A Bibliometric Analysis of Conventional and Green Bond Research (2016–2024): Trends, Influential Contributions, and Thematic Evolution

Prashansa Lama, Babita Shrestha, Numa Tumsa, Ashika Shrestha, Soni Bista
Shanker Dev Campus

Dharma Maharjan*
Executive Member, Academia International College

Corresponding Author

Dharma Maharjan

dharma@academiacollege.edu.np   Received: March 10, 2025   Copyright: Author(s),
(2025)   Revised & Accepted: Jun 17,2025

Abstract

Background: Bond markets have evolved significantly with the rise of green finance, creating parallel trajectories in research on conventional and green bonds. Understanding their academic progression is essential for recognizing knowledge gaps, thematic trends and leading contributors.

Methods: A twin- track bibliometric analysis was conducted using data retrieved from Dimension AI database. Vos viewer was applied to map citation networks. Organizational influence, country-level contributions, and thematic development across both domains.

Results: Green bond research has demonstrated rapid growth in citations and publication volume, outpacing conventional bond literature. Distinct high – impact papers, institutions, and contributing countries were identified in each category. Green bond studies predominantly address sustainability and policy innovation, while conventional bond research remains centered on financial markets and risk management.

Conclusion: Green bonds have emerged as a dominant topic in academic figures, surpassing conventional bonds in scholarly attention band thematic breath. Distinct citation networks and thematic focuses underscore the maturing identify of green bond research.

Novelty: This is the first comparative bibliometric study explicitly contrasting conventional and green bonds, providing new knowledge into their scholarly evolution and offering a structured foundation for future financial research.

Keyword: Conventional Bond, Comparative, Green Bind, Publication

Introduction

Green bonds and conventional bonds are debt securities issued mostly by governments and enterprises. Green bonds and conventional bonds share elements such as credit risk 1 and issuer characteristics. Thus, the primary distinction between green bonds and conventional bonds is that green bonds are issued to fund climate-related initiatives that provide environmental benefits (Wu, 2022). Furthermore, Han and J. Li (2022) stated in their study that green bonds and conventional bonds differ in four ways: they allocate proceeds to approved green initiatives, they have a distinct process for evaluating and selecting these green projects, they manage the proceeds differently, and they require the publication of annual reports.

According to (Hachenberg & Schiereck, 2018), the green bond market is still in its early stages. The European Investment Bank (EIB) issued the first green bonds in 2007. The World Bank followed suit the next year, issuing green bonds. The significant increase in the number of issuances reflects the recent surge in green and sustainable investments during the previous few years. In 2021, the global issuance of green bonds was $1.27 trillion, representing a 37% increase over the previous year.

According to Chen et al. (2023), high inflation rates have a detrimental impact on the pricing of financial assets, including conventional and green bonds. This is an important topic in finance since rising inflation tends to drive up interest rates. Chen et al. (2023) discovered that inflation has a negative association with bond prices. Rising inflation has had a variety of effects on the financial markets during the last year. The Federal Reserve's disinflationary policies have raised borrowing costs and reduced liquidity, potentially impacting the demand for new investment (Chen et al., 2023). Furthermore, Chen et al. (2023) argue that the uncertainty surrounding monetary policy modifications may create increased volatility in stock markets. The study focuses on the financial aspects of green and conventional bonds, rather than their debt. As a result, when the stock market falls, investors who use bonds as a hedge prefer to shift their funds from the stock market to the bond market, causing bond prices to rise (Chen et al., 2023). These dynamics pose intriguing issues concerning the performance of green bonds, conventional bonds, and corporate stocks considering current financial market conditions.

One effective research technique that enables academics to methodically examine the evolution of the body of knowledge regarding conventional and green bonds is bibliometric analysis. This method entails gathering and examining vast amounts of scientific literature from databases including Dimensions AI, Web of Science, and Scopus (Karki et al., 2024). Researchers can track the evolution of interest in these two types of bonds by looking at

published articles over a given time period. When it comes to green bonds, bibliometric analysis frequently shows a dramatic rise in publications following international agreements such as the Paris Accord and a global focus on sustainability and climate change. Scholars might contrast this pattern with the very steady output of the literature on traditional bonds, which are well-known financial products. In most bibliometric research, co-authorship networks, keyword occurrences, citation patterns, and institutional collaborations are mapped using specialized software such as VOS viewer (Mahat, Neupane, & Shrestha, 2024).

This makes it possible for academics to pinpoint the most significant writers, top journals, and contributing nations in both domains. Additionally, it assists in identifying thematic areas of interest and how they differ between conventional and green bonds, such as environmental impact reporting, bond pricing, green finance legislation, and investment risk. By using this approach, bibliometric analysis not only monitors the amount of research but also identifies the intellectual framework and new trends, offering a thorough grasp of how scholarly focus has changed from conventional debt instruments to financial instruments with an environmental focus.

Problem Statement

As the global financial market increasingly prioritizes sustainability, green bonds have emerged as a viable alternative to conventional bonds, attracting environmentally conscious investors and institutions and government and regulatory bodies promote sustainable finance to combat climate change and promote environmental stewardship, green bonds have gained support as a tool for funding eco-friendly projects (Huang et al., 2024). However, there remains a lack of comprehensive understanding regarding the comparative financial performance, risk profiles, and market behavior of green bonds versus conventional bonds (Lee et al., 2025). This knowledge gaps poses challenges for investors, policymakers, and issuers in making informed decisions about capital allocation and sustainable financing. Therefore, a systematic analysis is needed to evaluate the differences and similarities between conventional bonds and green bonds in terms of yield, risk, market demand, and overall impact on sustainable development goals (Jiang et al., 2022). However, the transition from conventional bonds to green bonds raises several unresolved issues. These include the absence of standardized definitions, varying levels of transparency, inconsistent regulatory practices, and questions around whether green bonds offer comparable or superior financial returns. Backing the above statement, the following research questions are highlighted:

● What are the publication trends in Conventional Bond and Green Bond research from 2016 to 2024?

- Which documents have received the highest citations in the domains of Conventional Bonds and Green Bonds, respectively?
- Which organizations are the most influential in the field of Conventional and Green Bond research based on citation analysis?
- Which academic sources contribute most significantly to the literature on Conventional and Green Bonds?
- Which countries have the highest citation impact in Conventional Bond and Green Bond research?
- What are the dominant research themes and thematic evolutions in Conventional Bond vs. Green Bond literature?

Objectives

1. To examine the publication trends in Conventional Bond and Green Bond research between 2016 and 2024.
2. To identify the most highly cited documents in the domains of Conventional Bonds and Green Bonds.
3. To analyze the most influential organizations contributing to Conventional and Green Bond research through citation analysis.
4. To determine the leading academic sources that have significantly contributed to the literature on Conventional and Green Bonds.
5. To assess the citation impact of different countries engaged in Conventional Bond and Green Bond research.
6. To explore dominant research themes and their thematic evolution within the Conventional Bond and Green Bond literature.

Limitations

- The analysis relies on selected academic databases, which may not capture all relevant publications, particularly those from regional journals or emerging markets.
- Most bibliometric tools and databases prioritize English-language publications, potentially overlooking significant research published in other languages.
- The scope of the analysis is limited to a specific publication period, which may exclude recent or older foundational works not covered within the selected timeframe.
- Bibliometric analysis is largely quantitative and does not assess the **content quality**, theoretical depth, or practical implications of the studies reviewed.
- The analysis may miss contextual factors such as economic events, policy changes, or market shifts that influence the evolution of bond research.

Research Methodology

This study adopts bibliometric analysis approach to examine and compare the academic literature on conventional bonds and green bonds. Bibliometric analysis is quantitative method used to analyze academic publications, enabling researchers to identify patterns, trends, and intellectual structures within a specific research domain.

Research Design: The research follows a systematic twin-track research design, analyzing two distinct but related bodies of literature – one is conventional bonds, and the other is green bonds. This approach enables a side-by-side comparison of research development, thematic evolution, and academic influence within both fields.

Data Sources: The data collected from Dimension AI. This data was chosen for its extensive repository, which ensures a broad and diverse collection of relevant literature.

Data Extraction: To ensure a systematic and reproducible approach, data extraction was conducted in accordance with best practices for bibliometric studies. Only English articles included to maintain consistency and reliability. The process involved defining precise search queries, selecting appropriate filters, and downloading relevant metadata from scholarly databases.

Search period: 2016 to 2024

Search Keywords: the search was conducted using following keywords:
- For conventional bonds: "conventional bonds", "corporate bonds", "Traditional bonds"
- For green bonds: "green bonds", "climate bonds", and "sustainable bonds".

Language: Only articles published in English were included to maintain consistency and ensure reliability of bibliometric indicators such as keyword co-occurrence and citation analysis.

Subject Area: These subject areas were chosen based on their relevance to the core themes of bond markets, sustainable finance, and investment practices. Filtering by subject area also helped to eliminate publications from unrelated disciplines and ensured the thematic consistency of the datasets.

Types of publications: The bibliometric analysis was based on peer-reviewed academic publications related to conventional and green bonds. The study covered only journals, review articles and conference papers.

Data Analysis: This study employed a bibliometric analytical framework to quantitatively and visually assess the academic literature on conventional bonds and green bonds. The analysis was conducted using specialized software tools to identify research trends, influential contributors, collaboration patterns, and thematic evolution across both fields.

To conduct a comprehensive bibliometric analysis and visualize the intellectual structure of the literature on conventional and green bonds, several specialized software tools were utilized. The primary tools employed was VOS viewer.

Procedure

Search and Data collection: The study followed a structured sequence of procedures to ensure systematic, transparent, and replicable bibliometric analysis. The search for data includes only relevant articles and journals published in English within the specified subject area from 2016 to 2024 time period.
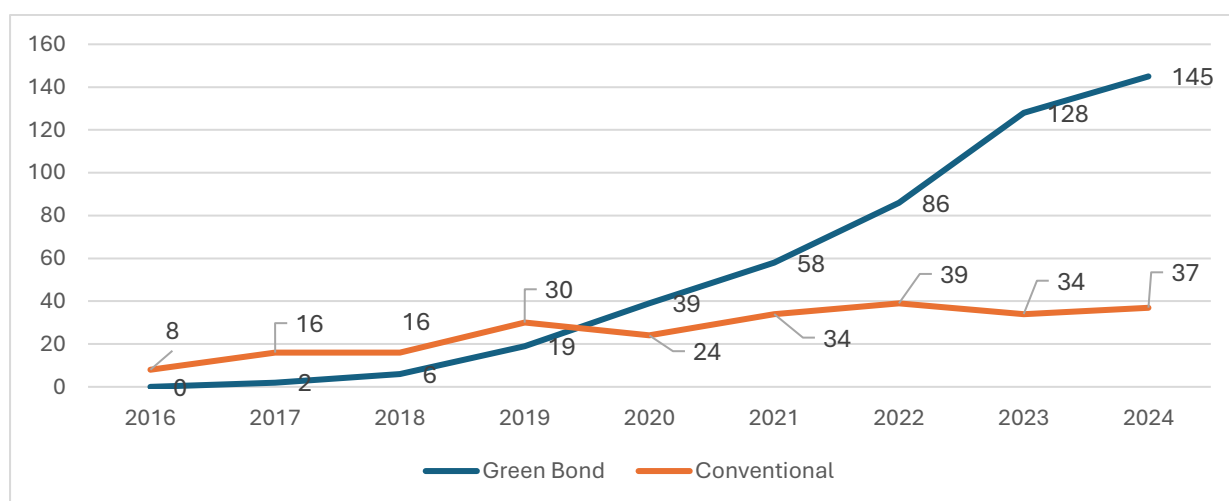
Data cleaning and preparation: Merged datasets from both databases and removed duplicates. Include reviewed titles and abstracts to exclude irrelevant records.

Results

Publication trends in Conventional Bond and Green Bond

Figure 1

Publication trends

The figure illustrates the annual publication trends related to Green Bonds and Conventional Bonds over the period from 2016 to 2024. It clearly shows a significant rise in academic interest in Green Bonds compared to Conventional Bond. In the early years (2016-2018), research on Green Bonds was Conventional Bonds had a relatively steady number of publications ranging from 8 to 16. However, starting from 2019, a shift becomes evident. The number of studies on Green Bonds began to increase rapidly, surpassing Conventional Bonds in 2020 with 39 publications compared to 24.

From 2020 onwards, the upward trend in Green Bond publications continues steeply, reaching 58 in 202, 86 in 2022, 128 in 2023, and finally 145 in 202. In contrast, the publication

count for Conventional Bonds fluctuates only slightly, remaining between 30 and 40 in the same period.

This trend highlights the growing academic focus on sustainable finance and environmentally conscious investment instruments. The sharp rise in Green Bond research reflects global efforts to address climate changes and support green initiatives through financial markets. Meanwhile, the relatively stable trend in Conventional Bond publications suggests that research in this area has reached a point of maturity, with limited growth in new academic interest.

Table 1

Major document base on citation between conventional bond and green bond

Conventional Bond			Green Bond		
Id	Document	citations	Id	document	citations
10	wei (2021)	139	1	zhang (2023)	246
25	löffler (2021)	101	25	le (2020)	317
58	yarovaya (2021)	147	34	liu (2021)	234
61	chung (2019)	127	47	maltais (2020)	325
93	lebelle (2020)	91	91	bachelet (2019)	311
98	fatica (2021)	222	114	fatica (2021a)	247
106	albertazzi (2021)	79	132	fatica (2021b)	222
129	guo (2021)	103	176	febi (2018)	227
143	haitsma (2016)	107	322	pástor (2022)	598
148	baldi (2022)	104	363	huynh (2020)	252

Citation data shows that green bond studies are being cited more often by researchers than conventional bond studies. The most cited green bond paper is Pástor (2022) with 598 citations, followed by Maltais (2020) with 325 and Le (2020) with 317. Bachelet (2019) and Huynh (2020) are other highly cited papers with over 250 citations each. These numbers suggest that green bonds have been a prominent focus area in recent financial research. This trend clearly shows that green bonds are receiving increasing attention in modern financial academic research.

In comparison, the most cited conventional bond paper, Fatica (2021), has 222 citations. Other papers such as Yarovaya (2021), Wei (2021), and Chung (2019) have citation counts between 127 and 147. One author, Fatica, appears in both categories, showing some connection

between the two fields. Overall, green bond studies are being cited more often, which points to growing interest in finance topics related to the environment and sustainability.

Table 2

Major organization base on citation between conventional bond and green bond

Conventional Bond				Green Bond			
Id	Organization	documents	Citations	id	organization	documents	citations
21	Beihang University	1	139	58	Centre for Economic Policy Research	1	598
29	Capital University of Economics and Business	1	139	200	Joint Research Centre	3	470
30	Cardiff University	2	162	238	Marche Polytechnic University	3	470
68	Federal Reserve Board of Governors	11	156	258	National Bank of Slovakia	1	598
109	Joint Research Centre	2	223	259	National Bureau of Economic Research	1	598
130	Marche Polytechnic University	2	223	360	Stockholm Environment Institute	3	433
225	University of Economics Ho Chi Minh City	3	211	362	Stockholm Sustainable Finance Centre, Stockholm, Sweden	3	433
235	university of lisbon	4	189	382	The University of Sydney	2	492
252	university of southampton	3	203	420	University of Chicago	1	598
274	zagazig university	2	217	463	University of Pennsylvania	1	598

The above table analyzes the top organizations involved in research on conventional bonds and green bonds. It illustrates how many research papers has published by different organization, and how often those papers were cited by other researchers. For conventional

bonds, universities such as Beihang University, Cardiff University, and the Capital University of Economics and Business are active. The Federal Reserve Board of Governs leads with 11documents, showing its strong role on traditional finance and economic policy research.

In the case of green bonds, top contributors include the center for Economic Policy Research, the National Bank of Slovakia, and the University of Chicago. Most of these institutions have only one or few documents, but they have very high citation numbers-showing that research is very influential. We also see organizations like the Stockholm Environment institute and Stockholm Sustainable Finance Centre, which link green bond research is not only financial but also connected to environment impact. Overall, conventional bond research is led by economic and financial institutions, while green bond research involves both finance and environmental organizations, with a higher impact per paper.

Table 3

Major source between conventional bond and green bond

Conventional Bond				Green Bond			
Id	Source	documents	Citations	Id	source	documents	citations
19	business strategy and the environment	2	297	63	energy economics	15	755
35	energy economics	4	246	71	environmental science and pollution research	10	794
37	eurasian economic review	2	110	83	finance research letters	14	681
40	finance research letters	6	239	134	international review of financial analysis	8	472
76	international review of financial analysis	2	154	162	journal of financial economics	1	598
103	journal of financial economics	1	127	165	journal of financial stability	2	309
111	journal of macroeconomics	1	107	178	journal of risk and financial management	12	475

113	journal of money credit and banking	3	149	181	journal of sustainable finance & investment		8	796
115	journal of risk and financial management	8	186	244	sustainability		31	1238
170	the quarterly review of economics and finance	2	141	247	technological forecasting and social change		7	857

The table shows that green bonds have a much higher research output and academic impact across leading journals compared to conventional bonds. For instance, Sustainability leads green bond publications with 31 documents and 1,238 citations, while the top for conventional bonds, Journal of Risk and Financial Management, has only 8 documents and 186 citations. Similarly, Technological Forecasting and Social Change published 9 green bond papers with 857 citations, surpassing conventional journals like Finance Research Letters which had 7 documents and 239 citations. Notably, even when the same journals cover both topics, the green bond articles receive more attention: Journal of Financial Economics has 598 citations for green bonds versus 127 for conventional ones. This clear trend across all sources indicates a growing academic and societal focus on green finance over traditional bond markets.

Table 4

Major country base on citation between conventional bond and green bond

Conventional Bond				Green Bond			
Id	Country	documents	citations	Id	country	documents	citations
7	China	12	540	2	Australia	11	766
12	Egypt	2	217	12	China	61	1650
15	France	8	283	22	Germany	14	856
16	Germany	6	250	31	Italy	19	1164
23	Italy	12	555	33	Japan	11	638
28	Malaysia	13	238	46	Pakistan	11	1125
48	Turkey	9	213	61	Sweden	13	877

50	United kingdom	24	762	70	United Kingdom	49	2685
51	United states	35	831	71	United states	17	1181
53	Vietnam	3	211	73	Vietnam	16	988

The table presents a comparative analysis of major top countries based on the number of academic documents and citations related to conventional bonds and green bonds. For example: the United States leads in conventional bond citation (831), while the United Kingdom leads in green bond citations (2685).

Overalls, green bonds receive more attention showing a shift in research focus towards sustainable finance. It reflects not only the direction of scholarly interest but also the evolving priorities in the global finance sector.

Major theme between conventional bond and green bond

Figure 2
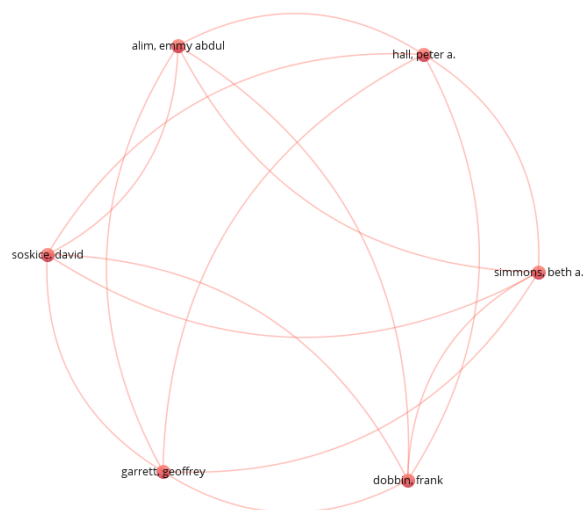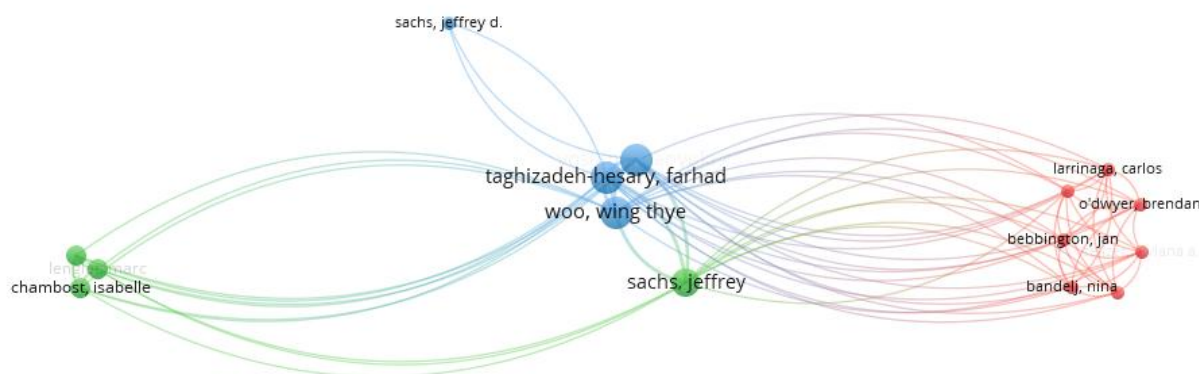
Conventional Bond

Figure 3

Green Bond

The network visualization of conventional bond research demonstrated a limited thematic spread. The nodes in the figure represent key authors or topics, while the connecting lines indicate co-occurrence or citation relationships. In this figure, the network is relatively sparse and centralized, suggesting that the literature on conventional bonds is clustered around a few central topics or contributors. This reflects a more traditional and narrow research focus in conventional finance.

In contrast, the green bond network is broader and divided into multiple clusters. Each color in the figure represents a different thematic group:

Cluster 1(Red) includes authors like Nina Bandelj, Jan Bebbington, and Brendan O'Dwyer, focusing on ethical, social, and sustainability dimensions.

Clusters 2(Green) comprises contributors such as Isabelle Chambost and Marc Lenglet, likely emphasizing institutional roles and policy frameworks.

Clusters 3(Blue) features researchers such as Jeffrey sachs and Farhad Taghizadeh-Hesary, Focusing on green finance mechanisms, environmental economics, and financial innovation.

This diversified network reflects the interdisciplinary nature of green bond research, which covers finance, sustainability policy, and development issues.

Conclusion

The bibliometric analysis shows a major shift in academic attention from conventional bonds to green bonds over the last decade. While research on conventional bonds remained relatively consistent between 2016 and 2024, the field of green bonds has grown exponentially, particularly since 2020. This suggests a movement in academic funding towards sustainability and environmental responsibility. Overall, this trend demonstrates a strong intellectual and institutional shift toward green finance, supporting the idea that green bonds are more than just a financial innovation, but also a critical tool for combating climate change and promoting sustainable economic development. The topic is continuously advancing and presents numerous prospects for future research, particularly in emerging markets and underdeveloped countries such as Nepal.

The bibliometric analysis reveals a significant shift in academic emphasis, from standard financial tools to sustainability-focused innovations. The exponential rise in green bond research since 2020 demonstrates not only greater scholarly interest, but also a shift in worldwide research objectives toward climate-conscious finance. This trend demonstrates the growing acknowledgment of green bonds as critical to achieving the Sustainable Development Goals (SDGs), particularly in industries and regions with limited environmental financing infrastructure. This trajectory provides a timely opportunity for nations such as Nepal to align local development goals with global sustainability trends, as well as to do further research into legislative frameworks, investor behavior, and institutional preparation.

Recommendation

Given the increased academic interest in green bonds and the worldwide movement toward sustainable finance, future study should look into the practical use of green bond frameworks in emerging and undeveloped nations like Nepal. There is an urgent need to investigate how green finance can be customized to local contexts while addressing specific

economic, regulatory, and environmental concerns. Researchers should also look into investor awareness, risk perception, and the institutional capacity needed to support a healthy green bond market. Furthermore, multidisciplinary research combining finance, environmental science, and policy analysis could yield more comprehensive insights on green bonds' long-term effectiveness and impact. To assist these efforts, governments and academic institutions should foster knowledge-sharing platforms, collaborative projects, and curriculum development in the field of Sustainable finance. Future research can play an important role in developing inclusive, efficient, and climate-resilient financial institutions.

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