

Eight Years of Research Related to the Green Sukuk in the Global Stock Exchange Market to Support the Implementation of SDG: A Bibliometric Review

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Abstract

The awareness of investors that only invest in green instruments has been increasing recently. Green sukuk was an investment that followed the Sharia principle and promoted environmental preservation. This study aims to analyze green sukuk in previous studies as an alternative financing for green infrastructure development in Indonesia. This study used a bibliometric method by taking secondary data from meta-data papers from Scopus and SCI. Forty papers from Scopus and 29 from SCI during 2016-2023 were taken as samples. Data were analyzed with Vosviewer and Biblioshiny. The results of this study show that the energy was closely related to the topic of green sukuk. Energy was mostly used in the abstract and titles of papers. Moreover, the abstract and the title showed that the word sustainable was used frequently, implying that the energy power plant could become an underlying asset for green sukuk due to its sustainable revenue. However, the government should take action to create regulations that could support the green project as an underlying asset of Green Sukuk.

Keywords: *Green, Sharia, Sukuk, Underlying Asset*

I. Introduction

The growth of Islamic finance, which is increasingly developing and being widely accepted in the world, makes it an option for the market (Fianto et al., 2018). According to MUNIR et al., this development has also given rise to a large number of global Sharia financial infrastructures such as the Islamic Development Bank (IDP), Islamic Research and Training Institute (IRTI), International Financial Service Board (IFSB), and so on.

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The main function of financial institutions is as a mediator between parties who have a shortage and parties who have excess funds (Keshminder et al., 2019).

Indonesia itself has Sharia-based financial institutions. Sharia Financial Services consists of three sub-sectors, one of which is the Sharia capital market (Hariyani et al., 2020). However, the capital market in Indonesia is not yet fully Sharia because the requirements still contain *riba*. Indonesia needs potential Sharia investment products to improve the Sharia financial industry (Singh, 2023). This is because Indonesia has the largest Muslim population in the world, so the market potential for Sharia investment products in Indonesia is very large (Ulum, 2023).

Besides that, technology has developed rapidly, so the Islamic finance industry can utilize technology to develop more innovative and attractive Islamic investment products (Ansori et al., 2022). Developing potential Sharia investment products requires support from various parties, including regulators, industry, and society. Regulators must provide regulations supporting sharia investment product development (Qosim & Buhori, 2022). The industry needs to innovate to develop sharia investment products that are more attractive and affordable. The public must understand the benefits and advantages of Sharia investment products (Mafruchati, 2020).

One of the capital market instruments currently on the rise is sukuk. Indonesia uses sukuk as an effort to support the creation of a more comfortable earth (Keshminder et al., 2022). This is because development that only targets economic growth causes a decline in environmental quality. Decreasing environmental quality will indirectly cause global climate change and cause negative impacts on communities around industrial areas (Qosim, 2016).

Therefore, Indonesia is also committed to reducing emissions by up to 29%. Indonesia and other UN countries have agreed to reduce carbon estimates by reducing the use of fossil fuels and building environmentally friendly infrastructure (green infrastructure) (Ulum, 2023). Sustainable development financing prioritizes the harmony of economic, social, and environmental aspects apart from originating from each country. One of the schemes pioneered by the World Bank is issuing Green Sukuk (Rima and Ahmed 2020).

The issuance of green sukuk can develop the investor base (Keshminder et al., 2022). Corporate or individual investors are very concerned about environmental issues, especially tackling climate change. The issuance of green sukuk is almost the same as state sukuk, but the basis for the issuance must meet green infrastructure criteria such as the construction of reservoirs, irrigation, hydropower, etc (Faisal et al., 2023).

Furthermore, Abubakar & Handayani in their study said that Indonesia was listed as one of the pioneers in issuing green sukuk in the Southeast Asia region with a value of US dollars 1.25 billion in March 2018 (Abubakar & Handayani, 2020). This transaction is the world's first sovereign green sukuk issuance. In issuing green sukuk, it is hoped that Indonesia can become an example of sharia financial instruments in the world, and by looking at the potential that exists in green sukuk, it is hoped that it can introduce and strengthen the position of sharia finance in Indonesia and globally (Suwanan et al., 2021).

Previous research regarding green sukuk in Indonesia has not been widely circulated. Moreover, there is no research regarding bibliometric studies to determine trends in research topics regarding green sukuk in Indonesia. This could be a novelty in research

that is worthy of observation. Based on this background, this study aims to observe the role of green sukuk in strengthening Indonesia's position in the global sharia financial market. Besides that, this study also aims to map the effectiveness of the topic on previous studies as well as the current trend of publication related to Green Sukuk in terms of affiliations and citations. According to that objective, the authors proposed several research questions as follows:

1. How was the green sukuk in Indonesia depicted as a topic in previous studies through the most used words in the abstract, title, and keywords?
2. How were the citations, authors with the highest citations, and journals with the highest papers published related to Green Sukuk in Indonesia depicted?
3. What is the challenge in developing a green sukuk environment in the Sharia market, and what is the suggestion to develop that?

The theoretical implication of this study is to inform the academicians to research more in the area of green sukuk, especially in renewable energy projects as its underlying asset. This study could generate novelty in the current topics related to Green Sukuk that is helpful to academicians in deciding what topic and object related to Green Sukuk in Indonesia should be studied as further research. However, this study is not free from limitations, and it only covers data from previous papers that discuss green sukuk in Indonesia. This study could not measure the impact of the current data on the future because it used metadata of published papers as its data.

II. Literature Review

2.1. Green Sukuk in Sharia Investment

Based on a study by Lai, climate change has greatly influenced economic thinking. This global phenomenon has changed the landscape of resource allocation and distorted the functioning of market mechanisms. To prevent climate change, the world is pressured to adopt the principle of cradle-to-grave sustainability (Lai, 2018).

The start is often by switching to environmentally friendly energy sources. The International Energy Agency (IEA) reports that around USD 44 trillion is needed to support global energy supplies (Nizar et al., 2019). Thus, the biggest challenge faced by economies around the world is having access to such huge amounts of capital and investment. Green sukuk can be a financial product used to invest in green project programs (Keshminder et al., 2019).

2.2. Green Sukuk to Support the Implementation of SDG

Green Sukuk is an Islamic financial instrument issued to attract investors, not only banks but also the public, to raise funds as capital to finance environmentally friendly projects organized by the government (Hariyani et al., 2020). Issuance of Green Sukuk provides more and more benefits for preserving the environment through developing environmentally friendly government projects or improving environmental conditions as the project is built. In conclusion, green sukuk was better issued by the government of Islamic countries than conventional bonds because it would allow the government to build green areas and a more massive reduction in carbon emissions and environmental pollution (Hariyani et al., 2020).

Green Sukuk is an impactful investment supporting the SDGs, whereby the funds raised for government projects help national economic growth and environmental

sustainability. This Islamic financial instrument is expected to become an important investment instrument for sustainable development (Aassouli et al., 2018). Allocation of funds from Green Sukuk can attract more investors to countries with a Muslim majority population, one of which is Indonesia. Green Sukuk combines environmental care components to prevent global warming and socio-economic aspects to support the achievement of SDGs and financing to achieve the National Development Contribution (NDC) target (Suroso et al., 2020).

2.3. Theoretical Framework of Bibliometric

Bibliometrics is a science that studies the patterns of distribution and use of scientific information. Bibliometrics can be used for various purposes, such as measuring the impact of a scientific work, analyzing research trends in a field, and identifying relationships between researchers. Bibliometric analysis can be used to carry out an analysis of publication effectiveness.

Bibliometric is an approach to analyzing scientific publications and academic literature using quantitative data originating from journal indexation websites (Nugroho, 2017). The data used in bibliometric analysis includes information such as article title, author's name, journal in which it was published, publication date, and number of citations. Bibliometric methods can also be used to measure the number of scientific publications produced by a researcher or institution, as well as the number of citations received by these publications so that the level of productivity of an author can be known (Ansori et al. 2022).

One analysis using well-known bibliometrics is citation analysis. Citation analysis is a bibliometric method used to analyze citation patterns in a scientific work. Citation analysis can be used for various purposes, such as to measure the influence of a scientific work, to analyze research trends in a field, and to identify relationships between researchers. Citation is the act of citing a scientific work in another scientific work (Nugroho, Anna, & Ismail, 2023). Citations can be in the form of direct quotations, indirect quotations, or simply mentioning the name of the author and the title of the scientific work. Citations are used to show sources of information used in a scientific work. Citation is also considered a way to respect the author of the cited scientific work so that it is not considered plagiarism (Nugroho, 2017). Citations are also needed to prove the validity of an opinion/argument in a scientific work (Nugroho & Narsa, 2020).

There are four types of citation analysis. The first, the analysis of the number of citations, is the simplest (Nugroho, 2022b). This analysis counts the number of citations received by a scientific work. The second is citation distribution analysis, which examines the pattern of distribution of citations in a scientific work (Nugroho, 2022a). This analysis can determine whether a scientific work was widely cited in the first year of publication or was only widely cited in subsequent years. The third is co-citation analysis, which examines the relationship between scientific works based on interrelated citation patterns (Nugroho et al., 2022). This analysis can be used to identify groups of related scientific works. Fourth is citation trend analysis, which occasionally examines changes in the number of citations in a scientific work. This analysis can determine research trends in a field (Nugroho, Anna, & Babbar, 2023).

III. Methodology

3.1. Data

This study used bibliometric methods to collect and analyze data. The collected meta-data were taken from various documents published by Web of Science (SCI) indexed journals (Prasetyo Adi Nugroho, 2021). Scopus and SCI were chosen as sources for collecting data because of their user-friendly features in searching for document subjects and searching for information about a journal based on several criteria (Mafruchati et al., 2023).

Documents were searched using the advanced search feature on the Scopus website by typing several words. These words were divided into two sessions based on this research topic: green sukuk and blue sukuk. Data on Scopus and SCI were from 2016-2023. The distribution can be seen in the table below:

Table 1. Division of Search Based on Source

Sumber	Queries	Total document
Scopus	(TITLE-ABS-KEY (green) AND TITLE-ABS-KEY (sukuk))	40
SCI	green (Topic) AND sukuk (Topic)	29

Source (s): Scopus & SCI

3.2. Data Analysis

The data was analyzed using two software, Vosviewer and R Studio, and its feature, Biblioshiny. Vosviewer has the advantage of displaying various words that are frequently used as keywords in Scopus-indexed documents. In addition, Vosviewer can display the period of the words and their relationship to each other (Van Eck & Waltman, 2009). However, Vosviewer can only display words that are frequently used in keywords. Biblioshiny in R Studio software can display words frequently used in titles and abstracts in Scopus-indexed documents. Apart from that, Biblioshiny can also display the number of occurrences of these words at intervals each year (Xu et al., 2018).

Apart from the frequency of occurrence of words in the title, abstract, and keywords, this study also analyzes the growth of documents published in several journals on the topic of green sukuk. On the other hand, this study also analyzed the number, growth, and average citations of the documents sampled for this research, which is included as one of the research variables. This study also uses a Systematic Literature Review (SLR) to observe samples from metadata of papers gained from Scopus and SCI. The SLR analyzed and viewed the weakness of Green Sukuk and suggested that the government and investors face its weakness. SLR was used to supply the number of bibliometric samples that were considered a bit small, which could decrease the credibility of the results presented by bibliometrics. This study follows the guidelines of a previous study conducted by (Mohamed Shaffril et al., 2021) about the steps in creating SLR for beginners. There were 11 samples used for SLR according to the existence of an abstract that discussed the Green Sukuk and also provided suggestions for the government or investors. The flow of the data collection and analysis can be seen in the diagram below.

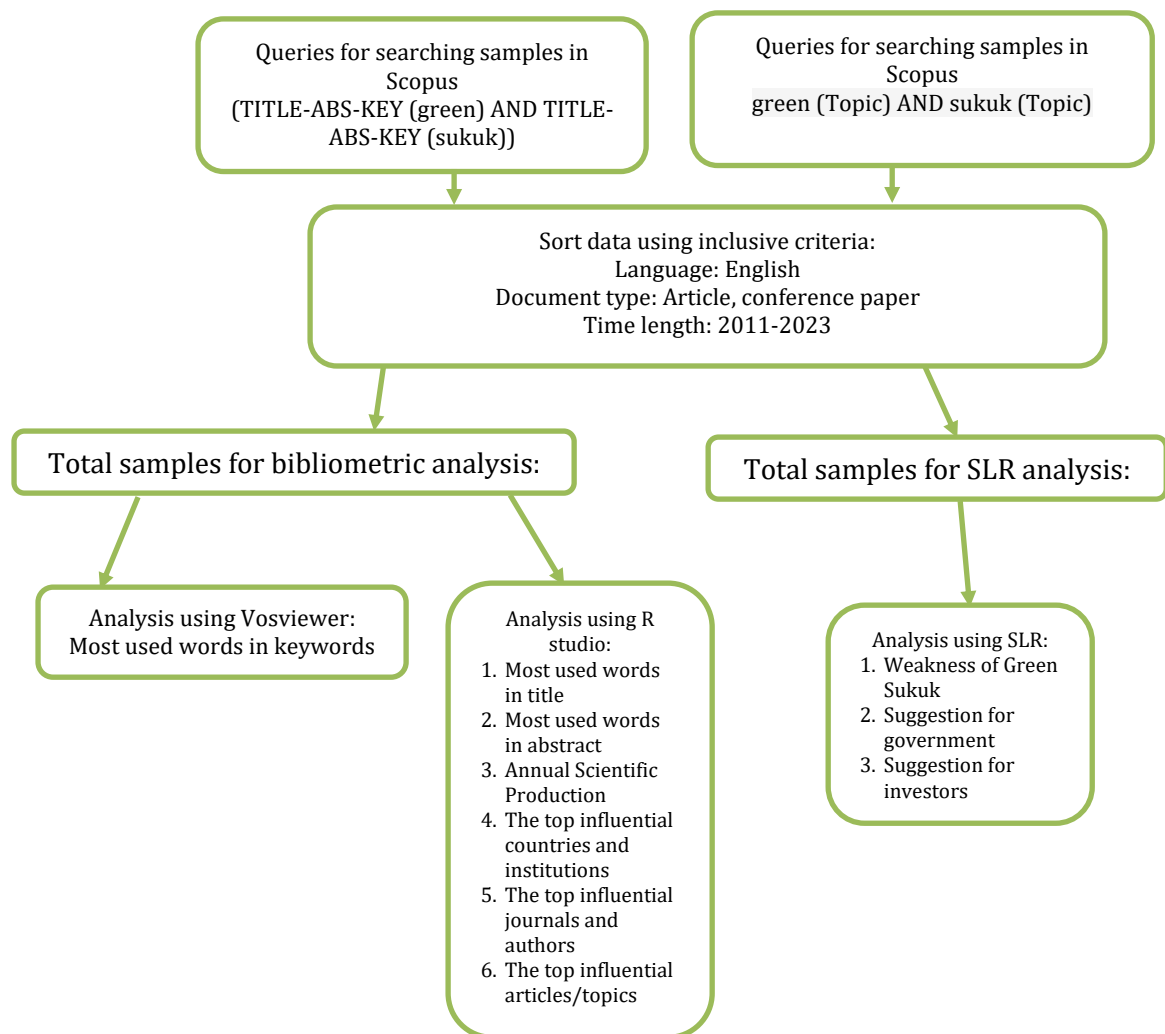


Figure 1. Diagram of Sample Data Collection and Analysis
 Source(s): Arranged by Authors

IV. Results and Analysis

The result of the metadata downloaded from Scopus and SCI would be depicted using Vosviewer first, then Biblioshiny, a package of bibliometric tools inside R Studio software. The results are depicted in several figures. The figures showed countries with the most publications, authors with the most citations, journals with the most papers published, and papers/articles with the most citations. Bibliometric analysis observed the most used words in the title and keywords for top influential topics in previous studies because most used words resembled the top influential topic (Polley, 2016).

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Green Sukuk is run based on the principles of *maqashid* Sharia. One of the pillars of *maqashid* within the framework of *al-kulliyah al-khamsah* is protecting religion (*hifdzu ad din*). Protecting the environment is part of protecting religion, following the verses in Surah al-Baqarah: 11, 60, 251, 22, 27, and others (Aassouli et al., 2018). Another pillar of *maqashid* is protecting the soul, mind, and descendants (*hifdzu an nafs, aql, an nasl*). With the existence of green projects through green sukuk, it is very important to repair environmental damage in society. This enthusiasm is to maintain the long-term survival of creatures on this earth (Nugroho, Anna, & Babbar, 2023).

Apart from that, the UN and the World Bank have held various meetings aimed at the mission to reduce world carbon emissions. This is because if it continues, the impact of carbon emissions will be very dangerous for human survival. Carbon emissions can cause acid rain and pollute water and air, threatening human life (Jariwala et al., 2017).

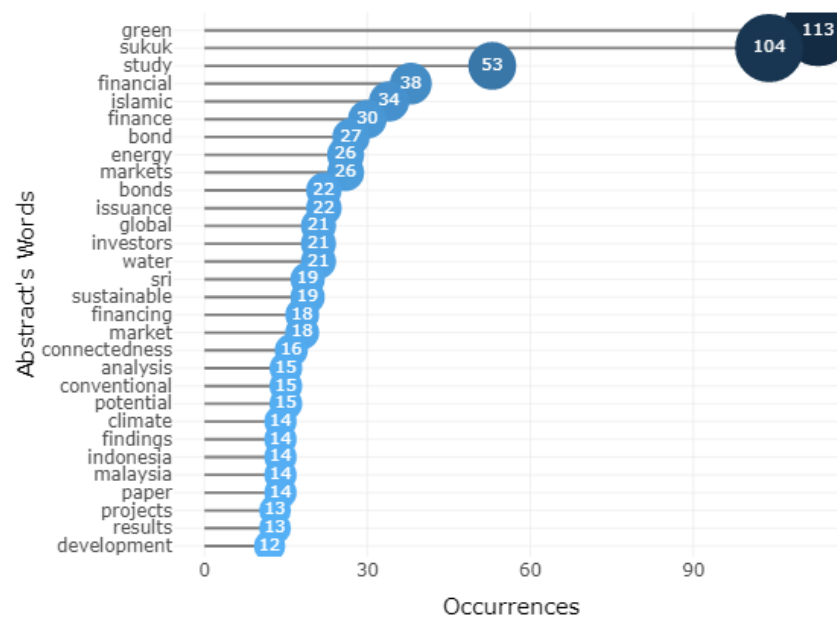


Figure 3a. List of Frequently Used Words in Abstract Related to Green Sukuk from SCI

Source: Data Processed by Biblioshiny

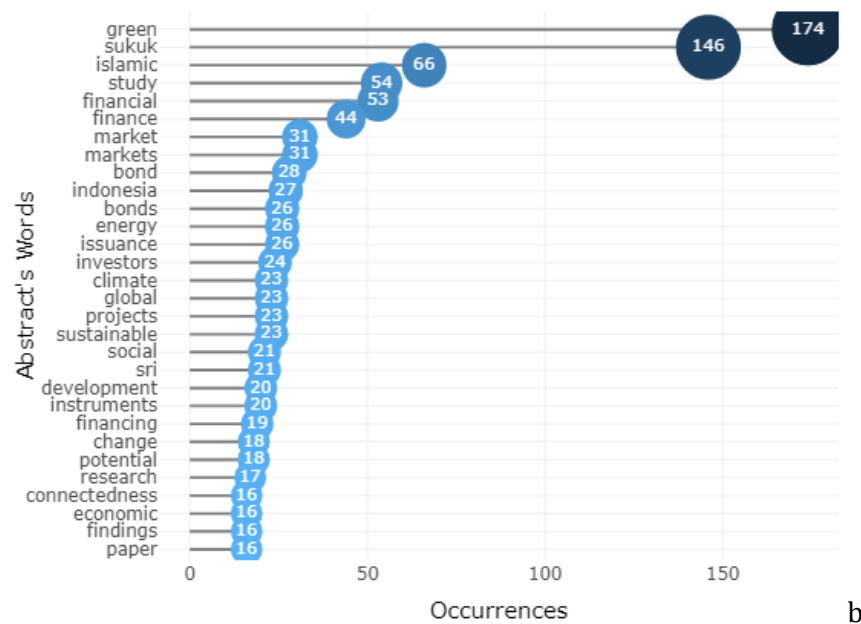


Figure 3b. List of Frequently Used Words in Abstract Related to Green Sukuk from Scopus
 Source: Data Processed by Biblioshiny

Figures 3a and 3b showed that words such as *market*, *finance*, *bond*, and *energy* were used frequently in abstracts of papers either published in SCI or Scopus-indexed journals. It could mean that the bonds that used the infrastructure project related to the energy power plants inducted by the government had been used as underlying assets for bonds. According to the study by (Schach et al., 2010), energy power is one of the potential industries that could grow exponentially because of its never-ending demand.

Power plants can contribute to economic output by producing electricity used by households and businesses. A study (Fios & Martoredjo, 2021) stated that Indonesia's GDP per capita increased by 0.2% in the 4 years leading up to wind power plants built along wind power areas in South Sulawesi around 30 towers. Moreover, power plant construction could create jobs for local communities that could increase their standard of living (Nugroho, Anna, & Ismail, 2023).

Figure 3a shows that there was the word *water*, but it did not exist in 3b. Water, as one of the powerplant energy sources, was observed frequently in papers published in SCI-indexed journals but not in Scopus-indexed journals. According to a study (Tritto & Camba, 2022), Hydroelectric power plants provide electricity at affordable prices for MSME players who are just growing their businesses. Hydroelectric power plants are also useful for flood control, irrigation support in agricultural areas, and clean water provision. In addition, the Hydropower program works to develop and test the latest technologies that can reduce operating and maintenance costs and increase electricity production.

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Moreover, according to the International Energy Agency (IEA), hydropower is important in accelerating the transition to clean energy to achieve sustainable development goals, namely environmentally friendly energy. The IEA also stated that hydroelectric power plants, especially reservoir types, provide emission-free electrical energy. Even though hydroelectric power plant infrastructure harms the local environment and ecology, namely aquatic biota, this type of power plant still has many advantages compared to fossil fuel power plants (Musari, 2021).

As a result, the hydropower building project could become an underlying asset for green sukuk because of its income stability and the fact that it will not cause so much loss to local society and the public. However, it should be noted that since the case of Indonesia, many wind power plants have been built under the regime of Jokowi as president. The underlying asset for green sukuk should be a wind power plant project, not a hydroelectric power plant.

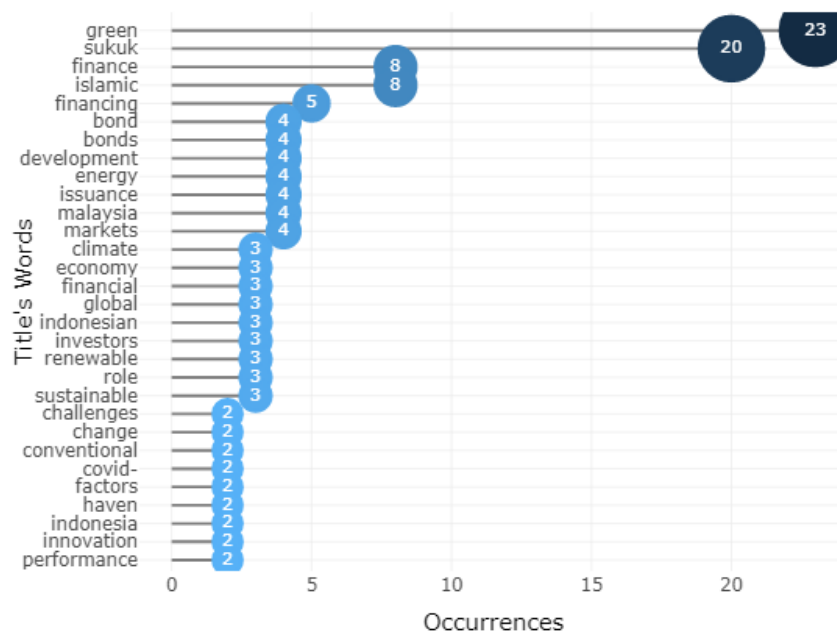


Figure 4a. List of Frequently Used Words in the Title Related to Green Sukuk from SCI

Source: Data Processed by Biblioshiny

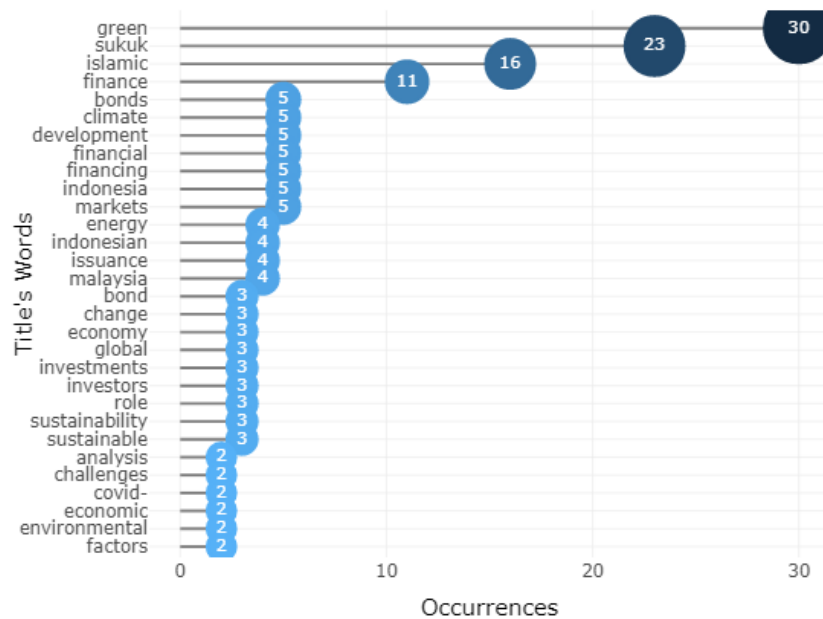


Figure 4b. List of Frequently Used Words in The Title Related to Green Sukuk from Scopus
 Source: Data processed by Biblioshiny

Figures 4a and 4b showed that some of the notable frequently used words were *energy*, *bonds*, *development*, *climate*, *Indonesia*, *Malaysia*, *sustainable*, *covid*, *global*, and *finance*. It could mean that the development of energy powerplants that are friendly to the environment used for underlying assets for green sukuk as a form of an Islamic bond. Green sukuk emphasizes the business as an underlying asset that has to follow Sharia principles, which are mutual prosperity, eco-friendly, free from usury, free from high risk, free from speculation, and could support the local economy.

According to Figures 4a and 4b, Malaysia and Indonesia have become countries that have issued many green sukuk using underlying assets of eco-friendly power plants. Eco-friendly infrastructure could help those countries achieve the SDG by reducing the risk of global warming (Zhao et al., 2019). Moreover, eco-friendly power plants, such as wind power plants in South Sulawesi, Indonesia, could supply much energy over a long time, which was helpful for society in overcoming COVID-19 (Nugroho, 2021). The word *covid* in Figures 4a and 4b could mean that the pandemic pushed society to stay home and spend more electricity than usual. As a result, the government should supply more energy to society severalfold. Eco-friendly power plants could solve this problem (Sihaloho et al., 2020).

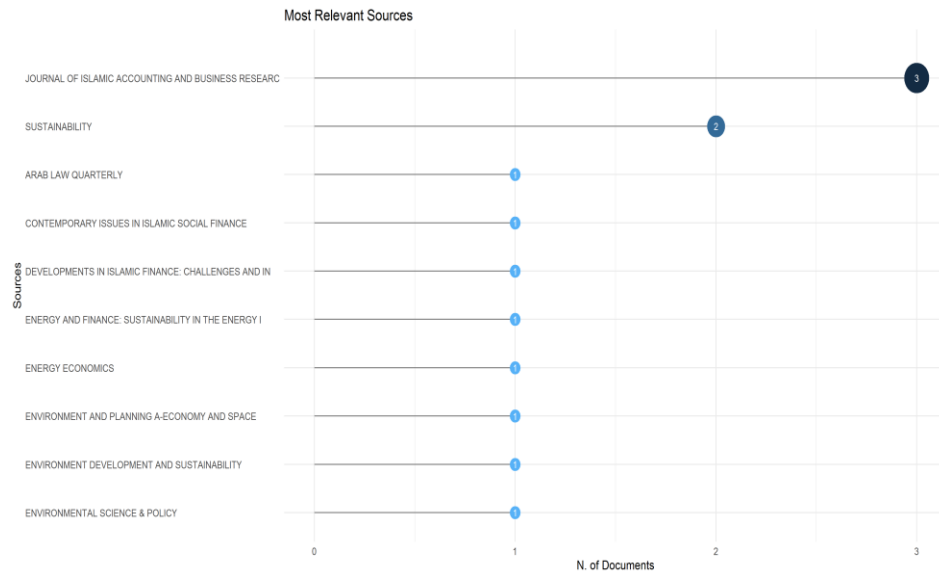


Figure 5a. List of Most Influential Journals Related to Green Sukuk from SCI
 Source: Data Processed by Biblioshiny

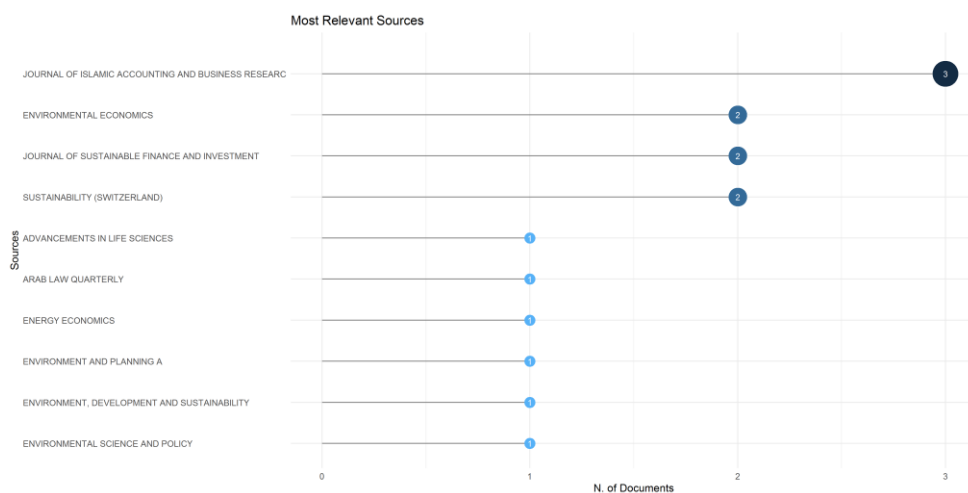


Figure 5b. List of Most Influential Journals Related to Green Sukuk from Scopus
 Source: Data Processed by Biblioshiny

Table 2. Authors with the Most Citations

SCI			Scopus		
Author	Year	Total Citation/Year	Author	Year	Total Citation/Year
Abbes Mb	2023	0	Abbes Mb	2023	0
Abdul Halim Ah	2023	0	Abdul Halim Ah	2022	15
Abdullah Ms	2019	1	Abdullah Ms	2023	0
Abdullah Ms	2022	11.5	Abdullah Ms	2020	2
Ahmad Auf	2023	0	Ahmad Auf	2016	12
Alam A	2023	1	Alam A	2019	7
Billah M	2023	3	Billah M	2023	4
Karim S	2022	33	Karim S	2022	64
Karim S	2023	45	Karim S	2023	68
Keshminder Js	2019	1	Keshminder Js	2022	15

Source: Data Analyzed by Byblioshiny

Table 3. Annual Scientific Production of SCI and Scopus

SCI		SCOPUS	
Year	Articles	Year	Articles
2016	1	2016	0
2017	1	2017	1
2018	3	2018	2
2019	1	2019	1
2020	3	2020	4
2021	1	2021	1
2022	8	2022	9
2023	9	2023	12

Source: Data Analyzed by Biblioshiny

Table 4. The Top Influential Countries of SCI and Scopus

SCI			SCOPUS		
Country	Year	Articles	Country	Year	Articles
MALAYSIA	2022	10	ITALY	2022	5
MALAYSIA	2023	14	ITALY	2023	5
UNITED KINGDOM	2022	3	MALAYSIA	2022	13
UNITED KINGDOM	2023	4	MALAYSIA	2023	19
USA	2022	2	INDONESIA	2022	9
USA	2023	4	INDONESIA	2023	23
INDONESIA	2022	5	UNITED KINGDOM	2022	5
INDONESIA	2023	10	UNITED KINGDOM	2023	6
FRANCE	2022	1	PAKISTAN	2022	5
FRANCE	2023	4	PAKISTAN	2023	7

Source: Data Analyzed by Biblioshiny

The Application of Green Sukuk According to Legality in Indonesia

The implementation of green sukuk in Indonesia has provided various benefits, including increasing investment in the green sector. By increasing investment in the green sector, sustainable development can be maintained. In addition, the greener sector projects there are, the more public awareness of the importance of the environment increases. The Indonesian government aims to continue increasing the issuance of green sukuk in the future. This is in line with Indonesia's commitment to reduce greenhouse gas emissions by 29% by 2030 (Suwanan et al., 2021).

To reduce greenhouse gas emissions, Indonesia is reducing fuel-powered electricity generation and replacing it with renewable energy such as wind. Renewable energy power generation projects can become collateral assets for green sukuk in Indonesia. This is in accordance with the provisions of the Financial Services Authority Regulation (POJK) Number 18/POJK.04/2023 concerning the Issuance and Requirements for Environmentally Friendly Debt Securities (Green Bond). Renewable energy power generation projects meet these criteria (Subadyo & Poerwoningsih, 2017).

Renewable energy power generation projects have economic value that can be liquidated, namely asset value that can be cashed to fulfill green sukuk payment obligations (Aristyanto et al., 2021). The fair value of a renewable energy power generation project can be measured reliably through an assessment by an independent

appraiser (Arafah et al., 2018). Renewable energy power generation projects are also managed well and accountably in accordance with applicable governance principles. The Indonesian government has set a target to increase the renewable energy mix to 23% by 2025 (Hariyani et al., 2020).

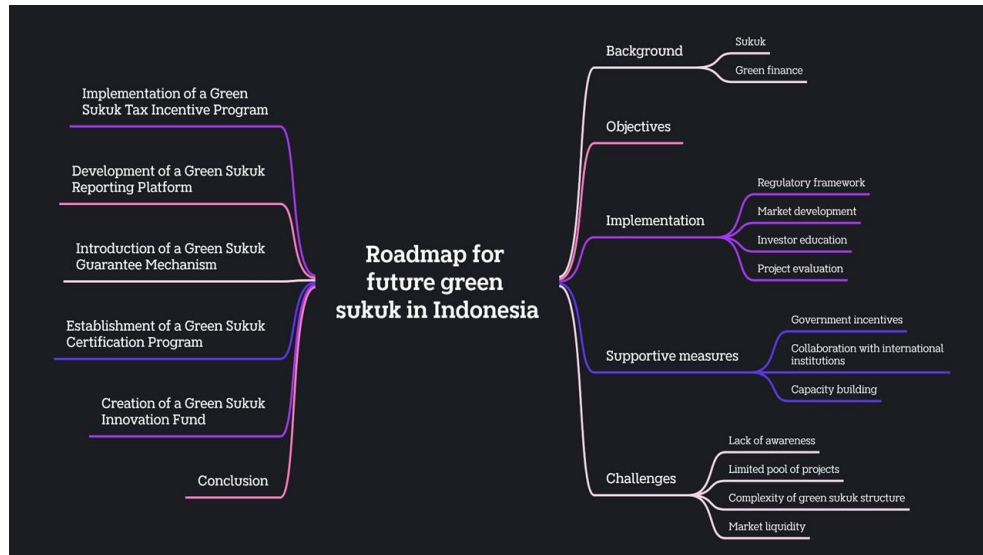


Figure 6. Roadmap of Future Research Needed for Green Sukuk in Indonesia

Source: Data Arranged by Authors

Weaknesses of Implementing Green Sukuk in Indonesia

Even though green sukuk positively impacts the environment, the market does not always welcome the issuance of green sukuk. This is because issuing green sukuk can be costly. This means that this publication could indicate that the funding sector in the go green sector will require quite large operational and capital (Faisal et al., 2023).

Investors could interpret these sizable expenses as increasing uncertainty regarding future profitability. Apart from that, green sukuk does not have a single definition and standardization from the capital market. The Indonesian government needs to formulate regulations or enforce green sukuk rules (Keshminder et al., 2019).

Moreover, because green sukuk is still new to Indonesia, investors still need time to see the potential and risks of green sukuk when compared to other forms of bonds or mutual funds (Suwanan et al., 2021). Apart from that, green sukuk is still a new investment product in Indonesia, so it is still little known by investors. A lack of socialization and education about green sukuk causes this. Green sukuk are usually used to finance projects with higher risks, such as renewable energy projects. Renewable energy projects have a higher risk than stable energy projects such as oil and natural gas because these projects are still in development and have not yet been commercially proven (Abubakar & Handayani, 2020).

This study also tries to review several papers that are the sample for this research to look for several weaknesses in green sukuk, which have been traded in the capital markets of several countries. The papers refer to figures 3a, 3b, 4a, and 4b, where the bond and energy words often appear in the abstracts of previous papers. This means that papers discussing green sukuk with underlying renewable energy project assets are the samples that will be reviewed by this study. Only papers in the form of articles in English

were used for the review sample. The result of the review was to map the weaknesses and the lesson for government and investors to cope with the weakness. The result of the review can be seen in Table 1 below.

Table 5. Weakness of Green Sukuk and Advice for Government and Investors

No	Green Sukuk Weakness	Lesson for Government	Lesson for Investors
1	Higher costs compared to issuing non-green sukuk (Rahim & Mohamad, 2018)	The government should provide more complete and accurate information to investors, including risks, objectives, and impacts of projects on the environment.	Investors can read annual reports from financial institutions that issue green sukuk.
2	Underlying assets in projects that have higher risks, such as renewable energy projects (Morea & Poggi, 2017)	The government should establish an independent committee tasked with overseeing green projects funded by green sukuk.	Analyze the history of green projects funded by financial institutions and certification bodies that issue green sukuk certificates for those projects.
3	Green Sukuk is still a new investment product, so the number of interested investors is still small in number (Abubakar & Handayani, 2020).	The government can increase education and outreach about green sukuk through various media.	Investors must analyze the annual reports from financial institutions that issue green sukuk.
4	Lack of socialization and education about green sukuk to the public (Suroso et al., 2020).	The government can collaborate with various parties, such as financial institutions, certification bodies, and mass media, to increase education and outreach about green sukuk.	Understand whether the underlying assets for green sukuk positively impact the environment, can produce attractive returns, and are significant as a medium for sustainable development.
5	There is still no global standard for evaluating green sukuk, so investors find it difficult to compare and evaluate different green sukuk products (Uddin & Hamat, 2019).	The government can collaborate with international institutions, such as the Green Bond Principles (GBP), Climate Bonds Initiative (CBI), and the International Capital Market Association (ICMA), to develop standardization of green sukuk.	Choose green sukuk that have been certified by a credible certification body.
6	Difficulty in measuring the environmental impact of a project that is used as the underlying green sukuk	The government can create laws and regulations to require financial institutions, such as banks, insurance,	Invest in green sukuk issued by financial institutions with a good reputation for caring for the environment.

	asset (Rima & Ahmed, 2020).	and financing institutions, to implement credible methods of measuring the environmental impact of green projects.	
7	There is a possibility of greenwashing, a.k .a. using green labels to deceive investors (Siswantoro, 2018).	Increase supervision and law enforcement against greenwashing practices.	Questioning the green projects that have insignificant environmental impacts.
8	Environmentally friendly projects for underlying green sukuk assets can have negative impacts on communities, such as loss of their livelihoods (Rusydiana & Irfany, 2021)	The government must make regulations for companies where local communities must be involved in project planning and implementation.	Discuss the impact of the project on local communities with the company/representative issuing the green sukuk.
9	Possible overlap with other financial instruments (Suwanan et al., 2021).	Create a list of green projects eligible for sukuk funding to avoid projects with overlapping financing.	Investors need to ensure that sukuk can be sold easily and quickly at a fair market price. Apart from that, investors must ensure that the Sukuk does not experience a decline in value (capital loss).
10	There may be regulatory changes that could affect green sukuk (Guild, 2020).	The government needs to develop clear guidelines and regulations related to projects funded by green sukuk so that investors can obtain legal certainty regarding their investments.	Investors should ensure the company understands the rule changes and how they may affect the project.
11	The green sukuk market is still relatively illiquid, making it difficult for investors to buy and sell green sukuk (Khanfar & Khanfar, 2022).	The government can expand the green sukuk investor base, including foreign investors. In addition, the government can introduce electronic trading platform innovations and green sukuk derivative products.	Investors need to understand the benefits of green sukuk investment and its positive environmental impact. Investors can also consider diversifying their investment portfolio by including green sukuk.

Source: Data Arranged by Authors

V. Conclusion and Recommendation

5.1. Conclusion

According to the result above, it could be concluded that the energy was closely related to the topic of green sukuk. Energy was mostly used word in the abstract and titles of papers used for the sample of this study. Moreover, both the abstract and the title showed that the word *sustainable* was used frequently, which could mean that the energy powerplant could become an underlying asset for green Sukuk because of its sustainable revenue. Indonesia is one of the pioneers in issuing green sukuk in Southeast Asia, with a value of US\$ 1.25 billion.

This study is limited in using the samples from Scopus and SCI websites, so the analysis result was according to the available papers. This study advised the government to pay more attention to powerplant projects used as underlying assets of green sukuk around the world. It is because Powerplant is really needed to supply electricity to society and the project should follow the green regulation to preserve the environment. The practical implication of this study is to inform the investors that the powerplant project was profitable as an underlying asset of Sukuk, so investors need to invest more in this type of green sukuk.

5.2. Recommendation for Future Research

This study is limited in using published papers as its samples, which could narrow the result. This study could not address the solution for the latest issue about Green Sukuk if no published papers discussed that before. As a result, this study recommends that further studies use field research to observe the types of green sukuk that contribute most to environmental maintenance and protection. By conducting field research and collecting primary data, the latest issue about Green Sukuk in Indonesia, which has a problem, could be tackled. Future research could also investigate what green project has the most potential to be used as an underlying asset for Green Sukuk in Indonesia.

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