

Bibliometric Analysis of Trends and Patterns in Sustainable and Responsible Investments (SRI) Research from 2000-2024

Loso Judijanto¹, Nurjanna Ladjin², Iwan Harsono³, Mekar Meilisa Amalia⁴, Joko Sangaji⁵

¹IPOSS Jakarta

²Universitas Muhammadiyah Luwuk

³Universitas Mataram Indonesia

⁴Universitas Dharmawangsa

⁵Universitas Kristen Immanuel

Article Info

Article history:

Received May, 2024

Revised May, 2024

Accepted May, 2024

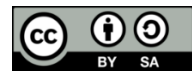
Keywords:

Sustainable and Responsible
Investments
Bibliometric Analysis
VOSviewer

ABSTRACT

This study provides a comprehensive bibliometric analysis of Sustainable and Responsible Investments (SRI) research from 2000 to 2024, utilizing data visualization tools to map the evolution and current state of the field. Through thematic clusterization, temporal trends, author collaboration networks, and potential research topics, the research offers insights into the dynamic nature of SRI. Initial findings show a progression from foundational concepts to more nuanced discussions around impact investing and sustainability indices. The analysis of author collaboration networks highlights key influencers and suggests potential areas for future collaboration. Additionally, the identification of underexplored areas such as ethical investment frameworks and the impact of social investments indicates new directions for research. This paper underscores the importance of SRI in aligning financial investments with global sustainability goals, providing a roadmap for future research and practice in the field.

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Corresponding Author:

Name: Loso Judijanto

Institution: IPOSS Jakarta

e-mail: losojudijantobumn@gmail.com

1. INTRODUCTION

The appeal of Sustainable and Responsible Investments (SRI) stems from their alignment with global sustainability goals and ethical practices, which not only attract socially conscious investors but also influence the broader market dynamics [1]. The early 2000s marked the beginning of widespread recognition of SRI, spurred by landmark international agreements and the growing public awareness of environmental issues [2]. Financial institutions began incorporating ESG criteria into their investment processes, marking a departure from traditional investment strategies focused solely on financial metrics [3]–[5]. This era also saw the rise of impact investing, where the intention to generate social and environmental impact alongside a financial return became a distinct approach within the SRI spectrum [6].

As the understanding and implementation of SRI practices deepened, so did the sophistication of the methodologies used to assess their impact and performance [7]. Technological advancements, including big data analytics and AI, have played a crucial role in this evolution, enabling more nuanced analysis and better integration of ESG factors into investment decisions [8]. The increasing availability of ESG data has allowed for more transparent and accountable investment strategies, fostering a more resilient and sustainable financial system [9], [10]. Furthermore, the integration of SRI principles has prompted a shift in corporate behavior, encouraging companies to prioritize sustainability to attract investment, thereby creating a positive feedback loop that further propels the SRI agenda [11].

The geopolitical landscape has also influenced SRI trends significantly [10]. As countries and regions have varied in their environmental policies and economic priorities, the global SRI market has witnessed divergent growth patterns [5], [10], [12]. Regulatory frameworks have varied widely, from stringent mandates in the European Union to more voluntary guidelines in other regions, shaping how institutions and

investors implement SRI [13]. These regional differences highlight the complexity and localized nature of SRI strategies, underscoring the importance of a nuanced understanding of global and regional trends within the SRI research community [14]. This diverse backdrop sets the stage for a comprehensive bibliometric analysis to decode the intricate web of influences that have shaped the SRI field over the past two decades [15].

The primary objective of this research is to conduct a bibliometric analysis of scholarly publications on Sustainable and Responsible Investments from 2000 to 2024. This analysis aims to identify and visualize the major trends, patterns, and networks within SRI research. By examining citation and publication patterns, the study seeks to uncover the influential authors, pivotal publications, and core topics that have shaped the field of SRI during this period. This comprehensive overview will provide a structured understanding of the academic landscape surrounding SRI, facilitating deeper insights into its progression and current status.

The significance of this research lies in its potential to contribute to the strategic development of SRI practices by providing a rigorous analytical foundation. The findings will benefit multiple stakeholders, including investors, policymakers, and academics, by offering a detailed perspective on the evolution and current state of SRI. Furthermore, by identifying gaps and emergent trends in the literature, this study will guide future research directions, helping to focus efforts on underexplored areas that could significantly impact the field. This bibliometric analysis thus serves as a critical tool for enhancing the understanding and implementation of responsible investment practices globally.

2. LITERATURE REVIEW

2.1 Evolution and Impact of SRI

The concept of Sustainable and Responsible Investments (SRI) has undergone substantial transformation over the past two

decades. [16] suggests that SRI began as a niche market that primarily focused on excluding stocks or industries that conflicted with ethical guidelines. Over time, the focus shifted towards seeking positive outcomes, including environmental sustainability, social justice, and corporate governance. [17] examine the performance of SRI funds compared to conventional funds, concluding that there is no significant difference in returns, suggesting that adopting SRI principles does not necessitate a sacrifice in financial performance. This finding is crucial as it challenges the traditional view that ethical considerations might undermine investment returns.

2.2 Methodological Approaches in SRI Research

A significant portion of SRI research has been dedicated to exploring the methodologies employed to evaluate the effectiveness and impact of SRI initiatives. [18] analyze different approaches to measuring the financial performance of SRI funds, highlighting the diversity in methodologies and the challenges in ensuring comparability across studies. The adoption of advanced statistical techniques and data analytics has improved the rigor and depth of analysis in recent years, as demonstrated by [19], who utilize meta-analytical techniques to synthesize findings across multiple studies.

2.3 SRI Trends and Influences

The trends and influences shaping SRI are multifaceted, involving economic, social, and political dimensions. [20] discuss the influence of global environmental policies on SRI practices, particularly in light of international agreements such as the Kyoto Protocol. Meanwhile, studies like [21] focus on how investor activism and the demand for transparency have driven companies to adopt better practices in corporate governance. Furthermore, the shift towards integrating ESG factors into the investment process is documented extensively in the literature, with [22] providing a comprehensive review of how ESG integration correlates with financial performance.

2.4 Regional Variations and Regulatory Impact

The impact of regional regulations on SRI practices has been a key focus of recent research. Studies by [23] and [24] examine the European and North American contexts respectively, discussing how regulatory frameworks and cultural differences affect the implementation and growth of SRI. These studies illustrate the varying speeds at which different regions adopt and integrate SRI principles, influenced by both market forces and legislative actions. The role of government policies in fostering a conducive environment for SRI is also underscored, highlighting the need for supportive regulatory frameworks to ensure the growth and effectiveness of SRI strategies.

3. METHODS

3.1 Research Design

This study employs a bibliometric analysis to examine the body of literature on Sustainable and Responsible Investments (SRI) from 2000 to 2024. Bibliometric analysis is a quantitative approach that uses various statistical methods to map the structure and development of a field of research through its publications. This method will enable the identification of major trends, patterns, citation dynamics, and key contributors in the field of SRI. The analysis will focus on assessing the growth of literature over time, the influence of various scholarly works, and the network of collaboration among researchers and institutions.

3.2 Data Collection

The data for this bibliometric analysis will be collected from multiple academic databases, including Scopus, and Google Scholar, to ensure comprehensive coverage of SRI publications. The search strategy will involve using specific keywords related to Sustainable and Responsible Investments, such as "SRI", "socially responsible investing", "sustainable investing", "ESG investing", and "ethical investing". The search will be limited to peer-reviewed journal articles published between January 2000 and December 2024.

Additional filters will be applied to exclude non-English publications and ensure the focus remains on scholarly articles.

3.3 Data Analysis

The collected data will be analyzed using VOSviewer, which are specialized software tool for bibliometric analysis and visualization. These tools will be used to create co-citation, co-authorship, and keyword co-occurrence networks, allowing for the visualization of the relationships and clusters within the SRI research community. Key indicators such as the number of publications, citations per document, h-index, and journal impact factors will be calculated to assess the impact and reach of the research within the field.

4. RESULTS AND DISCUSSION

4.1 Citation Metrics

Table 1. Citation Metrics

Publication years:	2000-2024
Citation years:	49 (1975-2024)
Papers:	980
Citations:	175767
Cites/year:	3587.08
Cites/paper:	179.35
Cites/author	100380.86
Papers/author	571.68
Authors/paper:	2.23
h-index:	219
g-index:	395
hI,norm:	162
hi,annual:	3.31
hA-index:	69
Papers with ACC >= 1,2,5,10,20:	910,838,665,478,309

Source: Publish or Perish Output, 2024

Table 1 presents a bibliometric overview of Sustainable and Responsible Investments (SRI) research from the years 2000 to 2024, as analyzed using Publish or Perish software, encompassing a citation period spanning 49 years from 1975 to 2024. A total of 980 papers have been published in this field during the specified period, accruing an impressive 175,767 citations, which translates to an average of 3587.08 citations per year and 179.35 citations per paper. The data reveals a high level of author collaboration, with an average of 2.23 authors per paper, and significant productivity metrics such as 571.68 papers per author and a striking total of 100,380.86 citations per author. The h-index, a measure of the productivity and citation impact of the publications, stands at 219, indicating substantial scholarly impact and influence within the field. The g-index is even higher at 395, suggesting that the top-cited papers have exceptionally high citation counts. Additionally, the hI,norm index is 162, and the annualized hi index is 3.31, both confirming the sustained impact and relevance of the research over time. The hA-index, another variant of the h-index adjusted for co-authorship, is 69, reflecting a balanced contribution among multiple authors. The analysis also highlights that a significant majority of papers have achieved at least one citation, with 910 papers having at least one citation, and progressively fewer papers achieving higher citation thresholds, indicating a robust and influential body of work within the SRI literature.

4.2 Top Ten Literature

Table 2. Top Cited Literatures

Citation	Authors	Title
3283	G Friede, T Busch, A Bassen	ESG and financial performance: aggregated evidence from more than 2000 empirical studies
2752	R Bénabou, J Tirole	Individual and corporate social responsibility
2537	LE Preston, DP O'bannon	The corporate social-financial performance relationship: A typology and analysis
2422	M Micheletti	Shopping with and for Virtues
2364	L Renneboog, J Ter Horst, C Zhang	Socially responsible investments: Institutional aspects, performance, and investor behavior
1953	WS Laufer	Social accountability and corporate greenwashing

1867	R Bauer, K Koedijk, R Otten	International evidence on ethical mutual fund performance and investment style
1791	A Mackey, TB Mackey, JB Barney	Corporate social responsibility and firm performance: Investor preferences and corporate strategies
1694	P Glavič, R Lukman	Review of sustainability terms and their definitions
1686	RG Eccles, MP Krzus	One report: Integrated reporting for a sustainable strategy

Source: Literature, 2024

Table 2 enumerates the top-cited literatures within the field of Sustainable and Responsible Investments (SRI) from 2000 to 2024, showcasing seminal works that have significantly shaped academic discourse and practice in this area. The most cited paper, authored by Friede, Busch, and Bassen, aggregates evidence from over 2000 empirical studies to explore the relationship between ESG (Environmental, Social, and Governance) factors and financial performance, receiving 3283 citations. This indicates its pivotal role in substantiating the financial viability of ESG investments. Following closely, Bénabou and Tirole’s work on individual and corporate social responsibility, with 2752 citations, highlights the ethical dimensions influencing corporate behavior and its reception in the scholarly community. Other notable works

include Preston and O’Bannon’s typology on the correlation between corporate social and financial performance, and Micheletti’s examination of consumer behavior in ethical consumption. Each of these studies, through their extensive citation, underscores the breadth of SRI research, covering various aspects from investor behavior and fund performance (Renneboog et al.) to the critique of superficial corporate sustainability practices (Laufer). The inclusion of literature on the broader implications of corporate strategies on sustainability, such as Mackey et al.’s and Eccles and Krzus’s contributions, further illustrates the diverse approaches and significant impact of this research area on both academia and practical implementations of SRI strategies.

4.3 Network Visualization

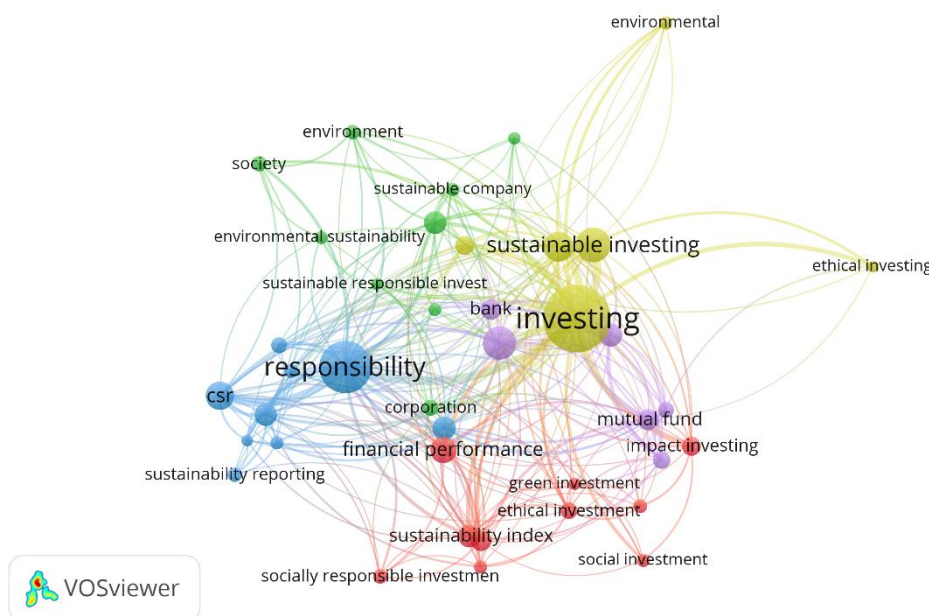


Figure 1. Network Visualization

Sources: Data Analysis, 2024

The first figure above is a visualization from VOSviewer, depicting a bibliometric network analysis of keywords

related to Sustainable and Responsible Investments (SRI). It clearly illustrates the thematic clusters and the relationships

between various key terms in the field. Several clusters can be identified:

1. **Central Theme - Investing:** The most prominent node, "investing", acts as a central hub, linking various sub-themes and indicating that the core of SRI literature focuses broadly on investment strategies. Connected directly to this are nodes like "sustainable investing", "ethical investing", and "social investment", which highlight different facets of SRI.
2. **Environmental and Ethical Considerations:** There is a significant cluster around environmental and ethical aspects, with terms like "environmental", "green investment", and "ethical investment". This cluster suggests a strong emphasis within the SRI literature on investments that consider environmental protection and adhere to ethical standards.
3. **Corporate Responsibility:** Another distinct cluster involves corporate responsibility, featuring keywords like "CSR" (Corporate Social Responsibility), "responsibility", and "corporation". This area of the network reflects research focused on how corporations integrate social and
4. **Financial Performance:** Close to the center, bridging several clusters, are terms like "financial performance", "mutual fund", and "investment style". This cluster implies a strong research focus on the financial outcomes of SRI, comparing them to traditional investment approaches and exploring different investment vehicles.
5. **Sustainability and Impact:** Terms such as "sustainability reporting", "socially responsible investment", and "impact investing" form another thematic cluster. This part of the network deals with the impact of investment on sustainable development goals and how investments are reported for transparency and accountability.
6. **Emerging and Cross-Cutting Themes:** Some terms like "sustainability index" and "sustainable company" suggest emerging areas of research that cross-cut the traditional categorizations, indicating a maturation of the field where sustainability considerations are being integrated into broader financial and corporate indices.

4.4 Overlay Visualization

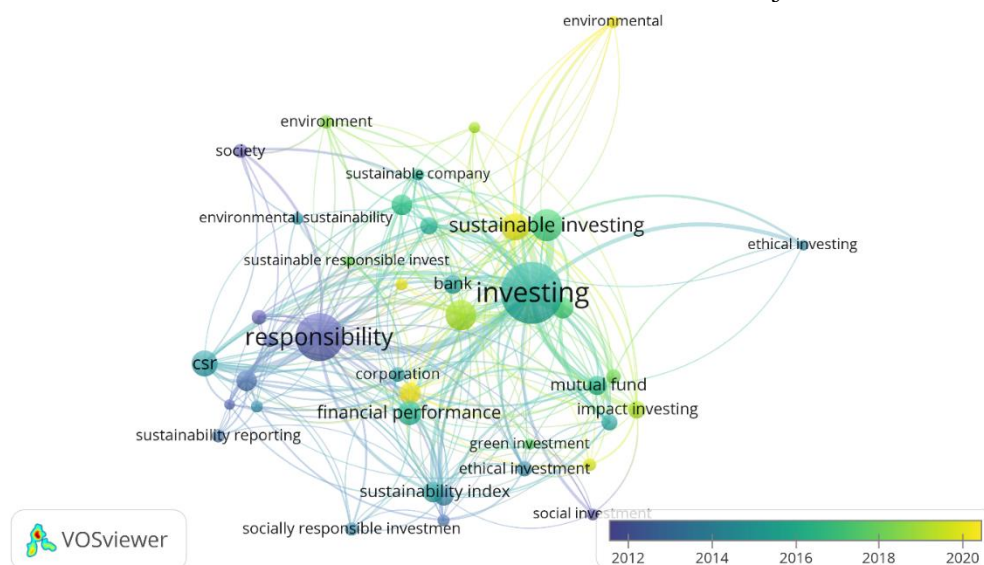


Figure 2. Overlay Visualization
Sources: Data Analysis, 2024

The second figure from VOSviewer provides an insightful temporal dimension to the bibliometric network of keywords associated with Sustainable and Responsible Investments (SRI). The color gradient, ranging from blue (earlier years) to yellow (more recent years), allows us to observe how the focus of research has evolved over time from 2012 to 2020.

1. Early Focus (Blue Nodes, 2012-2014)

In the earlier years, there was a strong emphasis on fundamental concepts such as "sustainable investing," "corporate social responsibility (CSR)," and "socially responsible investment." Keywords like "financial performance" also appear early in the timeline, indicating an initial concern with understanding how SRI impacts financial outcomes.

2. Middle Period (Green Nodes, 2015-2017)

During the middle period, the focus seems to shift slightly towards more specific investment practices and performance assessments, as indicated by terms like "mutual fund" and "green investment." There is also an apparent increase in interest in "ethical investment" and the broader implications of investment, such as "sustainability reporting."

3. Recent Trends (Yellow Nodes, 2018-2020)

In the most recent years, there is a noticeable shift towards integrating broader and more complex concepts, such as "impact investing" and "sustainability index." Terms like "ethical investing" and "sustainable company" gain prominence, suggesting a deeper integration of sustainability into business models and investment strategies.

4.5 Density Visualization

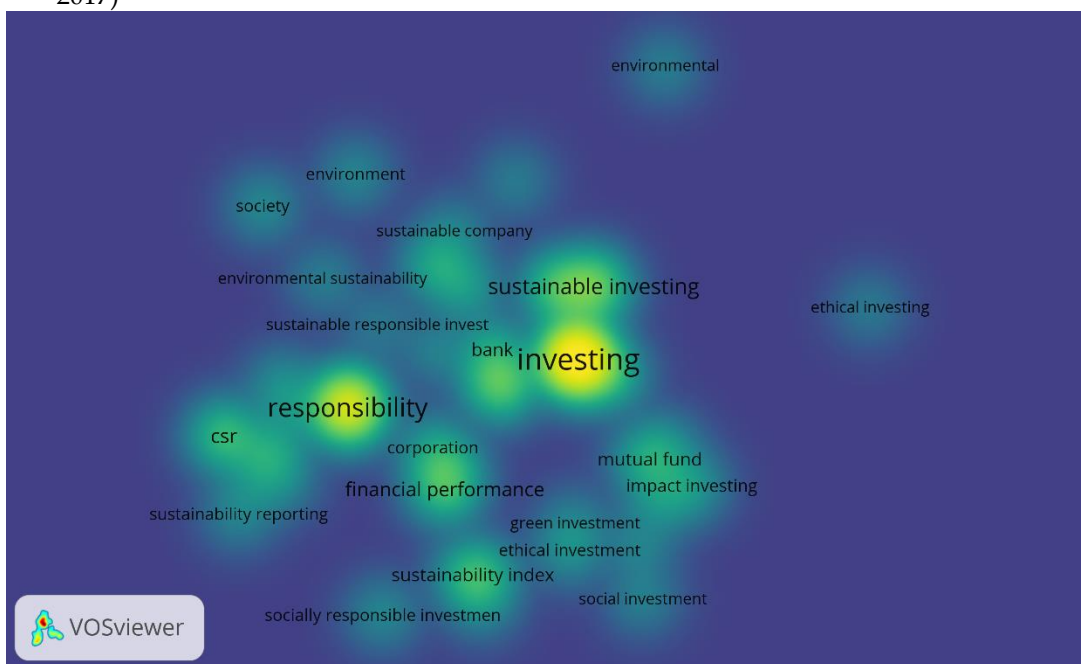


Figure 3. Density Visualization

Sources: Data Analysis, 2024

The third figure above represents a bibliometric analysis displayed using a density visualization in VOSviewer, highlighting the concentration and distribution of keyword occurrences within the field of Sustainable and Responsible Investments (SRI). The varying intensities of color, from blue (less dense, less frequent) to green (more dense, more frequent), illustrate

the relative prominence and saturation of research topics. These less bright areas suggest topics that are either emerging or not as extensively covered in the literature as the central, more intensely highlighted topics.

1. Ethical Investing

This could indicate a need for more focused research on specific ethical guidelines, standards, or the effects of ethical

investment policies on financial outcomes. Investigating how different regions or sectors establish and enforce ethical guidelines could provide valuable insights into the global standardization of ethical investments.

2. Social Investment

While closely related to SRI, social investment as a distinct topic might benefit from further exploration, particularly in terms of its socio-economic impacts and measurement methodologies. There's room to explore how social investments are quantitatively and qualitatively measured, especially in terms of long-term societal

benefits and alignment with sustainable development goals.

3. Sustainability Index

Research could delve deeper into the development and refinement of sustainability indices, examining their accuracy, influence on investment decisions, and their role in driving corporate sustainability practices. Researching the effectiveness of various sustainability indices in real investment scenarios could help in understanding their practical utility and influence on corporate behavior.

4.6 Author Collaboration



Figure 4. Author Collaboration Network
Sources: Data Analysis, 2024

This last figure represents an author collaboration network within the field of Sustainable and Responsible Investments (SRI), as visualized through VOSviewer. This network diagram highlights the interactions and collaborative relationships between various researchers in the field. The figure appears to display distinct clusters of authors, indicated by different colors. For example, the cluster including "volz, u", "robins, n", and "krosinsky, c" is colored green, suggesting these authors frequently collaborate or their works are often cited together. Other authors like "bauert, r" and "busch, t" are closely placed without a distinct color cluster, indicating

either a direct collaboration or a close thematic connection in their research.

Some authors, such as "lorenz, d", "lützkendorf, t", and "sharma, gd", appear to be more isolated compared to the central clusters. This could suggest that these researchers either work more independently, or their research themes are less directly connected to the central themes of the other clusters. The positioning of authors such as "bauert, r" and "busch, t" near the center suggests they might be key influencers within this network, potentially acting as bridges connecting different research themes or groups. The proximity of authors within the

network indicates potential areas for collaboration. For instance, authors within the green cluster may benefit from exploring joint research initiatives, given their aligned research focus.

4. CONCLUSION

The analysis of the Sustainable and Responsible Investments (SRI) research landscape, encompassing thematic clusterization, research trends over time, author collaboration networks, and potential research topics, offers a comprehensive overview of the field's evolution and current state. The thematic clusterization revealed a broad spectrum of interconnected topics ranging from ethical and green investments to corporate responsibility and financial performance, underscoring the multifaceted nature of SRI. Temporal trends highlighted a

progressive shift from foundational concepts towards a more nuanced exploration of impact investments and sustainability indices, indicating a maturation of the field towards complex, real-world applications. The author collaboration network visualization provided insight into the collaborative dynamics among key researchers, revealing central influencers and potential for new collaborative endeavors. Finally, the identification of less highlighted research areas such as ethical frameworks, social investment impacts, and the effectiveness of sustainability indices suggests fertile ground for future research. Together, these insights not only reflect the rich and dynamic progression of SRI but also chart a path forward for addressing emerging challenges and leveraging new opportunities within the field.

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