CORPORATE SOCIAL RESPONSIBILITY AND GREEN INNOVATION: A BIBLIOMETRIC ANALYSIS OF INTELLECTUAL STRUCTURE AND RESEARCH

Tham Duc Hieu* - Cao Quang Khai - Nguyen Hoang Nhut** - Tran Thi Thanh****

Abstract: ***Corporate social responsibility (CSR) has gradually become a central strategic direction in modern corporate governance, while green innovation (GI) is increasingly seen as an essential requirement to promote sustainable growth. Based on bibliometric analysis of 72 articles from Scopus from 2010 to 2026, using VOSviewer, this study provides an overview of the development of the CSR and GI fields, including publication trends, academic networks, influential countries and authors, knowledge structures and prominent research directions. The results show a steady increase in the number of studies over time, reflecting the growing interest of the academic community. However, the research collaboration network remains fragmented, although some notable international collaboration clusters have emerged, with countries such as China, Pakistan, and Vietnam playing important roles. Keyword analysis and co-occurrence networks also reveal a clear shift in research orientation, from traditional topics such as production and environmental management to more modern approaches such as digital transformation, green dynamic capabilities, green supply chains, and sustainable development efficiency. The study offers a bibliometric overview of the intellectual structure and thematic development of CSR and GI research, while suggesting future research trends in the field of sustainable business and governance.***

• Keywords: *bibliometric analysis; corporate social responsibility, green innovation, sustainable performance, green supply chain management, sustainable performance.*

Date of receipt: 27th Feb., 2026
Date of receipt revision: 10th Mar., 2026
Date of delivery revision: 04th Mar., 2026
Date of approval: 27th Apr., 2026
DOI: https://doi.org/10.71374/jfar.v26.i3.17

1. Introduction

Environmental degradation and climate change have become major global challenges affecting both society and business activities. Manufacturing firms are considered significant contributors to environmental problems such as pollution, resource depletion, and greenhouse gas emissions. Growing environmental awareness among consumers, together with stricter regulations, has increased pressure on firms to adopt greener and more sustainable practices (Azam & Jamil, 2024). In this context, corporate social responsibility (CSR) has become an important strategic approach for businesses. CSR refers to organizational activities that address social and environmental concerns while supporting sustainable development. Over time, CSR has evolved from a voluntary philanthropic activity into a core business strategy integrating environmental, social, and economic objectives into organizational operations and performance (Kraus et al., 2020). Through CSR practices, firms can improve their reputation, strengthen stakeholder relationships, and enhance long-term competitiveness. At the same time, green innovation (GI) has emerged as a key mechanism for sustainable business development. It involves environmentally friendly products, processes, and technologies aimed at reducing pollution, waste, and energy consumption (Aftab et al., 2023). GI not only minimizes environmental impacts but also improves firms' environmental and financial performance.

The integration of CSR and GI is increasingly recognized as essential for achieving sustainable development. However, existing studies often examine CSR and GI separately rather than exploring their interconnected relationship. In addition, the literature remains fragmented, with limited attention given to collaboration networks, thematic evolution, and emerging research trends over time. Although several bibliometric and review studies have addressed sustainability-related topics, the intellectual structure and development trends of CSR and GI research within the business and

** University of Finance - Marketing*
*** HUTECH University; Corresponding author, email: tt.thanh84@hutech.edu.vn*

management field remain insufficiently explored. This research gap is further reflected in several recent studies, which demonstrate the fragmented and limited integration between CSR and GI. Chu et al. (2022) examined the relationship between CSR and innovation. Similarly, Meseguer-Sánchez et al. (2021) focused on the evolution of CSR and sustainability. More recently, O'Brien et al. (2025) synthesized studies connecting GI, sustainability and sustainable performance. Although several bibliometric and review studies have examined CSR, sustainability, or GI separately, limited research has specifically explored the integrated intellectual structure of the CSR-GI nexus.

Stemming from this gap, this study aims to provide a systematic bibliometric overview of CSR and GI in the field of business and management. Specifically, the study aims to answer the following research questions: (1) Is the number of related articles increasing? (2) Who are the most effective contributors in this field? (3) Which journals and countries are actively involved in this field? (4) What research topics are trending in this field? (5) How have research trends changed over time? By answering these questions, the study hopes to contribute a comprehensive picture of the knowledge structure, development trends, and future research directions of the CSR and GI fields.

2. Materials and Methods

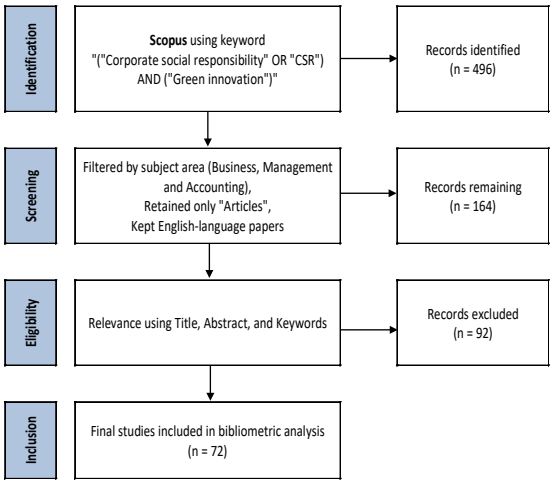
2.1. Bibliometric Analysis

Bibliographic analysis is a statistical method designed to evaluate and provide an overview of academic contributions in a specific research field. This method allows for the processing of large amounts of data over many years, enabling scientists to identify current research trends, influential authors, the distribution of resources, and emerging keywords. In this study, we apply bibliographic analysis to explore the relationship and knowledge structure between CSR and GI. This study utilizes VOSviewer - a powerful tool for building bibliographic maps, such as keyword co-occurrence networks and co-citation analysis, thereby identifying research hotspots and academic gaps that require further exploration.

To ensure the scientific rigor and quality of the input data, this study selected Scopus as the foundational database for conducting the search. Scopus is recognized as one of the most reputable and comprehensive academic databases globally, particularly robust in the fields of social sciences, business, and management. The search strategy was designed to retrieve all articles related to the two core concepts: CSR and GI.

2.2. Inclusion and Exclusion Criteria

Figure 1. PRISMA flow diagram



Sources: Created by the authors

To ensure the accuracy and reliability of the dataset for bibliometric analysis, this study followed the PRISMA guidelines. The screening process consisted of three stages (Figure 1).

Step 1 - Identification and Automated Screening: A total of 496 records were initially retrieved from the Scopus database using the search this Boolean query: ("Corporate social responsibility" OR "CSR") AND ("Green innovation"). Filters were then applied to retain only English-language journal articles within the "Business, Management and Accounting" subject area, reducing the dataset to 164 articles.

Step 2 - Manual Eligibility Assessment: The remaining articles were manually evaluated based on their titles, abstracts, and keywords to ensure their relevance to the relationship between CSR and GI. As a result, 92 irrelevant studies were excluded.

Step 3 - Final Inclusion: After the screening and eligibility assessment, 72 articles were retained as the final dataset for bibliometric analysis using VOSviewer.

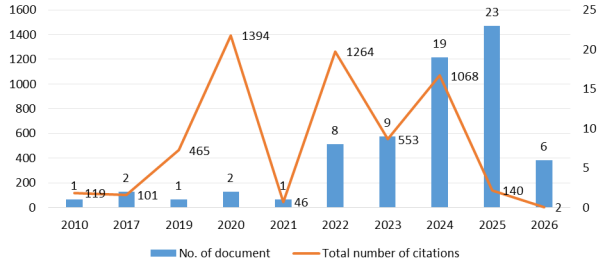
3. Results

3.1. Number of Articles

The first documented study on the relationship between CSR and GI in business and management was "Innovative Corporate Social Responsibility: The Founder's Role in Creating a Trustworthy Corporate

Brand through Green Innovation", authored by Hillestad et al., (2010) and published in the Journal of Product and Brand Management. Publication output remained relatively limited before 2021, followed by a sharp increase after 2022, rising from 1 publication in 2010 to 8 articles in 2022 and peaking at 23 articles in 2025. Citation impact also showed strong fluctuations, increasing from 119 citations for the first publication to a peak of 1,394 citations in 2020, while maintaining high citation levels in subsequent years. These findings indicate a rapid increase in research on CSR and GI, reflecting growing academic interest, although the increase in citations does not entirely correlate with the growth in articles, suggesting differences in the academic impact and influence of individual studies.

Figure 2. Temporal trends in mean total citations and document articles (2010 - 2026)



Sources: Created by the authors

3.2. Most Influential Authors

A total of 216 authors have contributed to research on the relationship between CSR and GI in the business and management field. Tiep Thanh Le is the most productive author with 5 articles, 614 citation and TLS = 8, indicating a leading role in both research productivity and academic collaboration. Min Huang and Phuong Quyen Tran each contributed 2 articles with relatively strong network connections (TLS = 5). Notably, the groups of authors with the same number of citations all stemmed from the same co-authored research. F. Javier Sendra García, Sascha Kraus, and Shafique Ur Rehman each received 970 citations from a single influential collaborative work. Similarly, Caroline Flammer, Bryan Hong, and Dylan Minor each had 465 citations from a co-authored paper. Furthermore, Saad Ahmed Javed, Ying Qu, Saif Ur Rehman, and Mohsin Shahzad each recorded 424 citations. The findings suggest that academic influence in this field is not solely determined by publication volume, but also by the quality, impact, and collaborative reach of individual research contributions.

Table 1. Publication data and influence of the top 15 selected authors

Authors	Documents	Citations	Total link strength
Tiep Thanh Le	5	614	8
Min Huang	2	214	5
Quyen Tran Phuong	2	150	5
F. Javier Sendra García	1	970	2
Sascha Kraus	1	970	2
Shafique Ur Rehman	1	970	2
Caroline Flammer	1	465	2
Bryan Hong	1	465	2
Dylan Minor	1	465	2
Xueyun Cao	1	450	1
Baolong Yuan	1	450	1
Saad Ahmed Javed	1	424	4
Ying Qu	1	424	4
Saif Ur Rehman	1	424	4
Mohsin Shahzad	1	424	4

Sources: Created by the authors

3.3. Global Research Productivity by Country

The global distribution of research on the relationship between CSR and GI was analyzed based on the number of documents, citations, and TLS across countries. The findings reveal that China is the leading contributor with 36 articles and 2.121 citations, while also recording the highest collaboration strength (TLS = 7.819), highlighting its dominant position in both research productivity and international academic collaboration. Pakistan ranks second with 11 articles, 1,802 citations, and a strong collaboration network (TLS = 3.920). Similarly, United Kingdom demonstrates substantial academic influence with only 5 articles but 1.344 citations and TLS = 2.764, indicating the high impact of its scholarly contributions. Among Asian countries, Vietnam recorded 8 articles and 616 citations, with a collaboration strength of 2.101, reflecting an emerging academic presence in this research domain. India also shows active participation with 5 articles and TLS = 2.832, suggesting relatively strong international collaboration. In Europe, Spain stands out with only 4 articles but 1.044 citations, demonstrating considerable academic impact. Other countries such as Italy and Turkey maintain moderate contributions, while Indonesia records the lowest citation impact among the top contributors. The results indicate that countries in Asia and Europe play leading roles in advancing research productivity, citation influence, and international collaboration in the field of CSR and GI.

Table 2. Distribution of research productivity and level of academic collaboration by country

Country	Documents	Citations	Total link strength
China	36	2121	7819
Pakistan	11	1802	3920
Vietnam	8	616	2101
India	5	263	2832
United Arab Emirates	5	320	1985
United Kingdom	5	1344	2764
Indonesia	4	74	381
Spain	4	1044	1106
Italy	3	160	1372
Turkey	3	114	1242

Sources: Created by the authors

3.4. Distribution by Impactful Journals

Among the 46 selected journals, Corporate Social Responsibility and Environmental Management is the most productive journal with 13 articles, followed by Journal of Cleaner Production with 6 articles. In terms of citation impact, Technological Forecasting and Social Change demonstrates the highest influence with 1,250 citations despite publishing only 4 articles, indicating the strong academic significance of its contributions. Other journals, including Innovation and Green Development and Social Responsibility Journal, also actively contribute to this research area. The findings suggest that both sustainability-oriented and business-focused journals play important roles in advancing research on CSR and GI.

Table 3. Leading publication sources in CSR and GI research

Source	Documents	Citations	Total link strength
Corporate Social Responsibility and Environmental Management	13	357	1440
Journal of Cleaner Production	6	997	864
Technological Forecasting and Social Change	4	1250	393
Innovation and Green Development	3	204	327
Social Responsibility Journal	3	76	411

Sources: Created by the authors

3.5. Analysis of Highly Cited Articles

Table 4 presents the most highly cited articles based on citation impact. The most influential study is "Corporate Social Responsibility and Environmental Performance: The Mediating Role of Environmental Strategy and Green Innovation" by Kraus et al. (2020), published in Technological Forecasting and Social Change, with 970 citations. This is followed by the study of Flammer et al. (2019) in Strategic Management Journal, which received 465 citations. Other highly cited works include studies by Yuan & Cao (2022) (450 citations), as well as the collaborative work of Shahzad et al. (2020) and Le (2022) in Journal of Cleaner Production (424 citations and 301 citations, respectively). The most influential articles mainly focus on the mediating roles of environmental strategy, green dynamic capability, and sustainable development, highlighting the increasing integration of CSR and GI in contemporary business research.

Table 4. Most influential articles in CSR and GI research

Title	Authors (Year)	Journal	Citations
Corporate social responsibility and environmental performance: The mediating role of environmental strategy and green innovation	Kraus et al. (2020)	Technological Forecasting and Social Change	970
Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes	Flammer et al. (2019)	Strategic Management Journal	465
Do corporate social responsibility practices contribute to green innovation? The mediating role of green dynamic capability	Yuan & Cao (2022)	Technology in Society	450
Relation of environment sustainability to CSR and green innovation: A case of Pakistani manufacturing industry	Shahzad et al. (2020)	Journal of Cleaner Production	424
How do corporate social responsibility and green innovation transform corporate green strategy into sustainable firm performance?	Le (2022)	Journal of Cleaner Production	301

Sources: Created by the authors

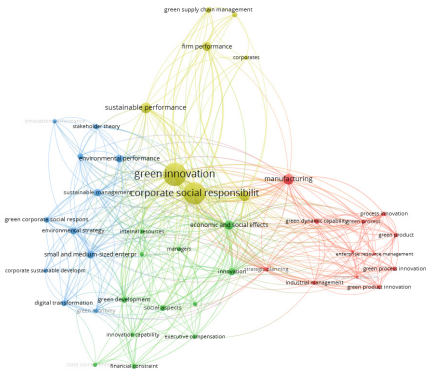
3.6. Network Analysis of Authors Keywords

The analysis of author keywords from 72 articles provides important insights into the major research trends related to CSR and GI. Using VOSviewer, 178 keywords were analyzed to construct a co-occurrence network illustrating relationships among research topics. The findings identify GI (57 occurrences; TLS = 311) and CSR (54 occurrences; TLS = 296) as the two most dominant and interconnected keywords, confirming their central role in the research field. Other important keywords include manufacturing, sustainable performance, sustainable development, and economic and social effects, indicating that the literature has gradually expanded from innovation-focused issues toward broader sustainability and business performance perspectives.

Four major thematic clusters were identified. The first cluster focuses on GI, manufacturing, green dynamic capability, and supply chain management, emphasizing the role of GI in improving competitiveness and organizational performance. The second cluster highlights corporate governance and innovation, reflecting the contribution of CSR to sustainable development. The third cluster centers on environmental strategy, environmental performance, stakeholder theory, and SMEs, demonstrating increasing attention to green transformation among

smaller firms. The fourth cluster links sustainable development, firm performance, and green supply chain management, showing the close relationship between GI and long-term sustainability outcomes. This findings suggest that CSR and GI research is evolving toward a more integrated and strategic approach combining sustainability, environmental strategy, and business performance.

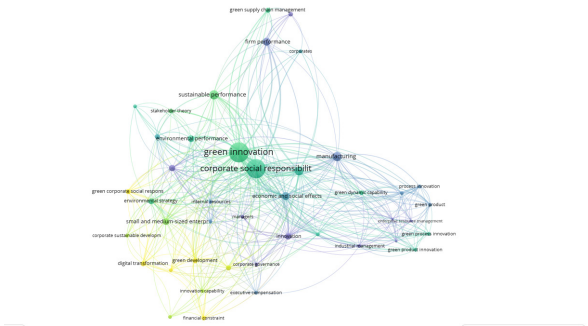
Figure 3. Network visualization of author keyword co-occurrence



Sources: Created by the authors

The overlay visualization generated by VOSviewer illustrates the evolution of CSR and GI research from 2010 to 2026. Earlier studies mainly focused on manufacturing, process and product innovation, innovation, and firm performance, emphasizing operational efficiency and environmental management. In contrast, recent themes such as green development, digital transformation, SMEs, financial constraints, and innovation capability have attracted increasing scholarly attention. These findings indicate a clear shift from operational concerns toward broader strategic perspectives related to digital transformation, green growth, and long-term sustainability. This results reflect the growing integration of sustainability, innovation, and technological development within CSR and GI research.

Figure 4. Overlay visualization of author keywords

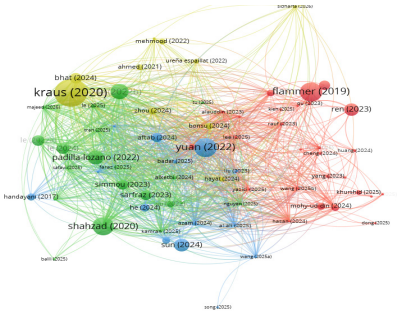


Sources: Created by the authors

3.7. Bibliographic coupling analysis of document

Directory linkage analysis helps to clarify the current intellectual structure of a research field (Ha et al.). The intellectual structure of research on CSR and GI is formed from four main thematic clusters: Cluster 1 (green) is the largest and most influential cluster, focusing on CSR practices and green strategies. Studies such as Shahzad et al. (2020) and Padilla-Lozano & Collazzo (2021) show that CSR significantly improves firms' environmental orientation, GI, and competitiveness, particularly in the manufacturing sector. This cluster plays a central role in shaping the CSR-GI literature. Cluster 2 (red) emphasizes corporate governance, financial implications, and the effectiveness of CSR initiatives. Flammer et al. (2019) demonstrate that integrating CSR criteria into executive compensation systems can align managerial incentives with sustainability objectives and improve firm performance. Ren et al. (2023) further highlight that mandatory CSR disclosure and regulatory pressure significantly stimulate GI activities. Despite its smaller size, this cluster has strong scholarly influence due to the high citation impact of governance-oriented studies. Cluster 3 (yellow) reflects emerging sustainability-oriented research directions. Kraus et al. (2020) examine the relationships among CSR, environmental strategy, environmental performance, and GI, suggesting that environmental strategy and GI mediate the impact of CSR on environmental performance. This cluster illustrates the evolution of CSR research toward broader sustainability and innovation perspectives. Cluster 4 (blue) focuses on green dynamic capabilities and digital transformation. Yuan & Cao (2022) emphasize the role of green dynamic capabilities in transforming CSR practices into GI outcomes, while O'Brien et al. (2025) show that digital transformation enhances GI through improved technological integration and resource allocation efficiency.

Figure 5. Intellectual structure based on bibliographic coupling analysis



Sources: Created by the authors

This bibliographic coupling network demonstrates a highly interconnected intellectual structure in CSR and GI research, with influential studies such as Flammer et al. (2019) and Kraus et al. (2020) playing foundational roles in the development of the field.

4. Discussion

The bibliometric analysis reveals a sharp increase in research on CSR and GI post-2020, driven by global sustainability demands. This field has evolved into a multidisciplinary domain, integrating innovation management, environmental strategy, and digital transformation.

Geographically, China is the leading contributor in publication output and citation impact (Butt, 2024), while emerging economies like Pakistan and Vietnam show notable contributions. However, international collaboration networks remain fragmented and regionally concentrated, highlighting the need for broader cross-country cooperation to enhance knowledge integration (O'Brien et al., 2025). Prominent journals like Corporate Social Responsibility and Environmental Management and Journal of Cleaner Production serve as major publication platforms. The intellectual foundation of this research heavily relies on highly cited studies focusing on environmental strategy, green dynamic capabilities, and sustainable performance. Furthermore, keyword and thematic analyses indicate a significant paradigm shift. Earlier literature primarily focused on operational aspects like manufacturing and environmental management. In contrast, recent studies increasingly emphasize strategic and technological perspectives, including digital transformation, green capabilities, and green supply chain management.

In conclusion, while the CSR-GI literature is relatively limited compared to more established fields, its rapid expansion in recent years signals its growing importance as a critical area within future business and management research.

5. Conclusions and Future Directions

This study maps the intellectual structure of CSR and GI research within Scopus-indexed business and management literature. The findings show a clear shift from traditional research on manufacturing processes and environmental management toward broader strategic and technological sustainability perspectives. Recent studies increasingly emphasize topics such as digital transformation, innovation capability, green dynamic capabilities, and green supply chain management, reflecting the expanding scope of the field.

The study also highlights the important role of sustainability-oriented journals and the growing contribution of emerging economies to CSR and GI research. In addition, the use of bibliometric tools such as VOSviewer demonstrates their effectiveness in identifying thematic relationships, collaboration networks, and evolving research trends.

However, the findings should be interpreted cautiously because bibliometric results depend on database coverage, search strategies, and keyword selection. Since this study focuses only on Scopus-indexed English-language articles, broader interdisciplinary perspectives may be underrepresented. Future research could incorporate additional databases and bibliometric techniques while further exploring themes related to digital transformation, sustainable innovation, and green capability development.

References:

Aftab, J., Abid, N., Sarwar, H., Amin, A., Abedini, M., & Veneziani, M. (2023). Does corporate social responsibility drive financial performance? Exploring the significance of green innovation, green dynamic capabilities, and perceived environmental volatility. Corporate Social Responsibility and Environmental Management, 31(1), 1634-1653. https://doi.org/10.1002/csr.2654

Azam, T., & Jamil, K. (2024). Studying the role of corporate social responsibility, green HRM and green innovation to improve green performance of SMEs. Journal of Business and Industrial Marketing, 39(12), 2620-2637. https://doi.org/10.1108/jbim-02-2023-0087

Butt, N. S. (2024). Green innovation in business: A comprehensive bibliometric analysis of trends, contributors, and future directions. Sustainability, 16(24), 10956. https://doi.org/10.3390/su162410956

Chu, M., Muhamad, H. B., Mustapha, M. B., San, O. T., Zan, F., & Jia, X. (2022). Research Trends in Corporate Social Responsibility and Innovation: A Bibliometric Analysis. Sustainability, 14(21), 14185. https://doi.org/10.3390/su142114185

Flammer, C., Hong, B., & Minor, D. (2019). Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: effectiveness and implications for firm outcomes. Strategic Management Journal, 40(7), 1097-1122. https://doi.org/10.1002/smj.3018

Ha, T.-T. T., Tham, D. H., & Tran, T.-T. (2026). From knowledge to sustainability: Conceptual evolution and future directions of green knowledge sharing. The International Journal of Social Sustainability in Economic, Social, and Cultural Context. https://doi.org/10.18848/2325-1115/CGP/A253

Hillestad, T., Xie, C., & Haugland, S. A. (2010). Innovative corporate social responsibility: the founders role in creating a trustworthy corporate brand through "green innovation". Journal of Product and Brand Management, 19(6), 440-451. https://doi.org/10.1108/10610421011085758

Kraus, S., Rehman, S. U., & García, F. J. S. (2020). Corporate social responsibility and environmental performance: The mediating role of environmental strategy and green innovation. Technological Forecasting and Social Change, 160(1), 120262. https://doi.org/10.1016/j.techfore.2020.120262

Le, T. T. (2022). How do corporate social responsibility and green innovation transform corporate green strategy into sustainable firm performance? Journal of Cleaner Production, 362(1), 132228. https://doi.org/10.1016/j.jclepro.2022.132228

Meseguer-Sánchez, V., Gálvez-Sánchez, F. J., López-Martínez, G., & Molina-Moreno, V. (2021). Corporate Social Responsibility and Sustainability. a Bibliometric Analysis of Their Interrelations. Sustainability, 13(4), 1636. https://doi.org/10.3390/su13041636

O'Brien, C., Owusu, G., Agyei, I. T., & Effah-Amankona, P. (2025). Green innovation and sustainable performance: A bibliometric analysis. International Journal of Innovation, 13(3), e27834. https://doi.org/10.5585/2025.27834

Padilla-Lozano, C. P., & Collazzo, P. (2021). Corporate social responsibility, green innovation and competitiveness - causality in manufacturing. Competitiveness Review: An International Business Journal, 32(7), 21-39. https://doi.org/10.1108/cr-12-2020-0160

Ren, S., Huang, M., Liu, D., & Yan, J. (2023). Understanding the impact of mandatory CSR disclosure on green innovation: Evidence from Chinese listed firms. British Journal of Management, 34(2), 576-594. https://doi.org/10.1111/1467-8551.12609

Shahzad, M., Qu, Y., Javed, S. A., Zafar, A. U., & Rehman, S. U. (2020). Relation of environment sustainability to CSR and green innovation: A case of Pakistani manufacturing industry. Journal of Cleaner Production, 253(1), 119938. https://doi.org/10.1016/j.jclepro.2019.119938

Yuan, B., & Cao, X. (2022). Do corporate social responsibility practices contribute to green innovation? The mediating role of green dynamic capability. Technology in Society, 68(1), 101868. https://doi.org/10.1016/j.techsoc.2022.101868