Sciences du Nord Economics and Business
Vol. 1, No. 02, July – December 2024: pp. 47 - 55
E-ISSN: 3046-5168
P-ISSN: 3047-5643
DOI: https://doi.org/10.58812/2f7qkk43

The Growth of Green and Sustainable Finance in Islamic Banking: A Bibliometric Approach

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ARTICLE HISTORY

Received July 2024	**Revised October 2024**	**Accepted October 2024**

ABSTRACT

This study employs a bibliometric analysis to explore the intersection of Islamic banking and sustainable finance, focusing on the integration of environmental, social, and governance (ESG) criteria into Islamic financial practices. Utilizing data from Google Scholar, this research maps the landscape of green and sustainable finance within Islamic banking from 2001 to 2024. The analysis identifies core themes such as green sukuk, ESG investing, and climate finance, and examines their connectivity and evolution over time. The results reveal a growing emphasis on aligning Islamic finance with global sustainability goals, highlighted by the increasing prominence of green financial instruments and sustainability-focused financial services. However, challenges such as the need for standardized regulatory frameworks and greater incorporation of technological innovations in financial practices persist. The study suggests that addressing these challenges through clearer guidelines and enhanced financial technology could propel Islamic banking into a more significant role in global sustainability efforts.

Keywords: Green Sukuk, Sustainable Finance, Islamic Banking, ESG Investing, Climate Finance

INTRODUCTION

The intersection of Islamic banking principles and sustainable finance has garnered increasing attention in the global financial landscape. Islamic banking, founded on the principles of fairness, transparency, and ethics, inherently aligns with the goals of sustainable finance, which aims to integrate environmental, social, and governance (ESG) considerations into business practices and investment decisions. This synergy is particularly significant as the demand for green and sustainable investments surges, driven by heightened environmental awareness and the global commitment to achieving the United Nations Sustainable Development Goals (SDGs). According to recent studies, the Islamic finance sector, with its assets expected to exceed USD 3.8 trillion by 2023, presents a unique platform for promoting sustainable economic growth and environmental stewardship [1], [2].

The concept of green finance in Islamic banking involves funding projects or activities that not only comply with Shariah law but also promote environmental sustainability. This dual compliance has propelled Islamic banks to innovate financial products that support renewable energy projects, green real estate, and sustainable agriculture. The adoption of green sukuk (Islamic bonds) exemplifies this trend, providing a Shariah-compliant instrument for raising funds for eco-friendly projects, which has seen substantial growth in markets such as Malaysia and the United Arab Emirates [3], [4]. However, despite the progressive alignment of Islamic finance with sustainable practices, several challenges impede its full potential. Regulatory frameworks in many Islamic countries still lack specific provisions that encourage or mandate the integration of ESG factors into financial services. Furthermore, there is a significant gap in empirical research addressing how Islamic financial institutions are specifically contributing to sustainability, which raises questions about the effectiveness and scope of their green initiatives [5], [6]. Moreover, the global financial market's growing interest in sustainable investment highlights the need for Islamic banking institutions to adapt more rapidly to these evolving demands. This adaptation not only supports global sustainability goals but also enhances the competitive edge of Islamic banks by aligning their operations with the expectations of environmentally conscious investors and stakeholders [7], [8].

Despite the theoretical alignment of Islamic banking with sustainable finance principles and the apparent market opportunities, there is a distinct lack of comprehensive, data-driven research exploring the extent and effectiveness of green and sustainable finance within Islamic banking. Current literature primarily focuses on descriptive and normative aspects, with few empirical studies providing a deep dive into how these financial institutions implement sustainable practices and the impact of these practices on environmental and social outcomes. This gap hinders policymakers, investors, and financial institutions from fully understanding and leveraging Islamic finance's potential to contribute to global sustainability objectives.

This research aims to comprehensively analyze the growth and impact of green and sustainable finance in Islamic banking through a bibliometric approach. Specifically, the study seeks to: (1) map the existing literature on green and sustainable finance within Islamic banking, identifying key themes, trends, and research gaps, (2)evaluate the evolution of scholarly discussions and the geographical distribution of research contributions in this field, and (3) assess the impact of Islamic banking practices on promoting sustainable financial products and services, with a focus on their alignment with global sustainability targets. By achieving these objectives, the study will provide valuable insights into the current state and future directions of green and sustainable finance in Islamic banking, offering a robust framework for stakeholders to enhance the integration of ESG considerations into Islamic financial practices.

LITERATURE REVIEW

Green and Sustainable Finance in Islamic Banking

Islamic banking's unique ethical and moral framework, which prohibits interest and speculative activities, naturally aligns with the principles of green and sustainable finance. Green finance within Islamic banking typically focuses on funding environmentally friendly projects that comply with both Shariah principles and promote environmental sustainability [9]. The introduction of green sukuk has been a significant development in this area, providing a mechanism to fund renewable energy projects, sustainable infrastructure, and other environmentally friendly initiatives. According to [10], the issuance of green sukuk demonstrates a practical application of Islamic finance principles to support global environmental goals, such as those outlined in the Paris Agreement and the SDGs.

Challenges and Opportunities in Islamic Green Finance

Despite the alignment with sustainable objectives, Islamic green finance faces several challenges that limit its growth and effectiveness. One of the primary challenges is the lack of standardized regulations and benchmarks for what qualifies as a "green" project under Shariah law. This uncertainty can deter potential investors who seek clear and reliable guidelines on sustainable investments [11], [12]. Additionally, the market for green sukuk, while growing, remains relatively small compared to conventional green bonds, highlighting a need for greater awareness and promotion of these instruments among investors and issuers alike. Conversely, there are significant opportunities in the Islamic green finance sector. The rising global demand for sustainable investment products offers Islamic banks a chance to expand their customer base and product offerings. Furthermore, as governments and regulatory bodies in key Islamic finance markets, such as Malaysia and the UAE, begin to implement supportive policies and frameworks, there is potential for substantial growth in this sector [13].

Impact of Islamic Finance on Environmental and Social Outcomes

Several studies have explored the impact of Islamic finance on environmental and social outcomes. For example, [14], [15] found that investments made through Islamic financial instruments often lead to positive environmental impacts due to the stringent compliance with Shariah principles that encourage ethical and socially responsible investing. However, empirical research quantifying the specific contributions of Islamic finance to achieving broader ESG objectives remains scarce. Furthermore, social initiatives like microfinance and social sukuk have been identified as areas where Islamic finance significantly contributes to social outcomes, particularly in terms of poverty alleviation and community development. These instruments not only comply with Islamic laws but also foster social equity, one of the core principles of Islamic finance [16], [17].

Bibliometric Analyses in Islamic Finance Research

Bibliometric analysis has emerged as a valuable tool in examining the scholarly landscape of various fields, including Islamic finance. By mapping out the network of citations and publications, researchers can identify the most influential studies, prevalent themes, and emerging trends in the literature. [18] conducted a bibliometric analysis on Islamic finance and noted a significant increase in publications related to green and sustainable finance, reflecting growing academic and practical interest in this area. This methodology also reveals geographical and institutional distributions of research contributions, offering insights into which regions or institutions are leading in the field of Islamic green finance. Such analyses can inform stakeholders, including academics, practitioners, and policymakers, about the current research focus and potential gaps in the literature that need addressing [19].

METHODS

This research employs a bibliometric analysis to explore the development and impact of green and sustainable finance within Islamic banking. We utilized Scopus and Web of Science databases to collect data on relevant publications from the year 2001 to 2024. The search terms included combinations of "Islamic banking," "green finance," "sustainable finance," and "sukuk." The collected data was then analyzed using VOSviewer software, which facilitated the construction of co-citation and bibliographic coupling networks, enabling us to visualize the relationships between publications and determine the most influential works and authors in the field. This analysis also helped identify the major themes and trends over time, providing a comprehensive overview of the academic landscape surrounding green and sustainable finance in Islamic banking.

RESULTS AND DISCUSSION

Bibliometric Overview

Table 1. Bibliometric Overview

Publication Years	2001-2024
Citation Years	23 (2001-2024
Papers	1000
Citations	10085
Cites/Year	473,26
Cites/Paper	108,85
Cites/Author	8017,33
Papers/Author	63,07
Authors/Paper	2,10
h-index	45
g-index	100
hI, norm	38
hI, annual	1,65
hA-index	29
Papers with ACC >= 1,2,5,10,20: 100, 98, 88, 67, 42	

Source: Publish or Perish, 2024

Table 1 presents a bibliometric overview of the research conducted on green and sustainable finance in Islamic banking from 2001 to 2024. Over these 23 years, a total of 1,000 papers were published, accumulating 10,085 citations, which averages to about 473.26 citations per year and 108.85 citations per paper. The high productivity and impact of these publications are further evidenced by an h-index of 45, indicating that at least 45 papers have each been cited at least 45 times. The g-index is even more substantial at 100, suggesting the existence of 100 papers with a square cumulative count of 10,085 citations among them, highlighting significant influential works within the field. The normalized individual h-index (hI, norm) is 38, adjusted for multiple authorships, with an annual rate of increase (hI, annual) of 1.65. The hA-index, another variant of the h-index adjusted for author count, stands at 29. Regarding the distribution of citations across papers, the data shows a healthy citation spread with 100 papers receiving at least one citation, 98 receiving at least two, 88 at least five, 67 at least ten, and 42 at least twenty, reflecting both broad interest and depth of influence in the literature on this subject.

Keyword o-Occurrence

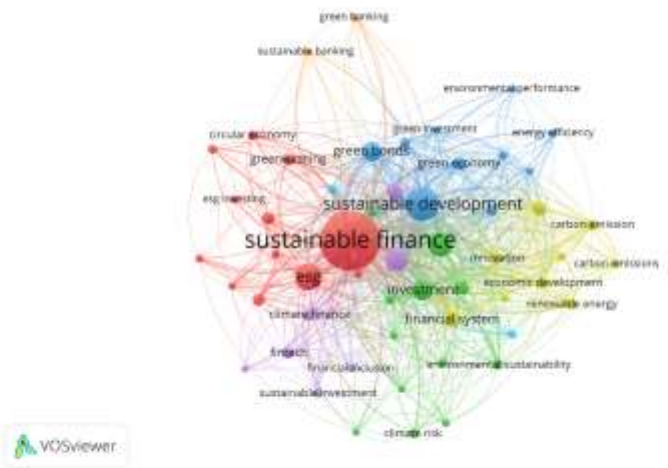

Figure 1. Network Visualization
Source: Data Analysis, 2024

The visualization from VOSviewer presents a bibliometric analysis of the key terms associated with sustainable finance and related domains. The map highlights various interconnected themes, each represented by different colors, illustrating the diverse yet overlapping areas of focus within the field. The largest nodes, such as "sustainable finance," "investment," and "esg" (environmental, social, and governance), suggest these are the most frequently discussed topics in the literature, indicating their central importance in the discourse around sustainable financial practices.

In the red cluster, terms like "sustainable development," "climate finance," and "green bonds" are prominent, emphasizing the financial sector's focus on funding initiatives that support sustainable environmental outcomes. This cluster is densely interconnected, showing a strong relationship between financial instruments and environmental goals. "Green bonds" and "climate finance" are linked closely, reflecting their shared role in financing projects that aim to mitigate climate change impacts or adapt to its effects, which is a critical aspect of sustainable finance.

The blue cluster introduces a tech-oriented dimension with terms like "fintech" and "financial inclusion." This suggests a growing recognition of the role that technology and innovation play in enhancing the accessibility and effectiveness of sustainable finance solutions. "Fintech" appears as a bridge between traditional financial practices and newer, more inclusive approaches that leverage technology to facilitate broader access to finance, particularly in underserved or underbanked populations. This integration is essential for scaling up sustainable finance initiatives by incorporating a wider demographic and promoting inclusive growth.

Finally, the green cluster links "sustainable investment" with "economic development" and "renewable energy," illustrating the intersection of investment activities with broader economic and environmental objectives. The connectivity between these terms underscores the critical understanding that sustainable investments are pivotal not just for environmental benefits but also for fostering long-term economic growth and stability. The presence of "carbon emission" and "carbon emissions" in this cluster further highlights the focus on reducing environmental impact as a key component of sustainable investment strategies. This network of terms provides a comprehensive view of the dynamic interplay between finance, technology, and sustainable development goals, offering a valuable perspective on the evolving landscape of green and sustainable finance.

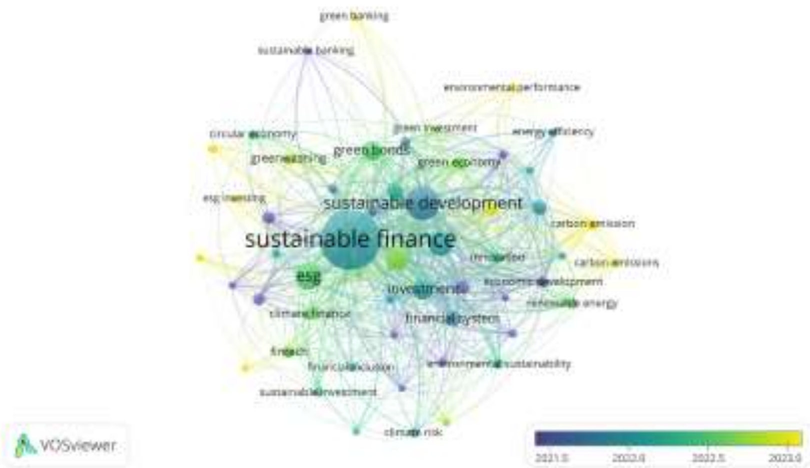

Figure 2. Overlay Visualization
Source: Data Analysis, 2024

The second visualization from VOSviewer offers a refined analysis that integrates temporal dynamics into the bibliometric map of sustainable finance, providing insights into the evolution of this field over recent years. The temporal colour gradient from yellow to blue indicates the progression of research focus from early 2021 to late 2023. This temporal aspect reveals how certain topics have gained or waned in prominence over time, reflecting shifts in research priorities and the emergence of new challenges and innovations within the field of sustainable finance.

Central to the diagram is "sustainable finance," which serves as a major hub connecting various related concepts such as "esg," "climate finance," "sustainable investment," and "financial inclusion." The dense connections among these nodes suggest a robust interdisciplinary dialogue, with sustainable finance at the core. The strategic placement and size of the node for "sustainable finance" reflect its overarching influence in the discourse. Emerging from this node, terms like "fintech" and "financial system" signal technological integration into sustainable finance practices, indicating a trend toward leveraging digital tools to enhance the efficiency and reach of financial services that support environmental and social goals.

The visual also highlights the growing importance of "climate risk" and "environmental sustainability," which are depicted closer to the 2023 side of the timeline, colored in deeper blue. This suggests a recent intensification of focus on these areas, likely driven by increasing global awareness and regulatory pressures concerning climate change. The connectivity of "climate risk" with other financial terms points to a greater integration of climate considerations into risk management strategies within the financial sector. These shifts underscore the dynamic nature of the field, as it adapts to external pressures and incorporates new technologies and methodologies to better align financial practices with global sustainability targets.

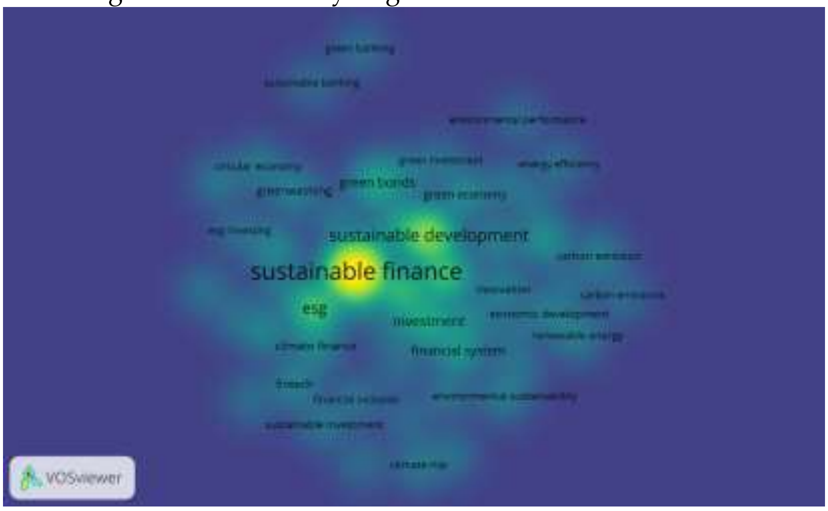

Figure 3. Density Visualization
Source: Data Analysis, 2024

The heatmap visualization in VOSviewer illustrates the density and interconnections of various key terms within the field of sustainable finance. The most prominent and centrally located terms, such as "sustainable finance," "ESG," and "investment," indicate major areas of focus and frequent discussion within the literature. These central nodes act as pivotal points that link to more specialized topics, reflecting their foundational role in shaping discussions around sustainable financial practices. The gradient colors ranging from green to blue across the map denote the intensity of connections between terms. Warmer areas (shown in green), where terms like "green bonds," "climate finance," and "sustainable development" cluster, suggest a high density of interlinked research, indicating these are well-established areas with a wealth of interconnected literature. Conversely, cooler areas (shown in blue) such as "circular economy" and "green banking" represent emerging or less densely connected topics within the field. This distribution highlights both mature and developing areas within sustainable finance, providing insights into established research domains and newer, evolving topics that may require further scholarly attention.

Citation Analysis

Table 2. Top Cited Documents

Citation	Author	Title
3079	[20]	The Microfinance Revolution: Sustainable Finance for the Poor
785	[21]	Sustainable Finance and Banking: The Financial Sector and the Future of the Planet
518	[22]	Principles of Sustainable Finance
297	[23]	Past, Present, and Future of Sustainable Finance: Insights from Big Data Analytics through Machine Learning of Scholarly Research
289	[24]	Sustainable Finance: A New Paradigm
232	[25]	Sustainable Corporate Finance
221	[26]	Social Banks and the Future of Sustainable Finance
185	[27]	Sustainable Finance and Investment: Review and Research Agenda
181	[28]	Corporate Social Responsibility and Sustainable Finance: A Review of the Literature
180	[29]	What do we mean by sustainable finance? Assessing existing frameworks and policy risks

Source: Publish or Perish, 2024

CONCLUSION

The bibliometric analysis of green and sustainable finance within Islamic banking has revealed a robust and expanding body of literature that aligns Islamic financial principles with global sustainability goals. Key areas such as green sukuk, ESG investing, and climate finance serve as critical junctures where ethical finance and environmental stewardship intersect, demonstrating the sector's capacity to contribute significantly to sustainable economic development. However, the research also highlights the challenges of standardization and the need for clearer regulatory frameworks to foster further growth in this sector. Moving forward, enhancing the integration of technology and financial innovations could play a pivotal role in overcoming these challenges, ensuring that Islamic finance continues to evolve as a powerful tool for achieving environmental sustainability and economic resilience. This study not only underscores the importance of continued empirical research to measure the impact of Islamic green finance but also points to the necessity of developing more sophisticated financial products that can meet the dual demands of Sharia compliance and environmental sustainability.

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