

A Scientometric Analysis of Debt and Risk in Islamic Bonds

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Abstract

Debt and risk have become one of the most emerging debates on Islamic bond studies in the last decade. Some of the topics and research areas have been expanded to provide a huger of analysis in Islamic bonds. However, the majority of earlier studies did not use bibliometric analysis to provide a predetermined framework for the study of Islamic bonds. Thus, this study attempts to analyze emerging topics and trends in Islamic bonds and explore research directions. We employ bibliometrics to analyze 377 articles published on journals indexed by Web of Science (WOS) and Scopus databases from 1984 to 2022. The results reveal that, research in Islamic bonds is growing during the period of analysis. The thematic evolution shows that debt and risk were the most trending topics before and after 2018 of the cutting periods, respectively.

Keywords: *Islamic bonds, debt, risk, scientometric analysis, bibliometrics*

Introduction

Islamic economics has emerged since the 1970s, so there have been adjustments to the principles of Islamic economics and non-economics over time (Asutay & Hakim, 2018; Azmat et al., 2014c; Klein et al., 2017; Tijjani et al., 2020). The realization of Islamic finance is based on basic principles derived from Islamic ontology to ensure compatibility with the sharia system. Growth of the Islamic economy in the last few decades has seen an increasing progress. From the results of a survey conducted by IFLS in 2015, the growth of Islamic finance has also reached more than \$2 trillion in 2020. Previous study of Ghamry & Shamma (2022) proves that Islamic finance can be used as an opportunity to help prevent crises and advance daily practices in the use of value - the ethical value of economic and financial transactions.

Investment becomes the most effective form of implementation towards the financial system. Investment activities as a form of muamalah are highly recommended as long as they are within the corridors of Islamic rules that recently emerged (Godlewski et al., 2013; Sherif & Erkol, 2017). By investing, the assets and wealth, we have become more productive and provide more benefits to others. The form of investment can be in the form of investing both assets and funds in something that is expected to give more results in the future. Meanwhile, Asutay & Hakim (2018), Jaafar et al. (2017), and Mitsaliyandito & Arundina (2018)

state that financial investment, according to sharia, is related to trading activities or business charities related to a product or asset or business.

One form of investment implementation is investing in capital market securities. Based on an Islamic point of view, the capital market is a means of muamalah; transactions in the capital market are permissible or not prohibited as long as there are no transactions that conflict with religious law (Hammoudeh et al., 2014; Klein et al., 2017). Therefore, Aloui et al. (2015a), Hassan et al. (2018), and J. Othman et al. (2018) explain that the form of investment in the capital market can be in the condition of purchasing securities in the capital market, one of which is Islamic bonds.

The primary Islamic financial sector is in the value of Islamic bonds or Sukuk. Sukuk can be considered the Islamic version of conventional bonds; debt bonds cannot be repaid at a specific interest rate considering the prohibition of the interest itself (Azmat et al., 2017; Hamzah et al., 2018; Klein et al., 2017). In Sukuk, the differences between conventional and Islamic finance, in general, can be compared with the structural differences and the systems run therein (Grassa & Miniaoui, 2018; Mitsaliyandito & Arundina, 2018).

Studies on bond announcement effects have been mixed and inconclusive in general. Most of the previous studies debated the different reactions between Sukuk and bonds on the volatility of global financial markets (Bossman et al., 2022; Elsayed et al., 2022; Hossain et al., 2021; Karim & Naeem, 2022; Samitas et al., 2021). Other following most debated topic is the effect of the macroeconomic announcements on Islamic bond volatility (Akhtar et al., 2017; Balli et al., 2020; Muhamad Sori et al., 2019; Naifar & Hammoudeh, 2016; Reboredo & Naifar, 2017; Shahzad et al., 2019).

The debate of bond with Islamic values does not stop being explored. In the beginning of the appearance analysis, studies on the topic of Islamic bonds focused on the topic of debt (Ariff et al., 2018; Asutay & Hakim, 2018; Grassa & Miniaoui, 2018; Jaafar et al., 2017; Klein et al., 2017; Mitsaliyandito & Arundina, 2018; Ritchie et al., 2018; Sherif & Erkol, 2017). In the age of uncertainty, the Islamic bond research topic moves to the risk debate (Balli et al., 2020; Sarwar et al., 2020; Shafron, 2019; Uddin et al., 2020; Yousaf et al., 2022). The thematic evolution from debt to risk in Islamic bond research would be a fascinating area to be analyzed.

However, most of the previous studies do not provide bibliometrics reports to evaluate the thematic movement and guidance for research production in the future. This study attempts to bridge the gap by analysing the emerging topics and trends in Islamic bonds and exploring research directions. The results of this analysis are expected to identify problems that are currently happening, especially in Islamic bonds, so that, in the end, it can provide benefits for determining the direction of further studies for future researchers.

Materials and Methods

Data Collection and Matching Process

This study uses data from the Web of Science database available at (<http://apps.webofknowledge.com>) and Scopus official website (<https://www.scopus.com>). Retrieval of data in the database is based on its reliability which has been recognized as the world's leading provider of scientific work databases. In its application, author carried out the search using the WoS and Scopus websites by searching for the keywords debt and risk. The results found 377 articles related to the topic of debt and risk during the period 1984 to 2022.

Then the search was narrowed based on the keywords debt and risk in Islamic Bonds.

Web of science provides refining filters for specific search. From 1,000 documents filtered with the keywords "Islamic" and "bond", we specifically limit into several processes such as subject areas, document type, source of type, and languages of articles. We refined the database for document types only for articles. Business finance, economics, religion, management, business, mathematics & interdisciplinary applications, humanities interdisciplinary, and social science interdisciplinary are refined to specifications for our research. Moreover, we choose only for documents written in English. Since WoS provides three indexes for this area of study such as Social Science Citation Index (SSCI), Emerging Source Citation Index (ESCI), Science Citation Index Expanded (SCI-EXPANDED), Arts & Humanities Citation Index (A&HCI),

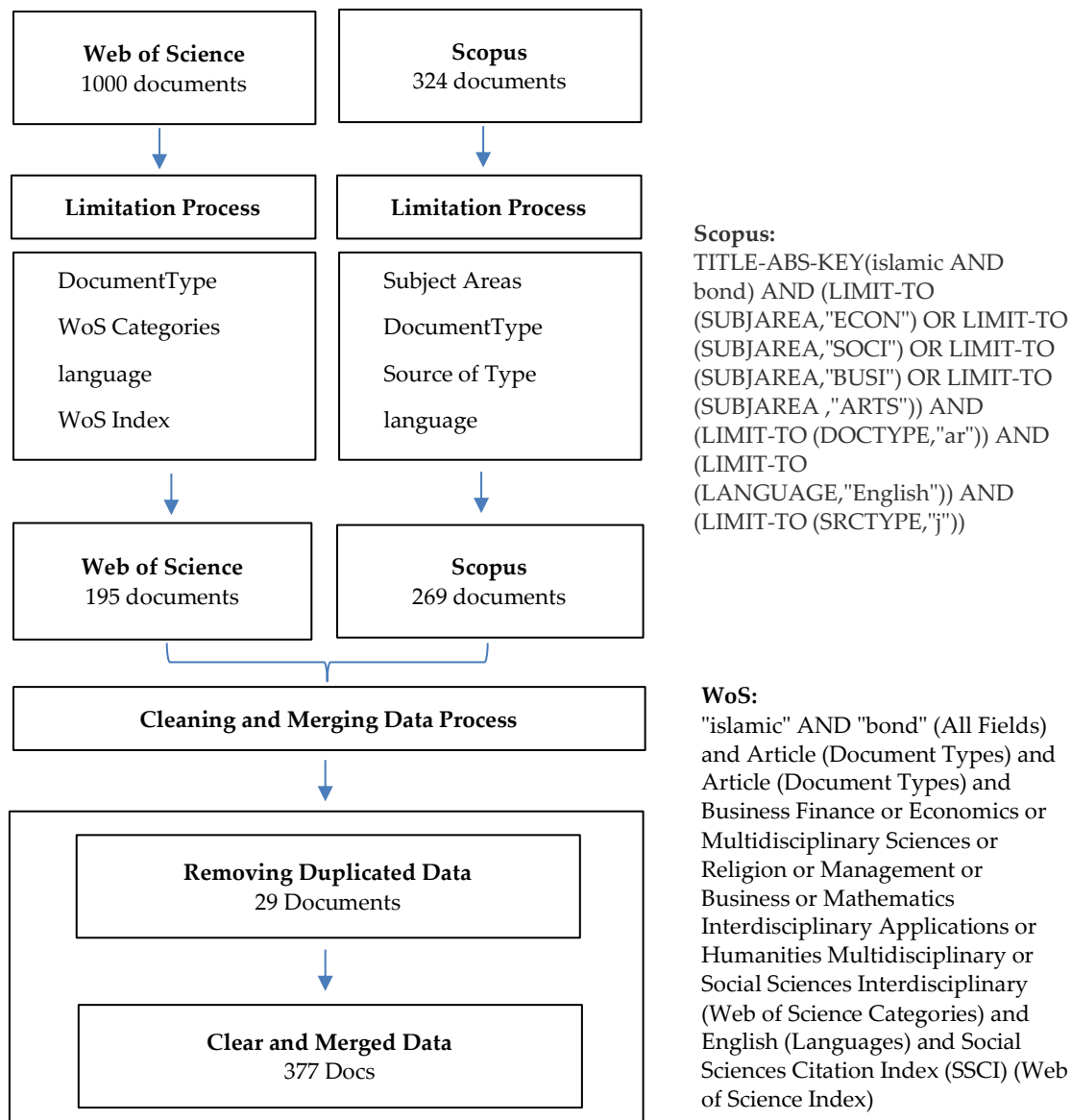


Figure 1: Data Collection and Matching Process

Specifically, the Scopus database has different types of accesses such as open access, bronze, and green, and we do not except any of them. Our first limitation is the

subject area into Economics, Econometrics, and Finance, Business, Management and Accounting, Social Science, and Art & Humanities. We look for specified documents pressed as article. For sources, we limit to journals and except others. Moreover, we limit to published papers in English. Some of papers probably indexed in both WoS and Scopus, therefore, we make cleaning strategy and merge in one calculated document.

Scientometrics Method

The data that has been obtained is later processed using a tool called bibliometric. The analysis process involves a systematic approach to assess research publications or articles in selected databases over a certain period and evaluate their impact on knowledge. It allows researchers to understand the scope of research subjects, and research collaborations, identify underlying patterns in research, and know emerging trends. We imported the data into the bibliometric to extract and perform analysis. This analysis found a collection of article data, reference sources, authors, conceptual and intellectual structures, and the scope of study in the research.

Result and Discussion

From the results of data analysis using a bibliometric approach using the Rstudio analysis tool, data from the WoS database that focuses on debt and risk were analyzed in as many as 377 during 1984-2022. During this period, there was an increase of 8.95% annually. From the 377 data, there are 860 authors, with details of 95 single authors, and the remaining 795 authors collaborating.

Scientific Production

Based on graph 2, it can be concluded that there has been a significant increase in the number of articles focusing on debt and risk research starting from 2008 to 2022; as evidenced in 2008, the number of articles was seven and continued to increase in 2022 to 52 pieces. The highest increase occurred between 2016 and 2017, namely 12 articles. When viewed as a whole, from 1984 to 2022 the number of articles that focus on debt and risk formed a pretty positive trend. However, the increase in the number of articles was not accompanied by the number of citations. The citation curve per year during this period tends to be stagnant and does not experience significant changes.

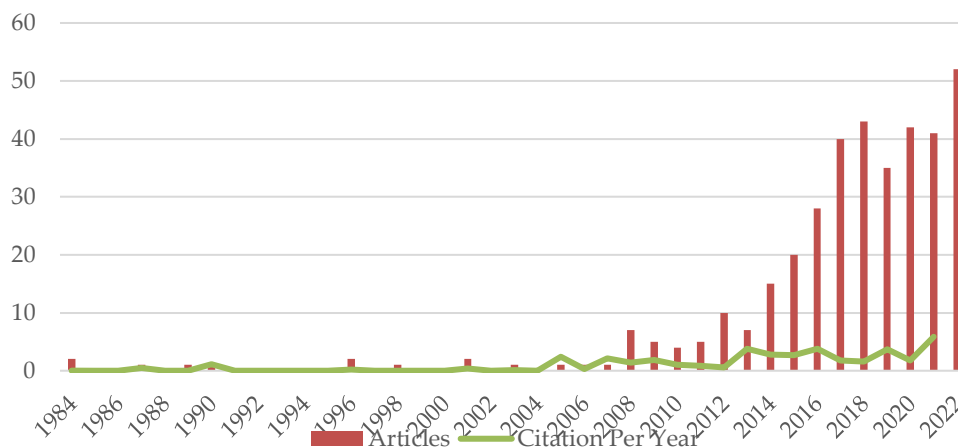


Figure 2: Scientific Production for the 1984-2022 period

Source: Data processed (2022)

Relevance Sources

Graph 3 presents the top 20 rankings from journals about “debt” and “risk”. Based on the figure, the Journal of Islamic Accounting and Business Research has published journals related to debt and risk with a total of 22, followed by the International Journal of Islamic and Middle Eastern with a total of 19, Managerial Finance with a total of 12. Then up to rank 20, there is Heliyon which published three journals related.

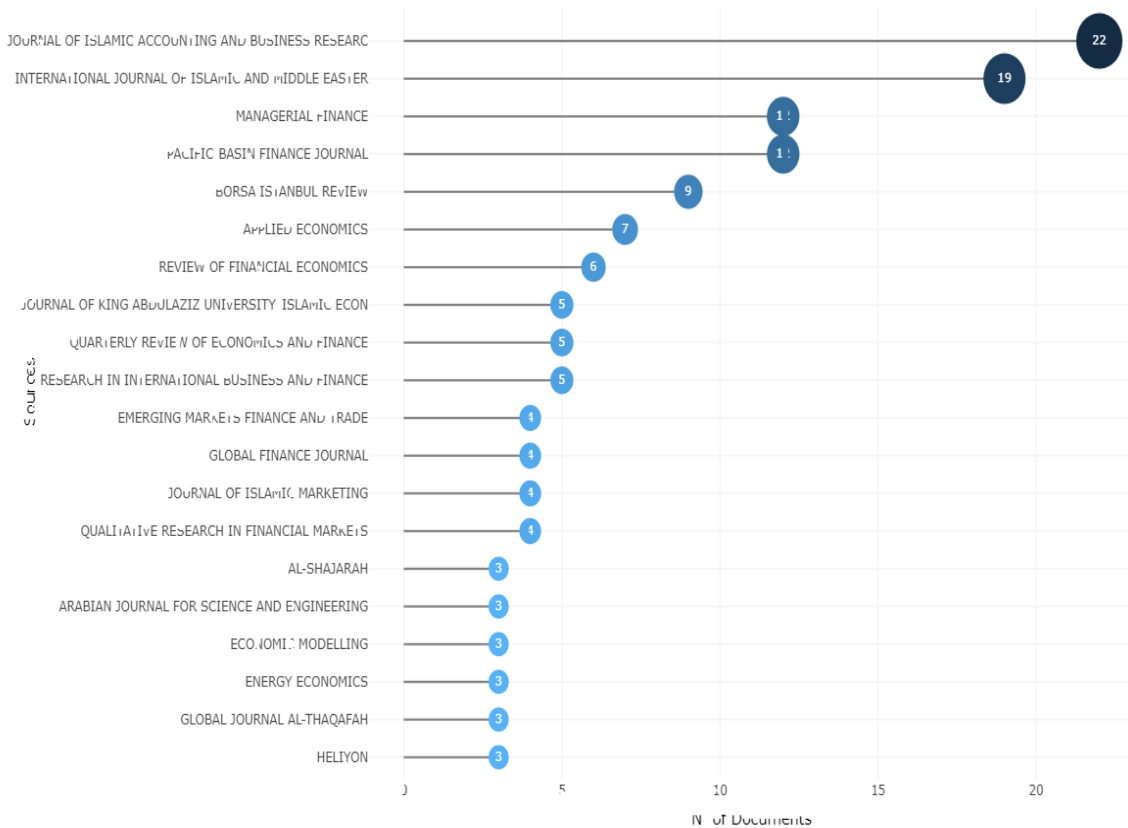


Figure 3: Relevance Sources
Source: Data processed (2022)

Three Field Plot Analysis

Graph 4 presents a three-field plot analysis showing the interactions of the top 20 rankings between the author (left), keywords (middle), and reference (right) in the study. Based on the data, Sukuk is ranked first as the keyword most used, followed by Islamic finance, Islamic bonds, and conventional bonds to capital structure in the final ranking. Seventeen authors study about sukuk and the reference that discusses the most Sukuk, is Godlewski et al. (2013).

The following keywords used in this research area are “Islamic finance”, “Islamic bond”, “conventional bonds”, “diversification”, “portfolio diversification”, “bond”, “wavelet coherence”, “Malaysia”, “bonds”, “financial crisis”, “bond market”, “covid-19”, “Islamic bond”, “Islamic debt”, and “Islamic banks”. We find the last rank of our plots analysis is “capital structure”.

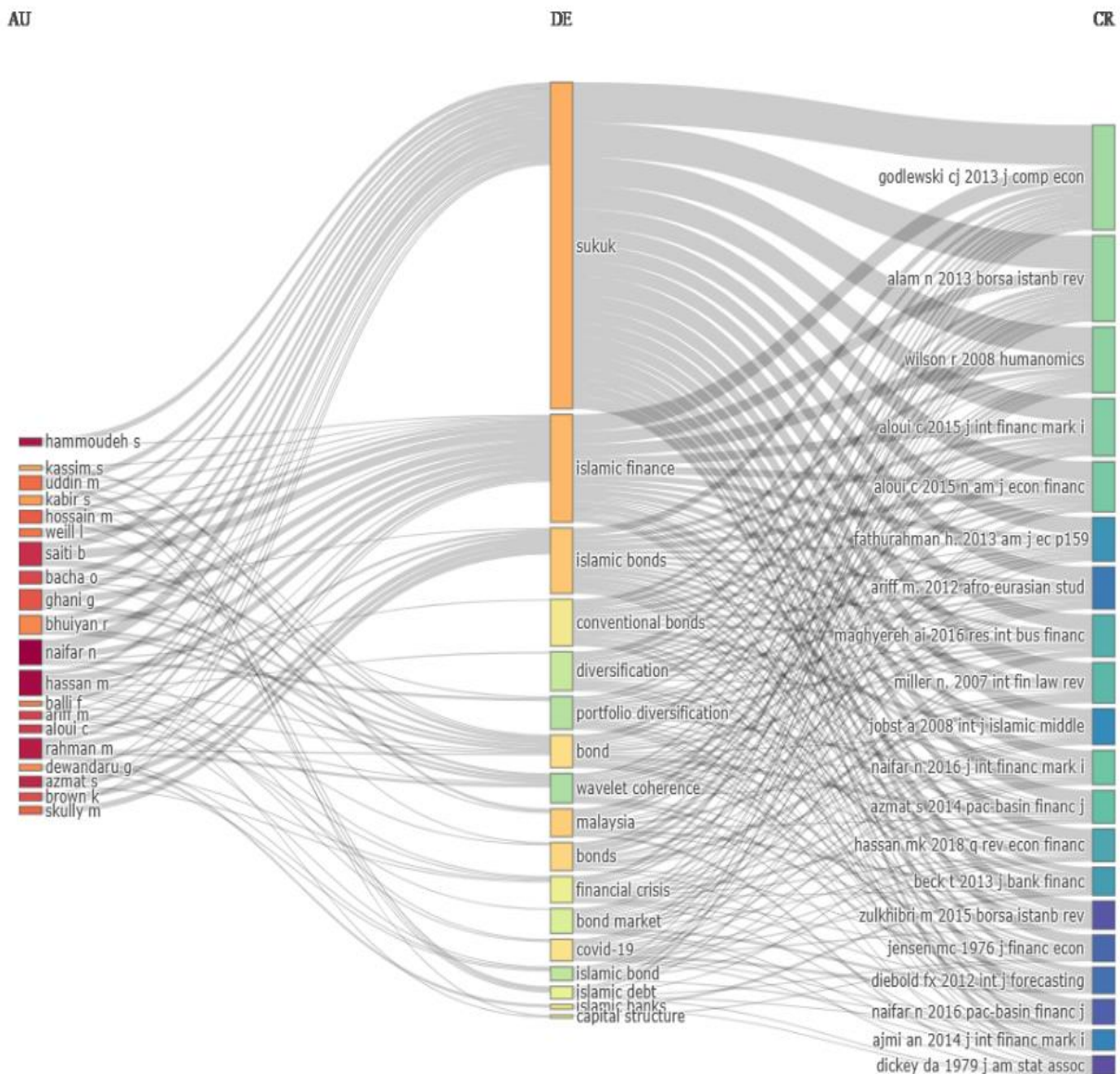


Figure 4: Three Field Plots
Source: Data processed (2022)

Most Impactful Sources

Impact analysis gives ranks of journals published articles discussing the Islamic bond perspective. We analyze the top 20 journals based on the total citations of articles they have published over the period. The analysis follows the citation indexes such as H-index and G-index.

Table 1 describes the top 20 rankings of the most influential journals that publish articles that focus on debt and risk in Islamic Bonds. The first rank is the Pacific Basin Journal with a total of 342 citations, with an h-index of 5 which means that in the last 5 years the journal has cited more than 5 as many as 5 articles. Then followed by the International Journal of Islamic and Middle Eastern Finance and Management in 2nd place with a total of 210 citations with an h-index of 5. Then, in the 20th place is occupied the Global Financial Journal with 54 citations and an h-index of 3.

Trending Topics in Islamic Bonds

Another unique analysis of bibliometrics is providing the topics that recently emerged. In a corridor of “Islamic” and “bond” keywords, we provide 20 keywords that may guide the research on this topic. Topics are moving from 2011 to the most recent analysis in 2022. The result is presented in graph 5.

Graph 5 depicts keyword analysis over the period 1984-2022. The bullet sign describes the conditions in which the keyword was studied a lot during that time, while the blue line represent when the keyword emerged or developed; in other words, the keyword was being studied during that time. It can be seen that Islamic bonds will grow from 2020 to 2021, and become a trending topic 2021 or the sense that Islamic bonds will be widely studied in 2021.

Table 1. Top 20 Most Influential Journals

No.	Elements	h_index	g_index	tc
1	PACIFIC-BASIN FINANCE JOURNAL	8	12	342
2	INTERNATIONAL JOURNAL OF ISLAMIC AND MIDDLE EASTERN FINANCE AND MANAGEMENT	9	14	210
3	BORSA ISTANBUL REVIEW	5	9	173
4	MANAGERIAL FINANCE	8	12	163
5	JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH	6	12	159
6	SPRINGERPLUS	1	1	125
7	JOURNAL OF COMPARATIVE ECONOMICS	1	1	116
8	APPLIED ECONOMICS	5	7	115
9	REVIEW OF FINANCIAL ECONOMICS	5	6	113
10	JOURNAL OF INTERNATIONAL FINANCIAL MARKETS, INSTITUTIONS AND MONEY	2	2	108
11	ECONOMIC MODELING	2	3	104
12	JOURNAL OF RELIGION IN AFRICA	1	1	87
13	QUARTERLY REVIEW OF ECONOMICS AND FINANCE	2	5	64
14	NORTH AMERICAN JOURNAL OF ECONOMICS AND FINANCE	3	3	63
15	PLOS ONE	2	2	60
16	PROCEEDINGSS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA	1	1	60
17	EMERGING MARKETS FINANCE AND TRADE	4	4	58
18	RESEARCH IN INTERNATIONAL BUSINESS AND FINANCE	4	5	58
19	HELIYOON	3	3	55
20	GLOBAL FINANCE JOURNAL	3	4	54

Source: Data processed (2022)

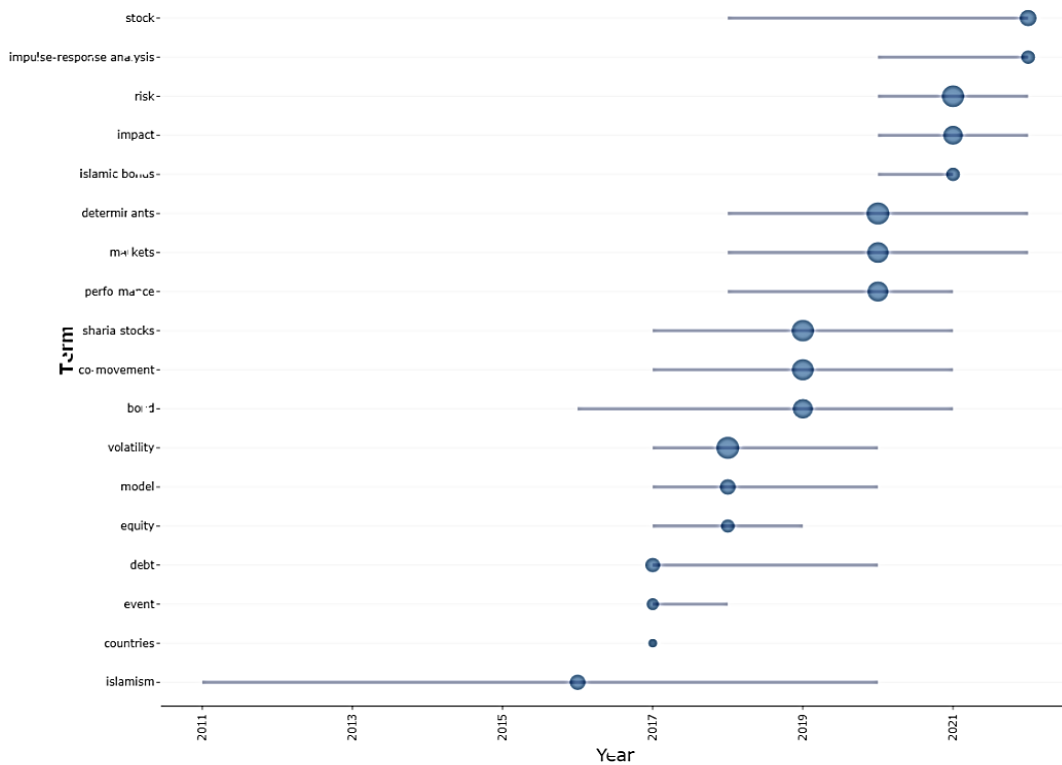


Figure 5: Trending Topic in Islamic Bonds
Source: Data processed (2022)

Co-occurrence Networks

Writing keywords represent important terms identified by the author, which are tagged in the main document for retrieval of publication. “Keyword plus” captures journal content with depth and variety. The plus keyword is an important word or phrase taken from documents collected based on observations made, using a computer algorithm

Base on the two opinions related to writing keywords, this writer concludes that there are 6 clusters that are the keywords for this writing, which can be seen in the coward Network graph. Namely Brown (6), Orange (5), Purple (4), Green (3), Blue (2), and Red (1). Of the six clusters, several research keywords have the highest value; in the six clusters, the word Islamism is the research keyword that has the highest value compared to all the keywords in cluster six. In the fifth cluster, there are eight keywords, but debt has the highest value. There are several research keywords in the fourth cluster with high scores, but the determinants keyword is the highest among them. In the third cluster, the volatility keyword is the highest, namely 138.63. and in the second and first clusters, the highest research keywords are impact and time series.

Thematic evolution

Our thematic analysis provides topic movements along different sliced times. We divide the theme of Islamic bond research into two groups of publication time, 1984-2018 and 2019-2022. According to graph 7, thematic analysis in Islamic bonds mainly focused on “debt”, “countries”, “volatility”, “investment”, and “Islamism”. Debt is the largest cluster

determined in the first period, 1984-2018. Most of the research focuses on risk, for example, in the article "Sukuk vs Conventional Bonds Stock Market Perspective" in the 2013 Journal of Comparative Economics written by Godlewski et al. (2013). Other following research are follows the same theme, debt (Azmat et al., 2014c, 2014b, 2017; Grassa & Miniaoui, 2018; Hamzah et al., 2018; Klein et al., 2017, 2018; Mahomed et al., 2018; Mitsaliyandito & Arundina, 2018; J. Othman et al., 2018; Sherif & Erkol, 2017).

The second assigned cluster as a theme that emerged from 1984-2018 is "countries". Some of the previous research also compared the movement of Islamic bonds regionally. They analyze the integration of financial institutions in a group of economies, such as Islamic countries, emerging markets, and another similarity of sample countries (Ahroum & Achchab, 2017; Aloui et al., 2015b; Ariff et al., 2018; Benlagha & Chargui, 2017; Bhuiyan et al., 2018; Bougatef & Korbi, 2018; Boukhatem & Sekouhi, 2017; Halteh et al., 2018; Mensi et al., 2017; A. H. A. Othman et al., 2018; J. Othman et al., 2018; Viverita & Ariff, 2008).

"Volatility" is the third largest assigned cluster or theme of the first sliced years. Most previous studies intended the transmission of global uncertainty, distress, and risk factors on Islamic bond markets (Azmat et al., 2014a; Hammoudeh et al., 2014; Kenourgios et al., 2016; Maghyereh & Awartani, 2016; Naifar et al., 2017; Naifar & Hammoudeh, 2016; Nazlioglu et al., 2015). Moreover, they also discuss the determinants of structural changing in Sukuk markets (Akhtar et al., 2017; Aloui et al., 2015a, 2018; Benlagha, 2014; Dewandaru et al., 2016; Hassan et al., 2018; Hassanpour et al., 2014; Javaid & Al-Malkawi, 2018; Kartika et al., 2020; Reboredo & Naifar, 2017).

The last two emerging themes of the old period are "investment" and "Islamism". This topic is still in a very limited area of literature. However, it may provide a novel contribution to research in Islamic bonds. Previous literature detected in this theme of research is Thijs et al. (2018) and Gülseven & Ekici (2016). They correlated the economic condition and Islamic rule and law.

Second sliced times is a group of papers published from 2019 to 2022. "Debt" as the hugest theme of previous sliced time, move to the tune of "risk", "event", "efficiency", and "capital structure". Other assigned clusters are "model", "bond", and "Islamism". The issue of risk remains the most studied, while the issue of bonds is in last place. The topic of risk is contained in research conducted by Uddin et al. (2020) in the Journal Emerging Markets Review entitled "Which Firms Do Prefer Islamic Debt an Analysis and Evidence from Global Sukuk and Bonds Issuing Firms". Other supporting research focused on risk in Islamic bond explain the impact of global uncertainty of Sukuk volatility (Balli et al., 2020; Hossain et al., 2021; Samitas et al., 2021; Sarwar et al., 2020; Shafron, 2019; Shahzad et al., 2019). The following discussed the risk related to green financing (Elsayed et al., 2022; Karim & Naeem, 2022; Yousaf et al., 2022). Furthermore, Bossman et al. (2022) employed in entirely new analysis of pandemic risk on Islamic bond volatility.

The second largest assigned cluster of sliced time 2 is "event". Most of previous studies discussed the response of stock market towards an event provide volatility in an economy. Muhamad Sori et al. (2019) analyze the impact of credit rating movements and the response of stock market. Another analysis by Azmat et al. (2021) provides a sociological effect of religious aspects on risk and return in Islamic financial markets. "model", "efficiency", "capital structure", and "bond" are the following theme of this research area. Finally, most of the previous research in the area of Islamic bond merely moves from "debt" to "risk" and the

research analyzes the theme of “Islamism” as a single movement and a rare area of research along the period of analysis.

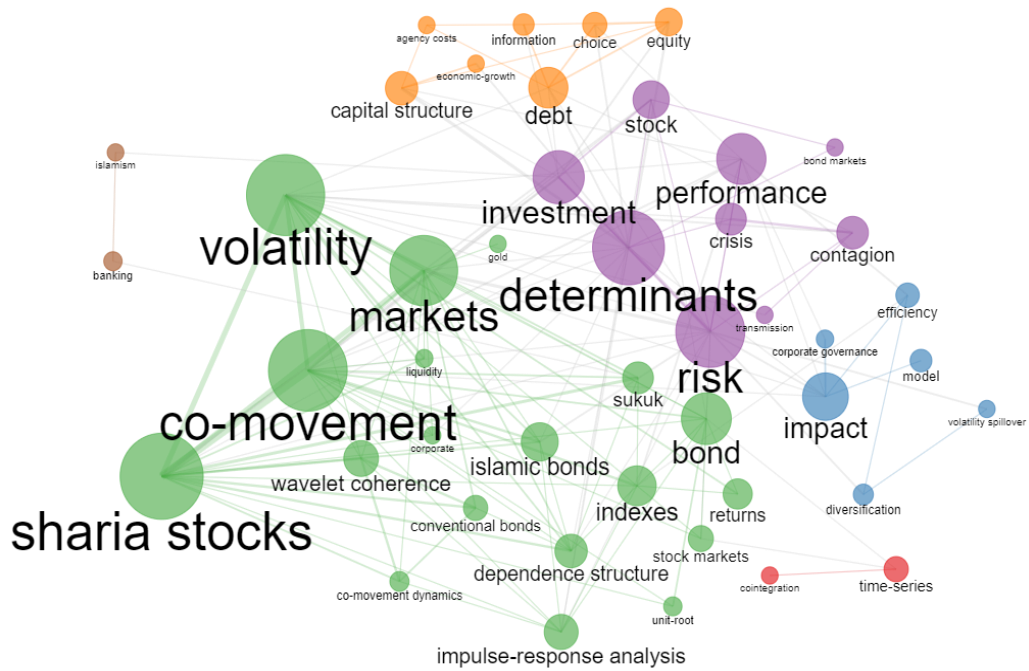


Figure 6: Co-occurrence Networks
Source: Data processed (2022)

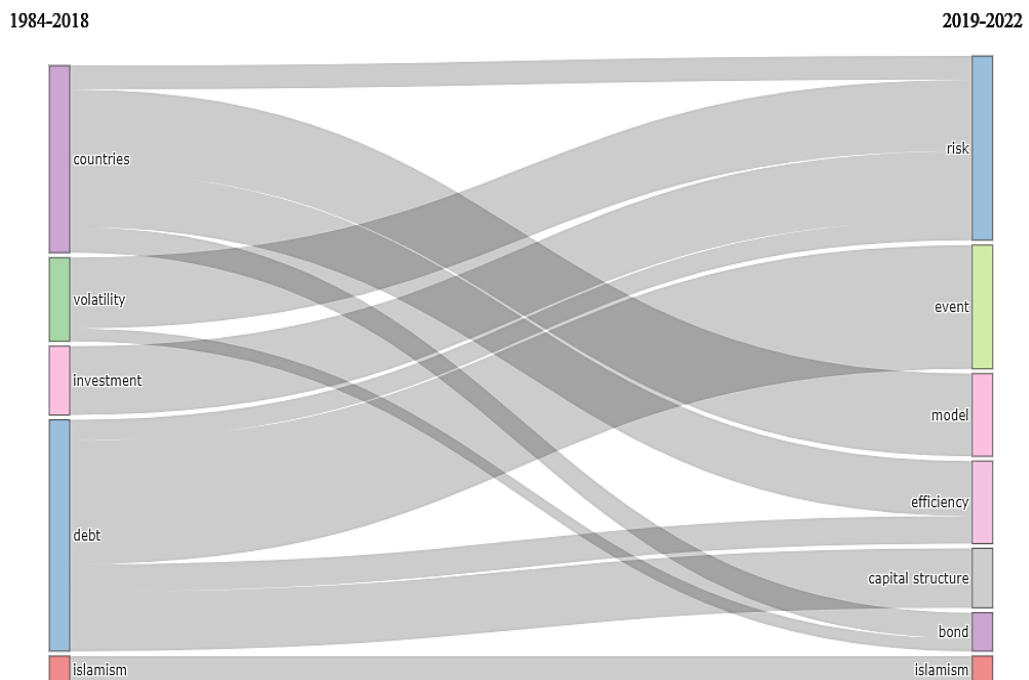


Figure 7. Thematic evolution
Source: Data processed (2022)

Conclusion

This research is based on 377 articles, divided into two primary sources, namely the web of science (WoS) and the Scopus database with a vulnerability of 1984 to 2022. Research of Islamic bond increased in both total publications and citations. The keywords that have become the main themes in the Islamic bond debate over the last decade are “debt” and “risk”. The approach using bibliometric with the RStudio analysis tool also provides a thematic evolution analysis such that “debt” and “risk” were the most trending topics before and after the 2018 wedge period, respectively. The results of the analysis will assist researchers in identifying the current issues, scope, and direction of the study of Islamic bonds.

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