Mapping Corporate Sustainability and Firm Performance Research: A Scientometric and Bibliometric Examination

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Abstract: Corporate sustainability has garnered increasing attention within the business community as corporations communicate to influence their stakeholders to build sustainable relationships. There has been a surge in research exploring its connection to firm performance, but existing studies lack a cohesive and concentrated approach. The aim of this study is to explore the trends of growth of publications; gauge the annual growth rate, annual ratio of growth, relative growth rate, doubling time, and scientific production index; predict future production levels; and look at the relationship between corporate sustainability and firm performance by analysing the literature as well as identifying clusters and links with the Sustainable Development Goals (SDGs). The top countries contributing to the research were China, India, and the United States, accounting for over 45% of the global publications. The study analysed a focused corpus of 65 documents from the Scopus database on specific subfields of corporate sustainability and firm performance, identifying five main thematic clusters related to environmental performance, financial performance, corporate sustainability reporting, corporate social performance, and green supply chain management, with significant citations related to 17 SDGs. The annual growth rate (AGR) of publications was found to be −2.88%, with an average of 4.06 publications per year. The relative growth rate (RGR) decreased from 0.69 in 2010 to 0.36 in 2023, and the doubling time (Dt.) increased from 1.00 in 2010 to 1.93 in 2023. Employing structured methods and the PRISMA protocol, this scientifically rigorous study points towards identification of research themes linking sustainability practices to firm performance. Exponential smoothing (Holt’s linear trend model) is employed to project future research output within the field. The significant trends include an increase in publication frequency since 2017, indicating a growth phase in the research field. The findings highlight the need for greater investigation from developing countries and the importance of integrating sustainability considerations into business strategies.

Keywords: corporate sustainability; firm performance; SDGs; quantitative research assessment; corporate communications

1. Introduction

Sustainability has emerged as a critical concern for businesses in the last few years, driven by global markets and the need to address environmental concerns (Xiao et al. 2018). Firms are increasingly recognising the significance of integrating sustainability practices into their services, not only to mitigate negative environmental impacts but also to enhance their overall performance and competitiveness in the market. The concept of sustainability encompasses a broad range of environmental, social, and economic factors that contribute to long-term success and resilience (Magon et al. 2018). This paper aims to explore the relationship between sustainability and firm performance by conducting a scientometric study, which involves analysing the existing literature on this topic. By examining the research investigations, this study aims to map the landscape of corporate sustainability
and firm performance, identifying key trends and providing insights for further research and managerial decision making.

Firm performance refers to the measure and evaluation of a company’s success in achieving its goals and objectives. It is often assessed through various financial indicators such as profitability, revenue growth, ROI, and market share. These indicators provide insights into the overall financial health and success of a company (Hermawan et al. 2023). Furthermore, firm performance is not solely determined by financial indicators, but also by non-financial factors such as employee productivity, innovation (Afriany et al. 2020), customer satisfaction (Debnath et al. 2016), board size (Hmedan 2023), and ownership identity (Bishara et al. 2020). These factors drive the long-term sustainability and competitive advantage of a firm.

Scientometric and bibliometric research has been instrumental in understanding the landscape of fields of study by analysing works and giving insights into the key themes and trends. Furthermore, it helps to identify the origins and motivators, along with the correlation between fields under study (Magon et al. 2018; Bui et al. 2020; Saleem et al. 2021). Scientometric and bibliometric analysis also helps to uncover potential areas for future research and offers valuable insights for practitioners and policymakers (Jia et al. 2019; Bhatt et al. 2020; Prashar 2020; Ye et al. 2020).

Effective corporate communication is essential for firms because it can enhance firm value and overall performance. It enables firms to effectively communicate their sustainability initiatives and efforts. The existing frameworks have examined firm performance and sustainability by prioritising the sustainability indicators (Ikram et al. 2020). The firm performance element concentrates on assessing the financial performance and operational efficiency of the organisation. Sustainability focuses on evaluating the organisation’s environmental, social, and governance practices and their long-term viability. However, studies have not examined scholarship or mapped the intersection of corporate sustainability and firm performance. There is a lack of a comprehensive framework that integrates bibliometric and scientometric analysis to provide a holistic understanding of the literature on firm performance and corporate sustainability (Bota-Avram 2022; Benameur et al. 2023). This study fills in the gap and provides insights for further research and managerial decision making that have a bearing on the financial performance of firms. Overall, the framework provides a structured guide for researchers and practitioners interested in conducting bibliometric and scientometric analyses of firm performance and sustainability.

2. Literature

The review of the literature on corporate sustainability reveals a growing interest in and recognition of the importance of sustainability in business practices. Researchers from various disciplines have explored different aspects of sustainability in the context of corporate operations and management (Jia et al. 2019). Studies have shown that sustainability is beyond the realm of environmental concerns and encompasses both the economic and social dimensions (Magon et al. 2018). They have emphasised the need for businesses to consider the triple bottom line, i.e., people, planet, and profit, in their decision-making processes. Additionally, the literature highlights the potential benefits of integrating sustainability into corporate strategies, including better financial performance, greater brand reputation, and higher levels of engagement with the stakeholders. Moreover, the literature has examined various approaches and frameworks for measuring and managing sustainability within organizations, such as the use of sustainability indicators, reporting standards, and sustainability management practices. Understanding firm performance is crucial for both researchers and practitioners in the field of business and management. Over the years, numerous studies have been conducted to explore the various factors that impact firm performance. These factors encompass a wide range of internal and external variables, including organisational structure, leadership, human resource management, innovation, industry dynamics, and macroeconomic conditions (Mitrea-Curpanaru 2021).
Firm performance and financial performance are key concepts in corporate management and research (Ontita and Muigai Kinyua 2020). Firm performance refers to the overall success and achievement of a company in reaching its objectives, while financial performance specifically focuses on the financial health and profitability of the company (Fachrudin et al. 2021). Firm performance can be assessed using various indicators such as profitability, return on investment, market share growth, and liquidity. Furthermore, financial performance is often considered an essential element in evaluating the overall performance of a firm. It provides crucial information about the company’s ability to generate revenue, manage expenses, and generate profits. In the majority of studies, financial performance serves as a proxy for firm performance (Azizah and Sutardi 2023; Ilham 2020). Studies also refer to firm performance and financial performance as firm financial performance (FFP) (Wasara and Ganda 2019). However, for the purpose of this study, we employ the use of the term “firm performance” for our investigation and accept that they cannot be used interchangeably. Firm performance is all-encompassing as compared to financial performance and gives a comprehensive picture.

2.1. Corporate Sustainability and Firm Performance

Studies have identified a positive correlation between corporate sustainability and the performance of firms, suggesting that companies that prioritise sustainability practices tend to outperform their competitors (Ioannou and Serafeim 2019; Ammer et al. 2020). One key factor contributing to this positive relationship is the potential for sustainable practices to enhance a firm’s reputation, brand image, and stakeholder relationships, which can in turn lead to improved financial performance through increased customer loyalty, employee retention, and access to capital (Muhmad and Muhamad 2020). Additionally, the adoption of sustainable practices can drive operational efficiencies, cost savings, and risk reduction, all of which can have a direct impact on a firm’s bottom line (Rodgers et al. 2019). However, there are also studies that have found a negative or no relationship between sustainability efforts and profitability. The extant literature provides support for this notion, with several studies reporting a positive relationship between sustainability and firm performance. For instance, reviews found that approximately 96% of the examined publications reported a positive relationship between sustainability practices and firm performance, suggesting that this relationship is widespread and robust across different contexts and industries. Similarly, another comprehensive review concluded that a positive impact of sustainability on firm performance tends to dominate the literature, despite variations in research methodologies and study designs (Alshehhi et al. 2018).

While the overall evidence points to a positive relationship, it is important to note that the nature and strength of this relationship can vary depending on a range of factors, such as the specific sustainability practices being implemented, the industry or sector, the geographic region, and the performance metrics used (Hirunyawipada and Pan 2020). Additionally, some studies have reported a negative or insignificant relationship, highlighting the potential complexities and context dependencies involved in understanding the sustainability–performance link. Importantly, the existing literature has also identified several potential reasons why firms may not engage in sustainability practices, including a lack of external pressure, a perception that sustainability is too costly or resource-intensive, and a failure to view sustainability reporting as a core business obligation. These findings suggest that there may be barriers and challenges that need to be addressed in order to promote more widespread adoption of sustainable business practices. Overall, the available evidence suggests that there is a positive relationship between corporate sustainability and firm performance; however, this relationship is complex and multifaceted, with a range of factors influencing the nature and strength of the linkage. As such, further research is needed to deepen our understanding of the factors that drive and constrain the sustainability–performance relationship, particularly in the context of developing countries where the existing evidence is relatively limited (Grewal and Serafeim 2020; Zhang et al. 2020b).
Despite the increase in studies related to “firm performance” and “corporate sustainability”, there has not yet been any proper categorisation of research (Jacobsen et al. 2020). This lack of categorisation makes it difficult for researchers and practitioners to evaluate and compare findings across different studies. As a result, there is a need for a comprehensive review that organises existing research on corporate sustainability and firm performance into distinct categories. By systematically categorising the literature, we can gain a better understanding of corporate sustainability and firm performance. This approach facilitates the identification of significant trends, gaps, and potential avenues for future research. Moreover, it can offer valuable insights for businesses aiming to enhance their sustainability practices. Studies have also not adequately assessed the domain through the use of bibliometric and scientometric methods. This is crucial for understanding the development, impact, and trends within the fields in order to gain valuable insights that can inform policy decisions, strategic planning, and resource allocation. By identifying growth patterns, evaluating research impact, assessing collaboration networks, and aligning research efforts with global sustainability goals, scientometric and bibliometric analyses can play a vital role in advancing knowledge and promoting sustainable practices in the corporate world (Bota-Avram 2022; Ellili 2023). Scientometric research, which involves the quantitative study of the subject, has gained significant traction in recent years. This approach allows for the objective analysis of various aspects of research, such as publication trends, citation networks, and collaboration patterns (Sianes et al. 2022). These methodologies have become increasingly popular due to the availability of extensive databases, advanced software tools, and multidisciplinary approaches (Henneken and Kurtz 2019).

Given the inconsistencies and enhanced calls from stakeholders and regulations, we conducted a scientometric and bibliometric analysis to map out the intellectual landscape and development trajectory of this field. Consequently, this paper delineates the historical progression of the field, identifies current research focal points, and suggests future directions for inquiry.

2.2. Use of Scientometric and Bibliometric Approach

As the volume of research in these areas continues to expand, it becomes essential to systematically analyse and map the development, impact, and trends within these fields. Scientometric and bibliometric methods provide robust tools for such analyses, offering quantitative insights into research productivity, collaboration patterns, and evolution (De la Vega Hernández et al. 2022).

The Theory of Citation, a grand theory in the field of scientometrics, underpins the rationale for using citation analysis as a measure of research impact and influence. According to this theory, citations serve as a proxy for the recognition and validation of scientific contributions by the scholarly community. Citations reflect the intellectual debt that researchers owe to prior works, and highly cited publications are often considered to be more influential and impactful within their respective fields (Jo et al. 2022). The Theory of Citation posits that the frequency and patterns of citations can reveal important aspects of the scientific communication process, including the dissemination of knowledge, the establishment of research fronts, and the development of scientific paradigms (Bai et al. 2020). By analysing citation data, researchers can identify key contributions, influential authors, and seminal works that have shaped the trajectory of research in corporate sustainability and firm performance. In this context, the present study aims to map the research landscape of corporate sustainability and firm performance using scientometric and bibliometric methods, with a particular focus on metrics such as annual growth rate (AGR), annual ratio of growth (ARoG), relative growth rate (RGR), and doubling time (Dt.). These provide valuable insights into the dynamics of research output, highlighting periods of rapid growth, stability, or decline.

Bibliometric studies can provide a structured and objective way to analyse the existing knowledge through identifying key studies, authors, and research trends (Svadberg et al. 2019; de Oliveira et al. 2023). The use of bibliometric and scientometric approaches can be
valuable in uncovering the underlying structure and evolution of research on corporate sustainability (Tahamtan and Bornmann 2018; Mandard 2022; Chopra and Singh 2024). The framework provided in the study helps to identify the most cited documents by authors, production rates, and growth rates, thereby facilitating knowledge sharing and collaboration. Understanding the trends and growth of research publications is vital for academics, policymakers, and research institutions. This provides a direct measure of research productivity and can be used to identify periods of growth or decline in a particular field (Soehartono and Khor 2020; Yang et al. 2023). Citation analysis involves counting the number of times a publication is cited by other works. This metric is used to assess the impact and influence of research articles, authors, and journals. Highly cited works are often considered to be more influential in their respective fields. Mapping the co-occurrence of keywords in research articles helps to identify emerging themes and research fronts. Thematic clustering involves grouping related keywords or topics into clusters to identify major research themes. By examining the methodologies employed and the data sets of diverse research studies, scientometric and bibliometric analyses offer a comprehensive overview of the current knowledge landscape in this field (Iftikhar et al. 2022). The growth rate of publications is often calculated using the compound annual growth rate (CAGR) or the relative growth rate (RGR). These metrics provide insights into the rate at which research output is increasing or decreasing over time. Empirical studies have demonstrated the utility of these metrics in identifying growth trends, assessing research dynamics, and understanding the development of these fields. As research in corporate sustainability and firm performance continues to evolve, the application of scientometric and bibliometric techniques can be utilised for tracking and enhancing research productivity and impact. The calculation of the scientific production index through scientometric and bibliometric methods can provide valuable insights into the productivity and impact of research publications. These methodologies have proven effective in evaluating individual, institutional, and national research performance; identifying trends within specific fields; and understanding the effects of collaborative and open-access research (Grewal and Serafeim 2020; Diaz-Garcia et al. 2022).

3. Materials and Methods

Scientometric and bibliometric research methods are essential tools for analysing the vast and growing body of literature on corporate sustainability and firm performance. These methods provide quantitative insights into the dynamics and impact of scientific research. Bibliometric methods have been effective for mapping the intellectual structure of a research field, identifying influential works, and understanding the evolution of research topics (Zaremba 2019). By mapping the research landscape, identifying influential authors and works, understanding collaboration networks, evaluating research impact, tracking the evolution of topics, informing policy and practice, and enhancing research visibility, researchers can gain comprehensive insights that drive scientific progress and practical applications (Mulet-Forteza et al. 2018; Mwirigi et al. 2024).

The present study adopted a systematic approach for investigating the research questions by following the “Preferred Reporting Items for Systematic reviews and Meta-Analyses” (PRISMA) Protocol (Figure 1). The PRISMA protocol is a standardised framework that outlines the systematic review process. It provides guidelines for the design, execution, and reporting of systematic reviews and meta-analyses (Page et al. 2021). The steps followed for this systematic and methodological study included defining the research objectives and determining the outcome of the study on the basis of defining the research question. Further, the research design was framed to answer whether the analysis would use only citation data or whether it would be a combination of the approaches of bibliometrics, analysing, and visualising the content. The data collection keyword was finalised and the database was selected. The results were filtered as per the exclusion criteria, applied to database of Scopus, and visualised for clarity. The results were restricted to the English language only. The process of collection of records and elimination for the purpose of
the study is condensed in Figure 1. Data were mined through the Scopus database, and
the basis of the study consisted of articles encompassing "corporate sustainability" and
"firm performance" in the title, abstract, and keywords. This resulted in 136 documents,
which were further refined to ensure the absence of other types of publications in our anal-
ysis. Further, we inserted different query strings, which led to the elimination of journal
publications which were potentially not relevant to the present study. The results were
further refined to include only English-language articles, creating a corpus of 65 documents.
We then analysed the origin, country, author, keywords, and citations. The details were
exported as a .csv file. This systematic investigation followed a thorough research protocol.
The choice of sample size in such studies depends on several factors, including the research
questions, objectives, available data, and the level of granularity.

Figure 1. PRISMA protocol for the study (from Page et al. 2021).

While larger sample sizes can provide statistical power, smaller sample sizes yield
valuable findings, particularly when focusing on specific research niches, and to help draw
meaningful conclusions. According to standardised procedures, the minimum number of
papers required for bibliometric or scientometric analysis is five, and the aim and type of
analysis influences the size of the sample (Rogers et al. 2020). This paper goes beyond the
analytical minimum and analyses a sample of 65 documents.

Through the theoretical framework of the “Theory of Citation” (Leydesdorff 1998), we
can fathom that research inquiry is reflexive and makes use of quantitative approaches for
context setting and analysing research activity. This helps to evaluate the productivity and
visibility of researchers, journals, and publication numbers and to identify the intellectual
lineage of subjects (Tahamtan and Bornmann 2018; Mandard 2022). It also leads to fostering
collaborative networks aimed towards advancing knowledge in the field (Robledo et al.
2022). Through this study, we also extend upon the framework proposed by Sau and Nayak
(2022) to look at trends, organisations, keywords, Cite Scores, and H-index. However, we
also factor in doubling time and relative growth rates to ascertain the meanings within the
trajectories of publication growth. The scientific landscapes were visualised and exported
to VOSViewer. In VOSViewer, VOS stands for “visualisation of similarity” and aims “to provide a dimensional visualisation in which objects are located in such a way that the distance between any pair of objects reflects their similarity as accurately as possible” (Van Eck and Waltman 2009). The output of publications and trends of research interest can be seen in Figure 2, which showcases an upward trajectory and growth of publications.

![Figure 2. The number of documents and cumulative share on a year-by-year basis. Source: Authors.](image)

4. Results

4.1. Yearly Distribution and Growth Trends

It is evident from Figure 2 that the publication frequency was lower during the initial period from 2009 onwards, and there was no publication activity during 2011–2012. However, it saw a rise the next year, with a dip in the corresponding year following the gradual rise in the number of publications during the course. The frequency of publications peaked in 2023, as can be observed. This showcases that there has been an enhanced trend for research in “corporate sustainability” and “firm performance” area in the recent period from 2017 onwards. We mapped the number of publications and cumulative counts on an annual basis to analyse indagation of corporate sustainability and firm performance studies. The cumulative accruing plot showcases that there has been active research activity in this subject, and the trends suggest that we are in the growth phase of research in this field.

4.2. Subject Areas

Documents were mapped by subject area to gauge the topics that these publications have been addressing, as shown in Figure 3. This showcased that major subject was business management and accounting, followed by environmental science and social sciences. The lowest number of publications addressed the psychology domain.
4.3. Countries

The documents in the corpus were published from 37 countries, and 11 countries published three or more documents, as can be seen in Table 1. Much of the research activity in this field has been conducted in China, India, and the United States, which contributed to more than 45 percent of the global publications, suggesting their pivotal role in the advancement of studies on “corporate sustainability” and “firm performance”. China is leading, with 13 publications. There were 18 countries generating only one paper each. It is also evident that countries with a nominal GDP rank of 46 or lower feature among the top countries publishing three or more documents. This indicates that economically developed nations have progressed in research on corporate sustainability and firm performance. USA recorded the highest number of citations in the category. Interestingly, Italy, with only three documents, had a greater coverage citation per document (138.33) as compared to China, which had the highest number of publications and an average citation per document of 27.92.

Table 1. Top nations publishing three or more documents.

<table>
<thead>
<tr>
<th>Country</th>
<th>Quantity</th>
<th>%Age</th>
<th>Citation</th>
<th>Avg. Citation per Document</th>
<th>Nominal GDP Rank *</th>
<th>Scientific Production Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>13</td>
<td>21.31</td>
<td>363</td>
<td>27.92</td>
<td>2</td>
<td>20.00</td>
</tr>
<tr>
<td>India</td>
<td>9</td>
<td>14.75</td>
<td>304</td>
<td>33.78</td>
<td>5</td>
<td>13.85</td>
</tr>
<tr>
<td>United States</td>
<td>8</td>
<td>13.11</td>
<td>466</td>
<td>58.25</td>
<td>1</td>
<td>12.31</td>
</tr>
<tr>
<td>Pakistan</td>
<td>6</td>
<td>9.84</td>
<td>73</td>
<td>12.17</td>
<td>46</td>
<td>9.23</td>
</tr>
<tr>
<td>Taiwan</td>
<td>4</td>
<td>6.56</td>
<td>30</td>
<td>7.50</td>
<td>22</td>
<td>6.15</td>
</tr>
<tr>
<td>Spain</td>
<td>4</td>
<td>6.56</td>
<td>59</td>
<td>14.75</td>
<td>15</td>
<td>6.15</td>
</tr>
<tr>
<td>Malaysia</td>
<td>4</td>
<td>6.56</td>
<td>40</td>
<td>10.00</td>
<td>36</td>
<td>6.15</td>
</tr>
<tr>
<td>Canada</td>
<td>4</td>
<td>6.56</td>
<td>26</td>
<td>6.50</td>
<td>10</td>
<td>6.15</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>3</td>
<td>4.92</td>
<td>12</td>
<td>4.00</td>
<td>6</td>
<td>4.62</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>4.92</td>
<td>415</td>
<td>138.33</td>
<td>8</td>
<td>4.62</td>
</tr>
<tr>
<td>Germany</td>
<td>3</td>
<td>4.92</td>
<td>231</td>
<td>77.00</td>
<td>3</td>
<td>4.62</td>
</tr>
</tbody>
</table>

* Nominal GDP rank as per the International Monetary Fund (2023 estimates) based on “World Economic Outlook Database, October 2023”. Source: Authors.

The scientific production index showcases enhanced research activity in China, followed by India and the United States, a close third. Countries contributing to the field of research in “corporate sustainability” and “firm performance” with three or more publications belonged majorly to the Asian and European regions. There has not been adequate research activity in this field from the African and South American regions.
The authors and documents with 50 or more citations can be seen in Table 2. As can be observed, Naciti V. had the highest number of citations.

Table 2. Top authors and documents with 50 or more citations.

<table>
<thead>
<tr>
<th>Author</th>
<th>Author Id</th>
<th>Citations</th>
<th>doi</th>
<th>h-Index</th>
<th>g-Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Schaltegger and Burritt (2015)</td>
<td>6602922601; 6507089546</td>
<td>201</td>
<td>10.1007/s10551-015-2938-0</td>
<td>62; 59</td>
<td>137; 110</td>
</tr>
<tr>
<td>3 Zhang et al. (2020a)</td>
<td>36136336700; 55716202200; 5719136154; 57191165178</td>
<td>191</td>
<td>10.1016/j.jclepro.2020.121701</td>
<td>35; 22; 14; 9</td>
<td>49; 66; 37; 29</td>
</tr>
<tr>
<td>4 Jo et al. (2015)</td>
<td>16052624600; 55817020300; 56010356500</td>
<td>174</td>
<td>10.1007/s10551-014-2276-7</td>
<td>24; 9; 17</td>
<td>51; 22; 33</td>
</tr>
<tr>
<td>5 Jabbour et al. (2015)</td>
<td>54977014200; 56814993400; 5757819220</td>
<td>125</td>
<td>10.1016/j.resconrec.2015.07.017</td>
<td>34; 2; 114</td>
<td>71; 3; 192</td>
</tr>
<tr>
<td>7 Wang and Dai (2018)</td>
<td>57200919563; 5720391323</td>
<td>87</td>
<td>10.1108/IMDS-12-2016-0540</td>
<td>39; 2</td>
<td>182; 8</td>
</tr>
<tr>
<td>8 Gupta and Gupta (2020)</td>
<td>57214117255; 56167199200</td>
<td>78</td>
<td>10.1016/j.jclepro.2019.119948</td>
<td>7; 10</td>
<td>19; 18</td>
</tr>
<tr>
<td>10 Bodhanwala and Bodhanwala (2018)</td>
<td>57200789005; 56866261100</td>
<td>69</td>
<td>10.1108/MD-04-2017-0381</td>
<td>5; 4</td>
<td>10; 7</td>
</tr>
<tr>
<td>11 Van Passel et al. (2009)</td>
<td>1605356800; 56232477200; 15832612300; 6603215153</td>
<td>68</td>
<td>10.1016/j.jenvman.2009.04.009</td>
<td>44; 40; 25; 41</td>
<td>143; 85; 44; 84</td>
</tr>
</tbody>
</table>

Source: Authors.

Wang J. stands out with an impressive overall g-index of 182, making him a prominent figure in the academic landscape. Following closely behind are Van Passel S. and Schaltegger S. However, it is noteworthy that some authors, despite having high citation frequencies, exhibited comparatively lower impacts according to both h- and g-indexes. For instance, Naciti V., despite having a substantial number of citations, had an h-index of 6 and a g-index of 20. In Figure 4, the scatter plot illustrates the distribution of authors’ h and g indexes. The R-squared value was 0.7987, suggesting that approximately 79.87% of the variability in the g-index can be explained by the h-index. This indicates a strong positive correlation between the two indexes. This relationship is encapsulated by the equation y = mx + c, where the variables are represented by the slope (m) and intercept (c). In this case, the equation is satisfied by specific values: y = 1.9351x + 7.3096. This underscores the relationship between two important metrics used to measure the impact and productivity of researchers and highlights that sustained contributions (reflected by the g-index) are
often accompanied by high-impact work (reflected by the h-index) in the field of “corporate sustainability” and “firm performance”.

Figure 4. Scatter plot of h and g index for top authors in corporate sustainability and firm performance. Source: Authors.

Bibliographic coupling is a method used to examine the relationships and connections between academic papers based on their shared references. This method allows researchers to identify and analyse the influence and impact of certain papers within a specific field of study. This serves as a vital method in academic research, enabling a comprehensive grasp of the relationships and connections among scholarly works (Tsai et al. 2020). It also provides valuable insights into the development and trends within a discipline, helping academics to identify the most influential studies and track the progress of research in that field. Thematic clusters in bibliographic coupling are based on citing publications, allowing for the inclusion of up-to-date and unique publications, unlike co-citation analysis. For this study, qualitative analysis of articles was conducted, and an Excel data sheet was utilised to capture content and tag it with keywords to draw meaningful conclusions.

4.4. Thematic Clusters

Five main clusters of research themes, represented by different colours (pink, purple, brown, orange, and blue) were formed. Cluster 1 (pink) focused on environmental performance and environmental reputation, CSR, sustainability, SDGs, and financial performance; Cluster 2 (purple) explored firm financial performance and sustainability association as well as the role played by sustainable chain management and corporate governance mechanisms; Cluster 3 (brown) delved into the relationship between corporate sustainability reporting and firm profitability, examining disclosure pattern of corporate sustainability and sustainability strategies; Cluster 4 (orange) examined the impact of corporate sustainability on financial performance and analysed the connections amongst financialisation, accumulation of real capital, and corporate social performance; and Cluster 5 (blue) looked at long-term value creation through the adoption of green supply chain management. These were further mapped with the Sustainable Development Goals.

4.4.1. Cluster 1 (Pink): Environment Performance, CSR, and Sustainability

Cluster 1, comprising seven articles, highlights the nexus between environmental performance, CSR, and sustainability. Dangelico (2014) investigated the role of employee green teams in shaping a firm’s environmental performance and reputation. Through an analysis of data from the largest publicly traded US companies, the study established a positive correlation between the establishment of green teams and both environmental performance and reputation. By examining information gathered from sustainability reports and rankings, the research highlighted the significant impact of employee-driven initiatives on enhancing a company’s environmental standing and public perception.

The findings underscore the importance of internal environmental management capabilities and employee involvement in fostering a culture of sustainability within organizations. Alda (2019) focuses on the role of socially responsible pension funds in shaping
the sustainability practices of UK firms. Studying 197 such funds and 1253 firms over 16 years, the research identified a significant impact on 41.93% of ESG indicators. Larger pension-fund shareholding was associated with positive ESG performance, encouraging environmentally friendly practices and increased transparency. The study by Jo et al. (2015) investigated the relationship between corporate environmental responsibility (CER) and operating performance in the financial services sector. Analysing data from 29 countries, the research demonstrates that investing in CER can lead to reduced environmental costs and improved return on assets, particularly in well-developed financial markets. Schaltegger and Burritt (2015) explored the link between ethical motivations and various corporate social responsibility (CSR) activities. Distinguishing between four ethical motivations, their study highlighted the impact on operational activities and business cases related to sustainability. The study by Naciti (2019) received the highest number of citations amongst Cluster 1 and analysed the relationship between board composition and sustainability performance.

It is posited that greater diversity and separation of chair and CEO roles are associated with higher sustainability performance. However, an increase in independent directors correlates with a lower sustainability performance. Zhang et al. (2020a) explored the critical success factors of green innovation, focusing on technology, organisation, and environment readiness. Their study suggested that these dimensions, when adequately addressed, contribute to the success of green innovation, leading to competitive advantages and sustainability outcomes. Eide et al. (2020) investigated leaders’ impact on sustainability efforts in Norwegian manufacturing firms and found that leaders’ personal motivations influence firm strategy (Roy et al. 2021) through intellectual leadership. It also highlighted that incorporating sustainability efforts into core business strategies is linked to perceived value creation and organisational impact. The highlights of Cluster 1 (pink) include the following:

1. Introducing employee green teams has a positive impact on both firm environmental performance and reputation, apart from financial performance, through cost savings achieved through sustainable practices.
2. Socially responsible pension funds significantly influence the ESG performance of investee firms, promoting sustainability practices and transparency and potentially bolstering financial performance.
3. Investing in corporate environmental responsibility (CER) leads to reduced environmental costs and improved financial performance, particularly in developed financial markets.
4. Different ethical motivations drive distinct CSR activities, raising questions about their relationship with business success.
5. Board diversity and separation of the chair and CEO’s roles correlate with higher sustainability performance, emphasising the importance of inclusive decision making in shaping sustainable practices and positively influencing financial performance.

4.4.2. Cluster 2 (Purple): Firm Performance and Sustainability Chain Management

Shin et al. (2016) explored the relationship between renewable energy (RE) utilisation and firm financial performance. By comparing large US firms recognised for exceptional RE usage with industry medians over a 7-year period, it investigated the annual ROI, Tobin’s Q, and operating margin. It highlighted the potential economic benefits of RE utilisation, complementing its societal and environmental advantages.

By integrating efficiency analysis methods, it offered a comprehensive sustainability assessment tool. Focusing on Chinese firms, Wang and Dai (2018) investigated the impact of sustainable supply chain management (SSCM) practices on performance. Through a comprehensive model, it incorporated internal and external SSCM practices and examined their influence on economic, environmental, and social performance. The study by Pun and Anlesinya (2020) examined the influence of corporate governance mechanisms on firm performance among listed Ghanaian companies. Using panel regression analysis, it assessed various SEC-recommended governance variables from 2006 to 2018. The findings
contributed to understanding how corporate governance practices affect firm performance and hold implications for policymakers and practitioners in developing countries. The highlights of the studies in this cluster were:

1. Renewable energy (RE)-utilising firms consistently outperform their industry peers financially, indicating a positive association between sustainable chain management and financial performance.
2. Sustainable value assessment methodology integrates the sustainable value approach with frontier efficiency benchmarks, offering a comprehensive tool for evaluating firm sustainability.
3. Internal sustainable supply chain management (SSCM) practices positively influence environmental and social performance, subsequently enhancing the economic performance of firms.

4.4.3. Cluster 3 (Brown): Corporate Sustainability Reporting and Firms’ Profitability

Laskar (2019) investigated how corporate sustainability reporting affects the profitability of companies in India and South Korea. Analysing data from 28 Indian and 26 South Korean non-financial listed firms over six years, the research utilised content analysis to evaluate sustainability performance disclosure. The findings indicated a positive and significant association between sustainability reporting and profitability for South Korean firms, while for Indian firms, there was a negative impact. Examining corporate sustainability disclosure patterns and their influence on firm performance across Japan, South Korea, Indonesia, and India, Laskar and Gopal Maji (2018) employed data from 111 firms over six years. Using content analysis based on the GRI framework, they evaluated the corporate sustainability disclosure quality. They looked at the sustainability reporting practices among Indian firms, evaluating disclosure quality and its impact on firm performance. Analysing data from 28 listed Indian non-financial firms over six years, they undertook content analysis to assess disclosure levels and quality and questioned the adequacy of existing reporting frameworks. Further, Gupta and Gupta (2020) investigated the impact of environmental sustainability on various dimensions of firm performance, focusing on Indian organizations. This filled the knowledge gap by establishing a comprehensive relationship between sustainability and firm performance across key functional dimensions. The following were the highlights of this cluster:

1. Japanese companies not only led in both the level and quality of sustainability disclosure among Asian countries; they also demonstrated a positive correlation between robust sustainability practices and financial performance. This suggests that their commitment to transparency and sustainability contributes to enhanced investor confidence and may lead to improved financial outcomes.
2. High levels of sustainability reporting were observed among Indian firms, with a significant impact on firm performance. This led to attracting socially responsible investors, accessing capital more easily, and potentially achieving better financial results due to improved operational efficiency and reduced risks associated with environmental and social issues.
3. Environmental sustainability positively influences various dimensions of firm performance and contributes to stronger financial performance in the long term.

4.4.4. Cluster 4 (Orange): Financialisation, Accumulation of Real Capital, and Corporate Social Performance

The study by Ghardallou (2022) examined how corporate sustainability impacts firm financial performance, particularly exploring the moderating role of CEO characteristics on the link between corporate social responsibility (CSR) and financial performance. Analysing data from 34 publicly traded Saudi companies between 2015 and 2020, the research revealed that firms engaging in CSR practices tend to exhibit better financial performance. Cupertino et al. (2019) looked at the impact of financialisation on corporate real investment and its relationship with corporate social performance (CSP) in US manufacturing firms from 2002
to 2017. Amidst the increasing focus on shareholder value maximisation and short-term profit orientation, the research uncovered a negative correlation between financialisation and real investment. Studies have explored the integration of sustainability principles and information technology (IT) investments in third-party logistics (3PL) firms, focusing on the strategic leveraging of operations. By adopting an “operations-as-marketing” strategy, firms can transform their operations into strategic marketing assets aimed at meeting customer needs while achieving lean productivity. The papers in this cluster underscore the growing importance of sustainability in business practices and its impact on firm performance. The analyses shed light on the multifaceted nature of sustainability and its implications for corporate decision making and performance.

4.4.5. Cluster 5 (Blue): Value Creation and Green Supply Chain Management

The study by Sandberg et al. (2022) delved into the impact of environmental, social, and governance (ESG) ratings on financial performance. Using ordinary least squares regression, it examined the relationship between ESG ratings and profitability measures, like return on assets (ROA) and return on equity (ROE), over a 4-year period. Investigating corporate sustainability’s influence on firm profitability in India, the study by Bodhanwala and Bodhanwala (2018) analysed data from 58 Indian firms to assess the relationship between sustainability and various performance measures. Empirical evidence suggests a significant positive association between sustainability efforts and profitability indicators, emphasising the potential benefits of sustainable development strategies for firms. The findings underscored the importance of integrating environmental, social, and governance efforts into business policies to achieve long-term value creation and competitive advantage, particularly for mid and large capitalized Indian firms.

Focusing on green supply chain management (GSCM) practices in Brazilian firms, the study by Jabbour et al. (2015) explored GSCM’s impact on environmental and operational performance. Through multiple-case analysis, it identified “internal environmental management” as crucial for enhancing environmental performance and “cooperation with customers” for the purpose of improving operational performance. The findings provide practical insights for companies seeking to enhance their environmental and operational performance through tailored GSCM initiatives, emphasising the importance of aligning practices with strategic objectives for sustainable innovation and growth. Within this cluster, studies emphasise the significance of incorporating environmental, social, and governance initiatives into business policies to foster sustainable innovation and growth. They also underscore the growing importance of corporate sustainability in driving financial performance and long-term value creation across different industries and regions.

The analysis of the identified clusters reveals several causal relationships between corporate sustainability and firm performance. In the case of Cluster 1, establishing employee green teams positively impacts a firm’s environmental performance and reputation, leading to improved financial performance through cost savings (Ghosh 2019; Gill et al. 2021). Socially responsible pension funds significantly influence the ESG performance of investee firms, promoting sustainability practices and transparency, which can enhance financial performance. Investing in corporate environmental responsibility (CER) leads to reduced environmental costs and improved financial performance, especially in well-developed financial markets (Grosu et al. 2023). Different ethical motivations drive distinct CSR activities, raising questions about their relationship with business success. Board diversity and the separation of chair and CEO roles correlate with higher sustainability performance, emphasising the importance of inclusive decision making in shaping sustainable practices and positively influencing financial performance (Romano et al. 2020; Pareek et al. 2021). We can fathom from Cluster 2 that the relationship in the identified theme can be connected to the literature. Firms utilising RE consistently outperform industry peers financially, indicating a positive association between sustainable chain management and financial performance. Integrating sustainable value assessment methodology with frontier efficiency benchmarks offers a comprehensive tool for evaluating firm sustainabil-

As can be seen in third cluster, studies have suggested that high levels of sustainability reporting among Indian firms significantly impact firm performance, attracting socially responsible investors, easeing access to capital, and potentially leading to better financial results due to improved operational efficiency and reduced risks associated with environmental and social issues (Kaur and Dave 2020; Yadav and Yadava 2023). Cluster 4 looks at the focus on shareholder value maximisation and short-term profit orientation negatively correlating with real investment, impacting corporate social performance. Integrating sustainability principles and IT investments in third-party logistics (3PL) firms can transform operations into strategic marketing assets, meeting customer needs while achieving lean productivity (Kim et al. 2020; Chopra et al. 2023). The fifth cluster looks at the incorporation of environmental, social, and governance (ESG) initiatives into business policies to foster sustainable innovation and growth, driving financial performance and long-term value creation across different industries and regions. Studies have suggested that practices such as internal environmental management and cooperation with customers can enhance environmental and operational performance (Feroz et al. 2021; Huong et al. 2021).

These clusters of studies suggest that integrating sustainability considerations into core business strategies, governance mechanisms, and supply chain management can lead to improved financial, environmental, and social performance.

4.5. Mapping Clusters with SDGs

The clusters identified from the corpus were further mapped to Sustainable Development Goals (Figure 5). This enabled us to identify the connections of the themes with SDGs and observe the varied research interest in relation with SDGs. It is noteworthy that all SDGs, barring three, were considered in the documents of the corpus.

Figure 5. Mapped clusters with SDGs. Source: Authors.
Figure 6 shows the count of each SDG within each cluster, providing a clear view of how the Sustainable Development Goals are distributed across different clusters. In the corporate social performance cluster, there are diverse range of SDGs, including poverty alleviation (SDG 1), health and well-being (SDG 3), gender equality (SDG 5), economic growth (SDG 8), innovation and infrastructure (SDG 9), reduced inequalities (SDG 10), responsible consumption and production (SDG 12), climate action (SDG 13), and strong institutions (SDG 16). The diversity of SDGs indicates a broad focus on economic and social impacts, highlighting the importance of corporate social responsibility. The environmental performance cluster is heavily focused on environmental aspects such as water management (SDG 6), energy efficiency (SDG 7), sustainable urban development (SDG 11), responsible consumption and production (SDG 12), and climate action (SDG 13). The SDGs within this cluster are relatively balanced, indicating a comprehensive approach to environmental performance. In the third cluster, there is an emphasis on economic growth (SDG 8), innovation and infrastructure (SDG 9), responsible consumption and production (SDG 12), climate action (SDG 13), and strong institutions (SDG 16). The focus on economic growth and governance suggests that there is prioritisation of financial performance and institutional strength. In the fourth cluster, the focus is on energy efficiency (SDG 7), innovation and infrastructure (SDG 9), responsible consumption and production (SDG 12), climate action (SDG 13), life on land (SDG 15), and partnerships (SDG 17). The emphasis on SDG 15 and SDG 17 suggests a strong focus on environmental sustainability and collaboration in supply chain management. The fifth cluster concentrates on economic growth (SDG 8), innovation and infrastructure (SDG 9), responsible consumption and production (SDG 12), climate action (SDG 13), and partnerships (SDG 17). The emphasis on SDG 17 indicates the importance of collaboration and transparency in sustainability reporting. The SDGs 12 (responsible consumption and production) and 13 (climate action) are common across all clusters, indicating their critical importance in various aspects of corporate sustainability and firm performance. Each cluster has a specific focus aligned with its core objectives, whether it is environmental performance, firm performance, corporate sustainability reporting, corporate social performance, or green supply chain management. The corporate social performance cluster stands out for its diverse range of SDGs, reflecting the multifaceted nature of social responsibility.

Through density visualisation, we can see that corporate sustainability and firm performance were the most frequently used keywords, followed by sustainability. Keywords were manually screened so that relevant words to the study were selected for generating the density visualisation map displayed in Figure 7. There were good correlations with sustainability reporting, sustainability performance, corporate governance, financial performance, and profitability, and their relationships were pertinent. This visualisation is useful for understanding the key focus areas, and we can observe the central placement and brightness around “corporate sustainability” and “sustainability” and “firm performance”,...
indicating that these are highly researched and pivotal themes. The proximity of terms suggests that recent research often discusses sustainability in the context of enhancing business performance and managing environmental impact. Therefore, researchers have made use of these variables while researching firm performance and corporate sustainability.

Figure 7. Density visualisation of keyword co-occurrence. Source: Authors.

To assess the production relative indicator, we made use of a formula given by Gracio et al. (2012) and calculate the AGR of publications. According to Santha Kumar and Kaliyaperumal (2015), this is an effective method for calculation of growth on an annual basis. As can be seen, the production levels dipped and rose intermittently, and had jump in the year 2023. The calculation of CAGR is another method to gauge the geometric progression ratio. It was calculated using the formula available at https://www.investopedia.com/terms/c/cagr.asp (accessed on 12 April 2024). The average number of papers per year was found to be a meagre 4.06, and the CAGR was observed to be $-2.88$.

Further, the growth rate was determined through the metrics of RGR and Dt. provided by Mahapatra (1985). The relative growth rate (RGR) reflects a surge in documents over time and has its origins in biology. It has been used as a measure of publications by a number of scholars (Dandoti and Ansari 2023). The doubling time (Dt.) refers to time taken to double in value and is in direct relation to the RGR. Table 3 depicts the RGR and Dt. of the publications. It can be observed that the RGR value decreased from 0.69 in 2010 to 0.36 in 2023, and also oscillated over the years. The Dt. experienced an increase from 1.00 in 2010 to 1.93 in 2023, followed by 22.35 in 2024.

Table 3. RGR, Dt., ARoG and AGR of the publications.

<table>
<thead>
<tr>
<th>Year</th>
<th>#</th>
<th>Cumulative</th>
<th>W1</th>
<th>W2</th>
<th>RGR</th>
<th>Dt.</th>
<th>ARoG</th>
<th>AGR</th>
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<td>1</td>
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<td>0.00</td>
<td>0</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
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<td>0.00</td>
<td>0.69</td>
<td>0.69</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2011</td>
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<td>2</td>
<td>0.69</td>
<td>0.69</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>2012</td>
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<td>2</td>
<td>0.69</td>
<td>0.69</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>2013</td>
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<td>0.40</td>
<td>1.71</td>
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Table 3. Cont.

<table>
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<th>Year</th>
<th>#</th>
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<th>W2</th>
<th>RGR</th>
<th>Dt.</th>
<th>ARoG</th>
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<tr>
<td>2016</td>
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<td>0.15</td>
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<td>2017</td>
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<td>1.95</td>
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<td>0.33</td>
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<td>2018</td>
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<tr>
<td>2019</td>
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<td>1.17</td>
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<td>0.33</td>
<td>2.10</td>
<td>0.67</td>
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<td>2021</td>
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<td>0.03</td>
<td>22.35</td>
<td>9.50</td>
<td>0.89</td>
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</tbody>
</table>

Source: Authors.

4.7. Future Projections

Time series analysis is an effective method for future prediction of publication output (Manalu et al. 2022). To determine a suitable forecasting method, we looked at the characteristics of the data, including the trend, seasonality, and noise. Since the data encapsulated a 16-year period, with the number of documents varying annually and cumulative documents experiencing an increasing trend over time, the dataset did not exhibit clear seasonal patterns, and the fluctuations in the number of documents indicated a level of noise. We, therefore, made use of exponential smoothing (Holt’s Linear Trend Model), as it is considered suitable for data with a trend but no seasonality, and can handle noise, providing smoothed, reasonable forecasts (Chatterjee et al. 2021).

The exponential smoothing technique is a widely used approach for forecasting in various industries and serves as an important tool to gauge publication output levels in bibliometric and scientometric studies. It takes into account the weighted averages of prior data, where the weights decrease exponentially as the observations grow older. It can be used for predicting dynamic processes such as the evolving demands of business and markets, even in the presence of outliers, noise, or changes in underlying time series (Sumitra and Basri 2020).

After following the established patterns and utilizing the calculation of the initial level and initial trend estimates, as well as the forecast equation being \( F_{t+k} = l + kb_t \), where \( k \) is the number of periods ahead to forecast and where the smoothing parameters for the level and trend are greater than 0 and less than 1, our projections indicate an estimated 10 publications in 2025, 14 publications in 2030, 21 publications in 2040, and 28 publications in 2050.

5. Discussion

The academic discourse surrounding corporate sustainability and its correlation with firm performance has garnered considerable attention lately, as evidenced by the existence of scholarly articles. Nonetheless, there remains ample room for further exploration in this area. This article outlines several avenues for future research on the relationship between corporate sustainability and firm performance. Only documents mined through the Scopus corpus were considered, which can be regarded as a limitation of this study.

The five clusters that were identified in the study were mapped to SDGs (Figure 5). Cluster 1, i.e., Environmental Performance, considered SDGs pertaining to clean water and sanitation (6), affordable and clean energy (7), sustainable cities and communities (11), responsible consumption and production (12), and climate action (13). Cluster 2, representing Firm Performance, considered SDGs related to decent work and economic growth (8); industry, innovation, and infrastructure (9); responsible consumption and production (12); climate action (13); and peace, justice, and strong institutions (16). In Cluster 3, i.e., Corporate Sustainability Reporting, SDGs pertaining to decent work and economic growth (8); industry, innovation, and infrastructure (9); responsible consumption and production (12); climate
action (13); and partnerships for the goals (17) were considered. SDGs related to no poverty (1); good health and well-being (3); gender equality (5); decent work and economic growth (8); innovation and infrastructure (9); reduced inequalities (10); responsible consumption and production (12); climate action (13); and peace, justice, and strong institutions (16) were part of Cluster 4, i.e., Corporate Social Performance. In Cluster 5, i.e., Green Supply Chain Management, affordable and clean energy (7); industry, innovation, and infrastructure (9); responsible consumption and production (12); climate action (13); life on land (15); and partnerships for the goals (17) were considered. Further, future researchers can explore the unexplored SDGs among the 17 SDGs not considered in the previous research with respect to the clusters identified in our research.

Cluster 1, identified through our evaluation, showcases the intricate interplay between environmental performance, corporate social responsibility (CSR), and sustainability across various industries and regions. The articles in the Cluster 1 shed light on how organizations navigate sustainability challenges, engage stakeholders, and strive for long-term success in an increasingly complex business landscape. One of the key findings highlighted in the cluster is the positive impact of employee green teams on firm environmental performance and reputation. This underscores the importance of internal environmental management capabilities and employee involvement in driving sustainability initiatives within organizations. The studies also indicate that larger pension-fund shareholding is associated with enhanced environmental, social, and governance (ESG) performance, promoting sustainability practices and potentially bolstering financial performance. This suggests that investors’ increasing focus on sustainability considerations can incentivize companies to adopt more sustainable business practices, thereby positively impacting financial outcomes. Ethical motivations driving CSR activities and their impact on organisational performance have also been explored. These also signal towards aligning CSR initiatives with core business strategies and values, raising questions about the relationship between ethical practices and business success, including financial performance. Diversity and the separation of chair and CEO roles are not only driving sustainability outcomes, but also having positive implications for financial performance. Environmental performance has been regarded as a critical aspect of corporate sustainability. Firms which focus on improving their environmental performance can achieve significant benefits, including cost savings, enhanced reputation, and compliance with regulatory requirements. For instance, initiatives such as reducing water usage (SDG 6), investing in clean energy (SDG 7), and promoting sustainable urban development (SDG 11) can lead to operational efficiencies and cost reductions. Additionally, responsible consumption and production (SDG 12) and climate action (SDG 13) are essential for mitigating environmental risks and ensuring long-term sustainability. Firms that excel in these areas often experience improved financial performance due to lower operational costs, increased investor interest, and stronger customer loyalty.

We could fathom that, in Cluster 2, there lies a relationship between financial performance and sustainability chain management, and that sustainable practices can impact firms’ economic, environmental, and social performance. Researchers have looked at the correlation between renewable energy (RE) utilisation and firm financial performance and assessed firm sustainability by combining the sustainable value approach with frontier efficiency benchmarks. Research has also investigated the influence of corporate governance mechanisms on firm performance and highlighted the positive association between sustainable chain management practices and financial performance. These findings point towards the importance of integrating sustainability considerations into firms’ strategic decision-making processes, emphasising the potential for sustainable practices to drive long-term value creation and success. Aligning business practices with SDGs such as decent work and economic growth (SDG 8) and industry, innovation, and infrastructure (SDG 9) can drive sustainable economic growth and enhance competitiveness. Research has signalled that responsible consumption and production (SDG 12), as well as climate action (SDG 13), are crucial for minimising environmental impact and ensuring resource efficiency.
Additionally, promoting peace, justice, and strong institutions (SDG 16) can foster a stable and transparent business environment, which is conducive to long-term success. Firms that integrate these SDGs into their core strategies are likely to achieve superior financial performance, attract socially responsible investors, and build resilient business models.

Cluster 3 sheds light on the association between corporate sustainability reporting, environmental sustainability, and firm performance across India, South Korea, and Japan. Through a series of empirical studies, researchers delved into the nuanced dynamics shaping corporate sustainability practices and their impact on financial outcomes. The papers looked at the diverse responses to sustainability reporting practices across different regions and underscored the need for tailored strategies to enhance financial performance. Examining the corporate sustainability disclosure patterns can reveal insights into the quality of sustainability reporting and indicate the potential economic benefits of transparency and sustainability. These studies also suggest that sustainability reporting not only attracts socially responsible investors and facilitates access to capital, but also contributes to improved financial results through enhanced operational efficiency and reduced risks. Integrating sustainability considerations into strategic decision-making processes can enable the achievement of long-term value creation and success. By disclosing their sustainability practices and performance, companies can build trust with stakeholders, including investors, customers, and regulators. Reporting on SDGs such as decent work and economic growth (SDG 8); industry, innovation, and infrastructure (SDG 9); and responsible consumption and production (SDG 12) demonstrates a commitment to sustainable development. Climate action (SDG 13) reporting highlights efforts to mitigate climate risks, while partnerships for the goals (SDG 17) emphasise collaboration and collective action. Effective sustainability reporting can enhance a firm’s reputation, improve access to capital, and drive better financial performance by attracting socially responsible investors and customers.

Collectively, the papers in Cluster 4 underline the growing importance of sustainability in contemporary business practices and its profound implications for firm performance. The analysis sheds light on the multifaceted nature of sustainability and its role in shaping corporate decision-making processes. By recognising the interconnectedness of financial, social, and environmental factors, organizations can better navigate the complexities of the modern business landscape and drive sustainable value creation for stakeholders and society at large. The cluster focuses on a firm’s impact on society and its stakeholders. Addressing SDGs, such as no poverty (SDG 1), good health and well-being (SDG 3), and gender equality (SDG 5), can enhance a company’s social license to operate and build stronger community relations. Promoting decent work and economic growth (SDG 8); industry, innovation, and infrastructure (SDG 9); and reduced inequalities (SDG 10) can lead to a more inclusive and equitable business environment. Responsible consumption and production (SDG 12) and climate action (SDG 13) are essential for sustainable resource management and environmental stewardship. Peace, justice, and strong institutions (SDG 16) contribute to a stable and transparent business environment.

Cluster 5 presents an in-depth examination of the intersection between environmental, social, and governance (ESG) practices; corporate sustainability; and financial performance across various industries and regions. Through a series of empirical studies, researchers delve into the multifaceted dynamics shaping firms’ sustainable development strategies and their implications for profitability and competitiveness. For example, they look at the impact of ESG ratings on financial performance, employing ordinary least squares regression to analyse the relationship between ESG ratings and profitability measures such as return on assets (ROA) and return on equity (ROE) over a 4-year period. Their findings reveal a significant positive association between ESG efforts and profitability indicators, underscoring the potential benefits of sustainable development strategies for firms. This highlights the importance of integrating environmental, social, and governance considerations into business policies to achieve long-term value creation and competitive advantages, particularly for mid and large capitalized Indian firms. Shifting the focus to green supply
chain management (GSCM) practices, researchers have explored the impact of GSCM on environmental and operational performance, thereby highlighting the importance of aligning practices with strategic objectives for sustainable innovation and growth. Overall, the studies within Cluster 5 have showcased that, by embracing sustainable development strategies and aligning them with strategic objectives, companies can position themselves for success in an increasingly competitive and environmentally conscious marketplace. Green supply chain management (GSCM) involves integrating sustainable practices into supply chain operations. Relating the cluster with SDG 8 (decent work and economic growth), SDG 12 (responsible consumption and production), SDG 13 (climate action), and SDG 17 (partnerships for the goals) leads to an impact on corporate sustainability and firm performance in terms of effect supply chain practices, achieving cost savings and differentiation in the market through green supply chains and risk management.

Through the use of a scatter plot of the h-index and g-index for the top authors in corporate sustainability and firm performance, we obtained insight into the relationship between productivity and impact within specific research domains. The plot underscored the relationship between two important metrics used to measure the impact and productivity of researchers in the field, highlighting that sustained contributions (reflected by the g-index) are often accompanied by high-impact work (reflected by the h-index). Another notable observation is the prevalent tendency among researchers to utilise financial performance as a surrogate for firm performance. Moreover, a significant proportion of research has primarily focused on research from developed countries. However, there is a growing, but gradual, shift in research focus towards developing countries, albeit at a slow pace. Indian research has explored the relationship between sustainability reporting and firm profitability, considering unique regulatory and market conditions. Brazilian research has examined the impact of green supply chain management on environmental and operational performance, while research originating from South Africa has explored the role of corporate governance mechanisms in shaping sustainability practices and their influence on firm performance. For instance, in countries like Brazil, India, and South Africa, the adoption of green supply chain management, corporate sustainability reporting, and robust governance mechanisms can lead to improved firm performance. Research in the US showcases a strong focus on corporate governance, stakeholder engagement, and the financial implications of sustainability practices. In the case of EU countries, there is an emphasis on environmental sustainability, renewable energy adoption, and comprehensive sustainability reporting. In developed economies such as the United States, European Union countries, and Japan, the integration of advanced sustainability practices and technologies can further enhance their competitive advantage and financial performance.

Moreover, future studies can explore additional mediators and moderators influencing the relationship between corporate sustainability and firm performance. Existing research predominantly focuses on corporate sustainability and financial performance, neglecting the non-financial aspects of firm performance. Given that organisational performance encompasses financial, operational, and organisational effectiveness, it can be prudent to embrace a holistic approach when evaluating the domain of firm performance. While studies on this topic are abundant in developed nations, research from developing nations is scarce, highlighting the need for comprehensive cross-country studies to elucidate variations in the corporate sustainability levels and their implications for firm performance. The link strength was found to be negligible amongst the countries, as collaborations amongst countries publishing three or more documents was scant.

The study has implications for practitioners and policymakers, as firms can focus on integrating sustainability practices into their core business strategies and operations to enhance their overall performance and competitiveness in the market. Effective communications are essential for firms to communicate their sustainability initiatives and efforts, which can lead to increased stakeholder engagement, improved reputation, and enhanced firm performance. The mapping of research themes to the Sustainable Development Goals (SDGs) provides a framework for policymakers to align corporate sustainability
efforts with national and global sustainability agendas. They can use these insights to develop policies and incentives that promote sustainable business practices. The analysis of publication trends and growth rates can inform them about the evolving research landscape in the field of corporate sustainability and firm performance. This can help in the formulation of targeted policies and funding initiatives to support further research and knowledge dissemination.

6. Conclusions

This research gave us an insight into the field of “corporate sustainability” and “firm performance”, wherein the number of documents published has grown since inception. A major upward trend in the number of documents since 2017 showcases that we are in the growth stage of research in this field. We discovered that China, India, and the United States have been faring well as compared to other countries and have undertaken visible research efforts in studies related to this field. Countries contributing to the field with three or more publications were mainly from the Asian and European regions. The largest chunk of the papers belonged to the topic of business management and accounting, followed by environmental science and social sciences. The lowest number of publications addressed the psychology domain.

The scatter plot provides valuable insights into the relationship between the h-index and g-index among top authors in fields of corporate sustainability and firm performance. It highlights a strong correlation between the two metrics, suggesting that authors who are influential in terms of high-impact papers also tend to have broad and substantial citation footprints in this field. This analysis can be useful for institutions and individuals to gauge the impact and breadth of research contributions pertaining to this field. Institutions can also evaluate and support their researchers, ultimately enhancing their reputation and impact in the field of corporate sustainability and firm performance. It was found that Naciti V. garnered the highest number of citations, and Wang J. stood out with an impressive overall g-index of 182, making him a prominent figure in this field. However, there is a need for greater collaboration in research so that knowledge can move from tacit to known, as authors can look to write from multi-author perspectives to express their overall views on the subject. Based on the established patterns and the calculation of projections using exponential smoothing, we were able to predict a steady rise in the number of publications in coming years with reasonable projections for future publication counts, as per historical data.

The findings of this study hold significant practical implications for businesses seeking to integrate sustainability practices into their operations and decision-making processes. The identified clusters and their alignment with specific SDGs provide a roadmap to prioritise and address sustainability. For instance, the insights into the linkages between environmental performance, corporate social responsibility, and firm performance can guide businesses in developing effective sustainability strategies that may enhance their competitiveness and long-term viability. Policymakers can design policies and regulations that foster the integration of sustainability considerations into corporate decision making, thereby driving the transition towards a more sustainable and equitable global economy.

Additionally, the lack of collaboration among countries publishing multiple documents points to the necessity of fostering international research partnerships to enrich the global discourse on corporate sustainability and firm performance. Through mapping keyword co-occurrence, we obtained a sense of the closely related variables and terms that have been used in relation with corporate sustainability and firm performance studies. This revealed that “corporate sustainability” and “firm performance” are central themes discussed in the context of enhancing business performance and managing environmental impact. This indicates a strong focus on integrating sustainability into core business strategies. Five clusters were identified that were mapped to the Sustainable Development Goals. Employing exponential smoothing (Holt’s linear trend model), the study indicated a continued growth in research output within the field of corporate sustainability and firm
performance. We also saw a CAGR of $-2.88$ throughout the study period, and the average quantity of papers per year was a meagre 4.06. The negative growth rate suggests that the field may be experiencing a slowdown, which could be due to various reasons, such as shifts in research focus or funding availability. There has been a decrease in the relative growth rate over the years to 0.03 in 2024 from 0.69 in 2010, and the doubling time increased to 22.35 in 2024. Conducting this study using other databases such as Web of Science as well as combination studies with the Scopus database can be undertaken in future research. This utilisation of multiple data sources will be a move towards comprehensive and comparative studies. The study’s framework offers a systematic and rigorous approach to mapping the existing literature, identifying key research themes, and analysing publication trends and growth patterns. This comprehensive analysis provides valuable insights that can guide future research directions, foster collaborations, and contribute to the advancement of the field of corporate sustainability and firm performance.

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