Bibliometric Study on Financial Literacy between 1984-2021

Paidi Hidayat¹, Sudana²
¹Universitas Sumatera Utara (USU), Indonesia
²STAIPI Bandung, Indonesia

Financial literacy is a combination of awareness, knowledge, skills, attitudes, and behaviors that a person needs to make healthy financial decisions and ultimately achieve individual financial well-being. Financial literacy is a basic need for everyone to avoid financial problems. Financial difficulties are not only a function of income alone (low income). Financial difficulties can also arise if there is an error in financial management (mismanagement), such as misuse of credit and the absence of financial planning. Financial literacy, which is getting more attention in many developed countries, has made us realize how important the level of financial literacy is. This study aims to determine the development trend of Financial Literacy research published by leading journals indexed by Scopus. The data analyzed consisted of 1756 indexed research publications. The data is then processed and analyzed using the VoS viewer application to find out the bibliometric map of the development of Financial Literacy research.

Keywords: Financial Literacy; Bibliometrics; VoS Viewer; Scopus
INTRODUCTION

The implementation of education in increasing understanding about finance in the community is very necessary. With rapid development and economic growth, financial institutions have an important role in the life of the wider community. With various financial institutions that vary, each institution strives to distribute various financial products and services to the community as a whole. So that the wider community can determine financial products and services that suit their needs. The public must properly understand the benefits and risks, know their rights and obligations, and believe that the selected financial products and services can improve people’s welfare (Yushita, 2017).

Financial literacy is closely related to individual well-being. Financial knowledge and skills in managing personal finances are very important in everyday life. Financial difficulties are not just a function of income alone (low income). Financial difficulties can also arise if there is an error in financial management (miss management), such as misuse of credit and the absence of financial planning. Financial limitations can cause stress and low self-confidence. Financial knowledge and financial literacy will help individuals manage personal financial planning so that individuals can maximize the time value of money, and the profits earned by individuals will be greater. They will improve their standard of living (Yushita, 2017).

The important mission of the financial literacy program is to provide education in the field of finance to the Indonesian people so that they can manage finances intelligently so that low knowledge of the financial industry can be overcome and people are not easily fooled into investment products that offer high returns in the short term without considering the risks. The need for public understanding of the products and services offered by financial service institutions, the national financial literacy strategy program proclaimed three main pillars. First, promoting education programs and national financial literacy campaigns. Second, in the form of strengthening financial literacy infrastructure. Third, talk about the development of affordable financial products and services. The implementation of these three pillars is expected to create Indonesian people who have a high level of financial literacy to choose and utilize financial service products to improve welfare (OJK, 2013).

The importance of financial literacy for students so that students can manage their finances intelligently and increase knowledge and insight into financial products and services. So, when the student has started investing, there will be no mistakes in determining where to invest so that there will be no fraud in unclear investments (Puspita, 2021).

Adams & Rau (2011) asserted that financial literacy has a major role in preparing for retirement. Boon et al. (2011) also found that individuals who have financial literacy are more prepared to carry out their financial planning. In another study, Carpena et al. (2011) found that financial education affects a person’s awareness and attitude towards financial products and the use of various available financial planning instruments.

The increase in the financial literacy index in 2016 was still far below the target set by the government through the Presidential Regulation of the Republic of Indonesia Number 82 of 2016 concerning the National Strategy for Financial Inclusion (SNKI) at the end of 2019, which was 75%. Due to the low level of public literacy, the government issued Financial Services Authority Regulation 76/POJK07/2016 concerning increasing financial literacy and inclusion in the financial services sector for consumers/community. As a result, OJK issued the Indonesian Financial Literacy National Strategy (SNLKI) to accelerate and optimize financial literacy and inclusion index targets. The vision of SNLKI (Financial Services Authority, 2017) is to create an Indonesian society that is financially prosperous and well-literate. The mission of SNLKI is to educate and develop knowledge infrastructure in the financial sector as well as expand access, availability of financial products and services according to the needs and abilities of the community.

LITERATURE REVIEW

Financial literacy can be interpreted as financial knowledge, which has the aim of achieving prosperity. According to Soetiono and Setiawan (2018), suggesting that literacy is: Literacy is an individual’s ability to use all the potential and skills possessed in his life so that the notion of literacy includes a person’s ability to process and understand information while doing the reading and writing process.

The Organization for Economic Co-operation and Development or OECD (2006) defines financial literacy as knowledge and understanding of financial concepts and risks, along with the skills, motivation, and confidence to apply the knowledge and understanding they have to make effective financial decisions, improve individual and community financial well-being as well as to participate in the economic field. Remund (2010) states that financial literacy measures a person’s understanding of financial concepts, having the ability and confidence to manage personal finances through making appropriate short-term decisions, long-term financial planning, and paying attention to economic events and conditions. In addition, Huston (2010) said that financial literacy includes awareness and knowledge of financial instruments and their applications in business and life.

The Organization for Economic Co-operation and Development or OECD (2017) formulates that financial literacy is a fundamental factor for economic growth and financial stability. According to Lusardi & Mitchell (2014), good financial literacy leads to spending
decisions to prioritize quality from a consumer point of view. This will result in healthy industry competition and competition related to innovation in goods and services offered to consumers. In addition, good financial literacy can also minimize wrong decisions on economic and financial problems that arise. From the perspective of a financial service provider, good financial literacy will provide adequate information about the product and an understanding of risks. Meanwhile, from the government’s point of view, with good financial capacity in the community, the government can obtain maximum tax revenue from infrastructure and public service facilities.

According to Rohrke & Robinson (2000), financial literacy is the best way to teach consumers about the benefits of having relationships with financial institutions, including funding and credit, the ability to build positive finances. Meanwhile, according to Haywood (2007), financial literacy will affect how people save, borrow, invest and manage finances. Furthermore, financial skills here also emphasize the ability to understand the basic concepts of economics and finance and apply them appropriately.

Financial literacy is divided into four aspects consisting of basic financial knowledge, savings and borrowing, protection (insurance), and investment (Chen and Volpe, 1998). According to MZ. Zahriyan basic financial knowledge includes expenses, income, assets, debt, equity, and risk. This basic knowledge is usually related to making decisions in investing or financing that can affect a person’s behavior in managing the money they have.

According to Anugrah (2018), financial literacy includes several financial dimensions that must be mastered. Several dimensions of financial literacy include general knowledge of finance, savings and loans, insurance, and investment.

a) General knowledge of finance

Knowledge of finance includes knowledge of personal finance, namely how to manage income and expenses and understand the basic concepts of finance. The basic financial concepts include calculating simple interest rates, compound interest, the effect of inflation, opportunity cost, time value of money, and asset liquidity.

b) Deposits and loans

Savings and borrowing is a banking product that is better known as savings and credit. Savings is an amount of money that is saved for future needs. For example, someone with a higher income than his expenses will save the rest of the money. The form of savings can be in the form of savings in a bank or savings in the form of deposits. At the same time, borrowing is a facility to borrow money and repay it within a certain period with interest.

c) Insurance

Insurance is a form of financial protection that can be done in life insurance, property insurance, education insurance, and health insurance. The purpose of insurance is to obtain compensation in an unexpected event such as death, loss, accident, or possession. Insurance involves the party responsible for making regular premium payments within a certain time, which is useful in exchange for a policy that guarantees the protection obtained from the insured party.

d) Investment

Investing is saving or setting money to work so that you can make more money. The method often used by someone to invest is by putting money into securities, including stocks, bonds, mutual funds, or owning real estate.

**RESEARCH METHODS**

This study uses data on the publication of papers sourced from various journals from 1984-2021 with research themed Financial Literacy. Data collection is done through searching for articles indexed by the Google Scholar database. The search is done by typing the keyword ‘Financial Literacy,’ then selected papers relevant to the theme of Financial Literacy research for journal criteria that are filtered and processed in software indexed by Google Scholar only journals equipped with DOI. From the search results, there are 1756 articles published from 1984-2021. The data in the form of topics used in the publication of papers with financial literacy and analyzed using Microsoft Excel 2010. The trends in the development of publications on the theme of Financial Literacy were analyzed using VOSViewer software.

The computer program that was introduced was called VOSviewer. VOSviewer is a program developed for creating and viewing bibliometric maps. This program is available free of charge to the bibliometric research community (see www.vosviewer.com). VOSviewer can create author maps or journals based on co-citation data or create keyword maps based on shared incident data. In addition, the program offers a viewer that allows bibliometric maps to be examined in detail.

To build the map, VOSviewer uses the VOS mapping technique, where VOS stands for visualization similarity. For previous studies where the VOS mapping technique was used. VOSviewer can display maps constructed using appropriate mapping techniques. Therefore, this program can display maps built using the VOS mapping technique and display maps built using multidimensional scaling techniques. VOSviewer runs on many hardware and operating system platforms and can be started directly from the internet.
RESULTS AND DISCUSSION

The following is a table that shows the collection of documents used in research with the theme of Financial Literacy in Islamic economic research. Of the total 1756 documents used, they are divided into 4 types of documents, including journal articles (1092 documents), anthology/book chapters (199 documents), Conference Papers (354 documents), and Reviews (111 documents).

<table>
<thead>
<tr>
<th>No</th>
<th>Document Types</th>
<th>Number of Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Journal article</td>
<td>1092</td>
</tr>
<tr>
<td>2</td>
<td>Book chapter</td>
<td>199</td>
</tr>
<tr>
<td>3</td>
<td>Conference Paper</td>
<td>354</td>
</tr>
<tr>
<td>4</td>
<td>Review</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>1756</td>
</tr>
</tbody>
</table>

Based on the results of grouping the types of documents above, the most widely used document types as research subjects with the theme of Financial Literacy are documents in Journal articles with a percentage of 62.18% or 1092 documents. Meanwhile, the least used documents are in the form of a review of 6.32% or 111 documents. This shows that the references used are quite valid because most of them come from documents in scientific journals.

Bibliometric Graph Analysis

Bibliometrics is based on the calculation and statistical analysis of scientific outputs in articles, publications, citations, patents, and other more complex indicators. It is an important tool in evaluating research, laboratory and scientist activities and scientific specialization, and country performance. After establishing the background for bibliometric development, the report presents the database from which the bibliometric was created and the main indicators used.

To explore the meta-analysis results, in this section, a visual mapping chart from 1756 journals published in Financial Literacy will be presented. The results of the keyword mapping analysis become the basis for mapping together important or unique terms contained in certain articles. Mapping is a process that enables one to recognize elements of knowledge and their configuration, dynamics, interdependencies, and interactions.

Related to bibliometrics, science mapping is a method of visualizing the field of science. This visualization is done by making a landscape map that can display topics from science (Royani et al., 2013). The results of network visualization from 1756 word map journals with the theme of Financial Literacy can be seen:

Bibliometric Author Mapping

Using the VOSViewer software, we found the author’s bibliometric mapping, as shown in the following figure. The bigger the shape and the brighter the color, the author is publishing more and more writings related to Financial Literacy.

**Figure 1: Bibliometric Author Mapping**

The appearance of cluster density depends on the level of yellow light brightness. This identifies that the yellow color on the map depends on the number of items associated with other items. This section is useful for getting an idea of the general structure of a bibliometric map by paying attention to which parts of the light are considered important to analyze. From the map, it is possible to interpret the authors who have published the most.

In general, each researcher has different tendencies. Some writers are indexed as a single author, others co-author with other researchers so that multiple clusters appear, which are indicated with different densities. However, authors with a fairly large density indicate that they publish more research on Financial Literacy than those with a lower density, so this result can be used to reference future researchers.

Based on these results, the bigger and brighter the author’s name, the more papers he published. The author of the most published publications related to the theme of Financial Literacy based on bibliometric mapping, namely Bennett D.A.

Bibliometric Institutions Mapping

In bibliometric analysis, the author’s institution can be seen from which institution they come from. Through these results, we were able to interpret the institutions that wrote the most publications.
Based on the following figure, the cluster of institutions seen with large circles shows how productively these institutions have contributed in publishing papers with the theme of Financial Literacy. The largest number of institutions is calculated from the number of publications and links to other institutions, where an author can write many papers in different journals.

The most popular institutions are calculated based on the number of publications and links to other institutions, where a paper writer can write many papers in different journals. The most well-known ranking of institutions indicated by the results of bibliometric mapping is the Department of Neurological Sciences, Rush University Medical Center, Chicago, United States.

**Bibliometric Country Mapping**

Furthermore, the visualization of the journal publisher mapping is illustrated in the bibliometric image of the journal source below. Based on this picture, it can be seen that several country clusters appear to publish the most articles with the theme of Financial Literacy.

Based on the picture above, the larger the circle of the publishing country, the more papers that country publishes. Seen that the United States has the brightest light. This means that the United States publishes the most Financial Literacy-themed papers compared to other countries.

**Bibliometric Keyword Mapping**

VOSViewer can also find the bibliometric mapping of the most widely used keywords in Financial Literacy themes related to Islamic economics. The bibliometric mapping of the keywords used can be seen in the image below. Keywords that have a larger form indicate that the word is used more in journals related to Financial Literacy.

Some of the keywords that often appear in Financial Literacy themed papers are divided into 4 clusters, namely:

- **Cluster 1 in red** consists of 14 keywords: Association, Benefit, Community, Development, Effectiveness, Interest, Intervention, Opportunity, Outcome, Participant, Patient, Practice, State, Strategy.
- **Cluster 4 yellow color** consists of 6 keywords: Design Methodology Approach, Financial Inclusion, Implication, Originality Value, Policymaker, Practical Implication.

Keywords that are divided into 4 clusters above are arranged in colored circles that indicate indicating clusters. This data can be used to find out the trend of keywords in the last year.

The bibliometric analysis shows several widely used keywords in the paper, which are the object of
research. The more keywords that appear, the wider the circle is shown. Meanwhile, the line relationship between keywords shows how much they are related to other keywords.

Bibliometric Index Mapping

Then, this study also obtained results in the form of an index that is often used by authors and is interrelated in the theme of Financial Literacy related to Islamic economics, as shown in the image below. An index that has the same color indicates a very close relationship.

Figure 5: Bibliometric Index Mapping

Based on the results obtained, the lighter the color, the more recent the index is used. Thus, for example, in the word index of the paper with the theme of Financial Literacy related to Islamic economics, several words are used the most, namely Human, followed by the word Financial Management.

FINDING

<table>
<thead>
<tr>
<th>Rank</th>
<th>Keyword by Occurrence</th>
<th>Authors with The Highest Publication</th>
<th>An institution with The Highest Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Literacy</td>
<td>Bennett D.A.</td>
<td>Department of Neurological Sciences, Rush University Medical Center, Chicago, United States.</td>
</tr>
<tr>
<td>2.</td>
<td>Financial Literacy</td>
<td>Boyle P.A.</td>
<td>Department of Behavioral Sciences, Rush University Medical Center, Chicago, United States</td>
</tr>
<tr>
<td>3.</td>
<td>Financial Literacy Level</td>
<td>Mitchell O.S.</td>
<td>National Bureau of Economic Research (NBER), United States</td>
</tr>
<tr>
<td>4.</td>
<td>Financial Behavior</td>
<td>Yu L.</td>
<td>Dartmouth College, United States</td>
</tr>
<tr>
<td>5.</td>
<td>Relationship</td>
<td>Lusardi A.</td>
<td>Boettner Center for Pensions and Retirement Research, Wharton School of the University of Pennsylvania, United States</td>
</tr>
<tr>
<td>6.</td>
<td>Education</td>
<td>Jr.</td>
<td>Pension Research Council, Wharton School of the University of Pennsylvania, United States</td>
</tr>
<tr>
<td>7.</td>
<td>Development</td>
<td>Kadoya Y.</td>
<td>Wharton School of the University of Pennsylvania, United States</td>
</tr>
<tr>
<td>8.</td>
<td>Financial Knowledge</td>
<td>Sabri M.P.</td>
<td>College of Social Work, University of Tennessee, Nashville, United States</td>
</tr>
<tr>
<td>9.</td>
<td>Investment</td>
<td>Xiao J.J.</td>
<td>Faculty of Graduate Studies and Research, Makerere University Business School (MUBS), Kampala, Uganda</td>
</tr>
<tr>
<td>10.</td>
<td>Implication</td>
<td>Potrich A.C.G.</td>
<td>Rush Alzheimer’s Disease Center and Department of Neurological Sciences, Rush University Medical Center, United States</td>
</tr>
</tbody>
</table>

Most Cited Article

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Authors</th>
<th>Years</th>
<th>Source</th>
<th>Cited by</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Title</td>
<td>Authors</td>
<td>Year</td>
<td>Journal</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Barriers to human papillomavirus vaccination among us adolescents a systematic review of the literature</td>
<td>Holman, D.M., Benard, V., Roland, K.B., Liddon, N., Stokley, S.</td>
<td>2014</td>
<td>JAMA Pediatrics, 168(1), pp. 76-82</td>
<td></td>
</tr>
</tbody>
</table>

The articles above are the 10 most cited articles related to Financial Literacy, the first article is 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guidelines for the prevention, detection, evaluation, and management of high blood pressure in adults: Executive summary: A report of the American college of cardiology/American Heart Association task force on clinical practice guidelines is the most cited article with 1170 times. This article is about summarizes the major recommendations of high blood pressure in adults such as classification, measurement, screening for secondary hypertension, nonpharmacologic therapy, BP thresholds and cardiac risk estimation. This articles provides an evidence-based approach to reduction of CVD risk through lowering of blood pressure.

The article that is in second place, namely The economic importance of financial literacy: Theory and evidence (Lusardi, A., & Mitchell, O. S., 2014), is an article cited 891 times. This article is about an assessment of the rapidly growing body of economic research on financial literacy. Data is obtained from a recent survey to identify subgroups of the population who are not financially savvy, as well as a wealth of related literature such as impact on decision-making, and so on.

Articles that are in third place, namely Financial literacy and stock market participation (van Rooij et al., 2011), are articles that have been cited 815 times. This article is about the module for the De Nederlandsche Bank (DNB) household survey, aimed at measuring financial literacy and understanding the relationship with stock market participation. The results show that financial literacy affects financial decision making, low literacy is less likely to invest in stocks.

The fourth article, namely Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth (Lusardi & Mitchell, 2007), is a book that has been quoted 740 times. This article compares wealth in the Health and Retirement Study: Baby Boomers in 2004 and individuals in the same age group in 1992. After examining the estimation results of instrumental variables, it is shown that planning behavior can explain differences in savings and why some people approach retirement with wealth. little or none at all.

The article that ranks fifth, namely Health literacy in Europe: Comparative results of the European health
literacy survey (HLS-EU) (Sørensen et al., 2015), is an article that was cited 597 times. This article examines some of the best findings from the European comparative survey on Health and population literacy (HLS-EU) conducted in eight countries, with a total sample of 8000. Data were obtained based on Eurobarometer standards and the application of questionnaires and personal interviews.

The article which is in sixth place, namely Financial literacy and retirement preparedness: Evidence and implications for financial education (Lusardi & Mitchell, 2007), is an article that has been cited 535 times. This article is about causes and consequences of financial literacy that makes retirement planning sub-optimal and many households approach retirement with little or no wealth. The government and several non-profit organizations are needed for initiatives to improve the financial literacy of young and old people about basic financial concepts, especially savings and investment decisions.

The article which is in seventh place, namely Financial literacy, financial education, and downstream financial behaviors (Fernandes et al., 2014), is an article that has been cited 499 times. This article deals with a meta-analysis of the relationship between financial literacy and financial education with financial behavior in 168 papers. It also includes 201 previous studies. The results show that improving financial literacy only explains 0.1% of the variance in financial behavior, with a lower effect on the low-income sample as well.

The article that was ranked eighth, namely Barriers to human papillomavirus vaccination among US teenagers, a systematic review of the literature (Holman DM, et al. 2013), was an article that was cited 496 times. This article aims to systematically review the literature on barriers to Human Papillomavirus (HPV) vaccination among US adolescents in order to increase the overall coverage and uptake of the HPV vaccine, overcome system-level barriers to vaccination, reduce the chance of missed vaccination as a teenager, and so on.

The article that ranks ninth, namely Measuring Financial Literacy (Huston, 2010), is an article that has been cited 489 times. This article summarizes the various measures of financial literacy used in research over the last decade, aims to review the previous literature to identify barriers, and propose approaches, to develop more standardized measures of financial literacy.

The article that ranks tenth, namely Financial literacy among the young (Lusardi, A, et al. 2010), is an article that has been cited 466 times. This article examines financial literacy among youth using the 1997 National Youth Longitudinal Survey wave. It is shown that financial literacy is low; less than a third of young adults have basic knowledge of interest rates, inflation, and risk diversification. Also, financial literacy is closely related to sociodemographic characteristics and family financial sophistication.

**CONCLUSION**

This study aims to determine the extent of developing the theme of Financial Literacy in the world. The results show an increasing number of papers published on this theme in recent years, from 1984 to 2021. More than 1000 studies have been published on this theme.

Bibliometric mapping visualizations show that Bennett D.A. wrote the most about Financial Literacy. The institution that publishes the most papers related to Financial Literacy is the Department of Neurological Sciences, Rush University Medical Center, Chicago, United States. And the country that publishes the most papers related to Financial Literacy is the United States. The Financial Literacy research development map is divided into 4 clusters. Cluster 1 consists of 14 topics, cluster 2 consists of 9 topics, cluster 3 consists of 7 topics, and cluster 4 consists of 6 topics.

Recommendations that can be given to academics are to continue developing scientific research on the theme of halal economics, especially by utilizing bibliometric results, for example, using popular keywords, selecting references based on the most popular authors, institutions, countries, countries keywords, and indexes. Academics can also expand the study of halal economics literature with more specific references, such as articles indexed by Scopus, or use other software to produce more diverse bibliometric mappings, such as R Biblioshiny.

**REFERENCES**


