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Mapping The Intersection of Corporate Social Responsibility and Climate Change: A Bibliometric Approach

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Abstract

The purpose of this study is to provide a general framework for the intersection of Corporate Social Responsibility (CSR) and Climate Change by drawing on existing research that addresses these topics jointly. In this context, a bibliometric approach was employed, and scientific mapping techniques—specifically co-word and co-occurrence network analyses—were conducted using the Biblioshiny software on 396 valid studies retrieved from Web of Science database. The findings reveal that sustainability occupies a central position in CSR and climate change research. Moreover, sustainability is not limited to its environmental dimension but is also examined from social and economic perspectives. Another notable finding is that themes such as ESG, sustainability reporting, legitimacy theory, and climate change have emerged as trending topics in recent years. The co-occurrence network analysis identified several sub-clusters. The first encompasses climate change, corporate strategy, and carbon-related concepts, while the second highlights themes such as CSR, stakeholder management, and ethics.

Keywords: Corporate Social Responsibility, Climate Change, Sustainability, Bibliometric Analysis, Biblioshiny

Kurumsal Sosyal Sorumluluk ve İklim Değişikliği Çalışmaları Kesişiminin Haritalandırılması: Bibliyometrik Bir Yaklaşım

ÖZ

Bu çalışmanın amacı Kurumsal Sosyal Sorumluluk (KSS) ve İklim Değişikliği konularının birlikte ele alındığı çalışmalardan yola çıkarak konuya ilişkin genel bir çerçeve ortaya koymaktır. Bu bağlamda bibliyometrik bir yaklaşımla, Web of Science veri tabanından elde edilen 396 geçerli çalışma için Biblioshiny yazılımı aracılığıyla bilimsel haritalama teknikleri olan eş-sözcük ve eş-oluşum ağ analizleri yapılmıştır. Araştırma bulguları sürdürülebilirlik konusunun KSS ve iklim değişikliği çalışmalarının merkezinde yer aldığını ortaya koymuştur. Sürdürülebilirlik konusunun yalnızca çevresel boyutuyla değil, toplumsal ve ekonomik boyutlarıyla da ele alındığı araştırma bulgularından bir diğeridir. Ayrıca ESG, sürdürülebilirlik raporlaması, meşruiyet teorisi, iklim değişikliği konularının KSS-İklim Değişikliği yazınında son yıllarda yeni trend konular oldukları görülmüştür. Eş-oluşum ağ analizi sonucunda ortaya çıkan önemli alt kümelerden ilki iklim değişikliği, kurumsal strateji ve karbonla ilişkili konuları kapsarken; ikinci kümede KSS, paydaş yönetimi ve etik gibi başlıklar ön plana çıkmıştır.

Anahtar Kelimeler: Kurumsal Sosyal Sorumluluk, İklim Değişikliği, Sürdürülebilirlik, Bibliyometrik Analiz, Biblioshiny

1. Introduction

Since the publication of Howard R. Bowen's book titled "Social Responsibilities of the Businessman", the role of corporate actions on society has been under scrutiny. Bowen (1953: 3-5) argued that corporations should be navigated not only by financial gain but also by ethical considerations and social welfare, given the impact on broader society, going beyond their employees or customers. Besides, climate change has a profound influence on communities, biodiversity, and different sectors such as agriculture and health, and requires collective action by firms, non-governmental organizations, communities, and governments (IPCC, 2022). Considering that corporations are the key economic actors with huge financial, human, and physical resources, they are expected to integrate climate-related strategies into their CSR agendas as well as reduce their carbon footprint (Averchenkova et al., 2016). That is why addressing climate issues is recognized as part of the social responsibility practices of corporations. In parallel to this, there is a growing literature on CSR and climate change (Vo et al., 2024). Therefore, this study aims to understand the evolution of the scientific publications at the intersection of CSR and climate change, offering insights into the related research.

2. Literature Review

Climate Change

Recent reports (IPCC, 2023) indicate that human activities caused climate change through greenhouse gas emissions, which continue to rise. Behind the disproportionate increase in greenhouse gas emissions lies the adoption of unsustainable energy systems, consumption patterns, and land-use practices worldwide. There is also a concerning change in Earth's surface, indicating a 1.1°C increase between 2011 and 2020 compared to the second half of the 19th century (IPCC, 2023). According to the report by the World Meteorological Organization (2025), in 2024, global temperature records were broken, continuing the trend from 2023. This report shows that every year from 2015 to 2024 ranks among the ten warmest on record. This accelerating increase in temperatures is largely driven by atmospheric carbon dioxide concentrations, which are now reported to be at their highest levels in 800,000 years. The probability of surpassing the record in 2024 at least once in the coming five years is 80% (World Meteorological Organization, 2025). This rapid increase in the climate temperatures caused immediate changes across the atmosphere, oceans, and biosphere. Human-induced climate change, with its impact on numerous climate extremes, caused significant damage and losses. In the end, vulnerable communities were severely impacted by these detrimental developments in the climate issue. Although adaptation measures have progressed across all sectors, there are still gaps, and there is a shortage of global financial flows for adaptation (IPCC, 2023).

Source: World Meteorological Organization, 2022

The World Meteorological Organization (2022) states that the commitments made by countries are far from being fully implemented. These pledges are not sufficient to keep global warming below 1.5 °C above pre-industrial levels. This target, as well as the goals of the Paris Agreement, require higher measurements. Cities, with up to 70%, are reported to have the majority impact on human-induced emissions. Considering that the most vulnerable populations face higher risks, adaptation and disaster risk reduction play an essential role in decreasing the detrimental effects of climate change. Besides, these vulnerable societies mostly lack the necessary instruments, such as early warning systems, that might be helpful in saving lives and decreasing losses. In this regard, adaptation as well as disaster risk reduction are important in eliminating climate-related risk. Put differently, climate change is accelerating due to rising emissions, with record temperatures, growing risks of extreme events and tipping points, and that urgent, far stronger action—along with adaptation like early warning systems—is essential to protect vulnerable people and cities (World Meteorological Organization, 2022)

Corporate Social Responsibility and Climate Change

As the devastating impacts of climate change intensify, organizations with power and necessary resources, including firms, non-governmental organizations, and governments, are expected to reconsider the role of CSR, and questions have arisen about shifting its voluntary nature (Allen and Craig, 2016). Many countries and communities have already been suffering under the losses and damages of climate change, and projections indicate that businesses might encounter disruptive challenges that might risk their operations.

In this regard, communication might be an effective tool in the development of sustainability-focused initiatives and their dissemination among stakeholders (Allen and Craig, 2016). Many studies are focusing on CSR and climate change in various sectors and country contexts. For instance, climate change damages agricultural production profoundly, such as coffee crops, and tackling this issue requires adaptation measures (Bianco, 2020). But the empirical findings show that the coffee industry does not adopt CSR practices at a sufficient rate, which can enable climate change adaptations (Bianco, 2020). Prior research also shows that Hungarian agricultural companies' CSR activities related to the climate issue are still at an early development phase. However, companies have initiatives to decrease the impact of climate change (Biró & Csete, 2021). Hossain and Masum (2022), in a study focusing on US firms based on data between 2002 and 2018, show that firms' CSR activities provide resilience against climate change risks and can also function as a buffering mechanism with benefits. Empirical findings also show that firms' Environmental, Social, and Governance (ESG) scores increase if they are embedded in contexts where more people are inclined to believe in global climate change (Huang & Lin, 2022). Considering the broader focus of these studies on climate change and CSR, this study aims to analyze the existing research through bibliometric analysis to show the evolution of the scientific publications in this nexus.

3. Methodology

This study aims to provide a comprehensive framework on the intersection of Corporate Social Responsibility (CSR) and Climate Change by adopting a bibliometric perspective. Within this scope, it seeks to address the following research questions: What are the most frequently used keywords in the field? Which themes dominate the literature? Which concepts are studied in relation to one another? Do these concepts form distinct clusters, and if so, what are the characteristics of these clusters? How have research interests evolved over time, and what emerging topics and trends can be identified?

As part of the research, studies simultaneously addressing both CSR and climate change were first identified through the Web of Science database. To this end, the following search query was applied to the “Title, Abstract, Keywords” fields: ("corporate social responsibility" OR "CSR") AND ("climate change" OR "climate crisis" OR "global warming" OR "climatic change" OR "climate variability"). This search yielded 1,610 studies. Subsequently, the results were refined by selecting only those published in English within the field of Business and categorized as articles, review articles, early access papers, proceeding papers, or book chapters. After applying these filters, a final dataset of 396 studies was obtained.

The collected studies were subjected to a bibliometric analysis using Biblioshiny, an integrated application within R Studio. Bibliometric analysis generally consists of two main approaches: Performance Analysis and Science Mapping (Donthu et al., 2021:288). In this study, science mapping techniques were employed, specifically co-word analysis and co-occurrence network analysis.

4. Findings

Table 1 presents general information on the studies included in the analysis. As shown in the table, the first publication on this topic appeared in 2006. The annual growth rate of publications is 25.94%, indicating a considerable and growing interest in the field. On average, each study included in the dataset has received 45.24 citations, further underscoring the strong scholarly attention to the topic.

Figure 1 illustrates the annual distribution of publications. As the figure indicates, the number of studies increased sharply after 2020, reaching its peak in 2025 with 80 publications. Moreover, nearly half of the identified works (187 studies) were published after 2023, highlighting the recent surge of scholarly interest in this area.

Table 1: Main Information

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2006:2025
Sources (Journals, Books, etc)	111
Documents	396
Annual Growth Rate %	25.94
Document Average Age	4.38
Average citations per doc	45.24
References	26462
DOCUMENT CONTENTS	
Keywords Plus (ID)	889
Author's Keywords (DE)	1229
AUTHORS	
Authors	1020
Authors of single-authored docs	64
AUTHORS COLLABORATION	
Single-authored docs	65
Co-Authors per Doc	2.8
International co-authorships %	37.12

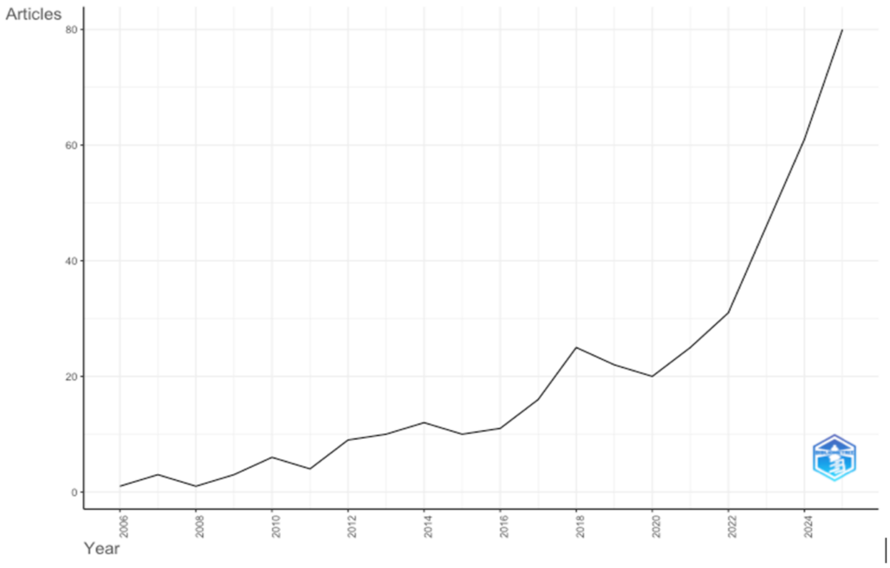

Figure 1: Annual Scientific Production

An examination of Figures 2 and 3 reveals that *sustainability* emerges as the most prominent theme in the literature (sustainability: 48, sustainable development: 34, sustainability reporting: 18). This suggests that sustainability constitutes the central framework within which CSR and climate change studies are situated. The concept of *sustainable development* further indicates that sustainability is not confined to its environmental dimension but also encompasses social and economic aspects. The third most frequently used keyword, *corporate governance*, highlights that sustainability is also examined from a business and organizational management perspective. Meanwhile, concepts with moderate frequency—such as environmental performance, environmental policy, stakeholder engagement, environmental management, and carbon disclosure—point to research addressing both practical and regulatory dimensions. In contrast, *carbon performance* appears as the least studied topic, drawing attention to a potential gap in the literature.

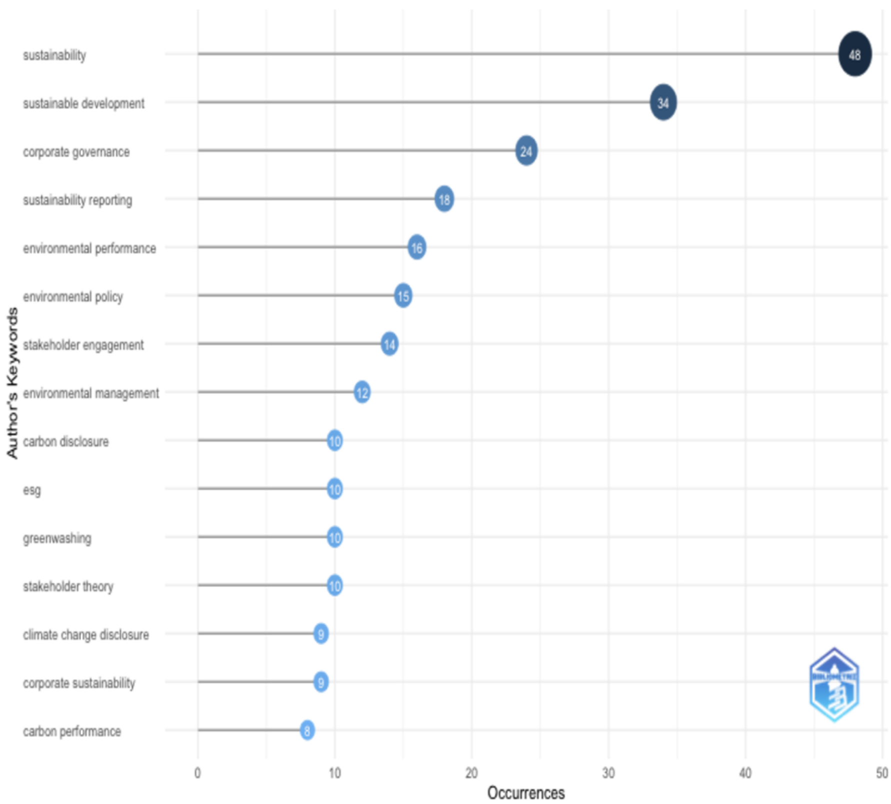

Figure 2: Most Frequent Words

Figure 3: WordCloud

Figure 4 illustrates the cumulative growth of the most frequently used concepts over time. As shown in the figure, while *sustainability* and *sustainable development* have been studied since 2006, scholarly attention to these themes has intensified significantly after 2018. The term *corporate governance* has exhibited a sharp increase particularly after 2022. Similarly, research on *sustainability reporting* has risen markedly since 2020, a trend that aligns with the tightening of regulatory frameworks in recent years (IFRS Foundation, 2020; World Economic Forum, 2021). Finally, environment-related topics—such as *environmental performance*, *environmental policy*, and *environmental management*—have also attracted steadily growing, though slower, attention over time.

These temporal patterns provide important insights into the evolving priorities of CSR and climate change research. They might demonstrate a shift from broad conceptual discussions of sustainability toward more practice-oriented and governance-related issues, reflecting the increasing influence of regulatory pressures, corporate accountability mechanisms, and the integration of environmental concerns into business strategy.

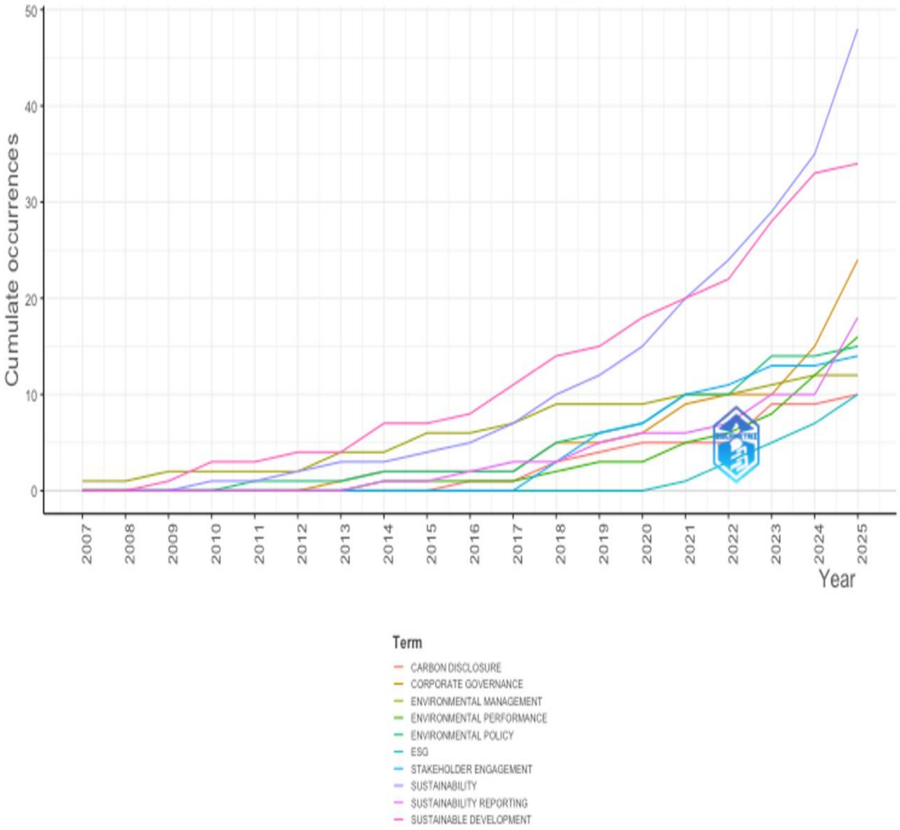

Figure 4: Words' Frequency over Time

Figure 5 depicts the emergence and frequency of keywords over time, illustrating when particular concepts gained prominence in the literature, which terms remain dominant, and which have emerged as rising topics. In this regard, concepts such as *ESG*, *sustainability reporting*, *social media*, *legitimacy theory*, and *climate change* have surfaced after 2020 as emerging trends. By contrast, terms like *sustainability, sustainable development, corporate governance, CSR and environmental policy* represent long-established themes that have been consistently studied over the years. Additionally, concepts such as *firm performance*, *banking sector*, *governance*, and *corporate strategy* indicate a more recent emphasis on examining sustainability in relation to financial performance and strategic management.

These findings highlight the dynamic evolution of the field, where long-standing debates on sustainability and governance continue to coexist with emerging themes shaped by global regulatory shifts, stakeholder expectations, and the integration of sustainability into corporate strategy.

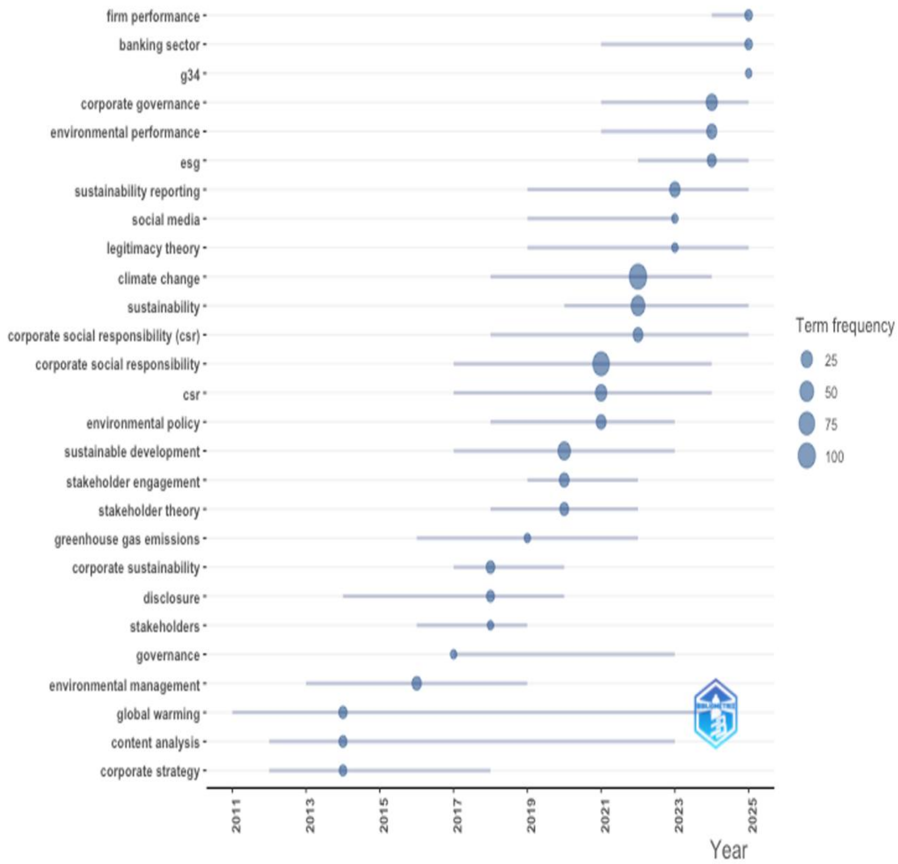

Figure 5: Trend Topics

Finally, Figure 6 presents the co-occurrence network, which illustrates how concepts are interlinked and clustered. The network clearly indicates that *climate change* and *sustainability* function as the central nodes, underscoring their pivotal role in CSR and climate change research. In other words, these two themes form the conceptual core of the field.

Examining the sub-clusters reveals distinct thematic groupings. The red cluster reflects climate change, corporate strategy, and carbon-related concepts (e.g., *carbon performance, carbon emissions, disclosure, corporate strategy, governance, environmental management, ESG*). The green cluster captures issues more closely aligned with CSR, stakeholder management, and ethics, including *sustainable development, CSR, stakeholder engagement, environmental policy,* and *ethics*. Finally, the purple and blue clusters represent governance- and institution-related dimensions, encompassing terms such as *corporate governance*, *banking sector*, *board of directors*, and *institutional theory*.

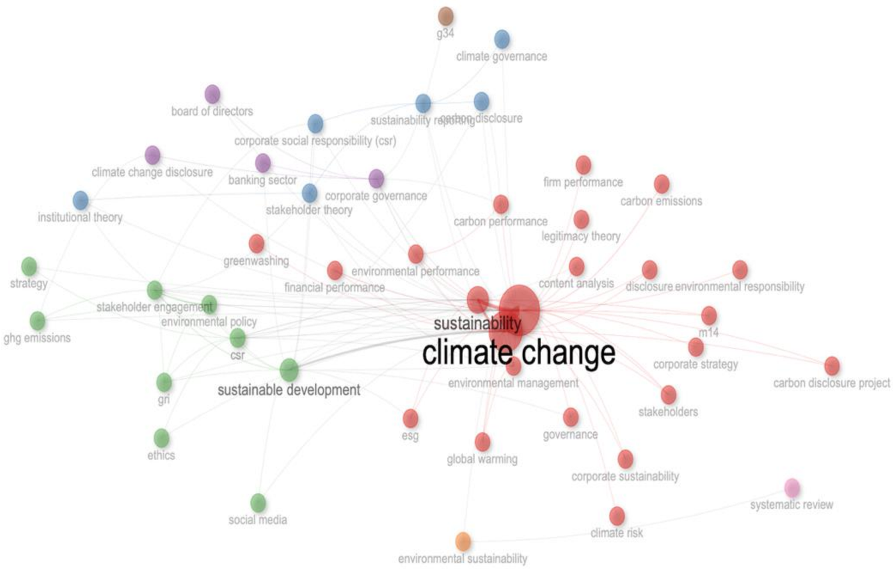

Figure 6: Co-occurrence Network

5. Discussion

The findings of this research indicate a significant increase in the body of literature on corporate social responsibility (CSR) and climate change in recent years. An examination of the distribution of publications over time reveals a sharp rise in scholarly output particularly after 2020, peaking in 2025. Moreover, the fact that nearly half of the studies have been published after 2023 underscores the contemporary relevance of the topic and highlights the growing academic interest it has attracted.

The analysis of prominent themes in the literature related to CSR and Climate Change demonstrates that sustainability lies at the core of this research domain. Sustainability is addressed not only in its environmental dimension but also in its social and economic aspects. This suggests that the scope of CSR and climate change studies has broadened, with sustainability being discussed within a holistic framework. The prominence of concepts such as sustainable development and sustainability reporting further confirms that the discourse extends beyond environmental concerns to include issues of social responsibility, transparency, and accountability.

Co-word analysis also shed light on the dynamic transformations within the literature. Notably, concepts such as ESG, sustainability reporting, social media, legitimacy theory, and climate change have emerged as rising trends in the post-2020 period. In contrast, sustainability, sustainable development, corporate governance, CSR, and environmental policy have been identified as long-established and extensively studied themes. Furthermore, the prominence of concepts such as firm performance, the banking sector, governance, and corporate strategy suggests that sustainability research is increasingly associated with financial performance and strategic management dimensions.

Overall, the findings reveal that the CSR and climate change literature is undergoing a rapid evolution, transforming into an interdisciplinary field characterized by sustainability-centered frameworks and diversifying sub-themes.

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