Islamic FinTech: A Bibliometric Analysis Using R

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Abstract

Using a literature review and bibliometric analysis, this research aims to systematically document the intellectual structure, volume, tendencies of knowledge development, the author, and source impact on the area of Islamic Fintech. Using Microsoft Excel and R Studio, information is compiled from Scopus databases and analysed. We gathered a searchable database of the 136 most relevant papers from 2017 to 2022. Preliminary data suggests that between 2018 and 2022, there has been an increase in the number of works written on Islamic Fintech. The bibliometric study using R identifies the subject's most influential journals, authors, and papers. Based on our result, future research needs to explore how technology and innovation are driving the growth of Islamic fintech.

1. Introduction

Islamic Fintech is fast gaining traction, particularly in Muslim-majority countries, since it provides an alternative to conventional financial services that may not adhere to Shariah law (Alshater et al., 2022; Iman, 2020). Shariah principles are founded on the Quran and the Prophet Muhammad's teachings, and they stress societal responsibility, ethical conduct, and risk-sharing (Brescia et al., 2021; Hasan et al., 2020). Islamic Fintech attempts to develop financial solutions that adhere to these principles while addressing the Muslim community's specific needs and concerns (Alnsour, 2022; Bhala, 2012).

Islamic Fintech companies use technology to create innovative financial solutions that comply with Shariah law while meeting the needs of modern customers (As-Salafiyah, 2022; Rabbani et al., 2020). Nevertheless, Islamic Fintech can impact society in various ways, depending on the specific products and services offered (Alshater, 2022). By promoting financial inclusion, ethical investment, social entrepreneurship, Zakat distribution, and sustainability, Islamic Fintech can help to create a positive social impact and contribute to a more just and equitable financial system (Alshater, 2022; Fares & Younes, 2021; Rabbani et al., 2020). It also provides opportunities for investors and entrepreneurs to support ethical and socially responsible businesses that align with their values (Senyo, 2022).

Indications of incorporating Fintech revelation inside the global banking industry have arisen in light of the recent increase in mobile application and website usage among users (Hasan, 2020; Chong et al., 2019). The term "FinTech," short for "financial technology," is used to describe the application of technology to the provision of financial services and solutions (Nicoletti, 2017; Arner et al., 2015). On the other hand, fintech refers to technology-enabled financial services that leverage integrated IT to enhance crucial performance (Wonglimpiyarat, 2017). While the field of financial technology has been around since 1866, a new era of fintech emerged after the global financial crisis of 2008, necessitating additional research and study to understand the changes and adapt efficiently (Wu et al., 2023; Senyo 2022; Jaafar et al., 2021; Iman, 2020).

Furthermore, studying the issues related to Conventional Fintech and Islamic Fintech is critical to ensure that these industries can continue to grow and provide inclusive and ethical financial services while navigating regulatory challenges and leveraging technological advancements (Alshater et al., 2022; Rabbani et al., 2020). Adopting new technologies like blockchain and artificial intelligence could transform the financial sector. Both conventional and Islamic FinTech can leverage these advancements to improve financial services and enhance customer experiences (Unal et al., 2022; Arner et al., 2015).

Conventional FinTech and Islamic FinTech have essentially identical meanings, but the difference lies in sharia compliance. The term "Islamic" differentiates conventional and sharia-compliant FinTech operators (Rabbani et al., 2020. According to a report by Ernst & Young, global investment in FinTech reached $97.5 billion in 2020. Islamic FinTech, while still a relatively small segment, is also growing rapidly, with the number of Islamic FinTech startups increasing worldwide. Therefore, there are many factors to think about within the context of its implementation. Starting with Financial Inclusion (Heng et al., 2022),

Regulatory Challenges (Degerli, 2019; Lis, 2018), Ethical considerations (Aitken et al.,2020), and Technological advancements (Aysan et al., 2022; Unal & Aysan, 2022), all these issues form the basis for the need for in-depth research into the implementation and operation of Islamic FinTech. The bibliometric study is the best when we are still searching and collecting literature about FinTech.

Bibliometric analysis is a valuable tool for researchers, policymakers, and funding agencies to evaluate research output, identify research trends, and identify potential collaborators and partners (Ansar et al., 2023; Ali et al., 2022; Okubo, 1997). In addition to these benefits, bibliometric analysis can help researchers identify the gaps in the existing literature on Islamic FinTech, which can help guide future research efforts. Table 1 illustrates some earlier studies on Islamic FinTech.

Table 1. Summary of previous studies in Islamic FinTech

Author	Domain/Search Strategy/ Title	Data Source & Scope	TDE	Bibliometric Attributes Examined
Alshater, Saba, Supriani & Rabbani (2022)	Fintech in Islamic finance literature: A review	Scopus (2017-2022)	85	Current publication, main research, primary result, limitation, research gaps
Aysan, Belatik, Unal & Ettaai (2022)	Is Islamic Finance Evolving Into Fintech and Blockchain: A Bibliometric Analysis	Scopus (2010-2021)	89	Number of publication and document by year, sources with most publication, author keywords,
As-Salafiyah & Marlina (2022)	Mapping Research on Islamic Fintech Using Biblioshiny-R	Dimensions.ai database (2016-2020)	229	The description of characterictics and trends of the keywords, authors and journals.
Nasir, Shaukat Iqbal Khan, Hameed Alam & Luo (2021)	Trends and Directions of Financial Technology (Fintech) in Society and Environment: A Bibliometric Study	Scopus, emerald, science direct databases (2010-2021)	1556	Influential aspects, themes and streams of fintech literature, themes and streams of fintech literature, thematic map

Note. TDE=Total documents examined.

1.1 Research Motivation

The research on applying Fintech in Islamic finance has recently increased (Abojeib & Habib 2019; Jamil & Seman, 2019). However, the trends and directions of Islamic Fintech remain unclear. Furthermore, Islamic perspective, the literature is growing slower compared to the conventional perspective, which motivated us to conduct this study (Al-Sartawi et al., 2022; Suryono et al., 2020; Rabbani et al., 2020).

Therefore, this study aims to analyse and assess previous research on Islamic Fintech. Assessing the present status and trend of publishing, the most prominent contributors (authors, articles, and sources), and how the publication's theme has evolved in Islamic Fintech.

1.2 Research Question

The following research questions (RQ) demonstrate the review activities and process using bibliometric, text-mining, and visualisation tools (i.e., R studio) (See Table 2). The paper seeks to find answers to the following research questions.

Table 2. Research Questions (RQ)

No.	Research Questions	Analysis Procedure
1	What is the current state and trend of publication in Islamic FinTech	• Document Type • Source type • Annual growth rate. • Number of publications by year • Country • Total number of contributors
2	What is the most influential article, authors, and sources on Islamic FinTech	• Highly cited documents • Author Impact • Lotka's Law • Source Impact • Bradford's Law • Co-occurrence network
3	What are the most influential contributors to Islamic FinTech	• Most influential authors • Most relevant sources • Most influential countries • Most influential source title
4	How the theme of the publication has evolved in Islamic Fintech	• Thematic evolution • Trend Topic • Word Dynamic • Word Cloud • Tree Map

This article begins with a brief review of critical definitions for Islamic Fintech before proceeding to a more comprehensive discussion and analysis. The methodology section of the study describes the processes utilised in this investigation, including data searching, data collection, data extraction, and data analysis. In the section that follows, the research findings are described. The study's results are highlighted in this paper's discussion and conclusions section, which also addresses the study's limitations and proposes options for further research.

2. Methodology

2.1 Searching Strategy

A search strategy is a well-structured set of search terms. The search strategy will include

precise and exhaustive keyword search concepts (Lada et al., 2023; Visor et al., 2021; Salameh et al., 2020). Bibliometric analyses and PRISMA (Preferred Reporting Items for Systematic Reviews) were employed in this study (see Figure 1). Bibliometric processes often filter and refine bibliographic data (such as Scopus). At this stage, the R Studio software application displays the data. Using bibliometric analysis, it is feasible to discover and forecast future research themes (De Mauro et al., 2016). Elsevier's Scopus database contains about 50 million items from over 5,000 publications (Martinez et al., 2015). Concurrently, our university received the Scopus database. This is why we have chosen the Scopus database as our primary data source.

2.2 Inclusion and Exclusion Criteria

All search results are evaluated for titles and abstracts according to previously set criteria (see Table 3). Then, they analysed and summarised every publication that had passed the initial screening phase. Each piece of research is evaluated based on its publishing volume, the most prestigious journals and authors, and the most often discussed study topics. We developed a database of 136 articles published between 2017 and 2022 due to the abundance of material on Islamic FinTech.

Table 3. Search criteria

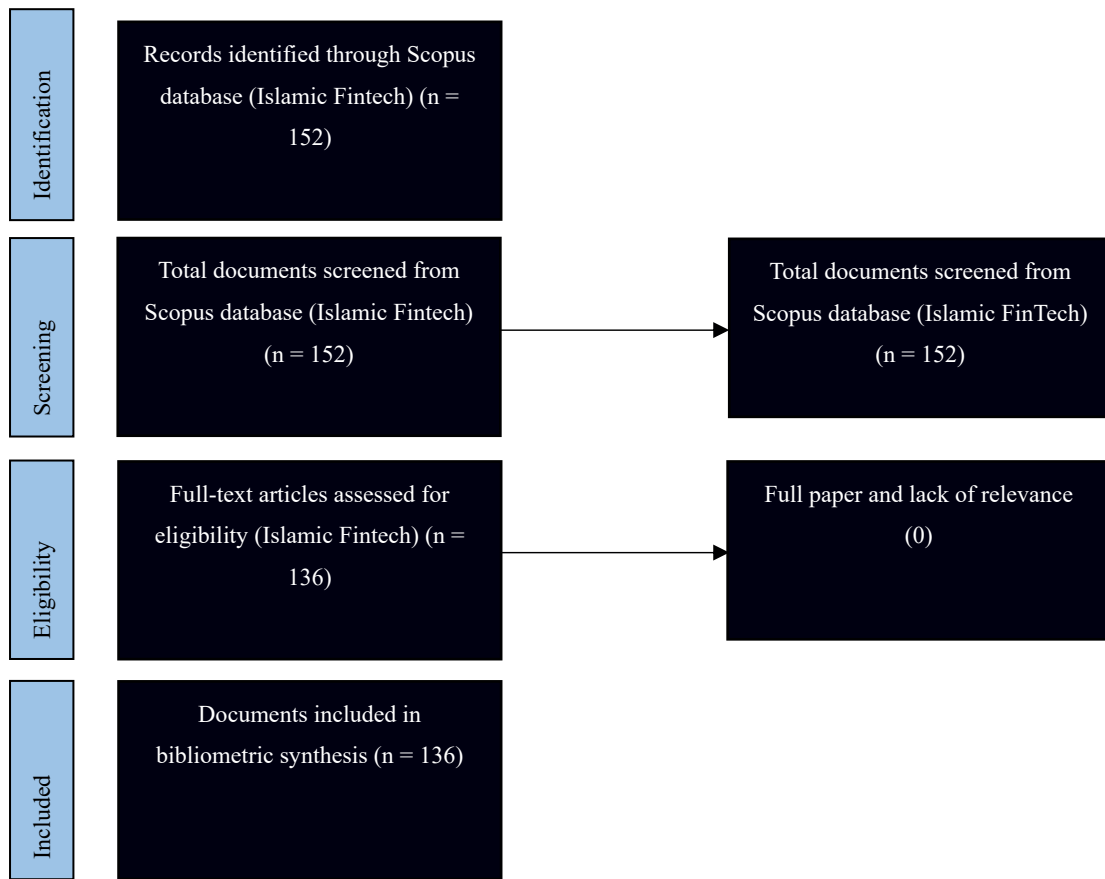| Scopus Category	Searching Criteria.	No. of article
Topic	"Islamic AND FinTech"	152
Research years	2017-2022	142
Document Type	All types of publication	142
Author name	All	142
Language	English	136

Figure 1. The PRISMA diagram that we used to search, screen, and select articles in our bibliometric review.

2.3 Extraction Techniques

The export of 136 journal articles in an application-compatible format is depicted in Figure 1. The downloaded database was extensively analysed to enhance the precision of the research. The extraction procedure begins with a search for the keywords "Islamic AND FinTech." Excel (.csv) and R Studio were utilised for this research. The free freeware R Studio presents bibliometric maps graphically for academic bibliometrics. The final Scopus database contains the most helpful article title, author, keyword, citation information, and all references.

2.4 Choice of Synthesis Method (Analysis)

Initial investigating procedures included descriptive analysis. We generated a series of Excel graphs to determine the development trajectory of publications on Islamic Fintech concepts throughout time. Meanwhile, in the following step, the bibliometric analysis technique was used. This technique uses citations to identify the most influential articles and researchers on a particular topic. Other measures, such as the H-index, the overall number of citations, and the number of citations per publication, may indicate academic significance. Depending on the results, co-citation analysis may concentrate on the journal, author, and co-citations of

keywords. We could view our sample database using R studio and generate "network maps" based on article links.

3. Results

3.1 Document Profiles

Table 4 summarizes the document profiles used in the paper. The timeline used for the paper was 2017 to 2022. After done selection criteria, a total of 136 documents were selected. Based on the total of 136 documents (Table 4) considered, the average citation per document is 4.941, with 118.67% annual growth, and the total number of references involved is 6096. Articles accounted for the highest number in the document profile (n=66), followed by book chapters (n=34) and conference papers (n=18).

Table 4. Document Profiles

Description	Results
Main Information About Data	
Timespan	2017:2022
Sources (Journals, Books, etc.)	75
Documents	136
Annual Growth Rate %	118.67
Document Average Age	2.45
Average citations per doc	4.941
References	6096
Document Contents	
Keywords Plus (ID)	177
Author's Keywords (DE)	284
Authors	
Authors	295
Authors of single-authored docs	24
Authors Collaboration	
Single-authored docs	31
Co-Authors per Doc	2.62
International co-authorships %	31.62
Document Types	
Article	66 (48.53%)
Book	10 (7.35%)
Book Chapter	34 (25%)
Conference Paper	18 (3.94%)
Conference Review	3 (2.63%)
Editorial	1 (0.74%)
Review	4 (9.21%)

3.2 RQ1: What Is the Current State and Trend of Publication in Islamic FinTech

Analysis Figure 2 highlights the top ten countries and categories of articles relevant to Islamic FinTech. Malaysia (40 articles), Bahrain (21) and Indonesia (21) are the top three countries that publish the most articles in this field. Even though most publications are articles (48.53 per cent) and book chapters (25 per cent), several other types of papers are also generated. Islamic FinTech is a prevalent topic of conversation in Malaysia, and conferences are popular places for investigating and exchanging ideas.

Top 10 Countries

- Malaysia
- Bahrain
- Indonesia
- Pakistan
- United States
- Saudi Arabia
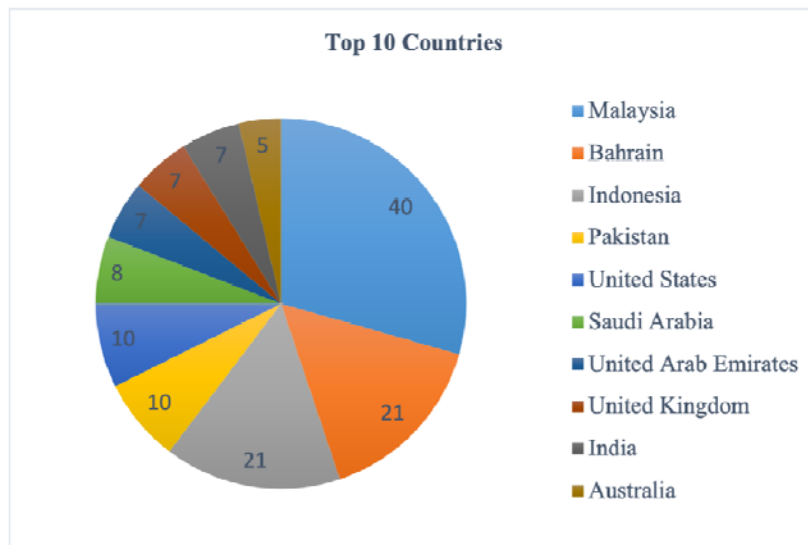- United Arab Emirates
- United Kingdom
- India
- Australia

Figure 2. Top 10 highest publication by country.

The number of publications on Islamic FinTech has increased over time, as shown in Figure 3. According to the number of publications, the topic and scope of the study on Islamic FinTech have gained considerable interest in previous research. According to early 2018 figures from the Scopus database, the Islamic FinTech field began to attract more interest. The expansion has been continuing since 2018.
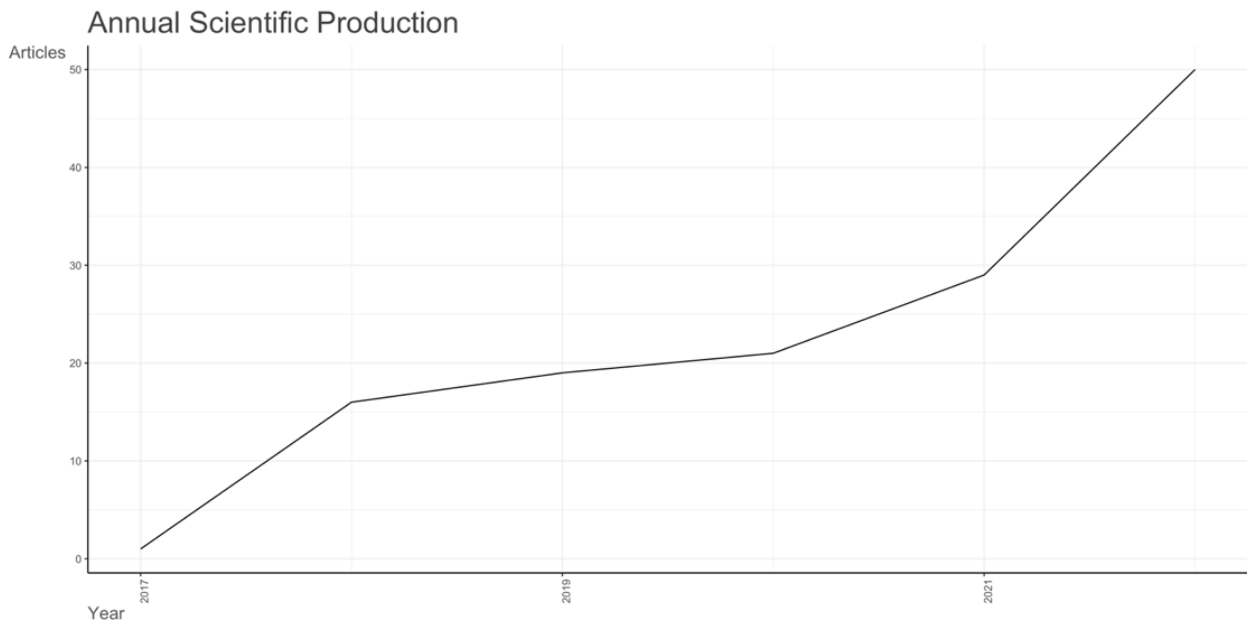
Figure 3. Annual Scientific Production (Total published articles from 2017-2022)

Table 5. Annual Scientific Production (Total published articles from 2017-2022).

Year	Articles
2017	1
2018	16
2019	19
2020	21
2021	29
2022	50

In 2017, only one of 136 publications was published successfully, according to Figure 3 and Table 5. This low number of publications may be attributable to the topic's relative novelty and lack of appeal to the mainstream media compared to Conventional Fintech. The inability of industry participants and academics to appreciate Islamic FinTech's importance in a broader context has impeded dialogue. In contrast, the number of articles began to rise at the end of 2017, when Malaysia was ranked number one in the global Islamic finance industry due to its production of RM2.05 trillion in Shari-ah-compliant financial assets (Pikri, 2019). In 2022, however, only fifty papers were published, the highest number ever. Specifically, 50 publications were published in 2022, 29 in 2021, and 20 in 2020.

3.3 RQ2: What Are the Most Influential Articles and Sources on Islamic FinTech

Table 6 displays the ten most-cited documents and papers in Islamic FinTech. With 48 (15.54 per cent) total citations, Hassan Mk (2020) is notable, followed by Syed Mh (2020) with 41

(13.85 per cent) total citations. Other papers contain between 20 and 40 total citations.

Table 6. Most cited documents/ papers

Paper	TC	% TC	TYpY	%TCpY	NTC	%NTC
Hassan Mk, 2020, J Econ Coop Dev	46	15.54	11.50	13.78	3.46	8.30
Syed Mh, 2020, Int J Econ Bus Adm	41	13.85	10.25	12.28	3.09	7.41
Rabbani Mr, 2020, Int J Econ Bus Adm	40	13.51	10.00	11.98	3.01	7.22
Shaikh Im, 2020, Foresight	31	10.47	7.75	9.28	2.33	5.59
Rabbani Mr, 2021, J Open Innov: Technol Mark Complex	27	9.12	9.00	10.78	4.35	10.43
Alam N, 2019, Fintech And Islam Finance: Digit, Dev And Disrupt	25	8.45	5.00	5.99	5.52	13.24
Hudaefi Fa, 2020, Qual Res Finance Markets	24	8.11	6.00	7.19	1.81	4.34
Nasir A, 2021, Ieee Access	22	7.43	7.33	8.78	3.54	8.49
Usman H, 2022, J Islam Mark	20	6.76	10.00	11.98	11.36	27.25
Rabbani Mr, 2021, J Open Innov: Technol Mark Complex-A	20	6.76	6.67	7.99	3.22	7.72

Note. TC=total citation; TYpY=total citation per year; NTC= Normalizes total citation.

3.3.1 Author Impact

In Based on the h-Index, published authors can also be rated by their subsequent influence (Hirsch, 2005). H-index is the most often employed index (an author has an h-index of h if they have at least h works that have been referenced h times). The G-Index comprises the G articles with the highest citation count (Friedman, 2015). Meanwhile, the M-Index is calculated by dividing the H-index by the number of years a scientist has been active.

Table 7 contains the writers with the greatest h-index calculated by Rabbani Mr, with seven h-indices indicating significant influence. The h-Index values of Khan S and Baber H are 5 and 4, respectively, indicating a beneficial impact. In addition, Rabbani Mr and Hassan Mr have the highest g-index. With an m-Index of 1.75, Rabbani Mr is also the most prolific author. Then Followed by Khan S, who has an m-Index of 1.25. Rabbani Mr has the highest citation count (i.e., TC), with 213 citations, followed by Khan S with 111 citations. All this content was produced between 2018 and 2022.

Table 7. The 10 most impactful author

Author (s)	h_index	g_index	m_index	TC	NP	PY_start
Rabbani Mr	7	11	1.75	213	11	2020
Khan S	5	6	1.25	111	6	2020
Baber H	4	6	0.8	45	6	2019
Bashar A	3	3	0.75	45	3	2020
Hassan Mk	3	7	0.6	69	7	2019
Ali Mam	2	2	0.667	47	2	2021
Ali Sn	2	2	0.333	5	2	2018
Ascarya A	2	2	1	16	2	2022
Atif M	2	2	0.667	26	2	2021
Fianto Ba	2	4	0.5	27	4	2020

Note. PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.

3.3.2 Source Impact

If This study also computes the h-index, g-index, m-index, and total citation of each journal that publishes an article on Islamic FinTech to assess the journal's impact. According to Figure 4 and Table 8, the International Journal of Islamic and Middle Eastern Finance and Management is ranked first with an h Index of 4, a g Index of 6, an m Index of 0.80, and a total of 43 citations. As a result, the Journal of Islamic and Middle Eastern Finance and Management has the most influence on the research of Islamic FinTech.
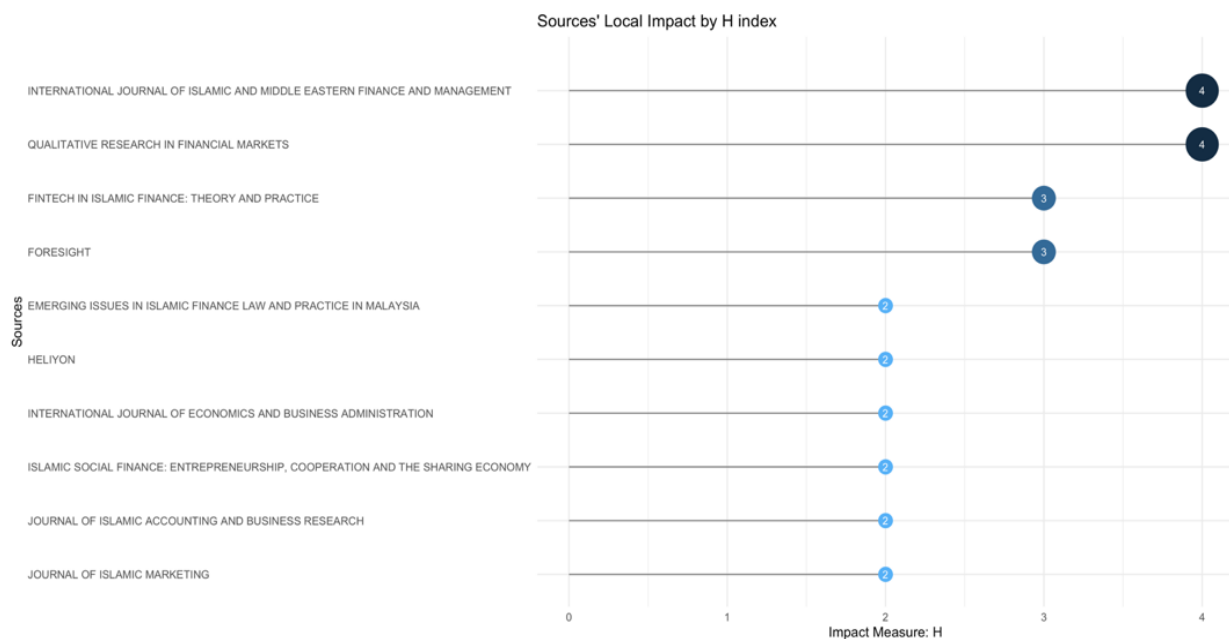

Figure 4. The 10 most impactful source

Table 8. The 10 most impactful source

Source	h_index	g_index	m_index	TC	NP	PY start
International Journal of Islamic and Middle Eastern Finance And Management	4	6	0.8	43	6	2019
Qualitative Research in Financial Markets	4	4	1	60	4	2020
Fintech In Islamic Finance: Theory and Practice	3	3	0.5	19	12	2018
Foresight	3	4	0.75	52	4	2020
Emerging Issues in Islamic Finance Law and Practice In Malaysia	2	3	0.4	16	3	2019
Heliyon	2	3	0.667	10	3	2021
International Journal of Economics And Business Administration	2	2	0.5	81	2	2020
Islamic Social Finance: Entrepreneurship, Cooperation and The Sharing Economy	2	2	0.333	6	2	2018
Journal Of Islamic Accounting and Business Research	2	2	0.667	7	3	2021
Journal Of Islamic Marketing	2	4	0.5	40	4	2020

Note. PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.

3.3.3 Lotka's Law

Lotka's Law describes the authors' publishing frequency in any subject (Rusydiana & As-Salafiyah, 2021). Numerous academics from different domains have used Lotka's Law to analyse author productivity and publications since then (Maz-Machado,2017). Figure 5 displays the distributions of observed and fitted Lotka's. As the number of published publications increases, the number of contributing authors drops, as shown in Figure 5 and Table 9.
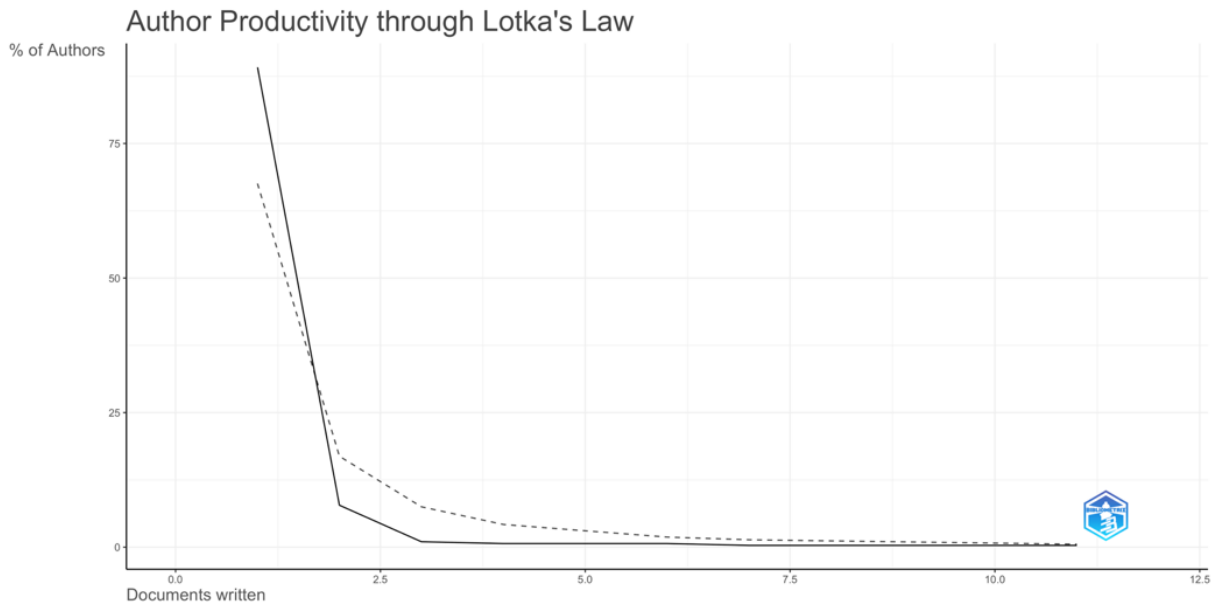
Figure 5. Lotka's Law.

Table 9. Lotka's Law.

Documents written	N. of Authors	Proportion of Authors
1	263	0.892
2	23	0.078
3	3	0.010

3.3.4 Co-occurrence Network

A co-occurrence network is a method for an analysing text that graphically depicts potential connections (Rashid et al., 2021). Text that conforms to text mining standards and is electronically stored enables the construction and visualisation of co-occurrence networks. Co-occurrence analysis can be defined simply as counting matched data within a collection unit (Bolanos, 2022; Chen et al., 2019). Figure 6 depicts the high-frequency phrases that often co-occur within Islamic FinTech. Based on Figure 6, three critical clusters have been identified. Cluster 1 consists of "Islamic Finance," "Finance Institutions," "Financial System," "Global Financial Crises," "Commerce," "Finance," and "Technology product." Cluster 2 includes the terms "Fintech," "Banking," "Sales," and "Industrial Resolution." Cluster 3 contains four networks: "Investment," "Financial Sector," "Block-chain," and "Blockchain."
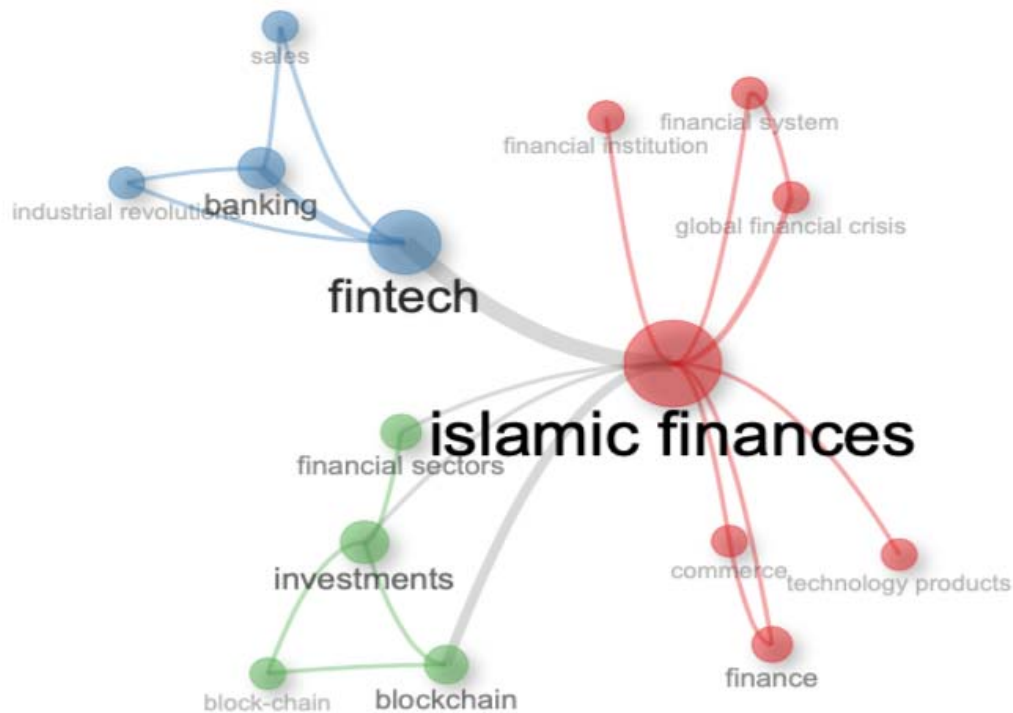
Figure 6. Co-occurrence network

3.3.5 Bradford's Law

Bradford's rule predicts that the number of journals in the second and third zones will be n and n2 times greater than the number of journals in the first zone; therefore, if the numbers for the core and middle zones are known, it should be possible to predict the total number of journals carrying articles on a topic (Van Eck & Waltman, 2021). This category lists the magazines that have published the most research on Islamic Fintech within the specified period.

Figure 7 displays the eight most relevant Islamic FinTech-related sources. The Fintech in Islamic Finance Journal is the most prestigious publication in this field, followed by Lecture Notes in Networks and the International Journal of Islamic Finance. The peer-review publication method of this magazine ensures its accuracy and contribution to their respective fields, making it a very significant publication.
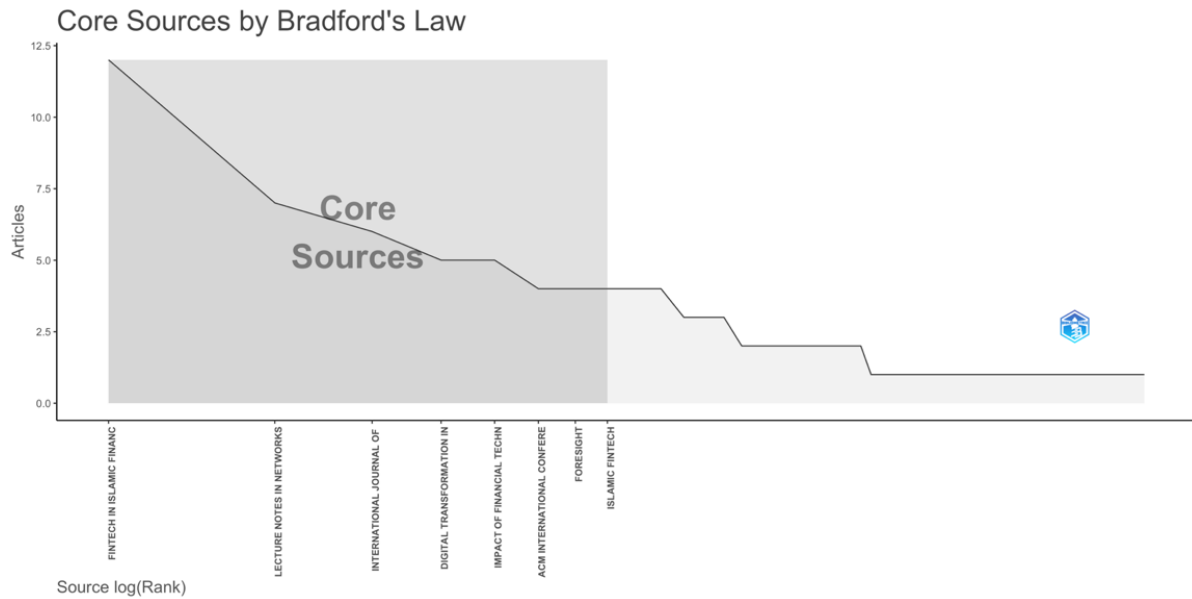
Figure 7. Bradford's Law

3.4 RQ3: What Are the Most Influential Contributors to Islamic FinTech

The sample database includes the most influential journals, as shown in Table 10. Business, economics, and finance journals have dominated Islamic FinTech articles. With six papers, a four h-index, and 43 citations, the International Journal of Islamic and Middle Eastern Finance and Management has the most publications. This circumstance is partly attributable to the fact that the journal has been publishing since 2008. International Journal of Economics and Business Administration has 81 citations, followed by Qualitative Research in Financial Markets with 60 citations.

Table 10. The most influential source

No.	Journal	h_index	g_index	m_index	TC	NP	PY_start
1	International Journal of Islamic and Middle Eastern Finance and Management	2019	43	6	4	6	0.8
2	Qualitative Research in Financial Markets	2020	60	4	4	4	1
3	Fintech In Islamic Finance: Theory and Practice	2018	19	12	3	3	0.5
4	Foresight	2020	52	4	3	4	0.75
5	Emerging Issues in Islamic Finance Law and Practice in Malaysia	2019	16	3	2	3	0.4
6	Heliyon	2021	10	3	2	3	0.667
7	International Journal of Economics and Business Administration	2020	81	2	2	2	0.5
8	Islamic Social Finance: Entrepreneurship, Cooperation and The Sharing Economy	2018	6	2	2	2	0.333
9	Journal Of Islamic Accounting and Business Research	2021	7	3	2	2	0.667
10	Journal Of Islamic Marketing	2020	40	4	2	4	0.5

Note. PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.

The most prestigious academic journals are peer-reviewed, implying that subject-matter experts analyse each submission before publication. The most prestigious academic journals are peer-reviewed, which implies that subject-matter experts analyse each submission before publication—Table 10 and Figure 8 display the most relevant Islamic Fintech sources. The International Journal of Islamic and Middle Eastern Finance and Management is the most prestigious in this field, followed by Qualitative Research in Financial Markets and Fintech in Islamic Finance: Theory and Practice. This journal is critical due to its peer-review publishing process, which ensures its accuracy and contribution to its respective fields.
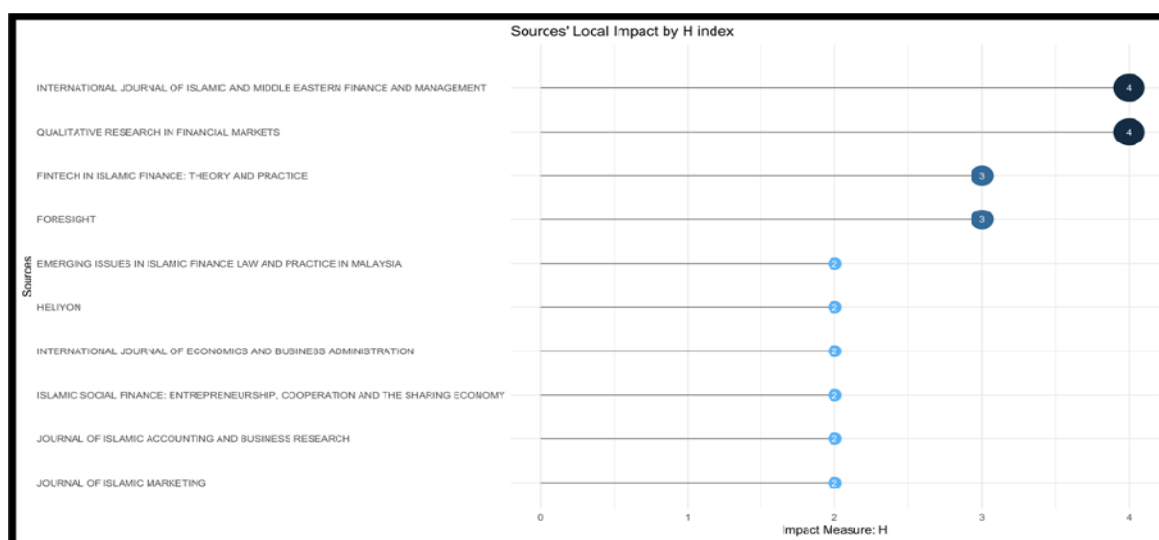

Figure 8. The most relevant sources

Table 11 indicated that the database sample contained the most influential authors and articles. There are five noteworthy authors in general: Rabbani Mr. (2020;2021), Hassan Mk (2020;2022), Khan S. (2020), Bashar A. (2021), and Fianto Ba (2020). Rabbani Mr has the highest number of citations, with 174, followed by S. Khan, with 81 citations. Table 6 lists the two articles with the most citations. Among them are 1) Challenges for Islamic Finance and Banking in The Post-Covid Era And The Role Of Fintech and 2) An Artificial Intelligence And NLP Based Islamic Fintech Model Combining Zakat And Qardh-Al-Hasan For Countering The Adverse Impact Of Covid 19 On SMEs And Individuals, with 46 and 41 citations, respectively.

Table 11. The most influential authors

Author's Name	Title	Journal	TC	AF	TCpY	PY
Rabbani Mr	Challenges For the Islamic Finance and Banking in Post Covid Era and The Role of Fintech	Journal Of Economic Cooperation and Development	46	3.18	11.5	2020
Rabbani Mr	An Artificial Intelligence and Nlp Based Islamic Fintech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of Covid 19 On SMEs and Individuals	International Journal of Economics and Business Administration	41	-	10.25	2020
Rabbani Mr	Fintech, Blockchain and Islamic Finance: An Extensive Literature Review	International Journal of Economics and Business Administration	40	-	10	2020
Rabbani Mr	Exploring The Role of Islamic Fintech in Combating the Aftershocks of Covid-19: The Open Social Innovation of The Islamic Financial System	Journal Of Open Innovation: Technology, Market, And Complexity	27	-	9	2021
Rabbani Mr	The Response of Islamic Financial Service to The Covid-19 Pandemic: The Open Social Innovation of The Financial System	Journal Of Open Innovation: Technology, Market, And Complexity	20	-	6.667	2021
Hassan Mk	Challenges For the Islamic Finance and Banking in Post Covid Era and The Role of Fintech	Journal Of Economic Cooperation and Development	46	2.25	11.5	2020

Hassan Mk	Islamic Banking Stability Amidst the Covid-19 Pandemic: The Role of Digital Financial Inclusion	International Journal of Islamic and Middle Eastern Finance and Management	11	-	5.5	2022
Khan S	An Artificial Intelligence and Nlp Based Islamic Fintech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of Covid 19 On Smes and Individuals	International Journal of Economics and Business Administration	41	2.03	10.25	2020
Khan S	Fintech, Blockchain and Islamic Finance: An Extensive Literature Review	International Journal of Economics and Business Administration	40	-	10	2020
Bashar A	Exploring The Role of Islamic Fintech in Combating the Aftershocks Of Covid-19: The Open Social Innovation Of The Islamic Financial System	Journal Of Open Innovation: Technology, Market, And Complexity	27	0.59	9	2021
Fianto Ba	Factors Determining Behavioral Intentions to Use Islamic Financial Technology: Three Competing Models	Journal Of Islamic Marketing	20	0.95	5	2020

Note. * TC=total citations; AF=articles fractionalized; PY=publication year; TCpY=total citation per year.

3.5 RQ4: How the Theme of the Publication Has Evolved in Islamic FinTech

Concerning theme development, the method combines performance analysis and scientific mapping to identify and visualise conceptual subdomains to quantify and visualise the thematic progression of the research area (Yardibi et al., 2021). Several analyses were performed in this study, including thematic evolution, trend topic, word dynamic, word cloud, and treemap.

3.5.1 Trend Topic

Trends in the subject matter are also a component of this study, with the graph below illustrating the phrase's evolution over time and by year. So that it may be determined which themes have been used for a lengthy period and which have been used more recently (Nicole et al., 2022; Laila et al., 2021). The word is utilised more regularly as it ascends and more recently as it moves to the right. As indicated in the data's description below (See Table 12 and Figure 9), the topic has been utilised since 2019, particularly in Islamic FinTech studies' discussions of the Fintech and Islamic Finances with a total frequency of 6 and 9. This data also explains that fintech and Islamic finance topics have become trending in the Islamic Fintech field.

Table 12. The trend topic year

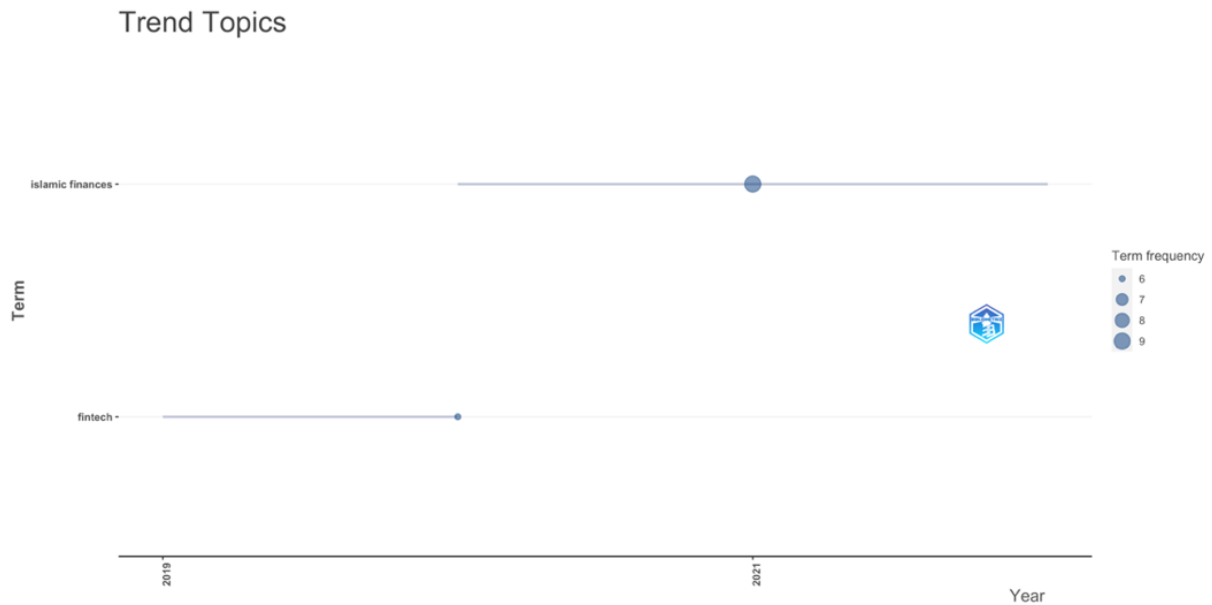| Trend Topic	Frequency (F)	year_q1	year_med	year_q3
fintech	6	2019	2020	2020
Islamic finances	9	2020	2021	2022

Figure 9. The most relevant sources

3.5.2 Thematic Evolution

In Figure 10, the study also separated thematic maps into four quadrants based on density and centrality. A semi-automatic programme analysed all references to the research topic, and additional keywords were added. To identify discrepancies. Because the upper right quadrant contains a driving or motor motif that is dense and central, it must be developed and investigated further. This quadrant focuses on banking, financial institutions, industrial revolutions, Islamic finances, fintech, and blockchain.

Moreover, the upper left quadrant displays a niche theme with a high degree of expansion, as evidenced by its high density but low centrality. Topics in this area include the financial system and the global financial crisis. Additionally, the lower-left quadrant has recurring themes with low centrality (i.e. emerging or declining themes). In this quadrant, Malaysia and technical innovation are the primary topics. Finally, the lower-right quadrant features a simple theme with high centralization but low density. Finance and Islamic financial technology are essential topics to address in the research because they frequently encounter general difficulties.

3.5.3 Word Dynamic

Figure 11 depicts the growth of the leading Islamic Fintech research keywords based on the total number of occurrences yearly from 2019 to 2022. Based on Figures 10 and 11, several prominent keywords began exhibiting a significant spike in 2019 and have continued to do so to the present day. From 2019 through 2022, "Word Dynamic" data analysis reveals a substantial increase in the use of dynamic terms like "banking," "block-chain," and "blockchain." These results are consistent with other analyses, such as "Trend Topic" and "Word Cloud" analyses. This result also explains why these terms were chosen as time-sensitive and trending.
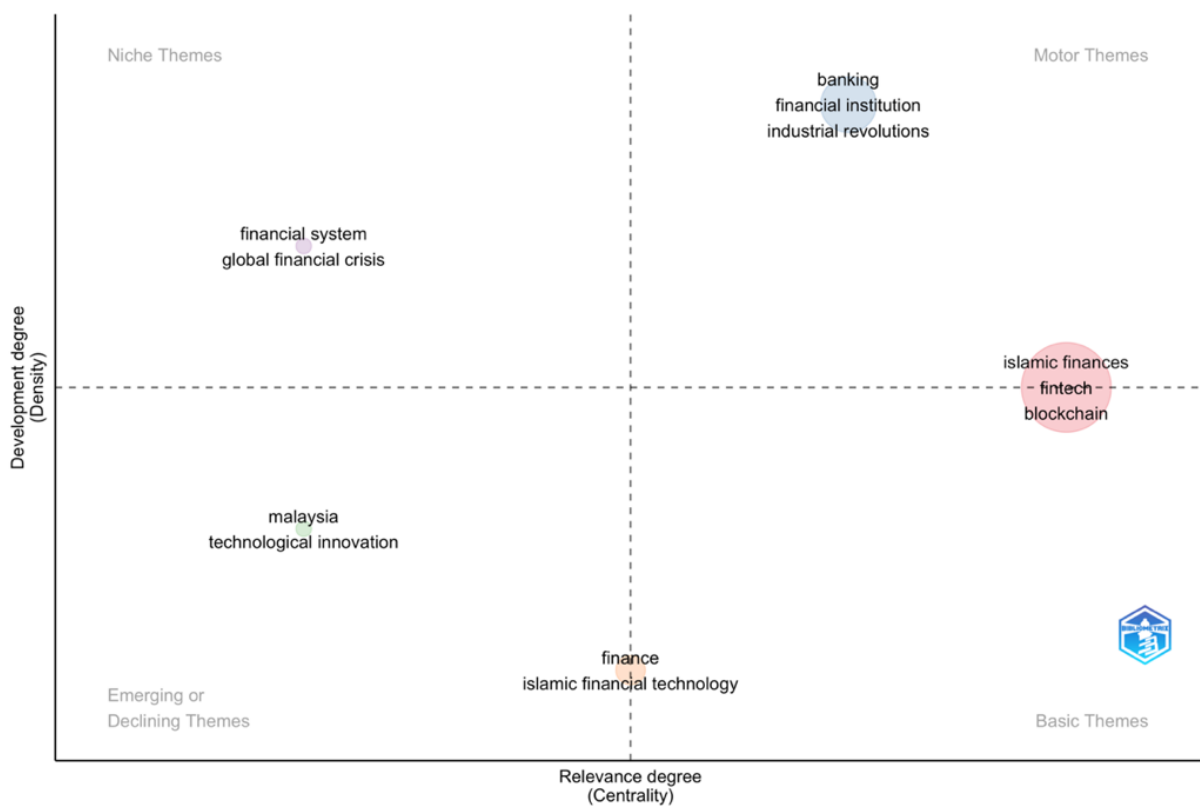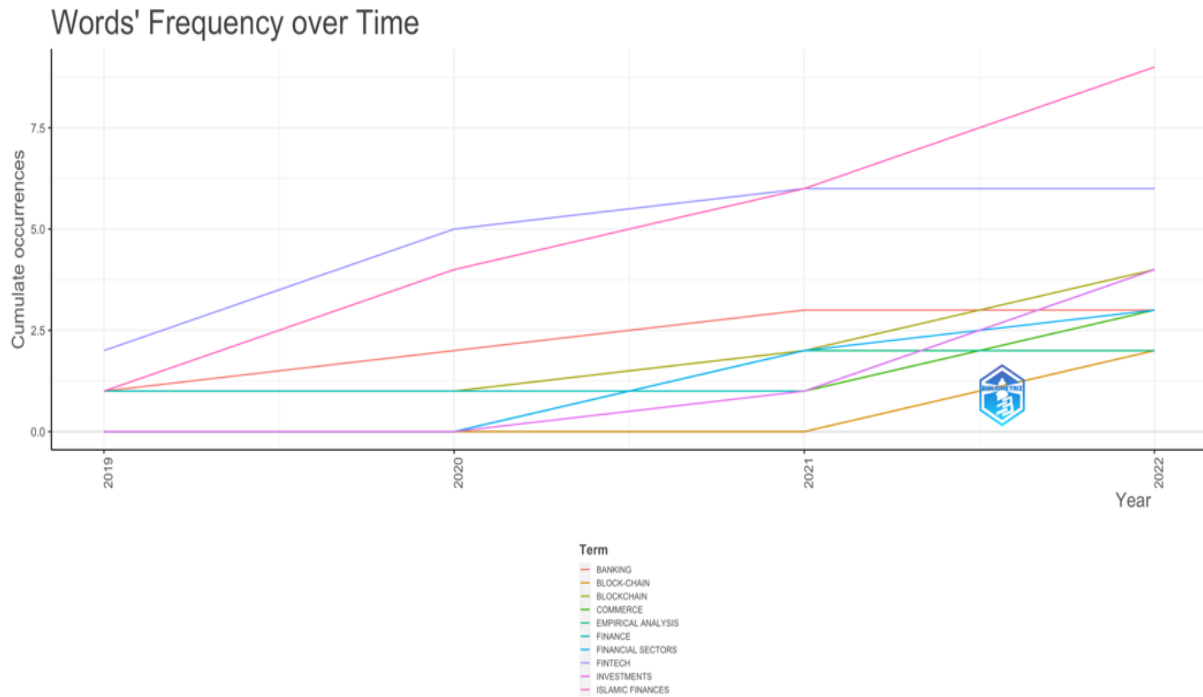

Figure 10. The thematic evolution

Figure 11. The Word Dynamic (2000–2022)

Figure 12. The Word Cloud

3.5.4 Tree Map

Treemaps are a graphical representation of hierarchical data that displays the nodes of a tree

diagram as layered rectangles Chekima (2019). Figure 13 displays multiple tree maps of the top 50 terms based on keyword plus, author's keywords, title (bigrams), and abstract (trigrams). Based on the tree map data, "Islamic financing" has the most significant percentage (10 per cent), followed by "Fintech" (7 per cent). While other terms only provide a small percentage, between 1% and 4%, of the total traffic. This result is notably different from the "word cloud" research findings, which indicate that "fintech" appears more frequently when discussing Islamic Fintech.

Figure 13. The Tree Map

4. Conclusion

Overall, bibliometric analysis is an essential tool for studying Islamic fintech since it may assist scholars, policymakers, and funding agencies in better understanding the subject's present status and identifying potential areas for future research and growth. The growing popularity of Fintech has prompted scholars to examine the industry from an Islamic worldview. The emergence of Fintech has led to a growing interest in Islamic Fintech, which refers to financial technology services and products that comply with Islamic principles and values. Islamic finance is based on the principles of shariah, which prohibits interest-based transactions (Riba), excessive risk-taking (Gharar), and investments in industries that are considered harmful to society (Haram). Islamic Fintech aims to provide ethical and socially responsible financial services that meet the needs of Muslim consumers while complying with shariah principles. Scholars have examined the industry from an Islamic worldview to assess its compatibility with Islamic principles and values and identify opportunities for Islamic Fintech entrepreneurs. Some critical focus areas for Islamic Fintech scholars include

the development of shariah-compliant crowdfunding platforms, Islamic microfinance, and ethical investment products. They also explore how Islamic Fintech can address the financial inclusion gap and provide access to financial services for underserved communities. Generally, the growing interest in Islamic Fintech reflects a broader trend towards socially responsible and ethical investing, as consumers increasingly seek financial services aligning with their values and principles.

From a practitioner's perspective, Malaysia has been at the forefront of promoting Islamic finance and has emerged as a critical player in the Islamic Fintech industry. The country has a well-established Islamic finance ecosystem, including Islamic banks, takaful (Islamic insurance) companies, and shariah-compliant investment funds. Malaysia's supportive regulatory environment and Islamic solid finance ecosystem make it an attractive destination for Islamic Fintech startups and investors. From an academic literature standpoint, Rabbani Mr. (2020; 2021), Hassan Mk (2020; 2022), Khan S. (2020), Bashar A. (2021), and Fianto Ba. are five renowned authors (2020). Mr Rabbani has 174 citations, whereas Mr Khan has 81. The leading journal in this discipline is the International Journal of Islamic and Middle Eastern Finance and Management, followed by Qualitative Research In Financial Markets and Fintech In Islamic Finance: Theory And Practice. The Co-occurrence network is composed of three primary clusters. Cluster 1 contains the terms "Islamic Finance," "Finance Institutions," "Financial System," "Global Financial Crises," "Commerce," "Finance," and "Technology product." Cluster 2 includes the terms "Fintech," "Banking," "Sales," and "Industrial Resolution." Cluster 3 consists of "Investment", "Financial Sector", "Block-chain", and "Blockchain". Multiple studies were conducted using thematic evolution, trend topic, word dynamic, word cloud, and treemap to examine the theme's evolution. From 2019 through 2022, "Islamic Finance," "Fintech," and "Blockchain" are frequently discussed. This study explains why these three topics are rising in Islamic Fintech. The "word cloud" study indicates that "Islamic Finance" appears more frequently while discussing Islamic Fintech.

4.1 Suggestions for Future Research

In the context of Islamic fintech, future research using thematic evaluation could explore several themes, including "Product Innovation". Islamic fintech companies are constantly developing new products and services that meet the unique needs of the Muslim community (Barbu et al., 2021; Irum Saba et al., 2019). Keywords search could be used to identify common themes and patterns in the types of products and services offered and the key features that differentiate Islamic fintech products from traditional financial products. Secondly, "Customer Experience". User experience is an essential factor in the success of any fintech product or service (Alnsour, 2022; Barbu et al., 2021). Thematic evaluation could identify common themes and patterns in user experiences with Islamic fintech products and services, including user satisfaction, trust, and usability. Finally, future research needs to explore how technology and innovation are driving the growth of Islamic fintech (Sidaoui et al., 2022; Rahman et al., 2022; Irum Saba et al., 2019). This could include themes related to the use of blockchain, artificial intelligence, and other emerging technologies, as well as how Islamic fintech companies are innovating to meet the evolving needs of their customers.

Acknowledgments

References

Abojeib, M., & Habib, F. (2019). Blockchain for Islamic Social Responsibility Institutions. In *Fintech as a Disruptive Technology for Financial Institutions* (pp. 221–240). IGI Global. https://doi.org/10.4018/978-1-5225-7805-5.ch010

Aitken, M., Toreini, E., Carmichael, P., Coopamootoo, K., Elliott, K., & van Moorsel, A. (2020). Establishing a social licence for Financial Technology: Reflections on the role of the private sector in pursuing ethical data practices. *Big Data and Society*, *7*(1). https://doi.org/10.1177/2053951720908892

Al-Salem, F. H. (2009). Islamic financial product innovation. *International Journal of Islamic and Middle Eastern Finance and Management*, *2*(3), 187–200. https://doi.org/10.1108/17538390910986326

Al-Sartawi, A., Al-Okaily, M., Hannoon, A., & Khalid, A. A. (2022). Financial technology: literature review paper. In A. M. M.A.-S. (Ed.), *International Conference on Global Economic Revolutions, ICGER 2021* (pp. 194–200). Springer Science and Business Media Deutschland GmbH. LNNS. https://doi.org/10.1007/978-3-030-93464-4_20

Ali, A., Ramakrishnan, S., Faisal, F., Akram, T., Salam, S., & Rahman, S. U. (2022). Bibliometric analysis of finance and natural resources: past trend, current development, and future prospects. *Environment, Development and Sustainability*, 0123456789. https://doi.org/10.1007/s10668-022-02602-1

Alnsour, I. R. (2022). Impact of fintech over consumer experience and loyalty intentions: an empirical study on Jordanian Islamic Banks. *Cogent Business and Management*, *9*(1). https://doi.org/10.1080/23311975.2022.2141098

Alshater, M. M., Saba, I., Supriani, I., & Rabbani, M. R. (2022). Fintech in islamic finance literature: A review. *Heliyon*, *8*(9), e10385. https://doi.org/10.1016/j.heliyon.2022.e10385

Ansar, R., Chekima, B., Lada, S., Lim, M. F., Bouteraa, M., Jimainal, M. N., & Adha, M. A. (2023). Assessing the authors and source impact of financial literacy: A bibliometric analysis using R. *Business and Management Horizons*, *11*(1), 33. https://doi.org/10.5296/bmh.v11i1.20761

Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The Evolution of Fintech: A New Post-Crisis Paradigm? *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2676553

As-Salafiyah, A., & Marlina, L. (2022). *Mapping Research on Islamic Fintech Using Biblioshiny*. https://doi.org/10.58968/jiel.v3i2.108

Aysan, A. F., Belatik, A., Unal, I. M., & Ettaai, R. (2022). Fintech Strategies of Islamic Banks:

A Global Empirical Analysis. *FinTech*, *1*(2), 206–215. https://doi.org/10.3390/fintech1020016

Barbu, C. M., Florea, D. L., Dabija, D. C., & Barbu, M. C. R. (2021). Customer experience in fintech. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1415–1433. https://doi.org/10.3390/jtaer16050080

Bhala, R. (2012). Overview of Islamic Finance. In *Handbook of Key Global Financial Markets, Institutions, and Infrastructure* (pp. 459–473). https://doi.org/10.1016/B978-0-12-397873-8.00039-6

Biancone, P. P., Secinaro, S., & Kamal, M. (2019). Crowdfunding and Fintech: business model sharia-compliant. *European Journal of Islamic Finance*, *12*.

Bolaños, F. (2022). Mapping the Trending Topics of Bibliometric-enhanced Information Retrieval. *CEUR Workshop Proceedings*, *3230*, 61–70.

Brescia, V., Sa'ad, A. A., Hassan, R. B., Alhabshi, S. M. B. S. J., & Lanzalonga, F. (2021). Exploring sustainability from the Islamic finance perspective. *European Journal of Islamic Finance*, *19*(December), 45–53.

Chekima, B., & Chekima, K. (2019). The Impact of Human Values and Knowledge on Green Products Purchase Intention. In A. Gbadamosi (Ed.), *Exploring the Dynamics of Consumerism in Developing Nations* (pp. 266–283). IGI Global. https://doi.org/10.4018/978-1-5225-7906-9.ch012

Chen, X., Lun, Y., Yan, J., Hao, T., & Weng, H. (2019). Discovering thematic change and evolution of utilizing social media for healthcare research. *BMC Medical Informatics and Decision Making*, *19*(Suppl 2). https://doi.org/10.1186/s12911-019-0757-4

Chong, T.-P., William Choo, K.-S., Yip, Y.-S., Chan, P., Julian Teh, H.-L., & Ng, S.-S. (2019). An Adoption of Fintech Service in Malaysia. *South East Asia Journal of Contemporary Business, Economics and Law*, *18*(5), 134–147.

De Mauro, A., Greco, M., & Grimaldi, M. (2016). A formal definition of Big Data based on its essential features. *Library Review*, *65*(3), 122–135. https://doi.org/10.1108/LR-06-2015-0061

Degerli, K. (2019). Regulatory Challenges and Solutions for Fintech in Turkey. *Procedia Computer Science*, *158*, 929–937. https://doi.org/10.1016/j.procs.2019.09.133

Fares, D., & Younes, S. (2021). *Islamic Finance: Shariah and the SDGS*. International Shari'ah Research Academy for Islamic Finance, October.

Friedman, A. (2015). The Power of Lotka's Law Through the Eyes of R. *Romanian Statistical Review*, *2*, 69.

Hasan, R., Hassan, M. K., & Aliyu, S. (2020). Fintech and Islamic Finance: Literature Review and Research Agenda. *International Journal of Islamic Economics and Finance* (IJIEF), *3*(1), 75–94. https://doi.org/10.18196/ijief.2122

Heng, D., & Tok, Y. W. (2022). Fintech: Financial Inclusion or Exclusion? *IMF Working Papers*, *2022*(080), 1. https://doi.org/10.5089/9798400208645.001

Hirsch, J. E. (2005). *An index to quantify an individual's scientific research output*. Proceedings of the National Academ. https://doi.org/10.1073/pnas.0507655102

Iman, N. (2020). The rise and rise of financial technology: The good, the bad, and the verdict. *Cogent Business \& Management*, *7*(1), 1725309. https://doi.org/10.1080/23311975.2020.1725309

Irum Saba, R. K., & Imran, S. C. (2019). Fintech and Islamic Finance-challenges and Opportunities. *Review of Economics and Development Studies*, *5*(4), 581–590. https://doi.org/10.26710/reads.v5i4.887

Jaafar, M. N., Muhamat, A. A., Mohammad Hatta, M. F. bin, & Syed Alwi, S. F. (2021). Fintech Development in Financial Institutions Industry: An Empirical Study on Malaysia Islamic Banks. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *11*(3). https://doi.org/10.6007/ijarafms/v11-i3/10867

Jamil, N. N., & Seman, J. A. (2019). The Impact of Fintech On The Sustainability Of Islamic Accounting And Finance Education In Malaysia. *Journal of Islamic, Social, Economics and Development*, *4*(17), 74–88.

Lada, S., Chekima, B., Ansar, R., Abdul Jalil, M. I., Fook, L. M., Geetha, C., … Abdul Karim M. R. (2023). Islamic economy and sustainability: A bibliometric analysis using R. *Sustainability*, 15(6), 5174. https://doi.org/10.3390/su15065174

Laila, N., Rusydiana, A. S., Irfany, M. I., Imron, H. R., Srisusilawati, P., & Taqi, M. (2021). Energy economics in Islamic countries: A bibliometric review. *International Journal of Energy Economics and Policy*, *11*(2), 88–95. https://doi.org/10.32479/ijeep.10763

Lis, S. F. De. (2018). *Fintech: key regulatory challenges*.

Martínez, M. A., Herrera, M., Contreras, E., Ruíz, A., & Herrera-Viedma, E. (2015). Characterizing highly cited papers in Social Work through H-Classics. *Scientometrics*, *102*(2), 1713–1729. https://doi.org/10.1007/s11192-014-1460-y

Maz-Machado, A., Madrid, M. J., Jiménez-Fanjul, N., & León-Mantero, C. (2017). Empirical examination of lotka's law for information science and library science. *Pakistan Journal of Information Management and Libraries*, *19*, 37–51. https://doi.org/10.47657/2017191106

Nasir, A., Shaukat, K., Iqbal Khan, K. A., Hameed, I., Alam, T. M., & Luo, S. (2021). Trends and Directions of Financial Technology (Fintech) in Society and Environment: A Bibliometric Study. *Appl. Sci.*, *11*, 10353. https://doi.org/10.3390/app112110353

Nicole, S. J., Lada, S., Ansar, R., Abdul Adis, A.-A., Fook, L. M., & Chekima, B. (2022). Corporate Social Responsibility and Strategic Management: A Bibliometric Analysis. *Sustainability*, *14*, 10526. https://doi.org/10.3390/su141710526

Nicoletti, B. (2017). *The Future of FinTech*. https://doi.org/10.1007/978-3-319-51415-4

Okubo, Y. (1997). *Bibliometric Indicators and Analysis of Research Systems methods and examples, oecd Science* (p. 70). Technology and Industry Working Papers, 1997/01, OECD Publishing.

Pikri, E. (2019, January 2). *Malaysia is a leader in Islamic Finance, but why not Islamic Fintech?* Retrieved from https://fintechnews.my/19512/islamic-fintech/islamic-fintech-malaysia-shariah

Rabbani, M. R., Khan, S., & Thalassinos, E. I. (2020). FinTech, blockchain and Islamic finance: An extensive literature review. *International Journal of Economics and Business Administration*, *8*(2), 65–86. https://doi.org/10.35808/ijeba/444

Rahman, A. A. A., Rahiman, H. U., Meero, A., & Amin, A. R. (2022). FinTech Innovations and Islamic Banking Performance: Post Pandemic Challenges and Opportunities. *Research Square*, 1–35. https://doi.org/10.21203/rs.3.rs-1272120/v1

Rashid, S., Rehman, S. U., Ashiq, M., & Khattak, A. (2021). A scientometric analysis of forty-three years of research in social support in education (1977–2020). *Education Sciences*, *11*(4). https://doi.org/10.3390/educsci11040149

Rusydiana, A. S., & As-Salafiyah, A. (2021). Islamic Moral Economy: A Scientometric Using R. *Library Philosophy and Practice*, *2021*.

Salameh, J. P., Bossuyt, P. M., McGrath, T. A., Thombs, B. D., Hyde, C. J., MacAskill, P., … McInnes, M. D. F. (2020). Preferred reporting items for systematic review and meta-analysis of diagnostic test accuracy studies (PRISMA-DTA): Explanation, elaboration, and checklist. *The BMJ*, *370*(12). https://doi.org/10.1136/bmj.m2632

Sangwan, V., Harshita, Prakash P., Singh, S., 2020. Financial technology: a review of extant literature. *Stud. Econ. Finance*, *37*(1), 71–88. https://doi.org/10.1108/SEF-07-2019-0270

Senyo, P. K., Karanasios, S., Gozman, D., & Baba, M. (2022). FinTech ecosystem practices shaping financial inclusion: the case of mobile money in Ghana. *European Journal of Information Systems*, *31*(1), 112–127. https://doi.org/10.1080/0960085X.2021.1978342

Sidaoui, M., Ben Bouheni, F., Arslankhuyag, Z., & Mian, S. (2022). Fintech and Islamic banking growth: new evidence. *The Journal of Risk Finance*, *23*(5), 535–557. https://doi.org/10.1108/JRF-03-2022-0049

Suryono, R. R., Budi, I., & Purwandari, B. (2020). Challenges and trends of financial technology (Fintech): a systematic literature review. *Information*, *11*(12), 1–20. https://doi.org/10.3390/info11120590

Unal, I. M., & Aysan, A. F. (2022). Fintech, Digitalization, and Blockchain in Islamic Finance: Retrospective Investigation. *FinTech*, *1*(4), 388–398. https://doi.org/10.3390/fintech1040029

van Eck, N. J., & Waltman, L. (2021). *Manual de VOS viewer*. Univeristeit Leiden, July. Retrieved from http://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.1.pdf

Visser, M., van Eck, N. J., & Waltman, L. (2021). Large-scale comparison of bibliographic

data sources: Scopus, web of science, dimensions, crossref, and microsoft academic. *Quantitative Science Studies*, *2*(1), 20–41. https://doi.org/10.1162/qss_a_00112

Wonglimpiyarat, J. (2017). FinTech banking industry: a systemic approach. *Foresight*, *19*. https://doi.org/10.1108/FS-07-2017-0026

Wu, Y. H., Bai, L., & Chen, X. (2023). How does the development of fintech affect financial efficiency? Evidence from China. *Economic Research-Ekonomska Istraživanja*, *36*(1), 2980–2998. https://doi.org/10.1080/1331677X.2022.2106278

Yardibi, F., Firat, M. Z., & Çetin Teke, E. (2021). Trend topics in animal science: A bibliometric analysis using CiteSpace. *Turkish Journal of Veterinary and Animal Sciences*, *45*(5), 833–840. https://doi.org/10.3906/VET-2001-103

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