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SUSTAINABLE ISLAMIC FINANCE: BIBLIOMETRIC AND VISUALIZED ANALYSIS OF CURRENT EMPIRICAL RESEARCH

Ivana Rosediana Dewi [1]
Siti Zulaikha
Sudaryanto Sudaryanto
Anifatul Hanim

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A B S T R A C T

This study aims to develop the research gap in sustainable Islamic Finance using a bibliometric analysis of recent empirical research outputs in the area, which comprises publications in scholarly journal articles and book chapters. Data were collected from Scopus for the period 1997 – 2022. This study analyses 285 Scopus scientific documents using Vosviewer, RStudio and Biblioshiny for bibliometric tools to process scientific documents extracted from various sources.
Our study shows that the most prominent word in the Scopus scientific papers on Sustainable Islamic Finance is Islamic finance, followed by sustainable development, finance, banking, and investments. The keywords that Scopus scientific documents use little on the topic are ethical investing, climate change, Islamic social finance, waqf, zakat, takaful, green sukuk, and microfinance. There is a clear gap in knowledge around Islamic financial instruments in research that follow our findings and would benefit from further research.

1. INTRODUCTION

The development of Islamic finance in the world shows rapid and significant development with a total industry of 3 trillion USD in more than 110 countries(Yesuf & Aassouli, 2020). This shows that the Islamic finance industry is well received by the public, including in Indonesia. According to the Sharia Financial Report, Islamic finance in Indonesia grows every year, but anticipated to contract in 2020 due to the impact of the COVID-19 pandemic, by 1.72%, which is better than the national GDP contraction rate(Bank Indonesia, 2020). This is supported by an increasingly focused national sharia economic development policy, marked by the enactment of Presidential Regulation Number 28 of 2020.(Bank Indonesia, 2020). The investment sector in the Islamic economy also experienced a drastic decline when COVID-19 spread throughout the world. However, Indonesia, Malaysia and the UAE had the highest number of investments, with Indonesia accounting for 25per cent of all recorded transactions(State of the Global Islamic Economy Report, 2019).

The agreement of state leaders at the 2015 Summit (Summit) by member countries of the United Nations (UN) in 2015 and the development community by declaring 17 Sustainable Development Goals (SDGs), with 36 topics and 169 targets to be achieved by 2030(Barbier & Burgess, 2017). The SDGs goalsfocus on allocation/use/depletion of resources, treatment of mutated or pathogenic diseases, social problems such as

[1] Corresponding author: Ivana Rosediana Dewi
Email ivrosediana@gmail.com

urbanization, globalization developments, demographic shifts, technological developments, economic problems such as poverty and inflation and global climate change. The Indonesian government has stated its commitment, together with other countries in the world, to become a climate change solution whereby Indonesia itself is committed to reducing carbon emissions by 29% by 2030 and 41% with the support of technical cooperation from abroad. From the various efforts made by the government, Islamic financial instruments are considered to be one of the solutions for change.

According to United Nations Conference on Trade and Development UNCTAD, achieving the SDGs requires an annual investment of between US$5 trillion and US$7 trillion with an investment gap of around US$2.5 trillion in developing countries(Niculescu, 2017). This is expected to increase sustainable investment activities, including Islamic financial investment. The development aspect of Islamic finance is in line with the global development mission and coordinated planning in the last decade such as recommendations for implementing the SDGs(Yesuf & Aassouli, 2020). Islamic finance is identical to the real economy, and is a financial institution that serves the community rather than the goal of maximizing profits(Yesuf & Aassouli, 2020). Sharia investment instruments lead to activities that not only produce economic resilience but also environmental regeneration and social empowerment for the community it serves(Department of Defence, 2021).

The goals of the SDGs have attracted the attention of practitioners and researchers of Islamic finance which are in congruence with the philosophy of Islamic finance(Gundogdu, 2018). Previous studies have revealed that Islamic finance, namely the prohibition of interest at a unreasonable high rates (Islam-*usury)*, strict rules, the principle of balance and others, is very suitable for infrastructure development in pursuit of sustainable development(Jain, 1929; Karim, 2010). In terms of sustainable development, Islamic financial instruments formpart of the development of sustainable finance, not only as financial instruments, but also guided by Islamic economic principles which are also in accordance with sustainable principles(Diallo & Gundogdu, 2021).

Concern for a sustainable economy requires companies to carry out the moral aspects of doing business to attract shareholders and stakeholders. In this regard, the United Nations (UN) has proclaimed several principles in 2006 to encourage and guide responsible investment, namely the term Socially Responsible Investment (SRI), by instilling Environmental Social Governance ESG principles in the financial sector, thereby creating awareness about investment with the principles of sustainability issues. This has caused investors to start incorporating ESG principles into their investment decisions, namely, apart from seeking profit from shares, investors expect a positive impact on the environment and can contribute to the achievement of the SDGs in their investments(Yesuf & Aassouli, 2020). Vercelli, (2019) (2019) indicate the development of sustainable investments has brought innovation to the financial markets over the last few years, with green or sustainable products now available to investors.

The formulation of SDGs has assisted many countries in the world to work together to practice economic, social, ecological, and human sustainability. New empirical research has attracted academics by focusing new research on sustainability strategies in line with the goals of the SDGs. The implications of research from academia are expected to be applied to governments, regulators, and the public and private sectors around the world to fulfill the mission of the SDGs(M. Kabir Hassan, Mehmet Sarac, 2021). In terms of performance the study sets out to unpack the research in the field or Sustainable Islamic Finance. This study sets out to look at research gaps, research directions, novelty, widely used references, dominant authors, journals that publish research on the topic of Sustainable Islamic Finance and others.

The aim of the study is to provide a general overview of research performed in Sustainable Islamic Finance over the last decades using bibliometric methods. We used Scopus as the database for collecting information.

2. LITERATURE REVIEW

Sustainable Finance

The Global Sustainable Investment Review defines sustainable investment as an investment that takes into account Environmental, Social and Governance (ESG) factors in the formation and management of a portfolio (GSIA, 2018). according toLowry (1993) explained that sustainable investment is a screening process to identify and invest in businesses or activities that can create a positive impact on society and the environment while generating economic benefits. SRI is an investment alternative that prioritizes obtaining maximum profit by considering ESG parameters and pursuing positive impacts. They take into account the impact of investment on society and the financial needs of investors (returns) (Yesuf & Aassouli, 2020).

Investors have their own understanding and strategy in understanding the concept and form of sustainable finance to achieve sustainable investment goals according to the criteria of each investor. One form of sustainable investment is Socially Responsible Investment (SRI). Various terms are used to describe SRI due to the lack of standard definitions in the literature discussing SRI (Yesuf & Aassouli, 2020). SRI can be defined as sustainable investment, ethical investment, green investment, impact investment and responsible investment.(Ghoul & Karam, 2007). Weigand et al. (1996) inYesuf & Aassouli, (2020)defines SRI as an investment that takes into account ethical and social considerations, in addition to the objective of financial gain in selecting securities that integrate investment portfolios. Various institutions have tried to provide rules and criteria regarding SRI. The Social Investment Forum (SIF) is most widely used as a guide and strategy for investing in SRI (Ghoul & Karam, 2007). This strategy consists of verifying that companies consider certain ESG criteria, ethics and good corporate governance when conducting their business. The UK-based SRIs Service (2019) categorizes investors' strategies in choosing SRI investments into three categories, namely environmental, social and governance. The positive screening approach aims to support companies that impact and benefit society and the environment whereas the negative screening approach or excludes business organizations that are involved in activities whose funds have committed to exclude or have negative (negative) externalities. filtering); and engage in positive change approaches (integrating SDGs and ESGs) (Yesuf & Aassouli, 2020). Sustainable investment is expected to have a positive impact, namely by providing financial returns and playing an important role in the provision of funds and technical assistance to reduce the financing gap for the SDGs. Over the past few years, SRI has demonstrated its potential in reducing the financing gap for the SDGs especially in the European Union and North America (IRTI, 2017).

Bibliometrics

Bibliometric analysis allows researchers to perform macro and micro analyzes of various studies on a particular topic (Kokol and Vošner, 2019). The term statistical bibliography was first coined by Hulme in 1923(Avşar & Serin, 2021). However, the term was ignored for two decades until it was used by CF Gosnell in an article on literary obsolescence(Avşar & Serin, 2021). The increasing attention of researchers to bibliometric studies or to the assessment of scientific production has made this study a discipline. Following the founding of the Institute for Scientific Information (ISI) in the United States in the 1960s, Eugene Garfield began the metrics of articles, journals, researchers, and organizations. It was later used by Raisig (1962) in his critique of citations and suggested bibliometrics for studies where mathematical and statistical methods are applied in books and other means of communication (Pritchard, 1969).

Bibliometric analysis is a commonly used technique to assess the impact of cited article (Iftikhar & Faisaluddin, 2019).Researchers use bibliometric analysis for a variety of reasons such as to gather information about the structural features in a particular research field such as in international trade (Avşar &Serin, 2021), energy consumption (Kumar et al., 2021) and sustainable tourism (Della Corte et al., 2019). Currently, scientific articles are compiled in a large database that allows assessment of various aspects of articles such as author, keywords, subject, citations, and organizational collaboration, and the articles are attached to the index. Consider that authors need to make careful choices to cite the most relevant studies for their articles so that most of the articles cited can reflect their significance in the discipline. With this data, organizations gain valuable information about the individual and collective effects of studies. The importance of bibliometric studies extends beyond the organizational level. Researchers new to a discipline can use bibliometric analysis to understand the scope of a topic, emerging trends, and developments over time(Wang et al., 2021). In this case, it is different from conventional literature research(Avşar & Serin, 2021; Iftikhar & Faisaluddin, 2019; Kumar et al., 2021). As in many other fields of study, bibliometric analysis is still evolving.Holden et al., (2005) and offers an effective way to deal with thousands of articles and review the relevant literature from a macro perspective (Wang et al., 2020). As in many other fields of study, bibliometric analysis is still evolving (Holden et al., 2005). As in many other fields of study, bibliometric analysis is still evolving (Holden et al., 2005). Bibliometric analysis offers an effective way to deal with thousands of articles and review the relevant literature from a macro perspective (Wang et al., 2020).

Previous Research

Research and theory development has received enthusiasm from researchers in recent years, especially after the United Nations inaugurated the SDGs mission. Research on Islamic investment compared to conventional has the conclusion that Islamic investment portfolios are more stable and less affected by systematic risk than conventional investment portfolios.Merdad, Hassan, & Alhenawi, (2010) found that the systematic risk of Islamic investments is always lower than conventional investments during periods of financial crisis, even though Islamic investments are lower than conventional investments during bullish economic times.Yesuf & Aassouli (2020)researched that Islamic investments are lower exposed to systematic risk than other conventional investments.

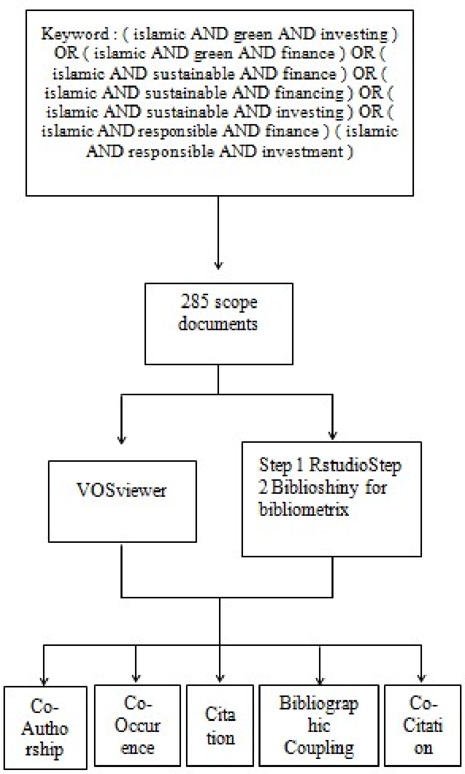
Research on the harmony between the principles of harmony between Islamic principles and SRI isZinkin & Williams (2006)which states that the CSR concept by UN Global Impact is detailed, but the Islamic concept is more detailed, provides a greater and more complete impact. Research on the synergy between the principles of Islamic finance and the principles of sustainable development is research byZarrouk (2015), Gundogdu (2018),Diallo & Gundogdu (2021), (Trimulato and Rahmatia (2020), Dariah, Salleh, & Shafiai (2016),Ismail & Shaikh (2017), Agussalim, Limakrisna, & Ali (2017) and many other studies which state that Islamic principles in investment are in line with investment objectives based on SRI.

Research on Sustainable Sharia Investment, Yesuf & Aassouli (2020) which results in no statistically significant difference between returns on Islamic funds and SRI funds in all regions shows alignment between Islamic investments and SRI investments, but Islamic investments are the least sensitive instruments to risk. .(Chowdhury et al. (2015) shows that the potential benefits of diversification between Islamic investments and SRI investments are possible in both crisis and non-crisis periods Research byMujahid & Adawiah (2015)examines the SRI concept and analyzes its prospects in which the instruments covered are SRI sukuk issued in Malaysia. As a result, increased interest

in SRI products will also encourage the issuance of sukuk. So it is necessary to develop sharia investment and SRI investment as a better investment diversification.
Research that specifically discusses SRI-ESG sukuk is researchMujahid & Adawiah (2015)which discusses the prospect of SRI sukuk in Malaysia, researchHajj Wahab & Naim (2020),CFA Institute (2019),Yesuf & Aassouli (2020)which discusses the similarities of Islamic principles and values in LST and SRI.Dalhatu & Sharofiddin (2021)create a social synergy sukuk model in the face of a pandemic andSuryomurti, (2018)build the Islamic Socially Responsible Investment Index (SRI) in Indonesia.
Methodology Bibliometric analysis methods enable research on large sets of aggregated bibliographic data (Burghardt et al., 2020)The method offers an effective way to deal with thousands of articles and review the relevant literature from a macro perspective(Wang et al., 2021). Published scientific journals, and book chapters are included in the aggregated data (Saleh & Sumarni, 2016).

3. METHODOLOGY

A review of the current literature was conducted using Scopus database. A wide search strategy was conducted of studies published between 1997 and 2022. The research flow is described in the chart below:



4. RESULTS AND DISCUSSIONS

This section presents the structure of topics in the Sustainable Islamic Finance field identified by analysis of the keywords in published articles from 1997 to 2022. The results are shown in Table 1.

Descriptive Data
Research with the topic "Sustainable Islamic"Finance" has a research year span from 1997 to 2022, with a total of 285 documents consisting of 199 articles, 42 books and book chapters, 33 conference papers and others. The average annual publication from 1997-2002 was 5 documents per year, with an average annual citation of 1,062 with 8 citations per document, this shows that documents on this topic become a reference for many researchers and have the potential to be developed and become a reference regarding sustainable finance in Islamic finance from a wide variety of topics. The authors in the research topic "Sustainable Islamic Finance" in the range of publication years 1997-2022 were 596 authors with an average of 2 authors in one document.

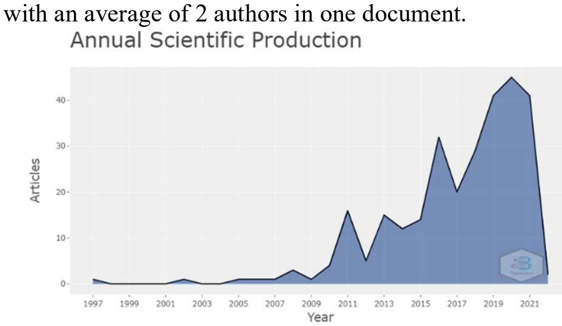


Figure 1. Annual Research Production

Figure 1 illustrates the production of annual research on research topics with the main keyword "Sustainable Islamic Finance" is processed using biblioshiny for bibliometrix. The annual production of research on this topic has a positive trend which can be seen from the publication year 2009-2022, with a sharp increase in the last 5 years. This shows that the topic of "Sustainable Islamic Finance" has become the interest and focus of researchers in the last 5 years, considering that sustainable finance is a manifestation of the mission by financial researchers and practitioners to achieve Sustainable Development Goals by the United Nations.

Co-authorship
Co-authorship is a form of association in which two or more researchers jointly report the results of their research on several topics. Therefore, the co-authorship network can be seen as a social network that includes researchers reflecting the collaboration between them(Savi, Ivanović, & Jain, 2019). Research collaboration is difficult to define clearly because it can manifest in various formal and informal forms. However, research collaborations can be captured appropriately with co-authorship networks, this is because co-authorships can be seen and documented clearly and precisely (Savić et al., 2019).
The purpose of the analysisco-authorship is being able to help policy/decision makers and academics together plan, implement, monitor, and evaluate investments in the field or research topic being studied, namely

"Sustainable Islamic Finance"(Morel et al., 2009). Co-authorship can help view authorship networks by author name, organization and country of author. So that it can be seen the dominance of writing on the topic "Sustainable Islamic Finance". Researchers are represented by nodes (circles) in the co-authorship network.

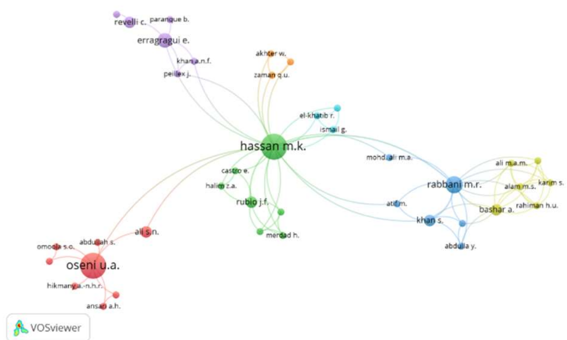


Figure 2. Co Authorship "Sustainable Islamic Finance" 1997-2022 Based on Links between Authors

As shown in figure 2 the research co-authorship with the main keyword "Sustainable Islamic Finance" processed using VOSviewer. This network has a number of authors who are connected to each other as many as 39 authors with the number of clusters represented by network colors as many as 7 and the network as many as 84. The dominance of researchers can be seen from the number of nodes in the network image above. It can be seen in the picture above that the researcher who dominates this topic is Hassan MK who is Professor of Economics and Finance, University of New Orleans with a focus on banking, finance, Islamic finance, economic development, and monetary economics research. Then the second researcher who dominates is Rabbani MR from the University of Bahrain and researchers with a research focus on Islamic Finance, Islamic Fintech, Cryptocurrency, Financial Markets and Commodity Markets. The third dominant author is Oseni UA Former Associate Professor of Law, IIUM with a focus on research on dispute resolution, Islamic finance, ADR, and Islamic banking.

The author's dominance is based on relevant documents, which is seen from the publications made on the topic of Sustainable Islamic Finance can be seen in the table and figure below:

Figure 3. Relevant Authors and Authors of Production of Most Publications on the Research Topic "Sustainable Islamic Finance"

There are more and more writers who are actively publishing about sustainable Islamic Finance every year and more and more authors are being published on related topics as shown in the picture above. Figure 3 above shows that the author with the most publications and consistent in publications from year to year. The top 5 authors who produce publications on the theme of sustainable Islamic Finance are Hassan MK, Oseni UA, Bhuiyan AB, Kassim S and Rabbani MR. This is explained in detail in the table below:

Table 1. Relevant Author on the Research Topic "Sustainable Islamic Finance"

Source: data processing (2022)

Authors	Articles	Articles Fractionalized	University	Impact (H index)
HASSAN MK	9	2.45	University of New Orleans	74
OSENI UA	8	5.00	International Islamic University Malaysia	15
BHUIYAN AB	4	1.00	University Selangor (Unisel)	13
KASSIM S	4	1.83	International Islamic University Malaysia	27
RABBANI MR	4	0.93	University of Bahrain	11
SIWAR C	4	1.00	Universiti Kebangsaan Malaysia	40
AASSOULI D	3	1.83	Hamad Bin Khalifa University	4
ABDELSALAM O	3	0.83	Durham University	18
AHMED A	3	3.00	Al Ain University, Liverpool, UK	
ENGKU ALI ERA	3	1.33	International Islamic University Malaysia	12

By country authors with at least 4 publications per country, described in Figure 4 below:

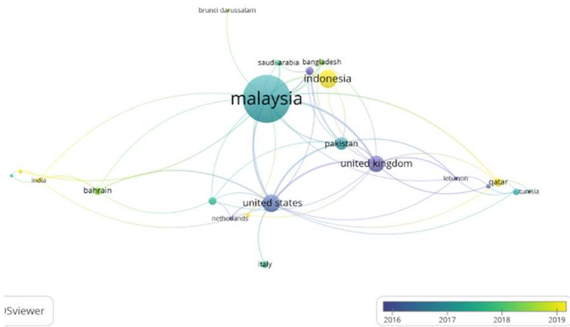


Figure 4 Country authors with at least 4 publications per country

Figure 4 illustrates the country of the author who publishes scientific articles or book chapters related to the topicSustainable Islamic Finance with 4 articles per country. The network image above has 22 countries with 5 clusters represented by the color of the network and 58 links. The dominant country is marked by the number of nodes (circles), so that the dominant author country in publishing scientific articles or book chapters on the topic of Sustainable Islamic Finance is Malaysia. Writers in Malaysia have a writing network with Indonesia, UK, US, Pakistan, Qatar, Bahrain, Brunei, India etc. The second dominant writing country to publish related topics is Indonesia, which has writing networks with Malaysia, UK and Pakistan.

The dominant author countries that publish related to the topic of Sustainable Islamic Finance besides Malaysia and Indonesia are Pakistan, US, Qatar, UK and others which are described in detail in the table below:

Table 2. Country of Author of Publication on the Research Topic "Sustainable Islamic Finance"

Country	Articles	SCP	MCP	MCP_Ratio
MALAYSIA	61	47	14	0.23
INDONESIA	13	13	0	0
PAKISTAN	9	6	3	0.333
USA	9	3	6	0.667
QATAR	8	5	3	0.375
UK	8	5	3	0.375
ITALY	6	3	3	0.5
BAHRAIN	5	3	2	0.4
SPAIN	4	2	2	0.5
BANGLADESH	3	1	2	0.667

Source: data processing (2022). SCP : simple country publication; MCP : multiple country publications.

Based upon Table 2, Countries with the most publications related to research topicsSustainable Islamic Finance is Malaysia with 61 articles and has 14 publication collaborations between countries, with a ratio of 0.23. The second country is Indonesia with 13 articles and has 0, which means that the writing of publications related to this topic in Indonesia is done without collaboration with writers in other countries. The third countries are Pakistan, USA, Qatar, UK etc. The country that has the most collaborative publications between countries is the USA with an MCP of 6 scientific articles and an MCP ratio of 0.667. This is in accordance with the picture of the co-authorship network in Figure 2, namely the author who has the most dominant collaboration network with other countries is Hassan MK from the University of New Orleans.

Again, the collaboration of writers between countries with Malaysia has the most collaborations with writers in other countries. Here are the details of the collaboration map:

Table 3. Keywords on Research Topic "Sustainable Islamic Finance" with Publication Timeframe 2015-2022

Nodes Color	Keywords
Dark Blue (2015-2016)	"Islamic", "Banking", "Malaysia", "Islam", "Responsible Investment", "Investment" "Survey", "Societies and Institutions", "Renewable Energy", "Microfinance", "Islamic Microfinance", "Islamic Financial Institutions", "Information Management", "Poverty Allevation", "Poverty", "Conceptual Framework", "International Finance", etc.
Dark Green-Light Green (2017-2018)	"Islamic Finance", "Islamic Funds", "Ethics", "Ethical Investing", "Islamism", "Socially responsible Investing", "Islamic Mutual Funds"
Light green (2019)	"Socially Responsible Investment", "Accountability", "
Yellow (2020)	"Stock Market", "Islamic Banking and Finance", "Covid-19", "Islamic Social Finance", "Financial Performance",

Source: processed data

As shown in Table 3. several items, such as keywords or index words or feature entities that are excluded in an article, appear together which is called the co-occurrence phenomenon (Kumar et al., 2021). The feature entity consists of the organization, title, author, or keyword, and so on in the literature. It is a quantitative study of co-occurence phenomena to reveal the connotations of evidence content and similarities disguised by certain items(Kumar et al., 2021). Keywords can be the limit of exploration in studying and setting the focal point of research and growth trends(van Eck & Waltman, 2010). Co-occurrence is a concept that refers to the general presence, frequency of occurrence, and proximity of similar keywords found in several scientific documents. Co-occurrence can include keywords that are similar to each other and based on the same topic, but are not identical. Two keywords that appear in the same article are an indication of the relationship between the topics taken. The higher the frequency of co-occurrence between keywords, the closer the research themes are(Chen et al., 2016).

Following are the results of co-occurence data processing on the topic of Sustainable Islamic Finance research using the VOSviewer and biblioshiny tools:

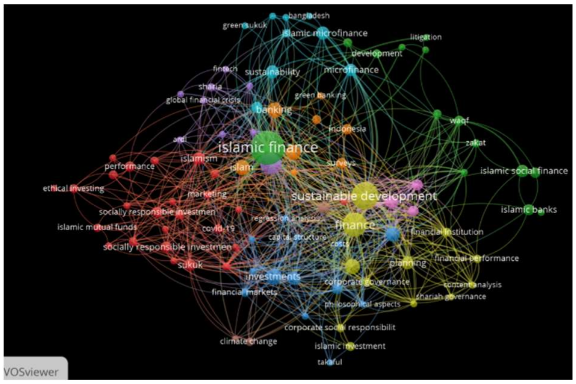


Figure 5. Co-Occurrence of Sustainable Islamic Finance Research Topics

As shown in Figure 5 a network image that explains and analyzes the occurrence of keywords simultaneously in publications on the topic of Sustainable Islamic Finance on the Scopus scientific document database engine from 1997-2022. The SEC keywords in machining operations are selected based on two occurrences with the author keyword. In the network image above, with 3 occurrences or 3 similarity of keywords in a document, 96 keywords are formed, 9 clusters and a network is 72. The dominance of the keywords that come out is displayed from the size of the node (circle). In the above network, the dominant keyword and has a network of other keywords is the word “Islamic Finance”, then followed by the keywords “Sustainable Development”, “Finance”, “Investment”, “Corporate Social Responsibility”, “Islamic Social Finance”.

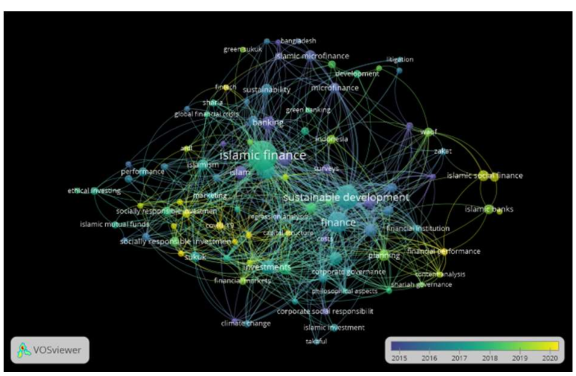


Figure 6. Co-Occurrence of Sustainable Islamic Finance Research Topics by Time of Publication

Figure 6 illustratesthe co-occurrence of the Sustainable Islamic Finance research topic based on the time of publication, which is from 2015 to 2020. This network image is used to see the novelty, novelty or research gap of a research topic being studied. The lighter (yellow) nodes, the more recent the use of keywords in the publication, while the darker (dark blue) nodes, the keywords have been used for a long time in a publication.

The color range of nodes represents the time span of publication from 2015 to 2020. Keywords with dark blue nodes indicate that the keyword has been widely used in publications from 2015-2016, dark green to light green nodes indicate that the keyword has been widely used in publications from 2017-2019 and light green to yellow nodes indicates that the keyword has been widely used in publications from 2019-2020. While the number of nodes shows the dominance of keywords that are used simultaneously in several scientific documents.

This study examines the topic of Sustainable Islamic Finance, the network above shows that on average many keywords appear and are used simultaneously in publications, which is around 2018 as seen from the green color on the nodes. Nodes colored light green to yellow indicate keywords that have only been widely used in the last two years in research on the topic of Sustainable Islamic Finance, so that they can see research trends, novelty and direction of research on this topic. In Figure 6 above, in the 2015-2020 publication year, the keywords that often appear in publications on the topic of Sustainable Islamic Finance are described in the table below:

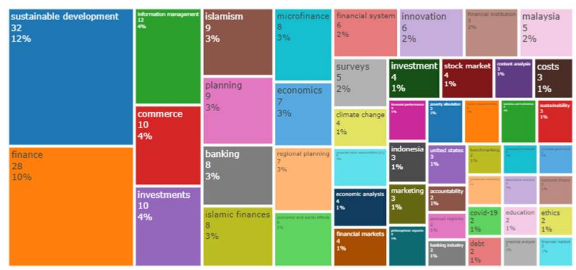


Figure 7. The Tree Plot of 30 Leading Authors' Keywords Used in the Research Topic of Sustainable Islamic Finance

As shown in figure 7 the tree plot of 30 leading authors' keywords used on the research topic of Sustainable Islamic Finance. Scientific documents on the research topic of Sustainable Islamic Finance use the keyword “sustainable development” specifically 32 times and have a contribution of 12% to the tree plot of the author's 30 keywords. The keyword “Finance” is used 28 times or has contributed 10% to the tree plot of the author's 30 keywords. Then followed by the keyword "information management" 12 times and the keywords "Commerce" and "Investment" 10 times, all of which contributed 10% to the tree plot of the author's 30 keywords.

Thematic Mapping in the image above allows the visualization of four different typologies of themes as shown. Thematic maps exploit keyword fields by semi-automatic algorithms.

This mapping makes it possible to review the titles of all references and highlight relevant keywords so as to be able to capture article content with greater depth and variety(Della Corte et al., 2019).

Fugure 8 presents the upper right quadrant represents the motor theme, which is characterized by high centrality and density. Among the more developed in the Scopus document literature, the researchers' main concerns on the topic are commerce investments, financial markets and information management economics regional planning.

Table 4. Word Occurrences in "Sustainable IslamicFinance" with Publication Timeframe 2015-2022

Words	Occurrences	Words	Occurrences
sustainable development	32	economics	7
finance	28	regional planning	7
information management	12	economic and social effects	6
commerce	10	financial system	6
😊	10	innovation	6
islamism	9	financial institution	5
planning	9	Malaysia	5
banking	8	surveys	5
Islamic finance	8	climate change	4
microfinance	8	corporate social responsibility (csr)	4

Source: processed data

Upper left quadrant, showing a high density theme but unimportant external links and thus only of limited importance to the field (low center)(Della Corte et al., 2019). In this quadrant it is possible to find a destination theme because in most cases, the unit of analysis is formed by the volatility theme and some Islamic finance themes climate changes financial services.

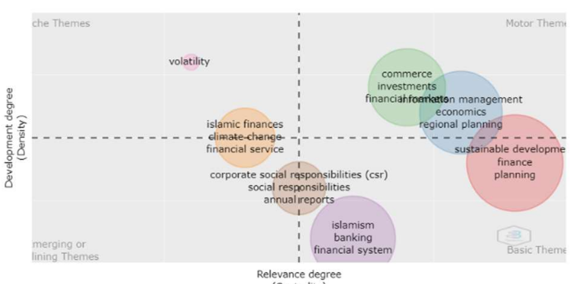


Figure 8. Thematic Mapping of Scopus Scientific Documents on the Research Topic of Sustainable Islamic Finance

The lower left quadrant is an emerging or declining theme. In this study, some of the themes of Islamic finance, climate changes, financial services and part of corporate social responsibility (CSR) in the annual report.

The lower right quadrant shows the basic and transverse themes. These themes concern general topics transverse to different research areas of the field. In this area, the emerging themes are sustainable finance planning, Islamism banking financial system and some of the themes of corporate social responsibility (CSR) in the annual report.

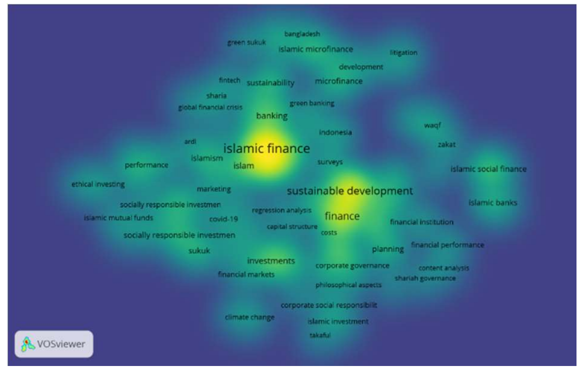


Figure 9. Heat Map of Scopus Scientific Documents on Sustainable Islamic Finance Research Topics
Source: processed data

Figure 9 illustrates a heat map on the research topic of Sustainable Islamic Financeto show the most prominent themes reflected in frequently used words. On the heat map, if the keyword is closer to the lighter color or lighter, the more prominent or often it is used in Scopus documents with related research topics. The darker the keywords, the less frequently they are used, so that it becomes a gap for researchers to find research and novelty gaps on themes and keywords that have not been widely used for future research on the topic of research on Sustainable Islamic Finance. In this study, it shows that the Scopus scientific document on the topic of Sustainable Islamic Finance research says the most prominent word is Islamic finance, then followed by sustainable development, finance, banking, investments.

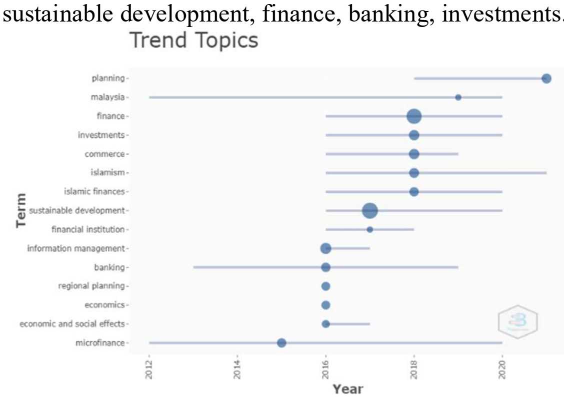


Figure 10. Trend Topics Scopus Scientific Documents on Sustainable Islamic Finance Research Topics

The keywords that Scopus scientific documents use little on the topic of Sustainable Islamic Finance research are ethical investing, climate change, Islamic social finance, waqf, zakat, takaful, green sukuk, microfinance. So that the research gap or future research direction on the research topic of Sustainable Islamic Finance is related to Islamic financial instruments that comply with sustainable finance criteria.As shown in figure 10 keywords that are trending or trending topics in research with the topic of Sustainable Islamic Finance research in every quarter in 2012-2021. The following is a list of keywords that are trending topics in each quarter:

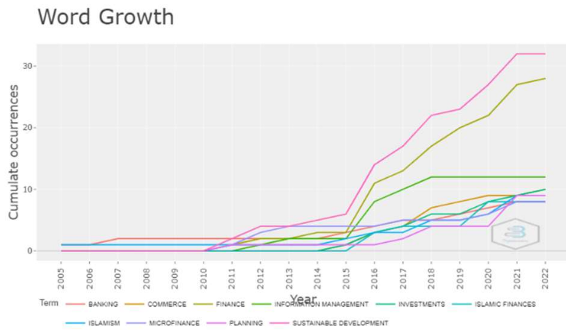


Figure 11. Word Growth Scopus Scientific Documents on the Research Topic of Sustainable Islamic Finance

As shown in figure 11.the growth of the use of keywords in research with the topic of research on Sustainable Islamic Finance. Increasingly used keywords are sustainable development, finance, information management, microfinance, commerce, finance, investment, Islamism, planning etc.

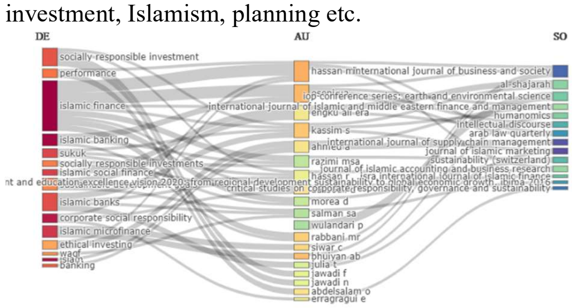


Figure 12. Three-Fields Plot

As presented in Figure 12. The three-Fields Plot (Sankey diagram) Country, Keyword, and Year of publication cited references are made to illustrate the proportion of research topics for each country and the up-to-date of the papers they cite. The Three-Fields Plot visualizes the main items from the three fields (e.g. author, keyword, journal), and how they are related. Rectangular shape diagrams are used to represent related elements with different colors. The height of the rectangle shows the relationship between several features such as country, source, leading author, and author keywords, etc. The larger the rectangle, the more relationships between the various components(Kumar et al., 2021).

As shown in figure 5 research in sustainable Islamic Finance, namely the relationship between the keywords author (left), author (middle) and source (right). The analysis determined that the keyword Islamic Finance was the most frequently used keyword by different authors and journals. The study of top keywords, authors and sources shows the keywords “Islamic Bank”, “Islamic Banking”, “Socially Responsible Investment”, “Corporate Social Responsibility”, “Islamic Microfinance”, “Sustainable Development Goals”, “Ethical Finance” and the author Hassan MK, Oseni UA, Kassim S and others. Journals that mainly use these keywords are published in sources namely the International Journal of Business and Society, Al Shajarah,

Citation

Citation network will visualizedata to be analyzed if the document is citation by another document. The following is a citation network that is processed using VOSViewer on scientific documents on the topic of Sustainable Islamic Finance research:

As show in figure 13 there are 84 interrelated authors, namely authors who cite other authors on a related topic, namely Sustainable Islamic Finance which is connected by a line or network of 162 links with 13 clusters. Large nodes indicate the dominance of citations or documents most cited by researchers in Sustainable Islamic Finance research, namelyHayat & Kraeussl (2011)with the scientific journal Risk and return characteristics of Islamic equity funds. Emerging Markets Review, 12(2), 189–203. The main research literature used is:(Wilson, 1997)with the journal Islamic finance and ethical investment. International Journal of Social Economics.Hoepner, Rammal, & Rezec, (2011)with the journal Islamic mutual funds' financial performance and international investment style: Evidence from 20 countries. European Journal of Finance, 17(9–10), 829–850.Nobanee & Ellili (2016)with the journal Corporate sustainability disclosure in annual reports: Evidence from UAE banks: Islamic versus conventional. Renewable and Sustainable Energy Reviews, 55, 1336–1341.Ahmed (2010)with the journal Ahmed, A. (2010). Global financial crisis: an Islamic finance perspective. International Journal of Islamic and Middle Eastern Finance and Management, 3(4), 306–320. And others.

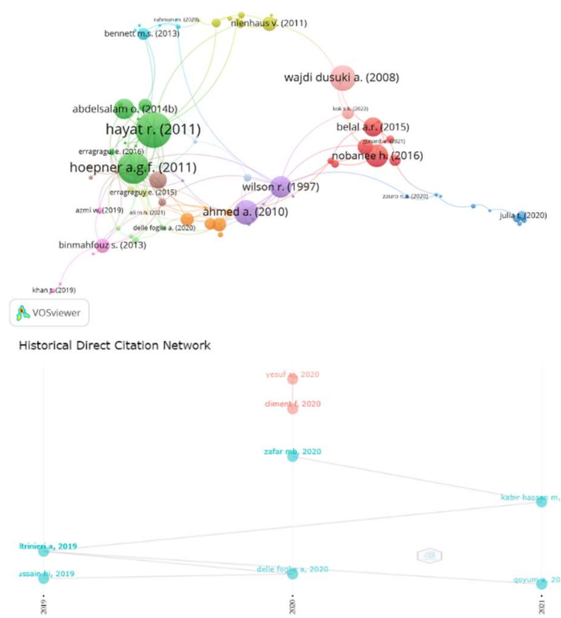


Figure 13. Citation Network

Figure 13 the intellectual structure was developed by a historical direct citation network that spreads the chronological citation network. This image represents a chronological map of the most relevant citations generated from the bibliographic collection, namely Scopus scientific documents with the research topic Sustainable Islamic Finance.

Table 5. Top Document on the Research Topic "Sustainable Islamic Finance" with Publication Period 1997-2022

Author	Year	IT	SO	TC	TCPY
Hussain, Grabara, Razimi, & Sharif	2019	Sustainability of leverage levels in response to shocks in equity prices: islamic finance as a socially responsible investment	Sustainability (switzerland)	32	8
Belal, Abdelsalam, & Nizamee	2015	Ethical reporting in islamic bank bangladesh limited (1983–2010)	Journal of business ethics	57	7.125
Abdelsalam, Fethi, Matallín, & Tortosa-Ausina	2014	On the comparative performance of socially responsible and islamic mutual funds	Journal of economic behavior and organization	64	7.111
Ahmed	2010	Global financial crisis: an islam ic finance perspective	International journal of islamic and middle eastern finance and management	87	6.692
Julia & Kassim	2020	Exploring green banking performance of islamic banks vs conventional banks in bangladesh based on maqasid shariah framework	Journal of islamic marketing	17	5.667
Abdelsalam, et al	2014	Do ethics imply persistence? The case of islamic and socially responsible funds	Journal of banking and finance	49	5.444
Hassan MK	2020	Challenges for the islamic finance and banking in post covid era and the role of fintech	Journal of economic cooperation and development	14	4.667
Jawadi & Idi Chefou	2019	A statistical analysis of uncertainty for conventional and ethical stock indexes	Quarterly review of economics and finance	11	2.75

Source: processed data

Information:
TC = Times cited
TcpY = Times Cited per Year

Table 6. The Captured Journal Publication in Relevant Topics

Sources	Articles
Sustainability (switzerland)	13
Qualitative research in financial markets	7
Journal of sustainable finance and investment	5
International journal of islamic and middle eastern finance and management	4
Journal of king abdulaziz university islamic economics	4
Accounting and finance	3
Business ethics	3
Corporate social responsibility and environmental management	3
Environment development and sustainability	3
Journal of business ethics	3
The ashgate research companion to non-state actors	3

Source: processed data

Bibliometric Coupling

Bibliometric coupling with a minimum of 3 citations on Scopus scientific documents with research topics on the topic of Sustainable Islamic Finance. If the document has the same reference, it will be linked to each other by the same reference through a link. Bibliographic merging occurs when two works reference the same third work in their bibliographies. This is an indication that it is possible that the two works cover related topic material. Two documents are bibliographically combined if they both cite one or more of the same document. Two publications are bibliographically combined if a third publication is cited by both publications (Kessler, 1963 in).van Eck & Waltman, 2014). In other words, bibliographic aggregation is all about overlapping publication reference lists. The greater the number of references that two publications have, the stronger the bibliographic coupling relationship between the publications.

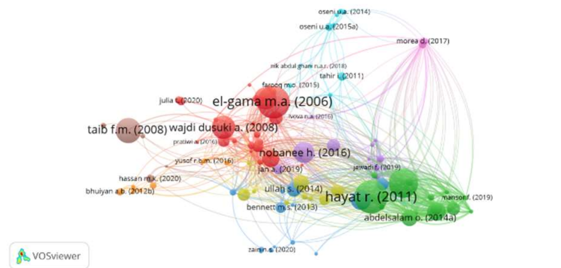


Figure 14. Bibliometric Coupling

Figure 14 above shows bibliometric coupling on scientific documents with a scope of research on the topic of Sustainable Islamic Finance. Consists of 108 authors with 781 links with 9 clusters. The research authors used as references by researchers on this topic areHayat & Kraeussl (2011)with the scientific journal Risk and return characteristics of Islamic equity funds. Emerging Markets Review, 12(2), 189–203.Hoepner, Rammal, & Rezec, (2011)with the journal Islamic mutual funds' financial performance and international investment style: Evidence from 20 countries. European Journal of Finance, 17(9–10), 829–850.Abdelsalam, Fethi, et al., (2014)with the journal ON The Comparative Performance of Socially Responsible And Islamic Mutual Fund, Journal of Economic Behavior and Organization.Nobanee & Ellili (2016)with the journal Corporate sustainability disclosure in annual reports: Evidence from UAE banks: Islamic versus conventional. Renewable and Sustainable Energy Reviews, 55, 1336–1341.Taib, Ramayah, & Abdul Razak (2008)Factors influencing intention to use diminishing partnership home financing. International Journal of Islamic and Middle Eastern Finance and Management, 1(3), 235–248.Wadji Djusuki Ahmedin (2019)Ahmedin, L. (2019). Corporate social responsibility in Islamic banking: Theory and practice . Sociologija.El-Gama (2006)Islamic finance: Law, economics, and practice. Islamic Finance: Law, Economics, and Practice. Rice University, United States: Cambridge University Press.

Co-Citation

Two publications are cited together if a third publication cites both publications(van Eck & Waltman, 2014).

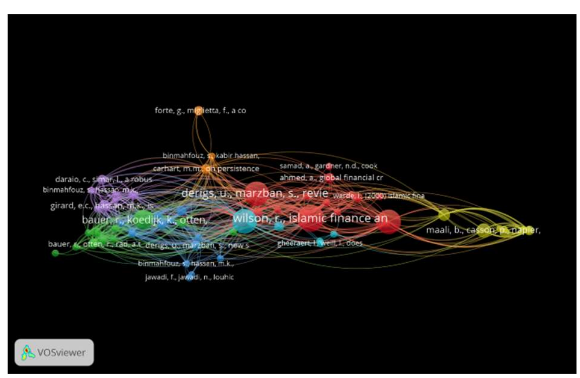


Figure 15. Co-Citation

The greater the number of publications used by two publications to cite, the stronger the co-citation relationship between the two publications. The use of co-citation is to analyze and visualize relationships between publications (Griffith, Small, Stonehill, & Dey, 1974; Small & Griffith, 1974).van Eck & Waltman, 2014).

Figure 15 isthe co-citation network with at least 3 same references.The Co-Citation above visualizes references from scientific documents that both appear in one document with 3 references. There are 97 authors with 1606 links and 9 clusters. The goal is to see popular references, which are seen from the largest nodes. In the research topic of Sustainable Islamic Finance, the references used by the authors do not have a significant dominance or there are no popular references used by the authors. However, the largest nodes in this study that show the documents used in this study are(Wilson, 1997)with the journal Islamic finance and ethical investment. International Journal of Social Economics.Hayat & Kraeussl (2011)with the scientific journal Risk and return characteristics of Islamic equity funds. Emerging Markets Review, 12(2), 189–203.Zinkin & Williams (2006)with the journal Islam and CSR: A Study of the Compatibility Between the Tenets of Islam and the UN Global Compact.Bauer, Berger, Ferrier, & Humphrey (1998)with the journal Consistency Conditions for Regulatory Analysis of Financial Institutions: A Comparison of Frontier Efficiency Methods.

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Ivana Rosediana Dewi
Islamic Economics Department, Faculty of Economics and Business, University of Airlangga
Jl. Dharmawangsa, Surabaya, East Java, Indonesia
ORCID: 0000-0002-1987-5590

Siti Zulaikha
Lecturer and Researcher Department of Islamic Economics Department, Faculty of Economics and Business, University of Airlangga
Jl. Dharmawangsa, Surabaya, East Java, Indonesia

Sudaryanto Sudaryanto
Management Department, Faculty of Economics and Business, University of Jember
Jl. Kalimantan 37, Jember, East Java, Indonesia
ORCID: 0000-0001-9281-3962

Anifatul Hanim
Economics Development Department, Faculty of Economics and Business, University of Jember
Jl. Kalimantan 37, Jember, East Java, Indonesia