



## Islamic Finance and Blockchain: A Bibliometric Analysis

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**ABSTRACT:** The Covid-19 pandemic is causing the digital economy to expand quickly. The development of Islamic finance employing Islamic financial technology should see this technology and the burgeoning digital economy as a problem and an opportunity. One of the most sophisticated acceleration development products is blockchain, and become Islamic finance's most challenging product. There are still pros and cons to using blockchain in Islamic financial products. In terms of transparency and high trust level, the value of blockchain is similar to those of Islamic financial value. It's critical to have this opportunity to speed up Islamic finance development. The main problem is that there are still very limited studies about Islamic finance and blockchain. With this study, we will conduct a bibliometric analysis of the publications we published from 2012-2022 about Islamic finance and blockchain through Scopus and google scholar. This study uses the Vos viewer program to see the number of publications, co-authorship authors, co-authorship institutions, co-authorship countries, and keywords. In Scopus, only 24 papers have discussed Islamic finance and blockchain in the last ten years. However, there are more papers on google scholar, but they are still not as specified as in Scopus. There are still many opportunities to have more research in this field.

**KEYWORDS:** Blockchain, Bibliometric, Islamic Finance.

### INTRODUCTION

The COVID-19 pandemic has caused rapid development in the digital economy and many financial products. One of the most sophisticated development is blockchain technology, and become the most significant challenge and opportunity, side by side, for boosting Islamic finance development [1]. Islamic finance needs to adapt to this financial technology disruption. The last ten years have seen an exponential rise in Islamic financing. The Islamic financial sector experiences roughly 15% yearly growth. Annual demand for shariah compliance is rising [2] Islamic finance has had asset growth of between \$200 million and \$300 million over the last ten years, demonstrating the industry's promise despite its apparent tiny size [3]. With the growth of blockchain technology in this digital era, Islamic finance should adapt and see this as an opportunity to expand Islamic finance exponentially. Blockchain has the same principle as Islamic finance, like transparency and safety, because the data is trackable and can't be modified [4]. Unfortunately, until now, there are still many perspectives on sharia compliance by using blockchain. There are pro, contra, and neutral groups. This different perspective is supported by very little research about blockchain from the standpoint of sharia compliance due to using it for Islamic financial products [5].

This study is conducted to present bibliometric analysis as a summary of references about blockchain and Islamic finance to the researcher who will conduct further studies in this field. We identified only twenty-four research published in Scopus for Islamic finance and blockchain field, and more research indexed in google scholar only for the last ten years. Most of the studies in this field are still in literature review and qualitative analysis, and using this research can help many researchers to do further research in this field. This study will also summarize the similarity between Islamic finance principles and blockchain values. The rest of the paper will have the following structure. After an introduction in section 1, section 2 will discuss a literature review of Islamic finance, blockchain, and bibliometrics with background theory. Section 3 will talk about the methodology used for this research. Findings and Discussion will be in section 4 and continue with section 5, conclusion, and closing.

### LITERATURE REVIEW

The Islamic finance sector has recently experienced average annual growth rates of roughly 15% and is experiencing a remarkable expansionary phase. The spread of Islamic finance has become a global phenomenon due to this rapid growth driven by investors worldwide and the Middle East and other Muslim countries' growing need for shari'ah-compliant products (Hesse et al., 2008). In this modern era, Islamic finance is growing rapidly with the development of international finance. There is more than US\$800 billion of funding in many financial products such as deposits, mutual funds, savings in Islamic banking, insurance, and



others. [6]. In 1991, the first Islamic bank in Indonesia, Bank Muamalat Indonesia, was established in Indonesia. Now, Islamic finance in Indonesia has developed rapidly. By December 2020, total Islamic financial assets in Indonesia Islamic finance in Indonesia has been developing rapidly, and by December 2020, total Islamic financial assets in Indonesia will become 1.367,06 trillion rupiahs. Islamic capital market in Indonesia's total assets also grew very aggressively to 1.075,22 trillion rupiahs by the end of December 2020. Islamic banking has total assets of 608,90 trillion rupiahs, and the Islamic nonbank financial sector has 116.22 trillion rupiahs [7]. Islamic finance in Indonesia greatly contributes to economic growth in Indonesia, especially the growth of Islamic banking in Indonesia [8].

The unique point of Islamic finance and banks is that they don't affect Islamic finance so much during the financial crisis because they have different principles and values from conventional banks [9]. The fundamental principles of Islamic finance are prohibited by Riba, Gharar, and Maysir [10]. Gharar denotes a potential for doubt or deception because of its uncertainty [2]. Maysir is the risk and probability of doing speculation [5]. Riba means growing and is known as interest [11]. In Islamic finance, three fundamental principles of ownership, transparency, and participation have the same value as blockchain [6].

Blockchain is one of the most sophisticated technology in this economic era. Blockchain side by side becomes an opportunity for Islamic finance (Rabbani et al., 2020). Blockchain is a peer-to-peer system maintained by automated computers on a network without outside authority. A transaction, a transaction record, and a system for transaction verification make up the blockchain [13]. Because blockchain data cannot be changed and all transactions can be recorded, it adheres to the same transparency criteria as Islamic finance, which is suited for safety, particularly in Islamic banking [14] Modern technology like blockchain supports and enhances the transparency of all transactions, which is the same idea behind Islamic finance [15]. The business operations of the Islamic banking ecosystem will benefit from blockchain technology. Islamic banking and blockchain technology share similar underlying ideas, such as greater trust and transparency than traditional standards. Because we cannot employ electronic codes or transact with unidentified parties using blockchain technology, transparency and reliability will minimize the aspect of gharar [16]. Blockchain technology has the potential to streamline intricate business procedures in Islamic finance and inter-stakeholder baking. Customer confidence in Islamic financial products will rise as a result [17].

There is still little research on Islamic finance and blockchain. In the last ten years, we only found twenty-four papers about Islamic Finance and Blockchain in Scopus. In google e scholar, there are more papers, but they are still not as specified as papers in Scopus. [18] Scopus is the largest indexed journal, but these topics only have had very limited papers in the last ten years. It shows the opportunity of researching this topic very large. Bibliometric analysis is the answer to create the basis of reference for other further research. Bibliometric information can be viewed as a component of a larger collection of data sources accessible to support decision-making in research management. Peer review and other quantitative sources, such as research funding statistics, research staff data, and altimetric data, can provide pertinent information [19] Bibliometrics can also evaluate all factors involved in producing and consuming books and papers [20]. Another definition of bibliometric is a statistical analysis of publications published by people or organizations in a specific field and location and the relationships between these articles [21]. Using bibliometric analysis, we can now summary of all the references in this field, Islamic finance, and blockchain.

## METHODOLOGY

This study is categorized as bibliometric analysis: document analysis and data collection from google scholar and Scopus. An online resource for finding scholarly and scientific material is Google Scholar. It can also be used as a source of data for bibliometric studies. Google Scholar is superior to Web of Science and Scopus in two important ways. The fact that Google Scholar is free to use is one benefit. No registration is necessary. The other benefit is that Google Scholar provides more thorough coverage of intellectual and scientific publications. This is crucial, especially for bibliometric analyses focused on national and regional literature and international scientific and scholarly literature in computer science, the social sciences, and the humanities [22]. Scopus is commonly used in bibliometric studies, and some researchers consider it the basis of references because it has a more significant number of indexed journals than science [23]. It takes data analysis and interpretation to expose meaning and advance empirical knowledge in document analysis, a systematic method for assessing or evaluating printed and electronic documents [21].

The data searched in Google Scholar and Scopus uses keywords "Islamic Finance" and "Blockchain" for every publication of ten years ago (2012-2022). All analysis is done by selecting a minimum of one document and one citation. Mining data for the



papers using publish and perish and continue using vos viewer. For the data, there are 600 papers from google scholar and 24 papers from the Scopus database.

## FINDINGS AND DISCUSSIONS

The following table shows a collection of the documents using the search “Islamic Finance” and “Blockchain” from google scholar and Scopus.

**Table 1.** Classifications of publications 2012-202 from google scholar

No	Documents Type	Number of Documents
1	Journal article	600
2	Book chapter	21
3	Conference paper	0
4	Review	113
	Total	734

**Table 2.** Classifications of publications 2012-202 Scopus

No	Documents Type	Number of Documents
1	Journal article	21
2	Lecture notes	2
3	Proceedings conference	1
	Total	24

Based on the results, there are more sources from google scholar than Scopus, but in google scholar, not all the sources specified talk about Islamic finance and blockchain only. A higher percentage of the source is still in journal articles from Scopus and google scholar. The least documents are from the conference or proceedings conference from google scholar and Scopus. This shows that the reference is valid and reasonable because most sources are scientific journals and research.

Figure 1 of the bibliometric analysis shows the top streaming countries with research on Islamic finance and blockchain. The highest number of documents is from Malaysia, but in the vos viewer program, Malaysia hasn't any connected research to other countries. As we can see from figure 1, there are three clusters of the countries. Cluster 1 is France, India, and Luxembourg. Cluster 2 is Bahrain, Greece, and Malta, and Cluster 3 is the United States. The United States and Bahrain have interconnected with the higher citation of the paper. Bahrain has a higher connection to Greece, the United States, India, and other countries with the higher citation.

**Table 3.** Top countries Islamic Finance and Blockchain

Number	Country	Documents	Citation
1	Malaysia	7	27
2	Bahrain	3	35
3	United States	3	27
4	India	2	10
5	Australia	2	12

6	Pakistan	2	13
7	Singapore	2	17
8	Malta	1	27
9	Greece	1	27
10	France	1	17



**Figure 1.** Country Network Map (Islamic Finance and Blockchain)

The following table and figure represent the top publishing institutions of Islamic Finance and Blockchain. Data were analyzed by seeing total citations from the top ten institutions of most publications. The highest citation and publications are from the University of Bahrain and continue with the Kingdom University of Bahrain. University of Malta and Greece take place in 3<sup>rd</sup> and 4<sup>th</sup> place. Figure 2 shows the Publishing Institutions Network Map that the Department of Information Technology University of College Bahrain has strong connections to other top publishing institutions.

**Table 4.** Top Publishing Institutions Islamic Finance and Blockchain

Number	Institutions	Documents	Citation
1	Department of information technology University of College Bahrain	3	35
2	Department of finance and accounting, Kingdom university bahrain	2	32
3	University of Malta	1	27
4	University of Pireaus, Greece	1	27
5	Stellar Consulting Group	1	17
6	University of Islam Sultan Sharif Ali, Brunei Darussalam	1	17
7	Henley Business School University of Reading Malaysia	1	15
8	RM Applications Kuala Lumpur	1	15
9	Department of computer science, University of the Punjab, Lahore	1	12
10	Department of management science, University of Newcastle, United States	1	12



Figure 2. Publishing Institutions Network Map

In table 5, as we can see, the source of publications based on higher citations is an International journal of economics and business administration, followed by blockchain, fintech, and Islamic finance: building the future. Figure 3 shows that, overall, there is no standout source in this field. International journal of economics and business administration has connected to Islamic law and society, blockchain, fintech, and Islamic finance: building the future and fintech and Islamic finance: digitalization and development in one cluster. The second cluster comprises a global finance journal, IEEE, access, and lecture notes in business information processing. The third cluster is qualitative research in financial markets, covid-19, Islamic social finance, and technology strategy and analysis management.

Table 5. Top most Source of Islamic Finance and Blockchain

Number	Source	Documents	Citation
1	International Journal of Economics and Business Administration	1	27
2	Blockchain, fintech and Islamic finance: building the future	1	17
3	Fintech and Islamic finance: digitalization and development	1	15
4	IEEE Access	1	12
5	Global Finance Journal	1	7
6	Proceedings of the 2018 cyber resilience conference	1	6
7	International journal of scientific and technology research	1	5
8	International finance review	1	4
9	Qualitative research in financial markets	2	3
10	Covid-19 and Islamic social finance	1	3

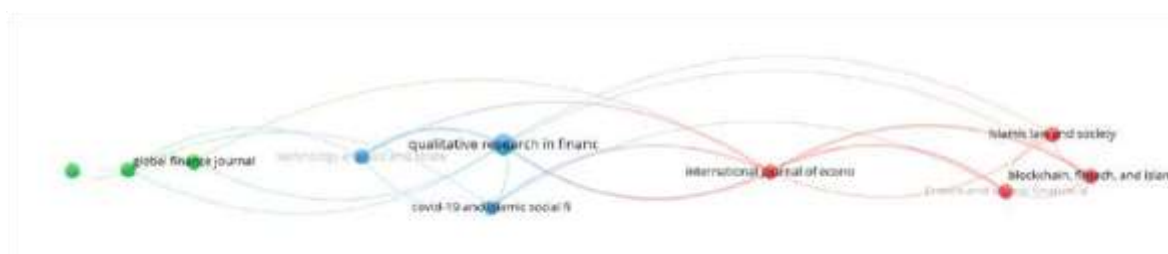


Figure 3. Source network map

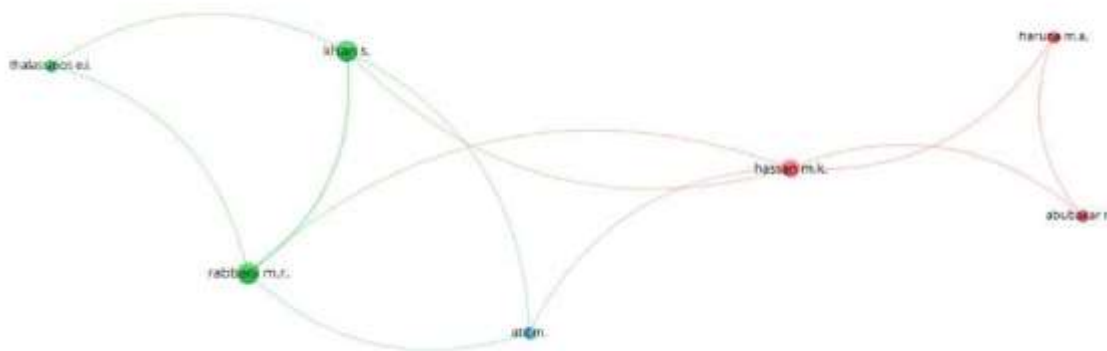
Table 6 and figure 4 show the most referred authors due to higher citations. Data analyzed and ranked the top ten Islamic Finance and Blockchain authors with the highest citation. The most referred author is Khan S and Rabbani M. R., with 35 citations from 3 documents, and they continue with Thalassinos E.I., with 27 citations from only one publication. Figure 4 shows the bigger



nodes from Khan S. and Rabbani M. R. same result as table 6. Figure 4 also shows three authors, cluster 1 included Abubakar M., Haruna M.A., and Hassan M.K. Cluster two included Khan, S. Rabbani M.R., and Thalassinos E. I. The last cluster had Atif M.

**Table 6.** Top most Referred Authors

Number	Author name	Documents	Citation
1	Khan S.	3	35
2	Rabbani M. R.	3	35
3	Thalassinos E. I.	1	27
4	Mohamed H.	2	17
5	Ali H.	1	17
6	Alam N.	1	15
7	Gupta I.	1	15
8	Zameni A.	1	15
9	Alam T.M.	1	12
10	Hameed I.A.	1	12



**Figure 4.** Authors Reference Network Map

The last part is keyword analysis. Figure 5 shows a keyword network map only if using Scopus as the source of documents and figure 6 shows a keyword network map using both google scholar and Scopus as the source of documents. From Figure 5, we see there are three clusters with 12 items. The most significant nodes are Islamic finance and blockchain. In cluster 1, blockchain is connected to commerce, finance, Islamic finance, smart contract, and Sukuk. The second cluster of Islamic finance ce is related to Islamic banks, fintech, and cryptocurrency. The third cluster only consists of bitcoin and cryptocurrency with the blue line. Figure 6 shows more keywords because the author also adds sources from Google Scholar. The primary central nodes are blockchain, Islamic finance, blockchain technology, and cryptocurrency. What keywords are usually used together in every document? The circle size shows the frequency of using the keywords, and the circle color shows the keywords used together. Figure 6 shows that the circle between Islamic finance and blockchain is not necessarily frequently used together, but they have many lines that show they are related.

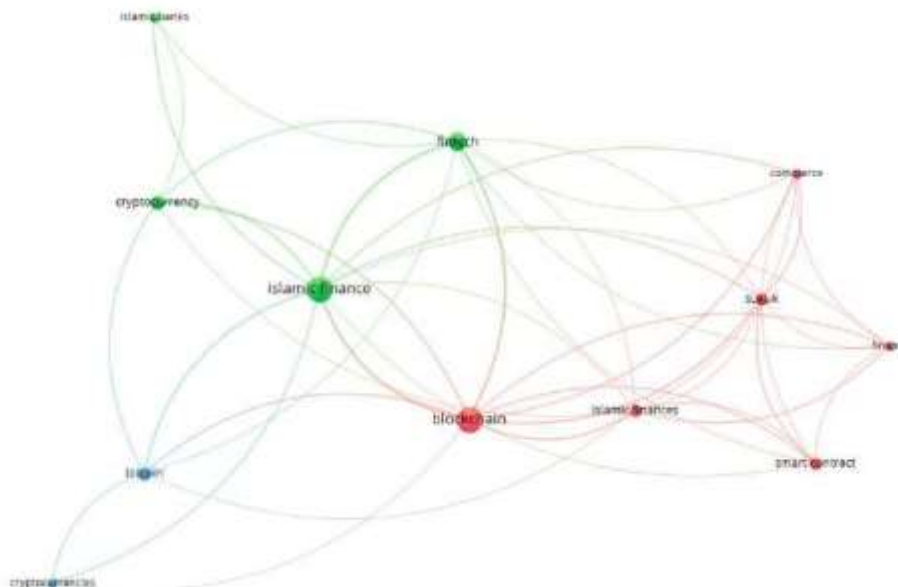


Figure 5. Keywords Network Map from Scopus

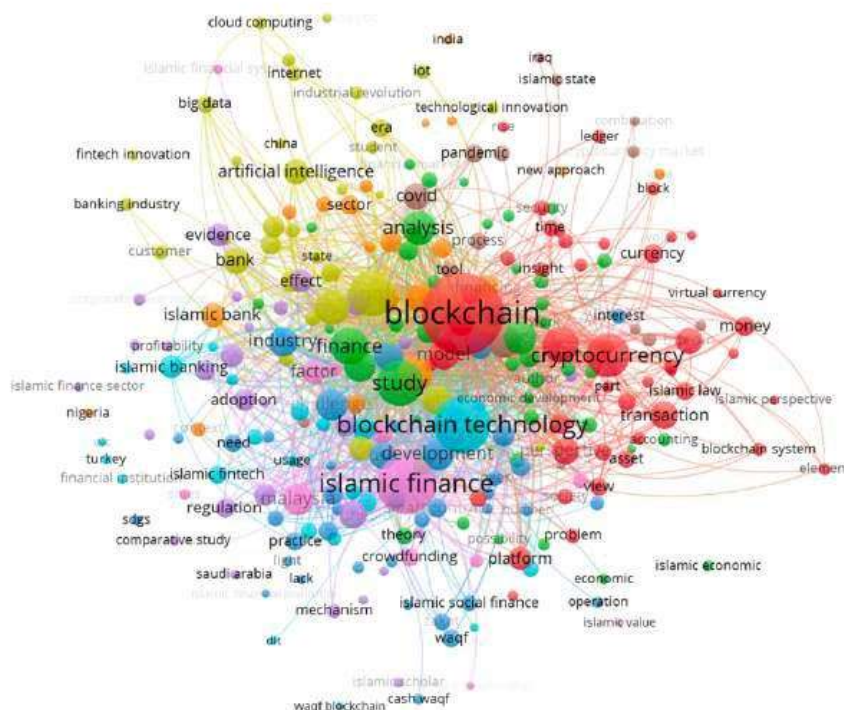


Figure 6. Keywords Network Map from Scopus and Google Scholar

Figure 7 shows the co-occurrence index network map. This figure shows the results of the index usually used by the author in the field of Islamic Finance related to Blockchain. There are 44 items with 5 clusters. The same color shows a close relationship. Blockchain closely relates to contract formation, formation process, human resource management, literature reviews, paper analysis,

and personnel. Islamic finance has a close relationship with finance, financial contracts, financial service, industrial experience, Islamic banking, and integration. The lighter color is more used in this index, and the yellow one is lighter. Islamic finance and finance are more used in this index.

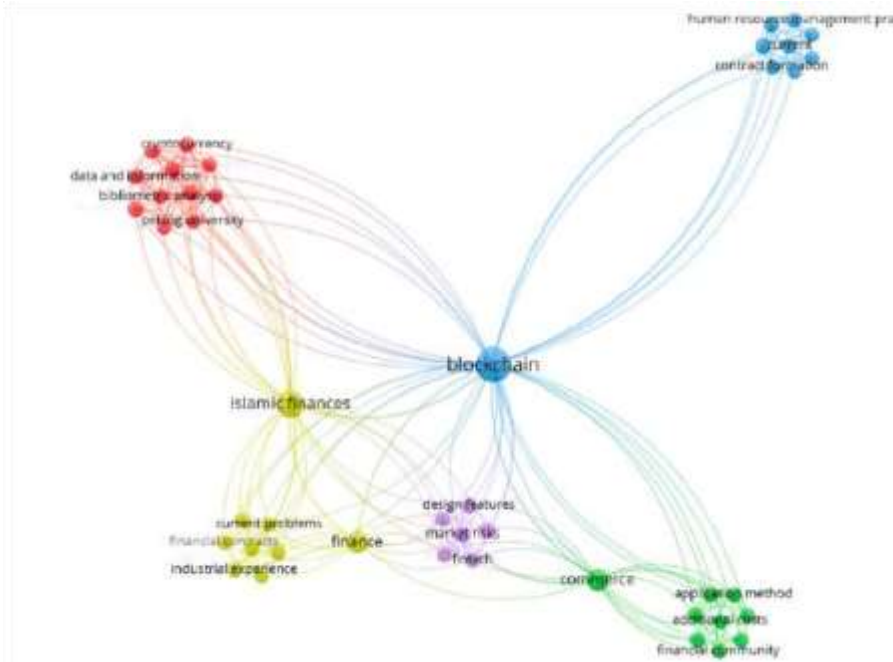


Figure 7. Co-occurrence index Network Map

In following table 7 and figure 8 show Co-occurrence by author keywords. The differences between the keywords in this table and figure show keywords authors used in Islamic finance and blockchain. The higher occurrence of keywords shows more widely used [24]. From figure 8, the most significant nodes are Islamic finance and blockchain, the same as this research topic. Islamic finance has nodes to blockchain and is also connected to cryptocurrencies, fintech, bitcoin, and Islamic banks; meanwhile, blockchain has connected to Islamic finance, cryptocurrencies, Sukuk, smart contract, bitcoin, and Islamic banks.

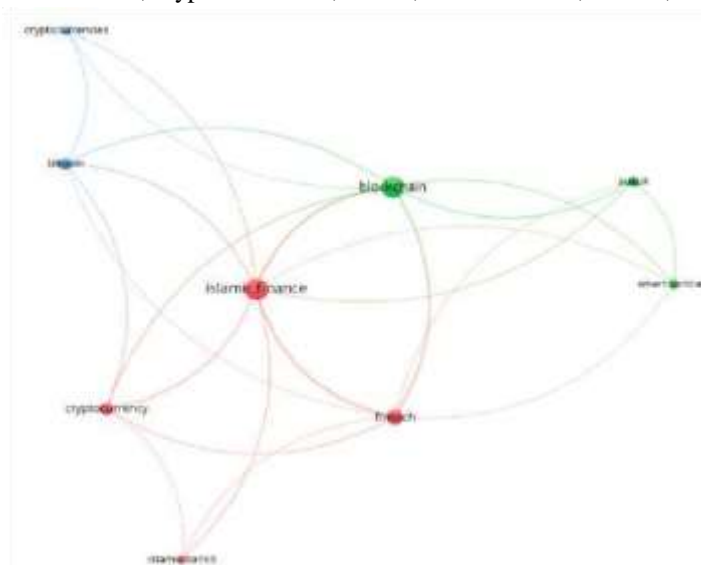


Figure 8. Co-occurrence Authors Keyword Network Map





## CONCLUSION

From this bibliometric study, Scopus and Google scholar has been used as source and running through the vos viewer application. This study shows there are still few studies in Islamic Finance and Blockchain. Since there are still many different viewpoints on the blockchain (pro, con, and neutral), we may benefit from the fact that it shares some of the same ideals as Islamic finance, such as trust, justice, equality, and efficiency. Results show only 24 documents of Scopus, showing. There are many opportunities to do research and study this topic. The result of this study shows that the top countries are Malaysia, Bahrain, and the united states, with only a maximum have seven documents and 35 citations. Results from a source maximum of only two documents from each source are still a comprehensive way to further research in this field. Indonesia still needs to be one of the top countries for research in Islamic Finance, and Blockchain suggests that Indonesian researchers or players in this field study and research further. From results of this research suggest that government and regulators encourage more research in this field to accelerate the development of Islamic finance by using blockchain technology. Islamic finance is only now beginning to use blockchain. Technical problems, the sharia board, government regulations, and literature about fintech in Islamic finance from a player in this space need to be addressed. Islamic finance and banks must keep up with the surge of technological advancement with objectives that can boost efficiency, cut costs, and adhere to sharia criteria for this new fintech.

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