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A Systematic Review on the Green Sukuk after Paris-Agreement

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Abstract

This paper aims to identify, critically evaluate, and synthesize extant literature on Islamic green bonds. This study also identifies gaps and limitations in green Sukuk literature to highlight areas for further development of knowledge in this field of study. The study utilized a scoping review to identify all relevant literature from the EBSCO Host, Emerald, and Google Scholar databases. Our findings suggest that the concept of green sukuk is still emergent, and there are several gaps regarding the technical definitions and green taxonomy that need to be addressed. In addition, we discovered that there is a significant demand for sustainable investments, and the potential for liquid Islamic economies to supply this demand makes green sukuk an attractive investment option. Furthermore, the limitations of conventional green bonds in attracting Islamic investment further support the development of green sukuk. However, we also identified factors that hinder the development of green sukuk. The emergent nature of the concept and the lack of consistent green taxonomy for sukuk create a lack of understanding and hinder the development of effective legal frameworks. To overcome these challenges, we recommend that academics and Islamic scholars work towards developing a clear green taxonomy for sukuk. Such a taxonomy would help regulators develop a stronger legal framework for green sukuk and facilitate the growth of the market.

Keywords: Green Sukuk, sustainability, Islamic bonds, paris-agreement

1. Introduction

According to Musari (2022), "Whilst various forms of socially responsible Islamic bonds and financial instruments have been proposed and developed in the past, the concept of green sukuk has only emerged relatively recently." Specifically, Indonesia is recognized as the first global and retail sovereign green sukuk issuer in the world, with the first issue of bonds occurring in 2018. Musari (2021) notes that the core aim of green sukuk is to assist nations in addressing issues of climate change and greenhouse gas emissions. This is achieved by using the investments and finance of Islamic individuals who are forbidden by Sharia law from investing in traditional interest-bearing bonds. As a result, green sukuk has become a popular investment instrument for sustainable development, forming part of the socially responsible investment strategies of individuals, businesses, and nations.

Debrah et al. (2022) explain that sukuk is essential because environmentally sustainable infrastructure and buildings are critical to climate change mitigation but face a significant investment deficit. This is due to the higher costs of ensuring sustainable construction and operating a building incorporating sustainability technology and green energy. Sukuk raises finance to address the funding gap for green infrastructure in developing nations with large Islamic populations, incorporating the risk-sharing features of sukuk to ensure acceptability on religious and investment grounds, and mitigate investment risk.

Despite the significant demand for green sukuk, Siswantoro and Surya (2020) note that the concept remains somewhat nascent, with many bonds encountering performance issues after issuance. This raises important questions around the factors supporting and hindering the development of green sukuk and how the concept can be developed further to enhance value and support the achievement of sustainability goals that recommended by Paris-agreement.

To address these questions, the core aim of the research is to conduct a systematic review of the academic literature on green sukuk. The research objectives for the systematic review of green sukuk are as follows: to critically analyze the theoretical background and development of the green sukuk concept, to critically evaluate the factors supporting and hindering the development of green sukuk, and to develop recommendations around how the green sukuk concept can be developed further to enhance value and support the achievement of sustainability goals in a wider array of countries.

To the best of our knowledge, this is the first systematic review study focusing on the factors hindering and supporting the growth of the green sukuk following Paris-agreement. Most of the previous systematic review were focused on bibliometric analysis of Islamic finance literature, including Islamic banking and finance, investment in Sukuk (Fahad and Areeba, 2022). In addition, Sidlo (2017) mentioned that the Islamic finance is a broad concept contains four sectors as following: banking, sukuk (bonds), equity and funds, and takaful (insurance). Accordingly, the reason of doing this study is to fill this gap and contribute to the broader understanding of green sukuk and its role in environmental sustainability. Hence, scholars, financial institutions, and regulators can gain valuable insights into this innovative form of financing and its potential for promoting environmental sustainability.

The paper is organized as follows. First, information on the background green sukuk and it is importance in the financial markets is provided. Next, a brief about the green sukuk development is presented. Subsequently, the research methodology applied for the systematic literature review is clarified. Then, as the main part, the results of the literature review are presented. Finally, the paper is concluded.

2. Green Sukuk History

The issuance of green sukuk has been on the rise in recent years, with various countries and institutions issuing green sukuk for a wide range of sustainable projects (Paltrinieri et al., 2020). Unlike typical financial bonds, sukuk involves an investor receiving an agreed share of profits and having an ownership stake in a tangible asset, which promotes risk sharing. The development of sukuk paved the way for the emergence of socially responsible investment (SRI) sukuk instruments, including green sukuk. Which focus on renewable energy, low carbon transport, low carbon buildings, sustainable water and waste management, sustainable land use as well as climate change adaptation measures such as flood defences. and construction on land.

Green bonds function identically to traditional bonds in terms of valuation, assessment, handling, and implementation, as indicated by Abakah et al., 2023; Dervi, 2021. The main contrast is that while traditional bonds are targeted at obtaining additional capital loans followed by interest or returns for the investor within a set timeframe, green bonds concentrate more on collecting investment capital for green projects. In terms of the green sukuk, it represents an evolution from the sukuk itself, adhering to Islamic law; the funds garnered from investors or firms are directed towards the creation of environmentally friendly and Sharia-compliant products (Rohman, 2017). While, when it comes to the issuance requirements for a green Sukuk, they are identical to those for a green bond, as noted by Liu and Lai (2021).

One of the significant advantages of green Sukuk is that it appeals to a more extensive range of investors compared to non-green Sukuk or green bonds (Fahad and Areeba, 2022). As green Sukuk meets sustainable requirements and channels funds to environmentally sustainable projects, it attracts both green and shari’ah-compliant investors, as well as non-green and conventional finance investors. In contrast, non-green Sukuk only appeals to non-green investors, while green bonds attract conventional finance investors but exclude shari'ah compliant investors. Therefore, a green Sukuk is an appealing option for investors seeking sustainable and ethical investment opportunities. But, (Abdullah and Nayan, 2020) has observed on their study regarding the green sukuk in Malaysia which have the greatest number of issuances in the world, that most green sukuk issues are publications for the domestic market.

To sum up, Green sukuk, as opposed to its non-green counterparts and green bonds, caters to a diverse range of investors, comprising both conventional and shari’ah-compliant investors. The increasing emphasis on environmental conservation and sustainable development projects further propels the appeal of green sukuk, as seen in the increasing number of issuances globally. However, current observations, such as those noted in the Malaysian market, suggest that green sukuk largely remains domestic in nature. Therefore, to unlock the full potential of green sukuk, efforts should be concentrated on promoting its benefits and adoption across international markets. By doing so, green sukuk can become a formidable force in driving environmentally sustainable and shari’ah compliant investments, fuelling a more eco-conscious and ethical financial world.

3. Methodology

The present research will utilize a "systematic review" methodology, which involves an analysis of available literature and evidence on a given research topic. According to Saunders et al. (2019), a systematic review seeks to use systematic and explicit methods to select and appraise the relevant research in a given area, and in turn to extract and analyze available data from the studies selected for inclusion within said review. Such reviews are based on primary studies and analyses, particularly those relying heavily on empirical data and calculations, as noted by Bell et al. (2018).

However, the academic research in this area remains relatively underdeveloped, with limited primary research involvement. As a result, the available options for conducting a systematic review in the case of green sukuk are somewhat limited. While many high-quality journals focusing on sustainable finance have used "meta-analysis" as a method of analysis in the past, this method relies heavily on merging the results of past studies using quantitative data to provide statistical insights and analyses. Unfortunately, since green sukuk products are relatively new to Islamic capital markets, there are very few quantitative studies available, with the majority of research relying on qualitative analysis techniques.

As such, the appropriate methodology for this research is a "scoping review," which is a form of a systematic review aimed at answering broader and topic-focused questions through the use of qualitative data to define the topic and provide high levels of descriptive insight. This methodology is of particular relevance in a context such as this, where the existing research is largely exploratory, and thus detailed explanatory and quantitative insights cannot be generated in a meaningful or effective manner. The review will look to review the scope of the factors facilitating green sukuk and the barriers to green sukuk, as well as relevant practical examples of its use, utilizing relevant databases and search terms.

In addition, the articles that will be used are only those which published after Paris-agreement. We focused on the studies post 2015 because the policymakers, governments, investors, and scholars have paid extensive attention to the green sukuk industry after Paris-agreement (Piratti & Cattelan, 2020). The following databases and search terms were used to find relevant sources for the review:

Table 1. Sources and terms

Source	Search terms
Google Scholar	“green sukuk”, “green Islamic finance”, “green bonds”, “green finance”, “SRI sukuk”
EBSCO Host	“green sukuk”, “green Islamic finance”, “green bonds”, “green finance”, “SRI sukuk”
Emerald	“green sukuk”, “green Islamic finance”, “green bonds”, “green finance”, “SRI sukuk”

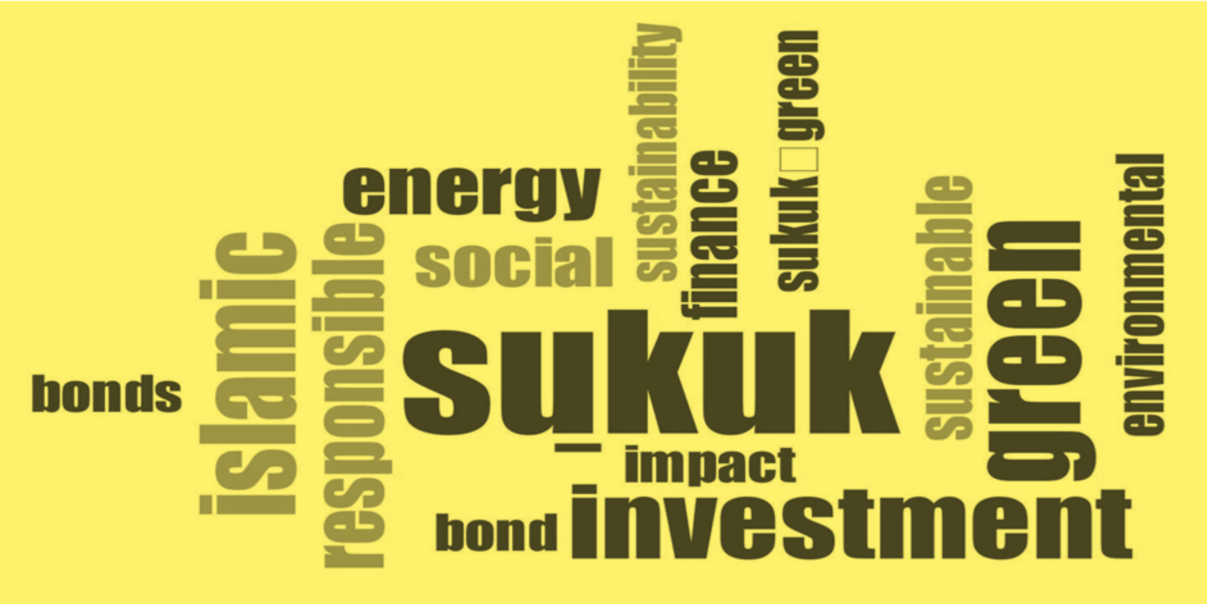

Figure 1. Keywords for the selected articles

4. Findings and Discussion

Factors facilitating green sukuk

"Scholars have identified several 'factors' that facilitate the use of 'green sukuk' in investment contexts. One such factor is the presence of an 'investment gap' in sustainable construction, particularly in 'renewable energy infrastructure.' As stated by Campisi et al. (2018), this gap has grown in recent years due to 'financial turbulence' and reduced government incentives in the sector, making innovative and emergent investment methods like green sukuk viable options for accessing previously untapped sources of finance. Green sukuk is a particularly attractive investment tool due to its 'profit-sharing element' which provides investors with higher expected returns than traditional products. Consequently, green sukuk is a strong candidate for financing the development of a wider green economy, as it helps balance economic returns and sustainability goals, leading to superior green outcomes (Al-Roubaie and Sarea, 2019).

Another important 'factor' driving the growth of green sukuk is the underlying growth, wealth, and liquidity of Islamic populations. As noted by Khan (2019), the use of Islamic finance is essential for achieving the UN's Sustainable Development Goals (SDGs), given the financing challenges faced by many developed and non-Islamic nations. As such, the further development of green sukuk is necessary to fulfill sustainability gaps, given that Islamic finance is based on Sharia principles. The potential of green sukuk as a tool for financing sustainable waste management projects was also investigated by Hariyani and Kusuma (2020), who found that green sukuk's high level of potential sukuk liquidity and role in the global financial system make it beneficial in this regard.

The use of the sukuk structure to support sustainability is another important 'factor' highlighted in the scoping process as supporting the growth of green sukuk. Abubakar and Handayani (2020) emphasize that the normative legal approach applied in the development and certification of green sukuk products helps ensure that they support the development of green infrastructure, avoiding the 'greenwashing' risks of traditional bonds. While traditional 'green' bonds may be directed towards multiple goals and outcomes, some of which may not be sustainable, green sukuk is specifically designed to protect against climate and environmental issues, with the level of environmental performance being a key element of the green certification process. As such, green sukuk has the potential to drive genuine sustainability, although understanding in this area is still being developed due to the novelty of these products in the Islamic capital market (Abdullah and Nayan, 2020).

Barriers to green sukuk

According to Liu and Lai (2021), the development of green sukuk is limited due to a lack of agreement around the sustainability principles that must be incorporated into an issuance, which can lead to the potential for greenwashing. Keshminder et al. (2022) conducted a study that found a poor level of green taxonomy and difficulty in identifying green assets as part of the sukuk certification procedure also hampers the potential of green sukuk to provide sustainable outcomes. Hania and Endri's (2022) study using an Analytic Network Process methodology showed that a lack of understanding of the concept of green sukuk from the perspective of market participants is a main barrier to its issuance. Additionally, Abdullah and Keshminder (2020) qualitative case study found that perceptions of legitimacy as a green investment reduced competitiveness and further discouraged issuances, with a lack of favourable legislative measures hampering legitimacy in the market. Finally, oversubscription due to the reputational benefits of sustainable investment policies and a lack of supply in the market may also contribute to performance issues for green sukuk after the offering period, as found by Siswantoro (2018) and Siswantoro and Surya (2020).

A significant concern in the development of green sukuk is the limited level of issuance despite its potential for financing sustainable projects, particularly in the green economy and infrastructure where finance is lacking. According to Hariyani and Kusuma (2020), the lack of finance in emerging nations prevents appropriate waste management solutions, highlighting the potential of municipal green sukuk to finance substantial waste management projects and address issues of pollution. Richardson (2020) similarly notes the potential for green sukuk to finance sustainable development within the United Arab Emirates, but also highlights barriers around the lack of appropriate legal and guidance frameworks, and a lack of practical actions by institutions to develop and promote these bonds.

This lack of effective legal support is also a barrier to the adoption of green sukuk in developed nations, as noted by Morea and Poggi (2017) who suggest that green sukuk provides an opportunity for Italy to invest in higher levels of wind power systems. They argue that green sukuk offers major opportunities due to their long-term profit and risk-sharing focus, despite discouraging traditional bond offerings due to their fixed interest. Furthermore, Aassouli et al (2018) argue that policymakers could create a green sukuk market in sub-Saharan Africa, attracting local and foreign finance and promoting environment-friendly projects to improve livelihoods and achieve moral objectives in Islamic finance.

Despite the potential benefits, the lack of issuance of green sukuk remains a concern, especially considering the high volume of potential applications. This may be due to barriers related to scoping, taxonomy, and market acceptance, as well as oversubscription, which may be linked to over-inflated expectations and a lack of supply to the market.

5. Conclusion

The review of literature has enabled the work to achieve its aims and objectives, as it has critically analyzed the literature in the factors supporting and hindering the growth of green sukuk. As well as, the study aimed to explore the development of the green sukuk concept and definition. A "scoping review," has been conducted which is a form of a systematic review methodology. Our findings indicated that green sukuk has emerged from a combination of traditional sukuk and the growing demand for green investment. However, the overall concept is emergent, and there remain gaps around the technical definitions and the green taxonomy of green sukuk. The factors supporting and hindering the development of green sukuk mirror the theoretical development of the process. The high demand for green investment, the potential for liquid and growing Islamic economies and populations to supply this demand, and the limitations of typical green bonds in attracting Islamic investment are factors that support the development of green sukuk. On the other hand, the emergent nature of the concept and the lack of consistent green taxonomy for sukuk hinder its development, creating a lack of understanding and a failure to develop effective legal frameworks, which makes it difficult for green sukuk to gain legitimacy in the eyes of many institutions.

To enhance the value of the green sukuk concept and support the achievement of sustainability goals in a wider array of countries, academics and Islamic scholars should work together to develop a clear taxonomy of green sukuk. This should incorporate relevant levels of green performance objectives and Islamic law to provide certainty. Governments and regulators are also recommended to develop a stronger legal framework and support for green sukuk to give the concept the legitimacy it needs in the eyes of institutions.

However, the main limitation of the present work is that green sukuk is an emerging concept, making it challenging to carry out a systematic review, and limiting the potential for the use of tools such as meta-analysis. Thus, the findings of this review can only be viewed as descriptive, and further empirical research into the area of green sukuk is needed before a fuller level of understanding of the concept and its potential value can be achieved.

References

Aassouli, D., Asutay, M., Mohieldin, M., & Nwokike, T. (2018). Green Sukuk, Energy Poverty, and Climate Change: A Roadmap for Sub-Saharan Africa. World Bank Policy Research Working Paper No. 8680. https://doi.org/10.1596/1813-9450-8680

Abakah, E. J. A., Tiwari, A. K., Adekoya, O. B., & Oteng-Abayie, E. F. (2023). An analysis of the time-varying causality and dynamic correlation between green bonds and US gas prices. *Technological Forecasting and Social Change, 186*(A), 122-134. https://doi.org/10.1016/j.techfore.2022.122134

Abdullah, M., & Keshminder, J. (2020) What drives green sukuk? A leader's perspective.

Journal of Sustainable Finance & Investment, *12*(3), 985-1005. https://doi.org/10.1080/20430795.2020.1821339

Abdullah, N., & Nayan, M. (2020) Green Sukuk: Financing the Future to Sustainable Environment. *International Journal of Zakat and Islamic Philosophy, 2*(2), 14-23.

Abubakar, L., & Handayani, T. (2020). Green Sukuk: Sustainable Financing Instruments for Infrastructure Development in Indonesia. *Proceedings of the 1st Borobudur International Symposium on Humanities, Economics and Social Sciences.* 2020, 983-987. https://doi.org/10.2991/assehr.k.200529.206

Al-Roubaie, A., & Sarea, A. M. (2019). Green Investment and Sustainable Development: The Case of Islamic Finance. *Journal of Islamic Business and Management (JIBM), 9*(1), 14-24. https://doi.org/10.26501/jibm/2019.0901-002

Ayisy, Y. (2017, October, 25). *Malaysia's Green Islamic Sukuk funds green tech projects.* New Strait Times.

Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods.* Oxford: Oxford University Press.

Campisi, D., Gitto, S., & Morea, D. (2018). Shari'ahcompliant finance: A possible novel paradigm for green economy investments in Italy. *Sustainability (Switzerland), 10*(11), 1–12. https://doi.org/10.3390/su10113915

Debrah, C., Chan, A., & Darko, A. (2022). Green finance gap in green buildings: A scoping review and future research needs. *Building and Environment, 207*, 108-443.

Dervi, U. D. (2021). *A bibliometric review of green financing, implication for Islamic Finance (Unpublished Master's Thesis).* Institute of Business Administration Karachi.

Fahad, M., & Khan, A. (2022). Green Sukuk Impetus: A Systematic Review. *SSRN Electronic Journal*. https://doi.org/10.1016/j.buildenv.2021.108443

Hania, B., & Endri, I. (2022). Identify the Issuance Problem of Corporate Green Sukuk in Indonesia. *Islamic Economics Journal*, *8*(2), 187-204. https://doi.org/10.21111/iej.v8i2.8404

Hariyani, H., & Kusuma, H. (2020). Green Sukuk-Based Project on Sustainable Waste Management in Indonesia. *Journal of Islamic Economics. 12*(2), 165-178. https://doi.org/10.15408/aiq.v12i2.15129

Keshminder, J. Abdullah, M., & Mardi, M. (2022). Green sukuk – Malaysia surviving the bumpy road: performance, challenges and reconciled issuance framework. *Qualitative Research in Financial Markets, 14*(1), 76-94. https://doi.org/10.1108/QRFM-04-2021-0049

Khan, T. (2019). Reforming Islamic finance for achieving sustainable development goals. *Journal of King Abdulaziz University, Islamic Economics, 32*(1), 3-21. https://doi.org/10.4197/Islec.32-1.1

Liu, F., & Lai, K. (2021). Ecologies of green finance: Green sukuk and development of green

Islamic finance in Malaysia. *EPA: Economy and Space*, *53*(8), 1896-1914. https://doi.org/10.1177/0308518X211038349

Morea, D., & Poggi, L. (2017). An Innovative Model for the Sustainability of Investments in the Wind Energy Sector: The Use of Green Sukuk in an Italian Case Study. *International Journal of Energy Economics and Policy, 7*(2), 53-60.

Musari, K. (2021). *Green Sukuk, Islamic Green Financing: A Lesson Learned from Indonesia. In Handbook of Research on Climate Change and the Sustainable Financial Sector.* New York: IGI Global. https://doi.org/10.4018/978-1-7998-7967-1.ch001

Musari, K. (2022). Integrating Green Sukuk and Cash Waqf Linked Sukuk, the Blended Islamic Finance of Fiscal Instrument in Indonesia: A Proposed Model for Fighting Climate Change. *International Journal of Islamic Khazanah, 12*(2), 133-144. https://doi.org/10.15575/ijik.v12i2.17750

Paltrinieri, A., Hassan, M. K., Bahoo, S., & Khan, A. (2020). A bibliometric review of sukuk literature. *International Review of Economics and Finance*, April.

Piratti, M., & Cattelan, V. (2020). Islamic green finance. *Islamic Social Finance*, 144-172. https://doi.org/10.4324/9781315272221-9

Richardson, E. (2020). The UAE and responsible finance-Can responsible finance sukūk help the UAE in fulfilling its sustainability ambitions? *Arab Law Quarterly, 34*(4), 313-355. https://doi.org/10.1163/15730255-BJA10013

Rohman, R. S. (2017). The prospect implementation of green bond toward green sukuk in Indonesia. Universitas Islam Indonesia.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students: 8th Edition.* Harlow: Pearson.

Sidlo, K. W. (2017). Islamic Finance 2017: State of the Art and Outlook for the Future, K4D Helpdesk Report, Brighton: IDS.

Siswantoro, D. (2018). Performance of Indonesian green sukuk (islamic bond): a sovereign bond comparison analysis, climate change concerns? *IOP Conference Series: Earth and Environmental Science*, 200, p012056. https://doi.org/10.1088/1755-1315/200/1/012056

Siswantoro, D., & Surya, H. (2020). Indonesian Green Sukuk (Islamic Bond) of climate change: A revisited analysis. *IOP Conference Series: Earth and Environmental Science, 716,* 012044. https://doi.org/10.1088/1755-1315/716/1/012044