

Bibliometric Analysis of Crowdfunding

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ABSTRACT

Crowdfunding is a technique of raising money from many people or organizations to sponsor a new project. This article presents a bibliometric study on crowdfunding that was conducted using the VOSviewer 1.6.18 to assess worldwide research trends, especially publication growth, publishing outputs by country, themes of interest, and co-occurrences of author keywords. Bibliometric is new research that has grown into a well-established aspect of information research and a quantitative approach to document description. The Scopus database was used to obtain 839 papers published between 2011 and 2022. The statistics indicate an increasing trend in terms of publishing outputs. Most of the papers came from scholars in the United States, followed by Germany and the United Kingdom. The keyword “entrepreneurial finance” appears the most frequently in articles, followed by “equity crowdfunding”. A closer check into author keyword co-occurrences found that “entrepreneurial finance” had 165 links. It can be stated that the findings of the analysis could be used by future scholars to investigate under-researched areas of waqf crowdfunding.

Keywords: *bibliometric analysis, crowdfunding, finance, Scopus database, VOSviewer*

INTRODUCTION

The financial services business has seen substantial revolutions during the last several decades. Even long-established financial professions, such as accounting and insurance, have seen a rapid change in conjunction with the spread of new technology, let alone some more innovative financial services, such as entrepreneurial finance and money lending (Milosavljević et al., 2020; Milanović et al., 2020; Gleasure & Feller, 2016). The emergence of crowdfunding as an alternative means of financing start-up enterprises or philanthropic efforts has an influence on these fast-expanding services. Crowdfunding is a type of alternative financing and crowdsourcing (Howe, 2006). Crowdfunding enables for-profit and charity venture creators to finance their work by relying on relatively modest donations from a relatively large number of individuals utilising the internet, without the need for traditional financial intermediaries (Mollick, 2014). Crowdfunding originally arose as a flexible means to support varied initiatives during the financial crisis, but it has since matured into a full-fledged financing mechanism that requires special study from academics and legislators (Baber & Fanea-Ivanovici, 2022). Even though crowdfunding has been growing for over a decade, there is still a lack of a comprehensive and

systematic literature review on the subject. Thus, the current research conducted a bibliometric analysis of the academic literature on crowdfunding.

According to Nurhadi and Irwansyah (2018), using a crowdfunding platform is reasonably simple in practice since it is online-based and thus accessible by many individuals at any time and from any location. Its operation is straightforward: a person or business unit seeking a gift or financing for a project would create a campaign (program/proposal) on the crowdfunding management website, specifying the amount of money and the timeframe by which the programme must be completed. The website users' community (users) will view the programme, and if they find it appealing, they (possible donors) will give or deposit capital to help support the programme (Sidiq et al., 2021). To date, much research on crowdfunding bibliometrics has been published (Baber & Fanea-Ivanovici, 2022; Gil-Gomez et al., 2021; Zhang et al., 2018; Abdullah et al., 2019; Scaldaferrri, 2018; Martinez-Climent et al., 2018). However, only Baber and Fanea-Ivanovici (2022) used the Scopus database and VOSviewer tool to conduct research on bibliometric crowdfunding. Therefore, the researchers will undertake a bibliometric analysis of crowdfunding using the Scopus database to retrieve the research publications. The VOSviewer tool will next be used to garner the data.

The purpose of this study is to evaluate the pattern of crowdfunding articles and give a visual and statistical analysis. Furthermore, this study provides new directions for future research by utilising bibliometric analysis approaches based on the Scopus database. As it analyses and organises large amounts of historical data on crowdfunding, this paper provides a global perspective by identifying the pattern of academic crowdfunding-related publication by year, type of access, topic area, subject title, nation, document type, citation scores, source type, and keywords. Consequently, this research gives new ideas for future researchers in assessing future directions of crowdfunding studies, as well as suggestions relevant to present the needs. The parts that follow will evaluate the literature regarding bibliometric studies on crowdfunding, and the section that follows will focus on the details of the methodology that will be used to achieve the aims of this research. The results and discussion regarding the bibliometric of crowdfunding are presented in the next part, which is the most relevant for this research. A conclusion for the complete study will be offered at the end of this article.

LITERATURE REVIEW

Crowdfunding is “the process of supporting a project or business by obtaining numerous little sums of money from a large number of individuals, often over the Internet”, according to the Online Oxford Dictionary (2015). Crowdfunding, according to the World Bank (2013), is an online platform that allows businesses and organisations to raise cash from a group of individual investors or contributors. The phrase “crowdfunding” is derived from “crowdsourcing”, which is defined as the process of delegating duties to a large and sometimes anonymous group of people, primarily over the internet, and utilising their resources, assets, and knowledge or skill (Hemer, 2011). Donation crowdfunding, reward crowdfunding, lending crowdfunding, and equity crowdfunding are the four types of crowdfunding (Massolution, 2015). Donation crowdfunding is the process of raising funds for social, artistic, humanitarian, or other purposes without receiving anything in return. It does not give you anything in return. Reward crowdfunding is the practice of raising funds in exchange for a tangible reward (such as a membership rewards system, merchandise, or a coupon) from investors or donors. These incentives can be taken in many different forms, and they are not always monetary (cash). Meanwhile, lending crowdfunding is an online platform that connects lenders and issuers to give loans at a lower interest rate. Equity-based crowdfunding refers to a firm raising funds online, particularly for early-stage funding, by offering investors equity shares in the company (Massolution, 2015). Crowdfunding has the potential to expand both the number of funders and the quantity of money raised. Greater access to information can lead to lower-cost capital by resolving difficulties including agency issues, the costs of bad investments, and project pay-out probability updates (Babich et al., 2017). Crowdfunding's benefits may make it a viable alternative to establish fundraising methods (Agrawal et al., 2014).

To examine the intellectual structure of literature on a particular issue and to detect new trends in the study, bibliometric analysis is used (Verma & Gustafsson, 2020; Donthu et al., 2021). This report does a bibliometric analysis of the literature on alternative investing. The bibliometric analysis examines current research on a scientific topic using mathematical and statistical methodologies (Aparicio et al., 2019). Bibliometric analysis techniques are significant because they enable researchers to accurately map literature studies to identify and depict a network of research contributions and associated authors (Van Eck & Waltman, 2007). Bibliometric approaches have gained popularity in a variety of sectors of study, including business. Numerous researchers that performed a bibliometric study on crowdfunding using global databases and platforms (Baber & Fanea-Ivanovici, 2022; Gil-Gomez et al., 2021; Zhang et al., 2018; Abdullah et al., 2019; Scaldaferrri, 2018; Martinez-Climent et al., 2018) have been found.

Martinez-Climent et al., (2018) carried out a bibliometric analysis and a literature review to analyse equity-based and lending-based crowdfunding by using the documents published in the Thomson Reuters Web of Science. Similarly, Abdullah et al., (2019) analysed the pattern of crowdfunding-related publications in terms of citations, co-citations, and co-word analysis using sample data from 2956 papers published on the Web of Science between 2008 and 2018. According to the findings of the study, crowdfunding articles are primarily from the business and management disciplines. As for the results of co-word analysis, crowdfunding research is expanding inside its discipline, with little ties to the larger notion of crowdsourcing. Gil-Gomez et al., (2021), gathered data from the broad Web of Science to evaluate whether crowdfunding is a growing topic of interest and to identify the most productive and prominent sources of scientific study on the issue. According to the findings, the most active authors are Brooks AC and Andreoni J, both of whom live in the United States.

Baber and Fanea-Ivanovici (2022) retrieved a total of 1951 research publications from the Scopus database. Using the VOSviewer, the researcher discovered that crowdfunding research has been continuously increasing since 2006, with a particular concentration on business and finance. The most productive countries are those with advanced economies, although other countries have begun to experiment with crowdfunding as well. The most referenced references were published between 2013 and 2016 when the foundations of this field of study were laid. In contrast, Zhang et al. (2018) used CiteSpace to map, characterise, and count the associated keywords and cited references in the target domain. According to the findings, business economics is the most researched area in crowdfunding, followed by computer science and government rules and regulations. There are also studies on crowdfunding from the perspectives of environmental ecological science, public management, and social science.

Existing research on retrospective analysis of crowdfunding publications gives methodological insight into how to perform a crowdfunding bibliometric study. However, since many researchers use the Web of Science database to discover research publications, this study will collect data from the Scopus database. The bibliometric literature on crowdfunding given above suggests which aspects of the study, such as the year, type of access, topic area, subject title, nation, document type, citation scores, source type, and keywords should be analysed.

METHODOLOGY

In this study, a bibliometric analysis was performed. Researchers used the Scopus database to analyse worldwide research trends by studying the publications in it. On May 19, 2022, data mining from the Scopus database was carried out. Since Scopus offers quick access to peer-reviewed publications, it was chosen as the database to search for relevant literature. Since there are several methods to discuss the term “crowdfunding”, several publications are viewed as a source when looking up synonyms and terms that are conceptually similar. The following set of Boolean expressions was used to limit the research to papers: “crowdfund” OR “crowd fund” OR “crowd funding” OR “crowdfunding”. Eventually, (TITLE-ABS (crowdfunding)) was the query string used for the search. The initial search generated a list of 3,410 results from 2011 to 2022. However, after applying Economics, Econometrics, and Finance

as test subjects, there were only a total of 839 papers that remained. The Scopus search results were then sorted by access title type, year, country, topic area, language, and source title. Researchers also examined the number of publication citations to organise publishing in phases. Next, the researchers will export the citation, bibliographic, and abstract data to VOSviewer version 1.6.18. Using that programme, the researchers created a bibliometric map to assess the co-occurrence of author terms and then searched for the item with the highest incidence. Finally, the researchers examined both the item and the strength of the association.

RESULT AND DISCUSSION

The purpose of this study is to evaluate the pattern of crowdfunding articles and provide a visual and statistical analysis. The following analyses used the Scopus database and VOSviewer version 1.6.18 to examine crowdfunding articles.

Analysis by Year

The search result using the query string yielded 839 results in the Scopus database. Figure 1 depicts the development of the number of publications on crowdfunding at 11 years intervals from the year 2011 to 2020. Over the years, the number of publications has grown steadily but then showed a slight decline in the year 2019. The initial publishing was in 2011, and it continued to rise until it fluctuated in 2019. After a high surge in 2021, the graph began to fall in 2022. From 2011 to 2015, the number of crowdfunding publications was 1, 4, 11, 21, and 37, then increased to 86, 90, and 132 in 2016, 2017, and 2018, before fluctuating to 122 and 110 in 2019 and 2020. The graph shows rapid growth by 2021, when there were 171 articles, before showing a little fall in 2022 when there were 54 publications. Since 2013, when the number of publications on the issue increased fivefold over the previous year, the body of literature has been constantly rising. With 303 publications published on the subject, it was found that 2018 and 2021 were the most productive years for scientific production. This is because many articles have yet to be approved, thus, the number of publications is expected to fall in 2022, resulting in only 54 publications successfully retrieved for this study.

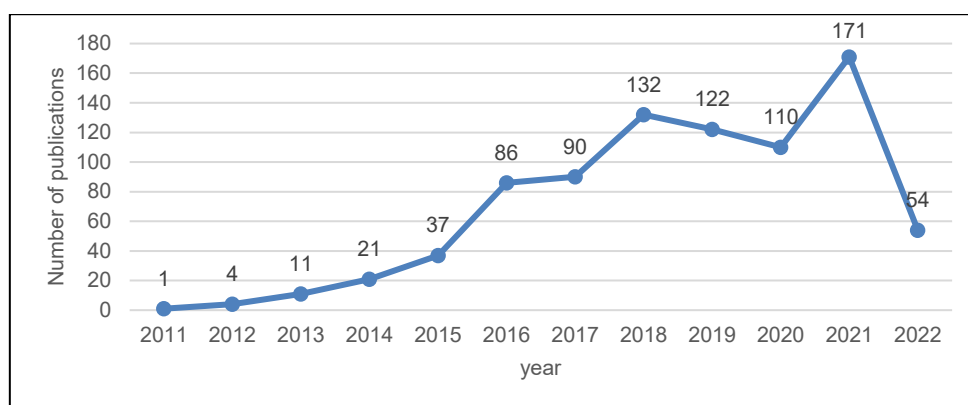


Figure 1: Publication by Year

Analysis of Subject Area, and Source Title

The diversity of the sources underlines once more that the most important aspect of crowdfunding is its disruptive influence on business management and finance. Indeed, the journals are classified as “Business, Management, and Accounting” and “Economics, Econometrics, and Finance”. Figure 2 illustrates the number of publications by subject area. According to the graph below, the bulk of crowdfunding papers is in economics, econometrics, and finance, with the largest amount of 839 publications, followed by business, management, and accounting with 593 publications, and social

science with 124 publications. The other subject areas are computer science (44 publications), arts and humanities (29 publications), engineering (19 publications), decision science (17 publications), environmental science (15 publications), mathematics (8 publications), psychology (8 publications), agricultural and biological science (7 publications), energy (3 publications), also, earth and planetary science (2 publications) respectively. As for biochemistry, genetics and molecular science and medicine, the publication made in this subject area consists of one publication each.

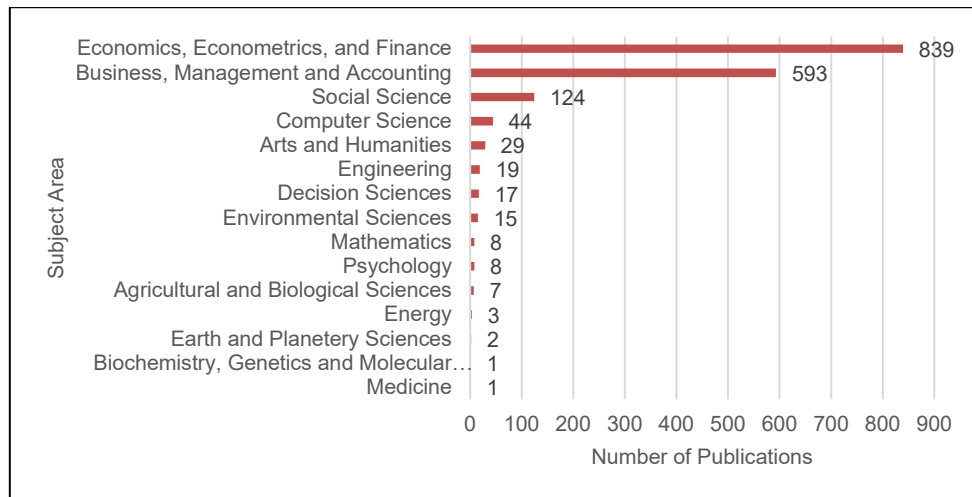


Figure 2: Publication by Subject Area

Figure 3 depicts the number of publications by source title. The researcher carefully chose 10 sorts of publications with the largest number of articles. According to Figure 3, Small Business Economics has the most articles based on the source title, with 43 publications. Then, Entrepreneurship Theory and Venture Capital, each with 28 publications. The source title was also published in FGF Studies in Small Business and Entrepreneurship with 21 publications, Revenue Francaise De Gestion with 19 publications, and the Journal of Corporate Finance with 16 publications. The other publications based on the research Handbook on Crowdfunding and Financial Innovation each include 12 publications. Springer Proceedings in Business and Economics, as well as Crowdfunding and Sustainable Urban Development in Merging Nations, have 12 publications for each source title.



Figure 3: Publication by Source Title

Analysis of Document Type

Figure 4 depicts the publications according to document type. Articles, book chapters, reviews, books, conference papers, editorials, conference reviews, remarks, and erratum are among the publications. According to the pie chart, the bulk of documents used to launch crowdfunding are

articles, which account for 67%. Book chapter publications account for 20% of all publications, with reviews and books accounting for 4% each. The percentage of publications created utilising conference papers, editorials, conference reviews, notes, and erratum are 1%. As a result, the article is the most preferred document format for publishing in research.

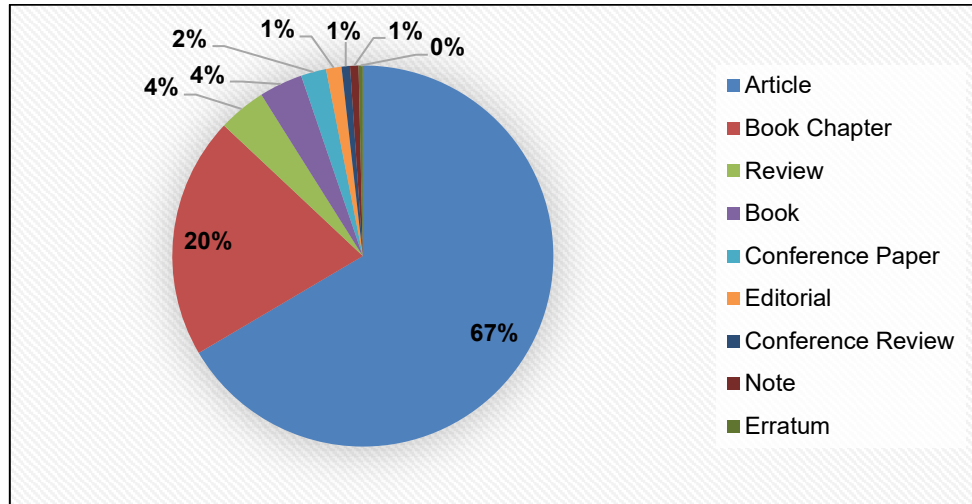


Figure 4: Publications by Document Type

Analysis of Citation Scores

Table 1 shows the list of the highest-cited publication in the crowdfunding area. The table contains information about the document (year of publishing, the sources of the document and the citation score for each document). In this way, it is possible to analyse the top citation of publications in the crowdfunding area. The researchers were interested to look at the publications with citation scores. The sources that received the highest citation is from Entrepreneurship Theory and Practice. This publication garnered a total of 2,206 citations from the year 2015 to 2017. Other sources of crowdfunding publications are the Journal of Economics and Management Strategy (448), Innovation, Policy and Economy (394), Small Business Economics (294), Venture Capital (240), and Information and Economics Policy (232). Signalling in Equity Crowdfunding (2015) from Entrepreneurship Theory and Practice illustrates the highest citation score with a total of 748 citations.

Table 1: The Top Ten Highest-Cited Publications in the Crowdfunding Area

No	Document title	Year	Source	Citation Score
1.	Signalling in Equity Crowdfunding	2015	Entrepreneurship: Theory and Practice 39(4), pp. 955-980	748
2.	Internal Social Capital and The Attraction of Early Contributions in Crowdfunding	2015	Entrepreneurship: Theory and Practice 39(1), pp. 75-100	513
3.	Crowdfunding: Geography, Social Networks, and the Timing of Investment Decisions	2015	Journal of Economics and Management Strategy 24(2), pp. 253-274	448
4.	Some Simple Economics of Crowdfunding	2014	Innovation Policy and the Economy 14(1), pp. 63-97	394
5.	New Financial Alternatives in Seeding Entrepreneurship: Microfinance, Crowdfunding, and Peer-To-Peer Innovations	2015	Entrepreneurship: Theory and Practice 39(1), pp. 9-26	369

6.	Crowdfunding in a Prosocial Microlending Environment: Examining the Role of Intrinsic Versus Extrinsic Cues	2015	Entrepreneurship: Theory and Practice 39(1), pp. 53-73	317
7.	Equity Retention and Social Network Theory in Equity Crowdfunding	2016	Small Business Economics 46(4), pp. 579-590	294
8.	Resolving Information Asymmetry: Signaling, Endorsement, and Crowdfunding Success	2017	Entrepreneurship: Theory and Practice 41(2), pp. 265-290	259
9.	Individual Crowdfunding Practices	2013	Venture Capital 15(4), pp. 313-333	240
10.	The Economics of Crowdfunding Platforms	2015	Information Economics and Policy 33, pp. 11-28	232

Analysis of Source Type

As it is still in its early stages, crowdfunding is undoubtedly an important and much-debated issue among publishers. The publishing of crowdfunding by source type is depicted in Figure 5. According to the pie chart, journals accounted for 72 % of all publications, followed by books (21 %), book series (5 %), and conference proceedings (2 %).

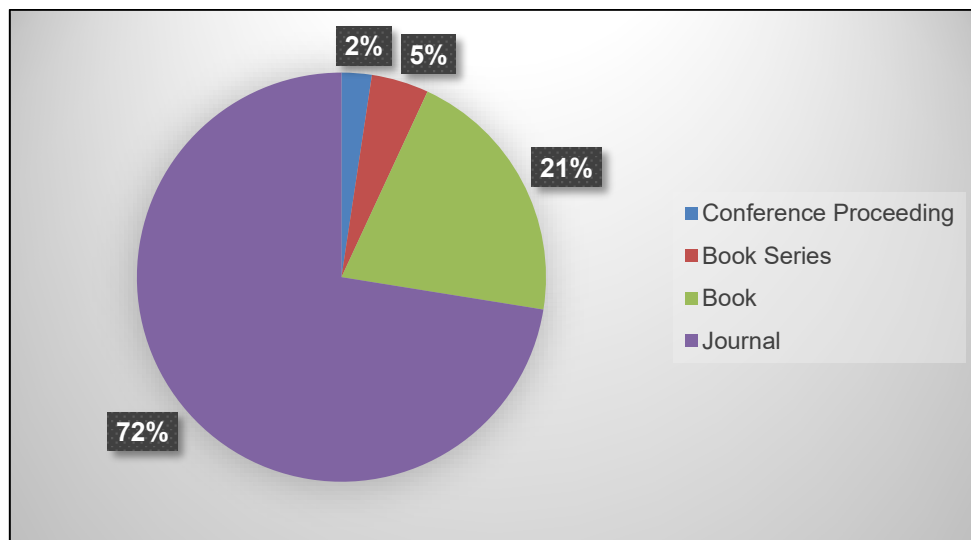


Figure 5: Publications by Source Type

Analysis of Productive Country

This study evaluated the nations based on authors' affiliation to gauge those who have published on crowdfunding. For inclusion, a minimum of ten of the highly cited nations were required. 639 publications out of the entire amount were taken into consideration for this study. According to Figure 6, the United States contributes the most to crowdfunding literature. The United States has published the most publications in crowdfunding research (180), followed by Germany (93), the United Kingdom (93), Italy (85), France (82), China (64), Canada (41), Spain (33), the Netherlands (31) and the Russian Federation (30).

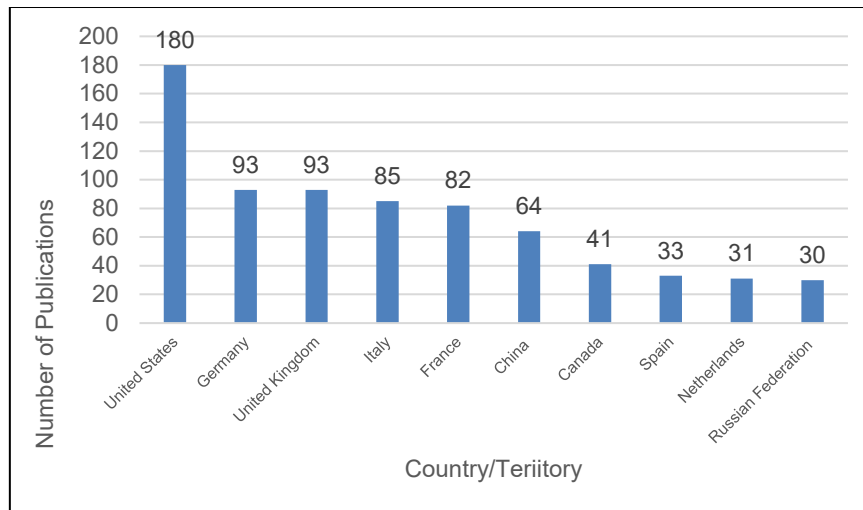


Figure 6: Publications by Countries

Analysis of Keyword Co-occurrence

A graphical bibliometric map for crowdfunding was constructed using the VOSviewer version 1.6.18 to observe keyword co-occurrences. The size of the bubble shows the number of times the phrase has appeared, while the width of the lines and the distance between the bubbles indicate the strength of the association, and the colours identify clusters when utilizing the overlay visualization option. The bibliometric map for author keyword co-occurrence is shown in Figure 7. According to the author keyword co-occurrence entrepreneurial finance has the strongest links with crowdfunding, as it has the brightest colours compared to other keywords. Crowdfunding is a new type of entrepreneurial finance (business economics research) that includes a communication process between entrepreneurs and investors when a campaign is launched (communication research), the design of a crowdfunding platform (computer science research), and the process of reviewing and formulating new regulations (business economics research). This may be one of the reasons why entrepreneurial finance has the strongest correlation with crowdfunding as compared to others. To produce the network, only terms that occurred at least five times were included. Table 2 illustrates the summary topics of interest for crowdfunding. The most co-occurred terms were “entrepreneurial finance” (165 times), “equity crowdfunding” (95 times), “entrepreneurship” (77 times), “crowdsourcing” (71 times), “venture capital” (83 times), “blockchain” (50 times), “fund raising” (50 times), “peer to peer lending” (19 times) and “innovation” (51times).

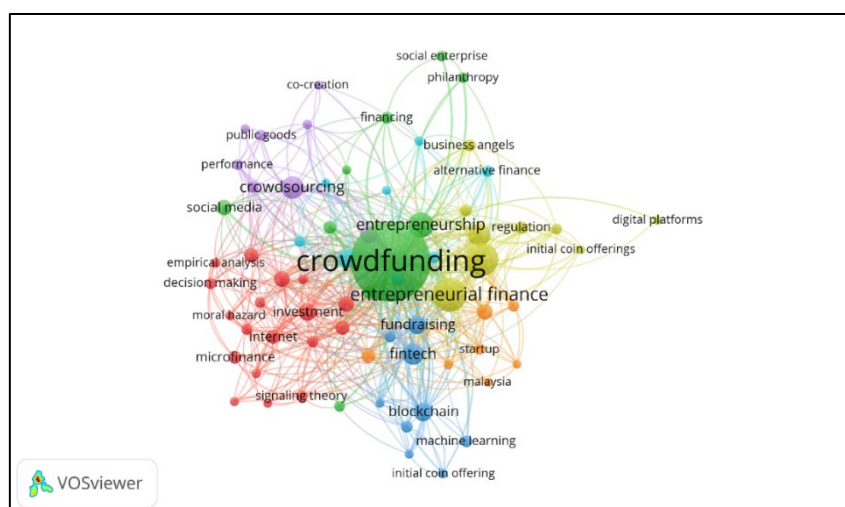


Figure 7: Bibliometric Map by VOSviewer

Table 2: Summary of Topic of Interest for Crowdfunding

No	Item(s)	Link Strength
1.	Crowdfunding	525
2.	Entrepreneurial Finance	165
3.	Equity Crowdfunding	95
4.	Entrepreneurship	77
5.	Crowdsourcing	71
6.	Venture Capital	83
7.	Blockchain	50
8.	Fundraising	50
9.	Peer-to-peer Lending	19
10.	Innovation	51

CONCLUSION

Bibliometric analysis is a modern and exciting method for investigating the current structure and trends of past research. This article investigated crowdfunding research from a broader perspective, taking into consideration all related articles that looked into the phenomenon. A bibliometric analysis approach might therefore demonstrate how crowdfunding research has progressed from 2011 to 2022. However, the number of publications will be somewhat reduced in 2021. Scopus indexed a total of 839 papers in the crowdfunding field. The findings revealed that the majority of crowdfunding publications are focused on Economics, Econometrics, and Finance. Small Business Economics was the most influential publication that addressed crowdfunding research, as seen by the primary document format, an article. According to the results of the citation analysis, the most referenced source or scientific journal in crowdfunding research is the Journal of Entrepreneurship Theory and Practice, and the most common source type is journal form. For the region, authors and institutions from the United States are making significant contributions to crowdfunding research. A different overview of crowdfunding research was offered by bibliometric analysis, which investigates crowdfunding as a research subject and the patterns of crowdfunding research. Furthermore, these data reinforce the notion that crowdfunding research is still in its early stages. It is believed that studies on crowdfunding success will continue to grow as more data becomes available, and this knowledge will be critical for crowdfunding.

This study is not free from limitations. This study exclusively employed bibliometric analysis to assess the existing literature on alternative methodologies and relied solely on data from Scopus, a high-quality database. Future research can look at additional databases, such as the Web of Science core collection. Another limitation is the search keywords, which may result in various performance analyses and science mapping depending on the search terms used. According to the researcher, more studies on crowdfunding, particularly waqf crowdfunding, should be performed. Waqf on the internet is still in its early phases, thus there is room for development, which might be accomplished through crowdsourcing. It is intended that this study would aid future researchers or parties engaged, particularly the government and State Islamic Religious Council (SIRC), in boosting public knowledge of the online technique of crowdsourcing. Because there is still a shortage of published articles in this area, future researchers are strongly encouraged to study it.

Meanwhile, crowdfunding publications connected to Economics, Econometrics, and Finance have the largest overall publication volume, followed by Business Management and Accounting. This shows that the fields provide a fundamental grasp on crowdfunding, such as its definition, financing mechanism, and early efforts on how to assess the success of crowdsourcing on projects as well as its consequences. These fields of research may give indirect direction and help the parties concerned. Finally, our study shows that the most commonly used keywords are crowdfunding, entrepreneurial finance, equity crowdfunding, entrepreneurship, crowdsourcing, venture capital, blockchain, fundraising, peer-to-peer financing, and innovation. The overlay visualisation map of terms on crowdfunding serves as a reference for future crowdfunding studies. This study has two limitations. The first is that it only uses data from Scopus, which allows future studies to utilise a broader variety of

databases such as Google Scholar or Web of Science. Second, this study is limited to the crowdfunding industry. Future scholars can address crowdfunding in general by employing waqf crowdfunding.

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AUTHORS' CONTRIBUTION

The experiments were designed and planned by Hasyeilla Abd Mutalib, Nur Athirah Abd Rahman, and Nurul Labanihuda Abdull Rahman. The experiments and data collection were conducted by Nur Athirah Abd Rahman. The simulations were prepared and carried out by Hasyeilla Abd Mutalib, while Nurul Labanihuda Abdull Rahman assisted with the interpretation of the findings. Nur Athirah Abd Rahman oversaw the writing of the manuscript. All authors gave critical feedback and contributed to the development of the research, analysis, and manuscript.

CONFLICT OF INTEREST DECLARATION

We certify that this article is the original work of the Authors and Co-Authors. The article has never been published before and is not being considered for publication elsewhere. This research has not been submitted for publication, nor has it been published in its entirety or part elsewhere. We attest that all Authors made substantial contributions to the work, validity, and legitimacy of the data, as well as its interpretation for submission to Jurnal Intelek.

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