

BIBLIOMETRIC MAPPING OF RESEARCH DEVELOPMENTS USING QARDH FINANCING TOPICS ON GOOGLE SCHOLAR USING VOSVIEWER

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Abstract

Al-Qardh is a bailout or loan for people who need fast funds, one of the bank's services in serving the community, apart from kafalah, hiwalah and others. This study aims to determine the development of research publications within a period of 13 (thirteen) years, determine the direction of qardh financing research trends, identify the relationship between scientific concepts, and find out the knowledge network of qardh financing based on keywords (co-occurrence) and author collaboration (co-authorship). The method used in this study is descriptive bibliometric analysis, the data used was taken from 2010-2022. Data collection was carried out based on the Google scholar database with the keyword qardh financing and additional supporting keywords including Qardhul Hasan, soft loans, Islamic financing, Islamic banking, with a publication limit of 1000 journals. Data collection was carried out using Publish or Perish (PoP) software as metadata. Data analysis was performed using Vosviewer software as a medium for bibliometric analysis. The results of the study show that in the last 13 years, the number of publications regarding qardh financing research indexed by Google Scholar has fluctuated, but in terms of quantity it has increased significantly.

Keywords: *Bibliometric Analysis; Vosviewer; Co-occurrence; Co-authorship; Qardh Financing*

Abstrak

Al-Qardh merupakan dana talangan atau pinjaman bagi orang yang membutuhkan dana cepat, salah satu jasa bank dalam melayani masyarakat, selain kafalah, hiwalah dan lain-lain. Penelitian ini bertujuan untuk mengetahui perkembangan publikasi penelitian dalam kurun waktu 13 (tiga belas) tahun, mengetahui arah tren penelitian pembiayaan qardh, mengidentifikasi adanya hubungan antar konsep keilmuan, serta mengetahui jaringan ilmu pembiayaan qardh berdasarkan kata kunci (co-occurrence) serta kolaborasi penulis (co-authorship). Metode yang digunakan pada penelitian ini adalah analisis bibliometrik deskriptif, data yang digunakan diambil dalam rentang tahun 2010-2022. Pengumpulan data dilakukan berdasarkan database Google scholar dengan kata kunci pembiayaan qardh dan tambahan kata kunci pendukung diantaranya Qardhul Hasan, pinjaman lunak, pembiayaan syariah, perbankan syariah, dengan batasan jumlah publikasi sebanyak 1000 jurnal. Pengumpulan data dilakukan menggunakan software Publish or Perish (PoP) sebagai metadata. Analisis data dilakukan menggunakan software Vosviewer sebagai media analisis bibliometrik. Hasil penelitian menunjukkan bahwa dalam 13 tahun terakhir jumlah publikasi mengenai penelitian pembiayaan qardh yang terindeks Google scholar mengalami fluktuatif, namun dari segi kuantitas mengalami peningkatan yang signifikan.

Kata Kunci: *Analisis Bibliometrik; Vosviewer; Co-occurrence; Co-authorship; Pembiayaan Qardh*

Introduction

Financial transactions with sharia-based contracts on system implementation Islamic economics has spread in various countries, not even only in countries Muslims, but also in many non-Muslim countries. Islamic economics has become an important part of the global economy. Islamic economic development in At this time it is inseparable from the role and struggle of the Muslims who want to implement an economic system that complies with sharia. From the first to now Islamic economics is following its footsteps until its pillars stood when it was founded modern institutions based on Islamic economics in Egypt and continue to develop in various countries.(Komarudin and Hidayatullah 2021:134)

The development of the practice of Islamic Financial Institutions both at the national and international levels has illustrated that the Islamic economic system can adapt to the conventional economy which has long dominated the life of the world community and in Indonesia. With the development of the growth development of Islamic Financial Institutions, it can proven that society considers it important to transact with sharia principles.(Ash-Shiddiqy 2018:103)

One of the main differences between conventional banks and Islamic banks lies in the contract, that conventional banks use debt contracts with forbidden interest while Islamic banks only use contracts that are permitted by Islam(R. Hidayat and Komarudin 2018:32), and one of them is Qardh.

Qardh as a form of financing in Islamic Microfinance Institutions is generally interpreted as lending activities without any reward. Compared to the conventional microfinance institution system, where interest or compensation is charged in each transaction, the amount of which has been determined in advance, the qardh financing system in which borrowers are not subject to interest, the borrower is not even required to provide collateral, only returns the loan. The development of micro and small businesses in the form of increased capital or increasing the type of business will have an impact on increasing levels of income and income, which will directly reduce the poverty rate and reduce the unemployment rate.(Jenita 2017:179)

Some of the concepts and implementation principles that are applied to the economic sector, especially financial institutions, of course, must refer to and comply with the rules determined by the muamalah provisions. So that the application of muamalah does not occur in the implementation of fraud in the implementation of financing agreements in a financial institution.

Research is a process of collecting and analyzing data systematically in achieving certain goals. The objective evaluation of research activities depends on the availability of data from scientific research activities. In 1958, Eugene Garfield founded the Scientific Information Institute, an organization that later founded the Science Citation Index. The Science Citation Index is the first large reference database to introduce impact factors which are the first prestige indicators for scientific journals.(Pisuko, Utami, and Karlina 2022:2)

Bibliometric analysis is a quantitative method for analyzing bibliographic data in articles/journals. This analysis is usually used to investigate references to scientific articles cited in a journal, to map the scientific fields of a journal, and to classify scientific articles according to a research field. This method can be used in the fields of

sociology, humanities, communication, marketing, and other social groups. The approach used in the bibliometric analysis is a citation analysis approach to see 1 article cited by 1 other article, and a co-citation analysis approach to find 2 or more articles cited by 1 article.(Effendy et al. 2021a:12)

VOSviewer is software for building and visualizing bibliometric networks. These networks may for example include individual journals, researchers, or publications, and they can be built on citations, bibliographical amalgamations, co-citations, or co-authorship links. VOSviewer also offers text mining functionality which can be used to build and visualize co-occurrence networks of key terms taken from the scientific literature. VosViewer is a free computer program for visualizing and exploring bibliometric knowledge maps.(Effendy et al. 2021a:13)

There are two calculation methods used by Vosviewer, namely full counting and fractional counting. Full counting will calculate as it is by the documents observed or tested, whereas fractional counting is influenced by several co-authors in a document being tested. If the data to be read is the title and abstract, then Vosviewer will trim the words in the title or abstract, then display the relationship between the pieces of words/terms (terms) in a visual form. In addition, Vosviewer has a thesaurus feature that can change several names or various terms if there is untidiness in the document.(Zakiyyah and Winoto 2022:49)

Over the past 13 (thirteen) years, research on qardh financing has continued to develop following the progress of the use of information technology and the unlimited information needs of society, this phenomenon also occurs in Indonesia. To be able to map the development of research on earth financing, a bibliometric analysis is needed. Bibliometric analysis is intended to find out the development of research publications in the period 2010-2022, to know the direction of scientific concepts, and to know information architecture science networks based on keywords (Co-occurrence) and author collaboration (Co-authorship).

Research Method

The method used in this research is descriptive bibliometric analysis through published data on the topic of qardh financing in the 2010 – 2022 range with four fields of study covering including Qardhul Hasan, soft loans, sharia financing, sharia banking, as well as a limitation in the form of the number of documents of 1000 documents, this is done to pursue the search for the field of qardh financing. Data collection is done by searching indexed publications in Google scholar using the Publish or Perish application.

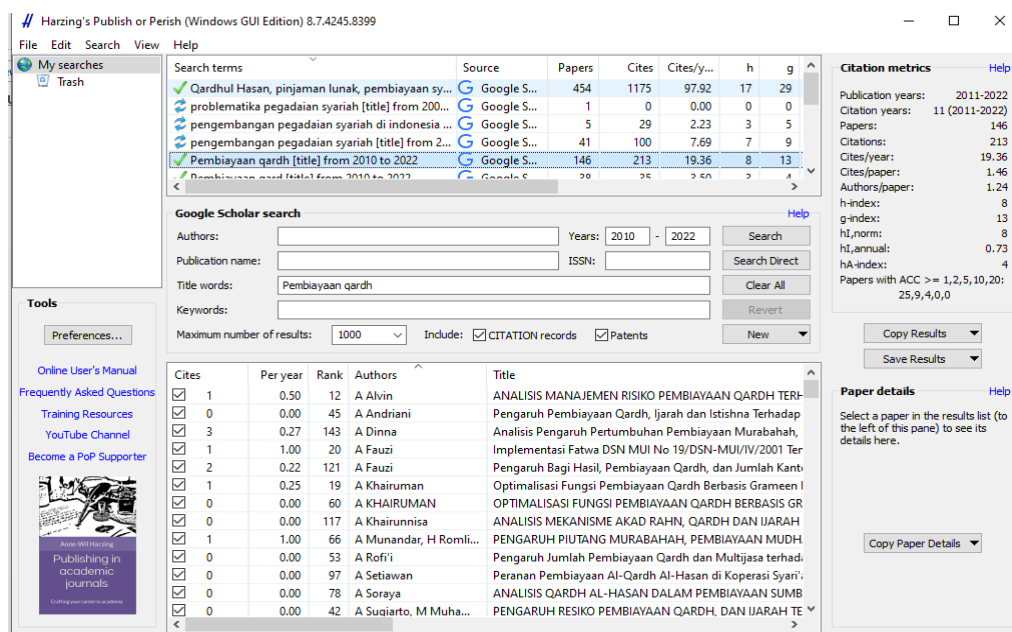


Figure 1. Search method via Publish or Perish
Source: Publish or Perish (2022)

After the data is obtained and stored in the form of RIS files or Research Information Systems Citation File, the next step is to insert the file into the software Vosviewer to visualize network patterns or inter-bibliometric relationships into three categories, among others network visualization, Overlay visualization, and density visualization. Network visualization aims to visualize whether or not the network or interrelationships are strong term research, Overlay visualization aims to visualize

historical traces based on the year the research was published, meanwhile, density visualization aims to display the density or emphasis on the research group.

Bibliometric analysis is the application of statistical and mathematical methods to literature such as books, magazines, and publications online, as well as communication media. (Tambuan 2013) Obtained mapping Vosviewer later it can be used as a reference in conducting content analysis accurately based on the name of the researcher, year of publication, researcher productivity, and qardh financing research trends. In this study, bibliometric analysis was carried out to analyze the author's collaboration in research in the field of qardh financing and to analyze bibliometric relationships based on keywords (co-occurrence).

Results And Discussion

1. Meaning of Qardh

Qardh in language comes from the word al-qath'u which means to cut. Also interpreted as assets lent to people who are in debt. In its implementation, Qardh is classified as a social akad by lending assets to people who need financial assistance and Qardh loans are free of additional fees, the borrower only needs to return the principal of the loan. (Pertiwi and Hanifuddin n.d.:177).

As qardh in terminology is to give property to people who will use it and return it in exchange at a later date. (Muslich 2010:273) Al-qardh is the giving of property to other people that can be collected or requested back or in other words lend without expecting anything in return. In classical fiqh literature, qardh is categorized as aqad tathawwul or akad of mutual assistance and not a commercial transaction. At the time of the transaction, Islam recommends that the debt and credit agreement be written by mentioning the names of both, the date and the witness.

From the definition above, it can be concluded that qardh is an agreement between two parties where the first party gives money or goods to the second party to be utilized with the condition that the money or goods must be returned exactly what he received from the first party. Both view that qardh is defined as property given by the muqridh to the muqarridh which at some point must be returned.

2. Basic Law of Qardh

Qardh is a good deed commanded by Allah and the Messenger. In Al-Qur'an, qardh mentioned in several verses, among others:

1. Surah Al-Hadid (57) ayat 11:

“Who is he that will lend unto Allah a goodly loan, that He may double it for him and he may be a rich reward.”

2. Hadith Ibnu Mas'ud

“From Ibn Mas'ud that verily the Prophet said: There is no Muslim who lends to another Muslim twice except as alms once.” (HR. Ibnu Majah)

3. Hadith Anas bin Malik

“On the night I was given Isra', I saw on a heaven's door it was written 'alms will be rewarded 10 times and debts are answered 18 times'. Then I asked, "O Jibril, why is lending more important than alms?" He replied, "Because even though the beggar begs, he still has property, while the debtor must be because he needs it.” (HR. Ibnu Majah dan Baihaqi)

3. Qardh as Akad of Tabarruk

Tabarru' comes from the word beer in Arabic, which means goodness. Tabarru akad is all agreements involving not-for-profit (non-profit transactions). This transaction is essentially not a business transaction for commercial gain.(Budiman 2013:7) Akad tabarru' is done to help each other in order to do good. toarru' akad, the Akad who does good does not have the right to require any reward from the other party. The reward from the akad of tabarru'a is from Allah SWT., not from humans. However, the party who does good can ask to counterpart just to cover the costs incurred to be able to do the akad tabarru the said. However, he cannot take any profit from the akad tabarru.

4. Pillars and Terms of Qardh

Pillars There are several pillars that must be fulfilled in this qardh akad. If these pillars are not met, then the akad qardh will be cancelled.(Hidayat 2011:47) 1) The

borrower (muqhtaridh), 2) The lender (muqrid), 3) On (Qardh) or borrowed goods (muqhtaridh), 4) Acceptance (shigat).

As for the Conditions of Qardh, quoted from the book by Imam Mustafa Wahbah al-Zuhaili, it is explained that in general there are four conditions that must be met in the qardh akad, namely: 1) The akad is done with shigat ijab qabul. 2) Both parties involved in the akad must speak the law. 3) According to the Hanfiyah, the property that is lent should be the property that is available in the market, or its equivalent value (mitsal), while according to the majority of scholars, any property that is used as collateral. 4) The size, amount, type and quality of the loaned property must be clear so that it is easy to return.

5. Provisions and Implementation of Qardh in Islamic Financial Institutions

The National Sharia Council is an official institution and is recognized by the state to issue fatwas or regulations regarding sharia economic law which must be carried out by all sharia banks.(M. R. Hidayat and Komarudin 2018:8)

The following are general qardh provisions according to fatwa DSN No 19/DSN MUI/IV:

1. Qardh is a loan given by a fatwa customer (mqhfariid) in need
2. The qardh customer must be obliged to return the principal amount received at the mutually agreed time.
3. Administrative fees are charged to the customer.
4. Islamic financial institutions can ask customers for guarantees.
5. Qardh customers can make happy additions (donations) to Islamic financial institutions as long as it is not agreed upon at the beginning.
6. If the customer is unable to return part or all of his obligations at the agreed time and the Islamic financial institution has confirmed his inability, the Islamic financial institution can:
 - a. Extend the return period, or
 - b. To write off some or all of its obligations.

In Law Number 21 of 2008 concerning Islamic Banking, Articles 2, 3, and 4, explain that Islamic banking in carrying out its functions aims to support the implementation of national development in the framework of increasing justice, togetherness and equitable distribution of people's welfare. As one of the implementations of these goals, Islamic banking can carry out its social function in the form of baitul mal, namely receiving funds originating from zakat, infaq, alms, or other social funds and distributing them to the public.(Purwadi 2014:27)

Implementation of social products is based on MUI fatwa No. 19/DSNMUI/IV/2001 concerning Qardh whose funds come from the share of capital and profits set aside from Islamic Financial Institutions, as well as other institutions or individuals who entrust their infaq distribution through Islamic Financial Institutions. In 2011, MUI again issued a Qardh fatwa with no. 79/DSN- MUI/III/2011 whose source of funds comes from customers. When compared with the 2001 MUI fatwa, it is possible that this 2011 MUI fatwa can cause greater harm in the event of uncollectible Qardh receivables because the source of funds comes from customers.

In carrying out its functions, Islamic banks carry out transactions that are mutual in nature, namely loans Qardh/Qardhul Hasan,i.e. free money loans. In accordance with the characteristics of the Islamic economy, money is not a commodity, so money is not introduced to produce or increase money. Loan Qardh/Qardhul hasanThis is carried out by Islamic Banks in transactions that are mutual in nature, distribution of National Zakat, it can also be used for Hajj bailouts, overdraft bailouts or overdraft from wadiah accounts, transactions rahn, hawalah and the like.(Nurnasrina and Putra 2017:185–86)

Lags Qardh usually applied in Islamic banking such as:

1. Productive distribution and zakat (revolving fund). Productive zakat is intended according to the provisions of the Shari'a, namely given to hasnafthe eight. Productive zakat aims to increase the standard of living of zakat recipients, today someone is a recipient of zakat, it is hoped that in the following years they will no longer be entitled to receive zakat. Usually, the productive zakat model is a product of collaboration between the National Zakat Agency and Islamic

banks, National Zakat Agency is an institution that collects funds and distributes it through a bank transaction model.

2. Hajj management financing. Fatwa DSN No: 29/DSN-MUI/VI/2002 Regarding the Financing of Hajj Management by the Syariah Financial Institution, stipulates the following provisions:
 - a. In managing Hajj for customers, Islamic Financial Institutions can get compensation for services (said) by using the principle al-Ijarah according to the DSN-MUI Fatwa number 9/DSN-MUI/IV/2000.
 - b. If necessary, Islamic Financial Institutions can help bail out customer BPIH payments using principles al-Qardh according to the DSN-MUI Fatwa number 19/DSN-MUI/IV/2001.
 - c. Hajj management services carried out by Islamic Financial Institutions may not be required by granting haj bailouts.
 - d. Great service reward al-Ijarah may not be based on the amount of the bailout al-Qardh provided by Islamic Financial Institutions to customers.
3. Factoring based on DSN Fatwa No: 67/DSN- MUI/III/2008 Concerning Sharia Factoring,
4. Letter of Credit (L/C) Impor and Letter of Credit (L/C) Export, based on the Fatwa DSN-MUI No: 34/DSN-MUI/IX/2002 About L/C Import Syari'ah and Fatwa DSN-MUI No: 35/DSN-MUI/IX/2002 About L/C Export Sharia.
5. As a complementary product for customers who have proven their loyalty and bonefidity which generates immediate bailouts for a relatively short period of time. The customer will return as soon as possible the number of funds borrowed.
6. As a facility that requires fast funds while he cannot withdraw the funds because, for example, they are stored in the form of deposits.
7. As loans to small entrepreneurs, which according to the bank's calculations will be burdensome for the entrepreneur if the financing is provided with a buying and selling, ijarah, or profit-sharing scheme.
8. As a product to donate to the small sector or help the social sector

Loan Qardh which is given by the sharia bank in the akad Qardhul hasan in principle, it will not cause losses to Islamic banks, even though there is no result for this loan. This is due to the source of Islamic bank assets, but from other sources.

6. Research Bibliometrics on the Google Scholar Database Using Vosviewer

Pritchard in his 1969 article entitled *Statistical Bibliography or Bibliometrics?* Quoted by Sanku Bilas Roy (2014). (Roy and Basak 2013:3) The article defines Bibliometrics as the application of mathematical and statistical methods to books or other scientific communication media. Adi Wijaya explained that bibliometric analysis is used based on topics, fields, and certain research problems with a bibliometric component including author, year of publication, journal, title, keyword, abstract, citation, h-index, co-citation, and so on. (Wijaya 2018:13)

There are three propositions in bibliometrics, including Zipf's theorem, Lotka's theorem, and Bradford's law. Zipf's theorem is used to calculate word ranking and frequency in literature, Lotka's theorem is used to describe the productivity frequency of authors in a field of study, and Bradford's law is used to determine core journals. Bibliometric analysis is used by using data on numbers and authors of scientific publications and articles in which there are citations that aim to measure the output of individuals or research teams, institutions, and countries. In addition, bibliometric analysis can identify national to international networks and map the development of a field of science.

Ishak stated several benefits of bibliometrics in the library, (Ishak 2008:90–92) including:

1. To find out the direction and trends of science in various disciplines
2. To know the core magazines in various disciplines
3. To know the field or subject of a discipline
4. To understand authorship
5. To estimate whether or not the secondary literature is complete
6. To predict the direction of scientific development

7. Studying the obsolescence and dissemination of scientific literature
8. To find out the productivity of publishers, authors, organizations, countries, or all disciplines
9. Manage the flow of incoming and outgoing information and communication.

In addition, bibliometric analysis also has advantages, including mapping relationships between concepts, mapping research directions or trends, mapping state-of-the-art (novelty from the results of research conducted), as well as providing insights related to fields, topics, and research problems that can be done further or what are called future works.(Wijaya 2018)

Analysis using bibliometric indicators is divided into descriptive bibliometric and evaluative bibliometric. Descriptive bibliometrics is used to assess productivity based on disciplines, geography, and time periods. Descriptive bibliometric approach to-down. Evaluative bibliometrics is tools for calculating smaller unit research performance, such as calculating the use of literature on a particular topic, subject, or discipline. Evaluative bibliometrics uses a bottom-up approach, namely collecting all relevant publications from each unit.

Google is a popular information search engine used by users at this time, this is due to its easy use, simple display, and providing accurate results for its use. For 23 years since the founding of Google, namely on September 4, 1998, Google has always provided innovative services to meet the information needs of its users in the fields of economics, education, management, social, research, and even entertainment. One of Google's services that supports information needs in the field of research and education is Google scholar or what in Indonesian is called Google Scholar. Google scholar is an educational service provider feature that assists users in fulfilling information needs in the form of searching for scientific journals and publications online from various disciplines connected around the world. This service was launched by Google in 2004 and is usually used by students, researchers, lecturers, academics and even students to find references to scientific work through journals of scientific publications.(Zakiyyah and Winoto 2022:47)

To be able to build and visualize indexed bibliometric networks Google scholar, then a visualization application is needed field named bibliography Vosviewer. network in questioner (term) in journal, researcher, or individual publication. The network can be built based on citations, bibliographic coupling, shared citations (co- citation), or a co-author relationship (co-authorship). In the world of research, Vosviewer used to analyze bibliometrics, find the most widely used references in certain disciplines, look for research topics that have the opportunity to be researched, and much more. (Effendy et al. 2021b:13) Vosviewer also offers text mining functionality that can be used to build and visualize co-occurrence networks (co-occurrence) of important terms taken from a collection of scientific literature. Vosviewer can present and represent specific information about bibliometric graphical maps. simply put, Vosviewer can be used to display large bibliometric maps in an easy way to interpret a relationship. (van Eck and Waltman 2010:524)

On software Vosviewer, there are 3 visualization displays in the bibliometric analysis, namely network, Overlay, and density visualization. Network function to show the network between term (term) that is visualized, if the passage or network in the bibliometric analysis is in bold, then it shows the existence of a relationship between one term with term Other (terms) that are quite numerous and strong, on the other hand when the relationship between term one with the other thinly printed with a small circle, then it shows a weak relationship between term observed. Overlay serves to display historical traces of research. The darker the visualization of bibliometric analysis, the this indicates that the research has been carried out the longer it has been carried out, if the visualization shows a lighter color, then the research will be carried out in the near future. For example, bibliometric analysis in the period 2018 to 2021, then in section Overlay visualization 2018 will be displayed on a dark grid, and will become lighter in subsequent years. This suggests that 2021 will display the brightest network. The final visualization is density, density serves to display the density or emphasis on the research group. Visualization of this bibliometric analysis can be used to determine which parts

of the research are rarely done or which have been done a lot. For researchers, this is of course very useful when they want to do research.

Software Vosviewer, a very readable dataset for bibliometric analysis various, including datasets from Dimensions, Lens, Scopus, Web of Science, and Pubmed. In addition, there are also dataset formats Endnote, RIS (can be used through the Publish or Perish application), and RefWork. Besides that Vosviewer is accessible in Microsoft Academic, Crossref, Europe PMC, Semantic Scholar, OCC, COCI, and Wikidata formats. The following are some of the types of analysis found in Vosviewer, (Zakiyyah and Winoto 2022:48)

1. Co-authorship: analyzing the author's collaboration with other writers. later Vosviewer will produce a visualization in the form of the author's name, the author's organization, and the author's country of origin.
2. Co-occurrence: displays the inter-bibliometric network keyword in visual form.
3. Citation: displays documents linked to other documents if they cite other articles that are equally observed. This analysis serves to show citations between documents, and can also be used to foresee self-citation writers. The visual model displayed includes the observed document, the journal, the author, the organization, or the country.
4. Bibliographic Coupling: displays the closeness of the review between linked documents that are visualized and networked (if they have the same reference). The visualization models include observed documents, journals, authors, organizations, or countries.
5. Co-citation: visualize the references used by the observed or tested document. References will be linked if they are used in the same article. For example references 1 and 2 are used by article X, then references 1 and 2 are linked. Another example of references 1 and 5 is used in article Y, so in addition to reference 2, reference 1 is also connected to reference 5.

The calculation method used by Vosviewer there are two, namely full counting and fractional counting. Full counting will be calculated as is in accordance with the documents observed or tested, meanwhile fractional counting is influenced by several

co-author in a document under test. If the data to be read is the title and abstract, the VOSviewer will trim the words in the title or abstract, then display the relationship between the pieces of words/term in visual form. Besides that Vosviewer has a thesaurus feature that can replace multiple names or terms that vary if the document is found to be untidy in the data.

Over the past 13 (thirteen) years, research on qardh financing has continued to develop following the progress of the use of information technology and the unlimited information needs of society, this phenomenon also occurs in Indonesia. To be able to map the development of research on qardh financing, a bibliometric analysis is needed. Bibliometric analysis is intended to find out the development of research publications in the period 2010-2022, find out the direction of scientific concepts, and find out the knowledge network of qardh financing based on keywords (Co-occurrence) and author collaboration (Co-authorship).

7. Development of Qardh Financing Research Publications

Publish or Perish is an application that can be used in data collection where the collection stage is carried out using the Publish or Perish search engine indexed with the existing database on Google Scholar. (Yusuf, Rahman, and Komarudin 2022:58)

The results of qardh financing research documents in indexed journals Google scholar through Publish or Perish obtained 600 documents. To get results that are in accordance with scientific disciplines, it is necessary to do a filter or screening that can be narrowed to qardh financing disciplines, namely with limitations in the form of keywords Qardhul Hasan, soft loans, Islamic financing, Islamic banking.

Development of publication growth on the topic of qardh financing in the 2010 – 2022 range taken from the database Google scholar through the software Publish or Perish shows fluctuating developments. Of the total indie publications on Google scholar that is, 600 documents, only 598 have year information. While as many as 2 publications do not have information on the year of publication. The highest development of publication growth regarding qardh financing occurred in 2021, namely

reaching 88 publications (14.7%). While the lowest number of publications occurred in 2010 and 2012 with the same number of publications as 12 (2.0%).

Table 1. Development of research publications in the field of qardh financing

Year of Publication	Number of Documents	Percentage
2010	12	2,0
2011	29	4,8
2012	12	2,0
2013	23	3,8
2014	34	5,7
2015	32	5,4
2016	38	6,4
2017	54	9,0
2018	78	13,0
2019	86	14,4
2020	65	10,9
2021	88	14,7
2022	47	7,9
Total Publications	598	

Source: *Personal Data Processing Results (2022)*

In 2020, research in the field of qardh financing experienced a significant decrease in the number of documents, namely only 21 documents (3.5%) when compared to the previous year. Apart from that, the biggest decrease also occurred in 2022 with only 47 (7.9%) published documents or a decrease in the number of documents by 41 (6.9%). Even though it has decreased in several years, the development of qardh financing research in quantity proves that research in this field is still a topic of interest and continues to grow from year to year in Indonesia. Even though there was a very drastic decrease in 2022. Complete the growth of publications regarding the indexed qardh financing sector Google scholar can be seen in Figure 2.

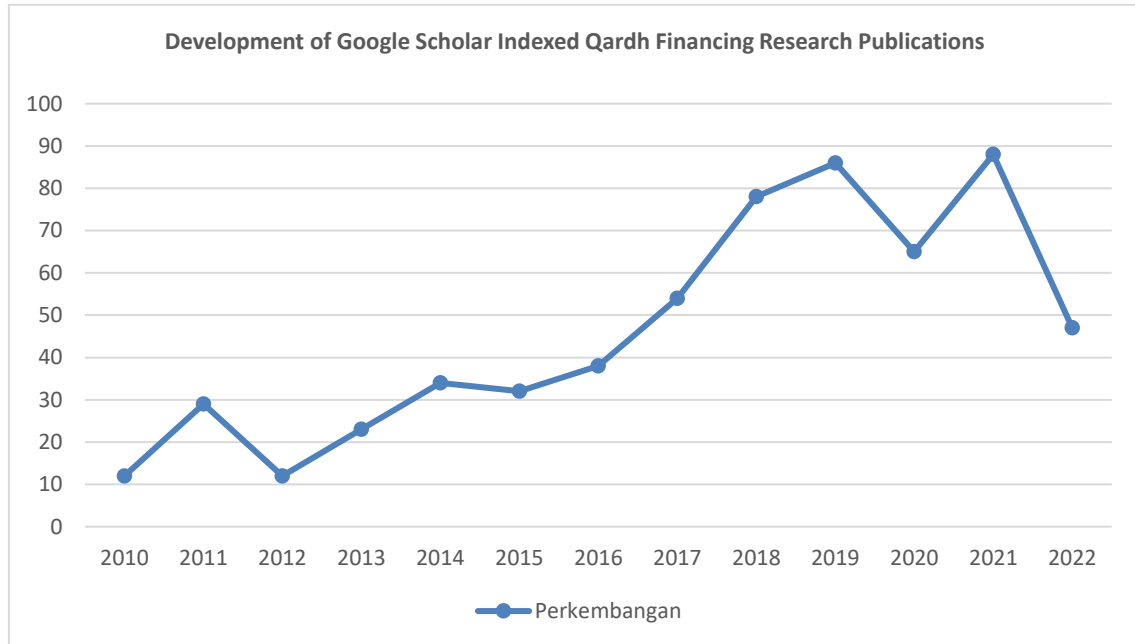


Figure 2. Graph of the development of Google scholar indexed Qardh financing research publications

Source: Personal Data Processing Results (2022)

8. Map of the Development of Qardh Financing Research Publications Based on Authors (Co-authorship)

Create Map

Verify selected authors

Selected	Author	Documents	Total link strength
<input checked="" type="checkbox"/>	harahap, i	3	6
<input checked="" type="checkbox"/>	qarni, w	2	6
<input checked="" type="checkbox"/>	syahnun, m	2	6
<input checked="" type="checkbox"/>	batubara, c	1	4
<input checked="" type="checkbox"/>	imsar, m	1	4
<input checked="" type="checkbox"/>	ismail, m	2	4
<input checked="" type="checkbox"/>	maani, b	2	4
<input checked="" type="checkbox"/>	muhammad, f	2	4
<input checked="" type="checkbox"/>	nawawi, zm	1	4
<input checked="" type="checkbox"/>	putra, d	2	4
<input checked="" type="checkbox"/>	ramlah, r	2	4
<input checked="" type="checkbox"/>	sasnifa, p	2	4
<input checked="" type="checkbox"/>	sudiarti, s	1	4
<input checked="" type="checkbox"/>	yafiz, m	1	4
<input checked="" type="checkbox"/>	afriadi, f	1	3
<input checked="" type="checkbox"/>	anas, if	1	3
<input checked="" type="checkbox"/>	marliyah, m	1	3
<input checked="" type="checkbox"/>	mawarni, m	2	3
<input checked="" type="checkbox"/>	mughni, a	1	3
<input checked="" type="checkbox"/>	mutia, a	2	3

Figure 3. List of authors of qardh financing research at Vosviewer

Source: Vosviewer (2022)

After the dataset is stored in RIS type (Research Information Systems) using the Publish or Perish metadata, then the dataset is analyzed using the application Vosviewer by selecting the option 'data create a map based on bibliographic data'. The method used to calculate the dataset is full counting with the aim that the calculations are carried out as is according to researchers who have taken the topic of qardh financing in their research. Based on Figure 3, the minimum number of documents for each author is set at 1 document, and the mapping that is visualized is only for researchers who have relationships with other researchers.

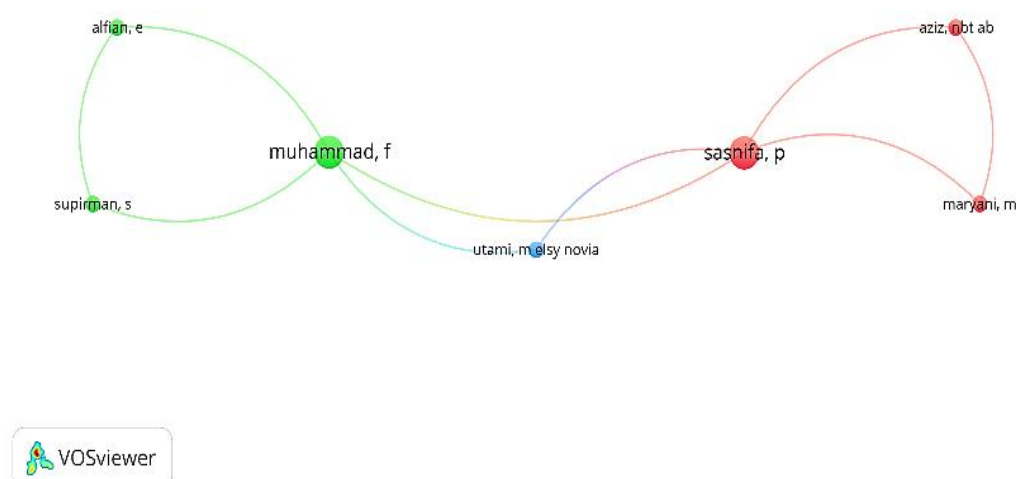


Figure 4. *Network visualization on co-authorship*

Source: *Vosviewer (2022)*

In Figure 4. show network visualization on co-authorship marked by presence node (circle) representing the author or researcher, and edge (network) represents the relationship between authors or researchers. bunch node equipped edge This explains that there is a correlation or relationship between researchers in research in the field of qardh financing. Bibliometric analysis based on the researcher or author (author) centered on 2 names, namely Muhammad f , and sasnifa p , where the two authors have the same connection with the writer utami Melsy Novia. The network indicates the existence of a relationship or collaboration of authors, such as a network (edge) which

connects the authors Muhammad F, with Alfian E, Supirman S, Utami Melsy Novia, and Sasnifa P. While the network (edge) which connects the writer Sasnifa P, with the writers Utami Melsy Novia, Muhammad F, Aziz NTB AB, and Maryani M.

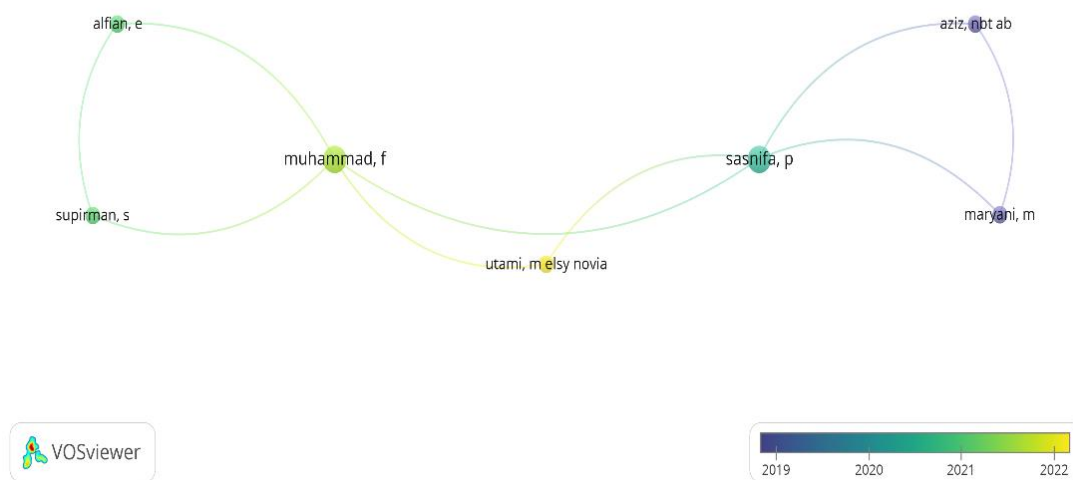


Figure 5. *Overlay visualization on co-authorship*

Source: *Vosviewer (2022)*

Figure 5. Shows Overlay visualization which maps the historical trail author in research in the field of qardh financing, this mapping is characterized by the presence node which has a variety of colors as well edge that connects one researcher with another researcher. Dark color on nodes shows research that has been carried out in the past from a predetermined period of time. For example in pictures, the color node the darkest (purple) represents 2019 and the lightest (yellow) represents 2022. In this analysis, the following explanation can be drawn:

1. Research conducted by NBT AB Aziz and Maryani, and cited by P Sasnifa in his research, is because the color of the visualization of NBT AB Aziz and Maryani's research is darker than the color of the visualization of P Sasnifa's research.

2. The research conducted by Alfian and Supirman, was quoted by Muhammad f in his research, this is because the color of the visualization of Alfian and Supirman's research is darker than the color of the visualization of Muhammad f's research.
3. Research conducted by Sasnifa was cited by research conducted by Muhammad f. This was because the visualization of Sasnifa's research color was darker than that of Muhammad f.
4. Research conducted by Sasnifa was cited by research conducted by Alfian and Supirman, this was because the color of the visualization of Sasnifa's research was darker than that of Alfian and Supirman.
5. Research conducted by Muhammad and Sasnifa was cited by research conducted by Utami Melsy Novi, this is because the color of the visualization of Utami Muhammad and Sasnifa's research is darker, this is research from the latest year.

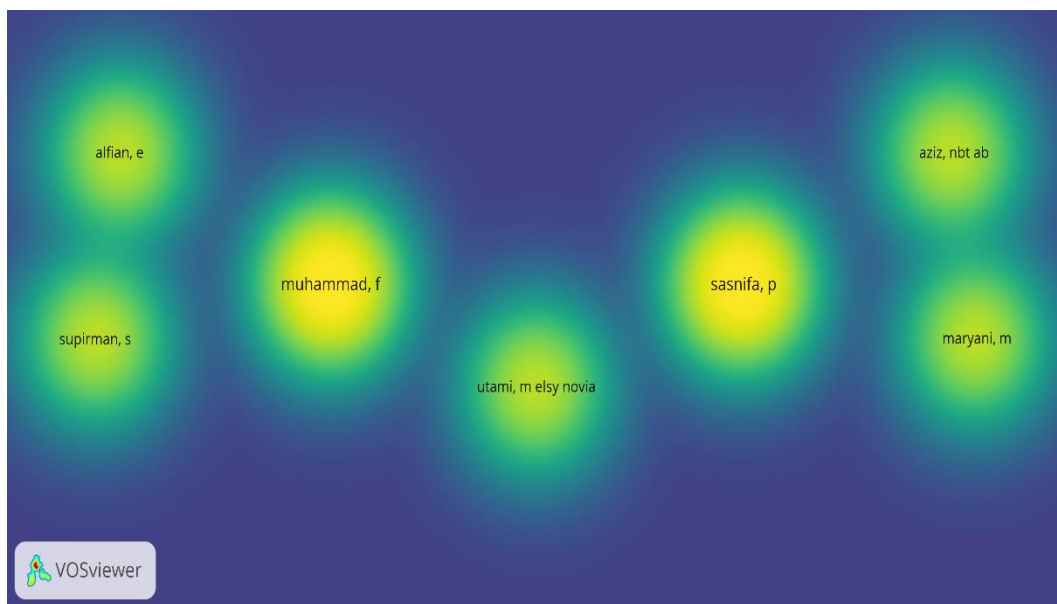


Figure 6. *Visualization of density in co-authorship*
Source: Vosviewer (2022)

From the results of density visualization which is shown in Figure 6. it can be identified that there is density or emphasis on node which means that the group of

researchers who research in the field of qardh financing have a relationship with each other. In addition, the saturation node density visualization level is indicated by the number of studies involving other studies by citing the author. As shown by Muhammad F and Sasnifa's research which shows color node density the brightest, in other words a form of research collaboration in the field of qardh financing.

9. Development Map of Qardh Financing Research Publication Based on Keywords (Co-Occurrence)

After the dataset is stored in RIS type (Riset Information Systems) using the Publish or Perish metadata, then the dataset is analyzed using the application Vosviewer by selecting the data option 'create a map based on text data', with the aim of creating a network or relationship term based on text data. Fields of term is extracted based on the title and abstract while the method used to calculate the dataset is full counting with the aim of the calculations being carried out as is according to research related to the field of qardh financing that has been carried out. The minimum number of occurrences of a term is 7 documents, resulting in 259 related documents occurrence.

Bibliometric analysis is done by making visualizations in forms network, Overlay, and density which aims to determine the bibliometric network between articles or online publications from the downloaded metadata. The bibliometric network consists of nodes in the form of circles or circles that represent keywords, meanwhile edge network nodes represent the relationship between pairs of nodes. Mapping and Clustering in bibliometric analysis via software Vosviewer Complementary means complementing one another. This mapping can be used to get a detailed picture of the structure of a bibliometric network (Waltman et al., 2010, p. 630). In addition, clustering is used to show an overview or insight regarding bibliometric grouping.

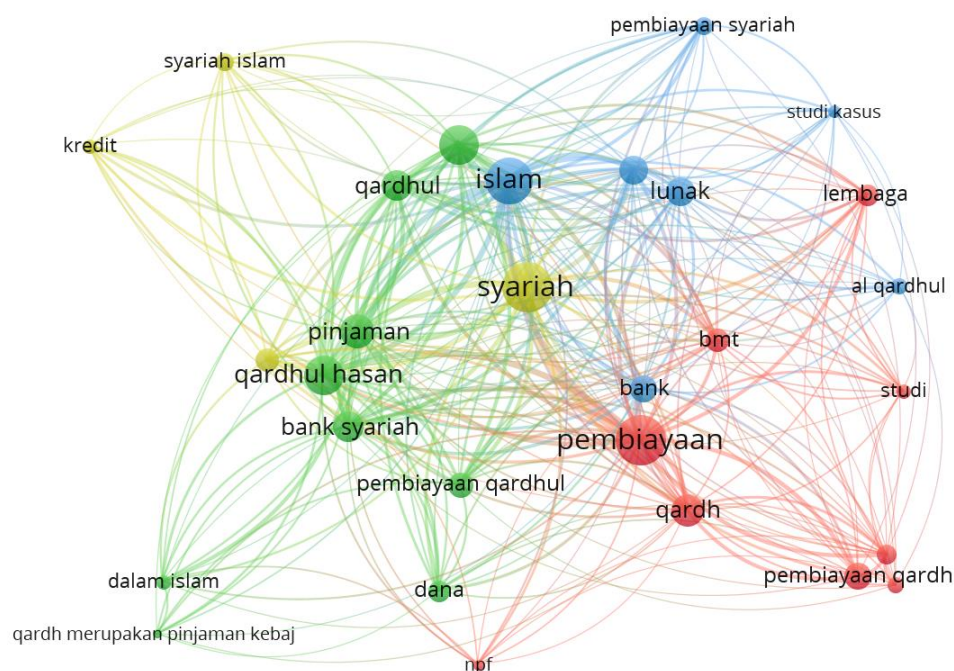


Figure 7. *Network visualization on co-occurrence*

Source: *Vosviewer (2022)*

In Figure 7. show network visualization on co-occurrence which describes the network or relationship often one with term others in research in the field of qardh financing in the period 2010 – 2022. Of the 500 indexed articles Google scholar can be grouped into 4 clusters that can be identified by the color node of each keyword. Cluster 1 is symbolized in red and includes terms related to the field of financing, qardh, qardh financing, bmt, studies, institutions, npf. Cluster 2 which is symbolized in dark green consists of Qardhul Hasan, sharia bank, loan, financing qardhul, fund, in Islam, qardh is a welfare loan, qardhul, soft loan. Cluster 3 which is symbolized in blue consists of terms such as Islam, Islamic banking, banking, al qardhul, case studies, Islamic and soft financing. Cluster 4 is symbolized in yellow which contains the terms, Sharia, Indonesia, Credit, and Islamic Sharia.

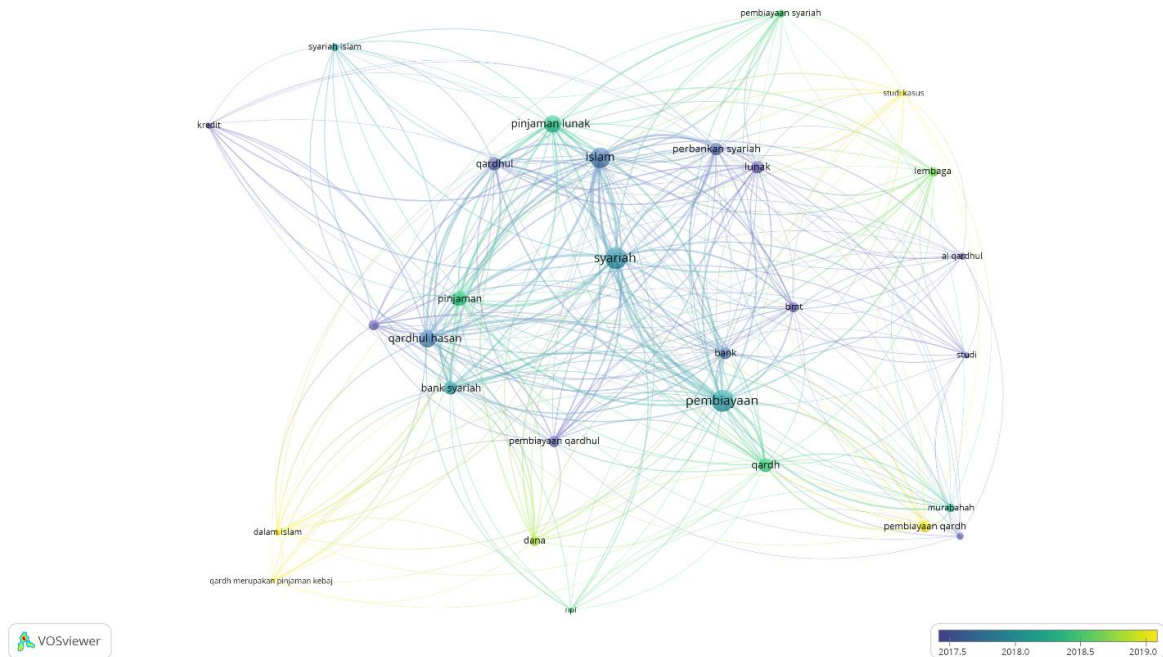


Figure 8. *Overlay visualization on co-occurrence*

Source: *Vosviewer (2022)*

After identifying the mapping and clustering of the qardh financing sector using network visualization, the next step is to map and cluster research trends on qardh financing based on historical traces or years of research publication. Information obtained from the results Overlay visualization in Figure 8. can be used as a reference for identifying and detecting the state of the art from research in the field of qardh financing conducted in the period 2010 – 2022.

From the results of bibliometric analysis through imported Publish or Perish metadata software Vosviewer, generates a visualization Overlay. In this visualization, the color on the node represents keywords indicating the year of publication. For example the keyword 'qardhul financing' has node purple in color, which means that articles containing these keywords were published in 2017 – 2018. Another example is the term 'financing' which in the visualization

Overlay described as having nose green toscar, this means that the term 'financing' in research on qardh financing has only been discussed by researchers in 2017.5 – 2018. Another example is the keyword 'Qardh' which has a color code green. Term 'qardh' is already attached to the field of qardh financing, namely the concept of financing based on Islamic law. Where Qardh is a loan agreement without compensation, by returning the loan in the amount within the agreed timeframe for qardh financing. Therefore, researchers used the term 'qard' research much earlier in research on qardh financing. Then the term 'qard financing' has a yellow color, the term qardh financing is the main term discussed in this study, is colored yellow because the term 'qard financing' is the latest research, namely from 2019-2022.

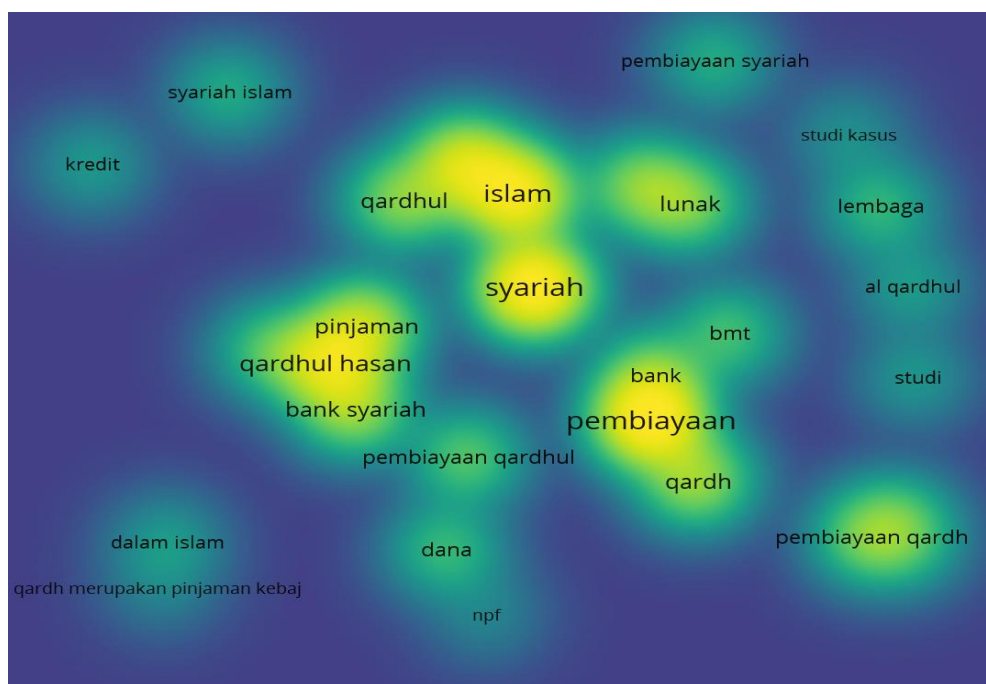


Figure 9. *Density visualization on co-occurrence*

Source: *Vosviewer (2022)*

Next is a bibliometric analysis using density visualization or density visualization. From the results of the visualization shown in Figure 9, it can be identified that there are dense areas that have a high density of node one with

node other. The saturation level identified in the number of keywords marked in yellow means that the area is a topic that has been extensively researched and indexed. Google Scholar, for example is a keyword information system, development, and interface. Whereas Node marked with a dark color indicates that these topics have not been extensively researched. This can foster opportunities to conduct research or research on these topics, for example, is the keyword 'sharia financing' or 'case study' connected to the field of qardh financing, the title of the article is "Implementation of Sharia Financing Program for Community Economic Welfare (Bazma Asset 3 Pt. Pertamina Ep. Cirebon). And on the title "The Role of Syari'ah Microfinance Institutions in the Empowerment of Micro, Small and Medium Enterprises (Case Study on Bmt Ugt Sidogiri)" With bibliometric analysis on visualization density which shows the presence of strain and low intensity indicates that research on qardh financing related to 'Pertamina Ep. Cirebon' and 'Bmt Ugt Sidogiri' are still relatively low, which makes research on these topics still very broad to be researched.

Conclusion

Qardh financing is one of the financings contained in Islamic financial institutions. To be able to find out the development of research in the field of qardh-based financing co-authorship (author) and based on co-occurrence (keywords), then a bibliometric analysis was performed using the software Vosviewer. Previously the dataset was compiled via indexed Publish or Perish metadata Google scholar, while the number of online publications is limited to 600 documents.

Based on the results of bibliometric mapping using Vosviewer by using network visualization, Overlay, and density it can be concluded that in the period 2010-2022 the discipline of qardh financing experienced a fluctuating development of research publications. Of the total indexed publications Google scholar namely 600 documents, there are 2 that do not have year information.

The highest publication growth development occurred in 2021, reaching 88 journals (14.7%), while the lowest publications occurred in 2010 and 2012 with a total of 12 journals (2.8%) each.

The direction of qardh financing research is in line with new findings on qardh financing. Research on qardh financing is growing over time supported by the collaboration of Islamic banks and Islamic finance given the rapid development of interpretations of qardh financing. In addition, bibliometric mapping identified authors who took the theme of qardh financing and who had a collaborative relationship with each other. In this study, the authors centered on Muhammad F, and Sasnifa P. Although there will be a decline in research on qardh financing in Indonesia in 2022, this can be an opportunity for other researchers to continue to develop this research trend through online publications.

The last mapping is the development of the science of qardh based financing co-occurrence (keywords). This mapping identifies a relationship between scientific concepts with 4 dominant clusters, Financing, Sharia, qardhul hasan, qardh financing, soft loans, Islamic banks, and also qardh.

This research is a study in the field of information science that examines bibliometric analysis using the Google Scholar database and analysis support software called Vosviewer. The results of this study can be the basis for further research or research in similar fields regarding bibliometric analysis. This research can also be used as a source of inspiration for research in other fields related to bibliometrics.

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