasizes the Board, such as Board Size, Board Diversity, and Board composition. (Naciti et al., 2022; Velte, 2023; Teixeira & Carvalho, 2024; Khatib, 2025).

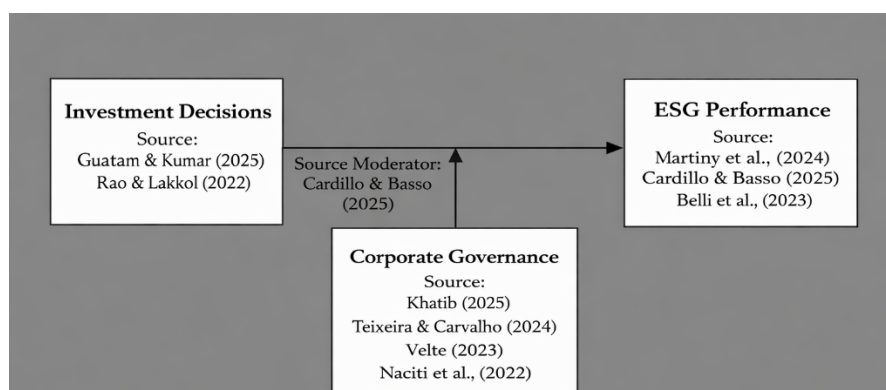


Figure 3. Concept of ESG Performance, Investment Decisions, and Corporate Governance Models

Figure 3 illustrates the conceptual research model developed from the ESG performance, ID, and CG literature. The model shows that ID influences ESG performance, while CG acts as a moderating factor, strengthening or shaping this relationship. The sources used to build the model are cited within each construct, reflecting key studies that support the proposed links.

Keyword Analysis and Research Impact

This section presents an analysis of author keywords to identify the main research themes and trends in ESG performance, investment decisions, and corporate governance. Keywords were grouped into color-coded clusters, highlighting the most frequently used terms and their relationships across the literature. This analysis provides insights into the focus areas, emerging topics, and the overall impact of research in these fields.

Table 5. Top Keywords Based n Clusters

Cluster	Keywords	Occurrences
Red Cluster	Corporate Governance	97
	Investment Decision	26
	Literature	25
	Literature Review	44
	Systematic Review	13
Green Cluster	ESG	23
	ESG Performance	22
	Governance	23
	Performance	49

Table 5 presents the top keywords based on cluster analysis, highlighting the main themes in the literature. In the red cluster, corporate governance (97 occurrences) dominates, reflecting its central role in ensuring transparency and accountability in companies. related keywords such as investment decision (26 occurrences), literature review (44), literature (25), and systematic review (13) show that research often examines governance through comprehensive literature reviews. The green cluster emphasizes sustainability, with ESG (23 occurrences) and ESG performance (22) as key terms. Governance (23) remains relevant, linking corporate governance to ESG discussions, while performance (49) highlights the focus on organizational, financial, and ESG outcomes. These clusters indicate that corporate governance, investment decisions, and ESG performance are closely interconnected in the studied literature.

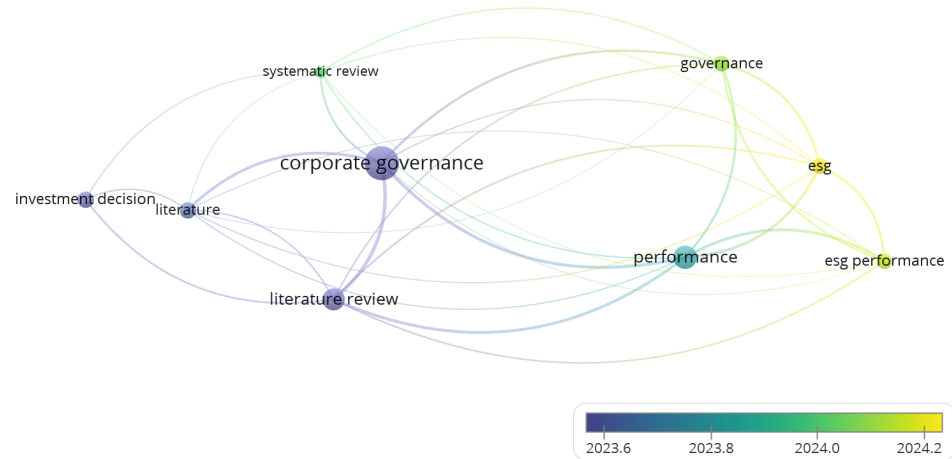


Figure 4. VOSviewer Visualization

Figure 4 can be used as a reference to identify and detect the state of the art of research. In the visual, the color transition from purple to light green on the node illustrates research topics ranging from 2023 to 2024. This describes that research on ESG performance, investment decisions, and corporate governance has only just begun to be explored by researchers since 2023. Based on bibliometric data, trends, impacts, and correlations between scientific publications show that there is less study on the novelty of ESG Performance research. Based on existing research, the topic of ESG Performance is still less studied compared to other sectors.

DISCUSSION

Systematic literature review analysis of studies on the role of cognitive analytics in measuring ESG performance and investment decision-making with corporate governance as a moderator provides a comprehensive and systematic overview of research developments in this field during the period 2022-2025 (Aldowaish et al., 2022; Alqudah et al., 2025). The SLR method used allows researchers to collect, evaluate, and synthesize relevant literature objectively and critically, thereby identifying trends, research gaps, and future research agendas in a structured manner. Bibliometric findings indicate that the most widely used type of document is scientific articles published in reputable journals with a specific focus on the topics of ESG Performance, ID, and CG. Relying on the Scopus database as the primary data source ensures the quality and relevance of the literature analyzed. In addition, English is the dominant language in publications, which broadens the reach and impact of research globally. The field of study most closely related to this topic is business, management, and accounting, which dominates 87.3% of total publications, indicating that studies on ESG and corporate governance are largely associated with management and business practices. Other fields such as economics, finance, business & industry also contribute, albeit to a lesser extent (Wang et al., 2022).

Publication patterns indicate a steady year-on-year rise, with the number of articles peaking in 2024 and 2025. This trend underscores the increasing scholarly focus on the integration of ESG considerations into ID and the significance of CG within the sustainability agenda (Rudyanto & Siregar, 2018; Khalil et al., 2024). Keyword analysis through clustering reveals two main groups: the red cluster, dominated by CG and ID, and the green cluster, which highlights ESG, ESG performance, and governance. This suggests a strong linkage between CG, the assessment of ESG performance, and its impact on ID. In addition, many studies use a systematic literature review approach as their primary method, which strengthens the validity and depth of the analysis.

Factors that shape ESG performance include corporate strategy, company characteristics, and CG, while in the context of ID, behavioral biases such as prospect, heuristics, and herding are the main focus (Noch & Rumasukun, 2024; Gautam & Kumar, 2025). CG itself is influenced by aspects such as board size, diversity, and board

composition, which are essential for enhancing the transparency and accountability of ESG reporting. The conceptual model proposed in this study integrates ESG Performance, Investment Decisions, and Corporate Governance with cognitive analytics as a measurement and analysis tool that can improve the effectiveness of sustainable investment decision-making. This model confirms the role of corporate governance as a moderating variable that strengthens the relationship between ESG performance and investment decisions.

Using a systematic literature review approach, this study successfully identified existing research gaps, particularly regarding the integration of advanced analytical technology in ESG measurement and investment decision-making. This study also provides directions for further research to explore in greater depth the influence of technologies such as AI within the domains of ESG and CG (Arunthavanathan et al., 2020; Fildisi et al., 2025). The findings of the systematic literature review in this study contribute significantly to summarizing, reviewing, and directing the development of knowledge related to ESG Performance, Investment Decisions, and Corporate Governance using a modern technological approach, thereby supporting more sustainable and responsible business decision-making.

The results provide practical guidance for managers and investors on integrating ESG and corporate governance considerations into investment strategies, highlighting how cognitive analytics can enhance decision accuracy and transparency. Theoretically, the study reinforces the importance of CG as a moderating factor in ESG–investment linkages, offering a structured framework for future research on sustainable and technology-driven decision-making.

CONCLUSION

The conclusions of this systematic literature review indicate that publications on ESG performance, investment decisions, and corporate governance have grown significantly during 2022–2025. This review contributes by summarizing literature developments, identifying research gaps, and proposing a future research agenda focused on integrating modern analytical technologies with corporate governance to enhance sustainability and investment decision-making. Although tools such as the SPMS have been developed to overcome the limitations of traditional measurement systems, no comprehensive review has yet examined the key determinants that most strongly influence ESG criteria, highlighting the need for research to identify and empirically test these determinants, including the role of emerging technologies in improving ESG measurement accuracy and effectiveness.

Based on the analyzed literature, an integrative conceptual model was proposed linking ESG performance, investment decisions, and corporate governance, with cognitive analytics serving as a measurement and analysis tool. The model emphasizes corporate governance as a moderator that strengthens the connection between ESG and investment decisions, while demonstrating how cognitive analytics can optimize ESG data interpretation. This review does not explicitly address methodological or contextual limitations. Potential biases in the included literature, limited data coverage, and differences across regions or industries may affect the generalizability of the findings. Future research should empirically test this conceptual model using larger and more diverse datasets and incorporate other advanced analytical tools, such as artificial intelligence. Further exploration of corporate governance mechanisms and ESG reporting standards is also recommended to enhance both theoretical understanding and practical application.

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