# Financial Literacy: In Perspective Socio-Demographic Bibliometric and Content Analysis

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**Abstract:** This research provides insights from previous studies on financial literacy using a systematic literature review. It analyzed 1,245 articles, finding a significant increase in financial literacy publications from 2017 to 2020. Lusardi was the most cited author, and the United States led in research activity, followed by Japan, China, Germany, Indonesia, and Italy. Basic and Advanced Financial Literacy were commonly measured. Gender, age, and education were identified as influential factors. Limitations include a small sample size. The research informs policies for enhancing financial literacy in Indonesia and compares its development across countries and disciplines. Further research can utilize web-based data and other software, and include more articles for diverse findings. Financial literacy differs based on individual characteristics such as gender, age, and education. It can contribute to policies aimed at improving financial literacy and the national index. The study's originality lies in comparing the development of financial literacy across countries, including both developed and developing nations, and assessing author contributions through studies and citations.

**Keywords:** Financial Litercy, Socio Demographic, Bibliomatric Analysis, Content Analysis.

## INTRODUCTION

In recent years, research on financial literacy has begun to show development and become research topics that are still interesting to study. Several studies in various countries show that individual financial literacy shows an influence on individual investment decision making (Bernheim, 1998), (Cole et al., 2011). Financial literacy is a determinant in individual interest in stocks and investment decision making in the stock market (Van Rooij et al., 2011), (Mouna and Anis, 2017), (Al-Tamimi, 2009). The theme of financial literacy research has evolved over the years, with research focusing on socio-demographics but quantitatively rather than literature review. (Ingale and Paluri, 2020). Making a financial decision, in this case an investment decision, is very difficult. There are still also questions on whether the individuals are ready to do so. Financial literacy is important as it can reduce many social problems and financial disputes. (Fox et al., 2005).

Financial literacy which measures how well an individual can understand and use information related to personal finance (Huston, 2010). Financial Literacy is very important, because it is very difficult to make perfect financial decisions without having financial knowledge due to the very complex financial characteristics found in today's financial markets. The need for good financial literacy for the community is very necessary especially for those who have limited resources because inadequate knowledge can cause problems in investment (Naiwen et al., 2021). Financial literacy is how capable a person is of understanding and using information related to personal finance. (Huston, 2010). Financial literacy in the United States has become a focus of public policy due to declining levels and overall low levels of financial literacy in the United States compared to other developed and developing countries. The United States ranks 14th with a reported financial literacy level of 57%. The data is supported by the 2015 National Financial Literacy Study which involved nearly 30,000 respondents and found that the level of financial literacy was 61% higher for those who received formal financial literacy education (71%) and lower for women and minorities (Al-Bahrani et al., 2019). Research conducted by the FINRA investor education foundation found that over the past decade between 2009 and 2018, there was an 8% decline in the level of financial literacy in the United States (Keshner, 2019). Every age group has seen a decline in financial literacy, but the biggest drop has been among millennials, who now represent the majority of the US population and workforce. Financial literacy among millennials dropped from 30% to 17% in the past decade (Keshner, 2019). Financial literacy is increasingly becoming an important aspect of education in the digital age (Shvaher et al., 2021).

Financial Literacy as a concept is difficult to define and measure. Several studies have focused on the definition and measurement of the concept of financial literacy. Different items are used in the literature and most of them are related to the study topic. The calculation methods used differ across studies (Ouachani et al., 2021). The bibliometric approach can be used to conduct research to solve this problem. With the bibliometric approach, various definitions, measurements

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and benefits of financial literacy that can be used in improving living standards can be identified. Previous research (Cole et al., 2011), (Jappelli et al., 2013), (Lusardi and Mitchell, 2007b), (Lusardi and Mitchell, 2014a), (Van Rooij et al., 2011) founds that Financial literacy may be the cause of low demand for financial services including holding savings or financial transactions such as insurance, loans and investments in financial markets. (Alessie et al., 2011) research conducted in the Netherlands and (Mitchell and Lusardi, 2015) Research conducted in the US reveals that financial literacy leads individuals to be able to make investment decisions that benefit future income and lead to economic growth. In Indonesia and India (Cole et al., 2011) found that people's financial knowledge about financial products affects the decision to use financial services. Moreover, making the right financial decisions about what to save or invest, where to save or invest, the type of financial services to use is difficult because this requires a level of financial literacy. (Lusardi and Mitchelli, 2007), (Miller et al., 2009)

This study analyzes the latest developments and trends in financial literacy as a determinant of investment decision making using bibliometric methods. The objectives of this study can be linked to the following research questions: (1) how is the development of research on financial literacy, (2) which journals, countries, authors and strategies are most influential in this research stream, (3) which journals are the topics of this research, (5) which are the topics and patterns of research in this field, (6) the level of financial literacy based on socio demographic perspectives. Starting from the data sources and methods used, this article examines financial literacy and also looks at the latest research trends in the field, then summarizes the findings and conclusions and future research development.

## THEORETICAL REVIEW

In traditional finance, errors in valuation are only caused by a temporary imbalance between supply and demand for the stock in question (Harjito, 2009). Realizing the inability of traditional finance to explain market anomalies in the phenomenon of money markets and capital markets, researchers began to link existing phenomena with behavioral aspects. Based on the increasing role of psychology as one of the determinants in buying or selling stocks, behavioral finance is growing. During the 1990s behavioral finance emerged in line with the demands of the development of the business and academic world which began to consider the existence of other aspects or elements of behavior in the process of making financial or investment decisions.

Behavioral finance explains why investors deviate from their rational behavior and show irrational behavior. Rational behavior is using logical thinking including risk aversion and preferring low risk to high risk at a certain level of return. Investors are said to be rational if in investing in stocks, investors make stock selections and determine the optimal portfolio to get maximum returns with minimal risk. Deviations can occur due to uncontrolled behavioral factors such as greed, panic, emotions and various other psychological biases towards investment decisions (Sattar *et al.*, 2020).

There are three psychological parts to behavioral finance: cognitive, emotional response and social psychological. The first is cognitive or behavioral psychology, where the focus is on how our minds perform the calculations necessary to maximize wealth. Second is the emotional response to trading intensity, where the focus is on decision-making being more of a rigorous calculation process. Third is social psychology, which recognizes the need to find acceptance and even encouragement of one's actions. Behavioral finance provides an explanation and understanding of why individual investors, how investors choose portfolios and how their investments perform (Baker and Ricciardi, 2014).

Fama and French (1998) states that behavioral finance is a field of finance that proposes explanations of stock market anomalies using identified psychological biases, rather than dismissing them as coincidental outcomes consistent with market hypotheses. Barber and Odean (1999) states that behavioral finance tolerates the assumptions of traditional financial economics by incorporating an observable, systematic form of rationality into standard models of financial markets. The human tendency to be overconfident leads to investor bias and the desire of investors to avoid mistakes.

## FINANCIAL LITERACY DEFINITION

Baker and Nofsinger (2002) defines behavioral finance as studying how humans actually behave in a financial decision. Sewell (2007) defines behavioral finance as a study of psychological influences on practical financial behavior and its impact in the market, thus helping to explain why and how markets are inefficient. Meanwhile (Dolvin and Miller, 2015) states that behavioral finance as a study that seeks to understand and explain how cognitive biases affect investor decisions and market prices. Pompian (2012) states behavioral finance as a contrast between investor and market behavior in the real world with various theories of investor behavior.

Financial literacy is a multidimensional concept consisting of three dimensions of financial knowledge, attitudes and behaviors (Aydin and Selcuk, 2019). Financial literacy is an approach used to assess individual understanding of financial which examines factors such as knowledge, ability, skill, behavior, decision and experience (Ouachani et al., 2021). Financial Literacy as the ability to analyze economic information and make informed financial decisions. If individuals have financial knowledge but are unable to use it appropriately to make sound financial decisions, then they are classified as not financially literate (Lusardi and Mitchell, 2014b). Financial literacy has increased due to factors including the development of financial products, the complexity of financial markets, and changing political, demographic, and economic factors. (Hassan Al-Tamimi et al., 2009). The ability to use knowledge and skills to effectively manage financial resources for lifelong well-being. Individuals who have low financial literacy tend to make irrational or unfavorable investment decisions (Adil et al., 2021). Early action starting with children through education especially aimed at women of all income groups will bring more consistent results (Ponchio et al., 2019).

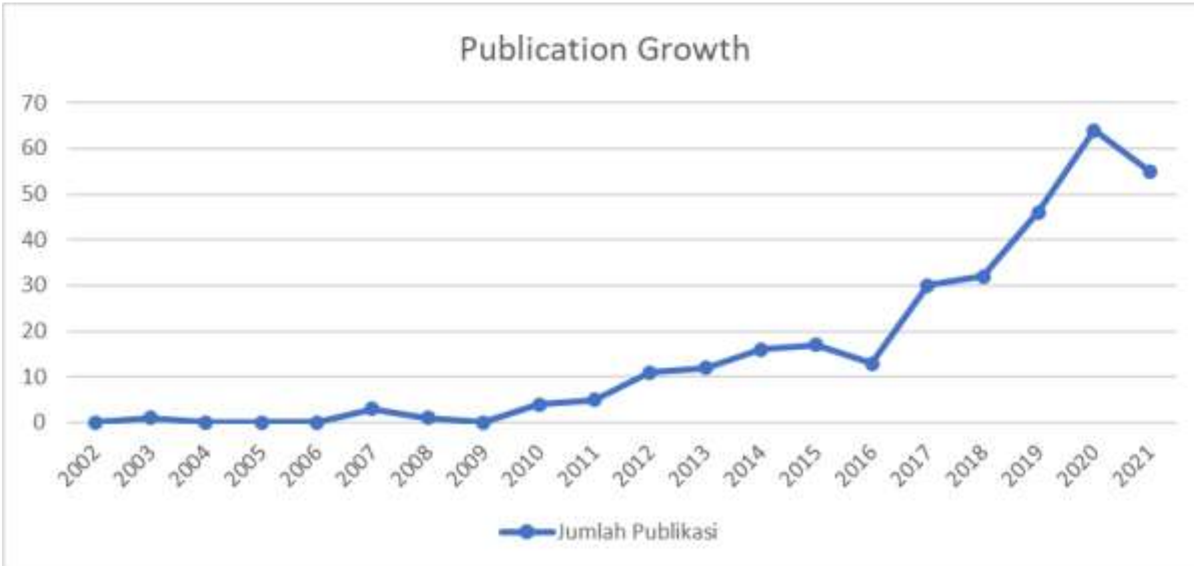


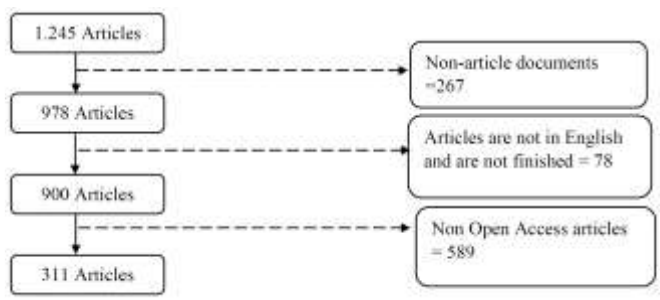

**Table 1.** Development of Publications 2002-2021.

## FINANCIAL LITERACY FOR FINANCIAL DECISION MAKING

The next discussion is about the importance of financial literacy in economic decision-making. (Lusardi and Mitchell, 2014b) states Individuals today are increasingly being asked to take additional responsibility for their own financial well-being, there is still much to learn regarding the facts for financial well-being. Some previous research results show the importance of financial literacy. (Lusardi and Mitchelli, 2007) states that many households are unfamiliar with even the most basic economic concepts needed to make savings and investment decisions. Such financial illiteracy is widespread, with young people and older people in the United States and other countries appear woefully uninformed about basic financial concepts, having serious implications for savings, retirement planning and other decisions. (Van Rooij et al., 2011) found that the majority of respondents demonstrated basic financial knowledge and understood concepts such as compound interest, inflation, and the time value of money. However, very few went beyond these basic concepts, with many respondents not knowing the difference between bonds and stocks, the relationship between bonds and interest rates, and the basics of risk diversification. Most important in this finding is that financial literacy affects financial decision-making. Those with low literacy are much less likely to invest in stocks.

## METHODOLOGY

Systematic reviews are conducted by considering articles published in international scientific journals. In this research, articles were searched using the Scopus database in the last 20 years, namely 2002-2021, totaling 1,245 articles. Based on the research topic where the researcher uses the keyword "Financial Literacy" and searches the article title. Documents that met the inclusion criteria at various stages were considered for data extraction and analysis. The initial search contained 1,245 articles, then filtering was carried out, which selected only documents in the form of articles. Subsequently, articles that were not in English were excluded, only English articles were used, which amounted to 978 articles. Finally, articles that were not open access were excluded, so there were 311 articles that met the researcher's criteria. This study uses bibliometric analysis using techniques using mathematical and statistical techniques to analyze patterns in the literature or articles that have been published (Singh and Dhir, 2019). Bibliometric studies in various research topics are used to map the literature or articles published in a particular topic. Studies on bibliometric analysis in finance topics are published in various topics such as green finance (Zhang et al., 2019), supply-chain finance (Xu et al., 2018), accounting research (Merigó and Yang, 2017) and financial education (Valencia et al., 2018).




## META SYNTHESIS

Meta synthesis is a technique of integrating data to obtain new theories and concepts or a deeper and more comprehensive level of understanding (Perry et al., 2002). Data synthesis aims to gather empirical evidence from selected articles to answer research questions. The use of Meta synthesis in research to determine the characteristics of financial literacy in the 10 most frequently cited articles or empirical studies from 311 articles collected. The 10 selected articles will be examined regarding financial literacy in socio- demographic perspective so that it will be a novelty in this research. This research uses bibliometric methods to find research data by using Vosviewer software to conduct network analysis ana-

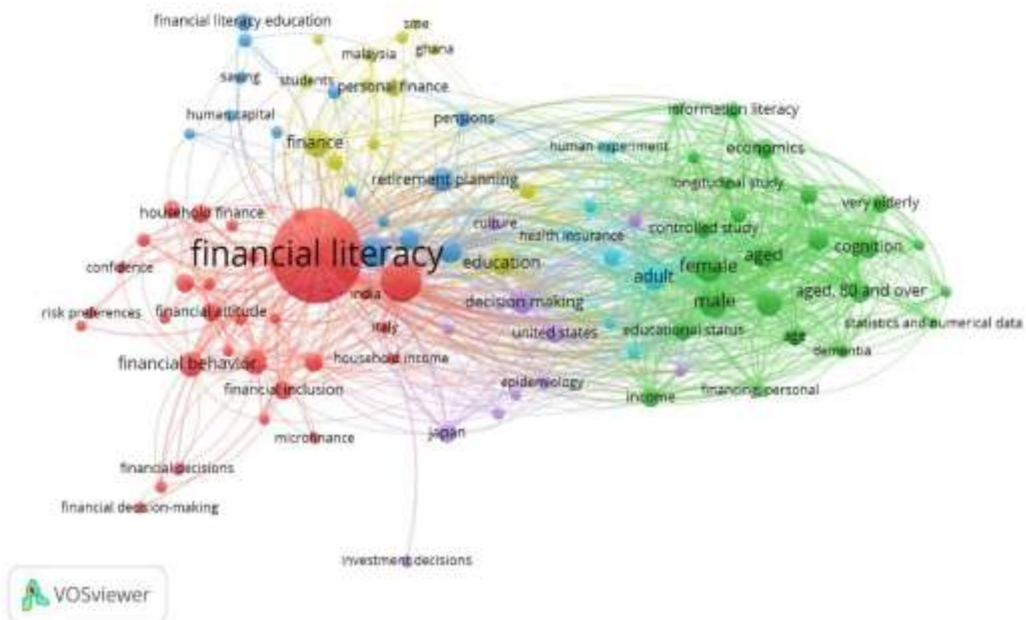



**Fig. (1).** Keyword Analysis Using VOS viewer.

lyzed from publication year, keywords, authors, countries, and citations.

## ANALYSIS RESULTS UBLICATION YEAR

This study collects research results on financial literacy over the past 20 years (2002- 2021). The search results show that there are still few studies on financial literacy in 14 years (2002-2015). Research on financial literacy began to show increased interest in the last 6 years (20016-2021). It can also be seen from 2016-2017 a significant increase in the number of n = 30. 2017-2018 n = 32, 2018-2019 n = 46, 2019-2020 n = 64, 2020-2121 n = 55. In 2021 it shows a decrease but this is because researchers took data in October 2021, the research data has not been recorded at all. The following figure shows the development of the number of publications on the topic of financial literacy research for 20 years.

## KEYWORDS

The keywords in this article collection uses the word "Financial Literacy". It is found that research on financial literacy is networked with other variables such as financial attitude, financial inclusion, and retirement planning. Based on the results of the analysis, based on keywords from 311 articles, it can be seen from Figure 2, based on the results of the analysis there are 5 clusters, namely red cluster, green cluster, blue cluster, yellow cluster and purple cluster. It can be seen in each cluster, the red cluster image that the keyword financial literacy dominates, in the green cluster gender dominates, in the blue cluster retirement planning dominates, in the yellow cluster personal finance dominates, and in the purple cluster decision making dominates.

This is evident in the red cluster which dominates the financial literacy keyword as evidenced in Table 1 which shows the growth in academic interest in studying the topic of financial literacy. The increase in studies on financial literacy occurred in 2016-2021, showing a significant increase.

In the Green cluster the most dominating keyword is gender, there is a sizable gender gap in financial literacy. Differences in numeracy, attitude to risk and self-confidence as potential determinants of systematic differences in these variables by gender (Driva, 2016). Research that found results on a sample of university students in the UK and New Zealand to other countries, that men outperformed women on financial literacy questions. Further, men outperformed women on simple compound interest statements in both countries. Attitudes towards debt were compared between the two countries, it was found that in the UK student sample, women were less likely to see future benefits from higher education compared to their male counterparts. These findings are of interest to those who provide and offer products and deliver training in the personal finance sector (Agnew, 2015).

In the blue cluster, the keyword retirement planning is evident from studies which found governments in many countries face the challenge of providing income for a group of people when they retire. The results are relevant for finance groups given the increasing institutional and societal pressure to use financial literacy as a way to increase responsibility in designing retirement strategies (Gallego-Losada *et al*., 2022).

In the yellow cluster, the keyword that dominates personal finance is because the conditions of the covid 19 pandemic that occurred show the importance of personal financial management. Not only companies need financial management, even now personal or individual financial management is needed. This is because it can improve individual financial welfare.

In the purple cluster, the keyword that dominates decision making is still a very important topic to research because based on the results of the analysis, decision making is still

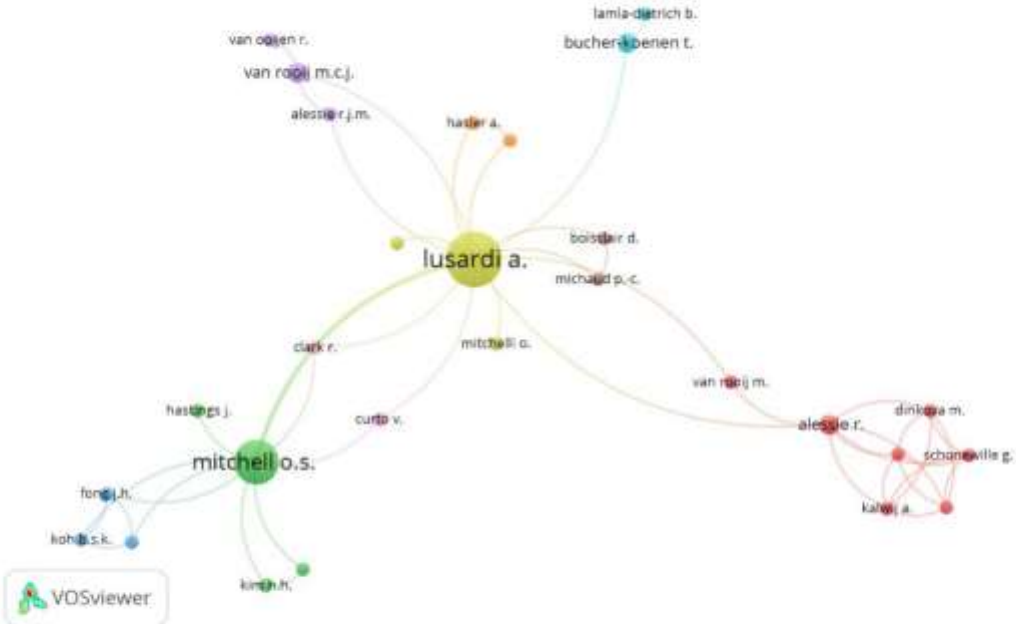



**Fig. (2).** Authors' analysis using VOS viewer.

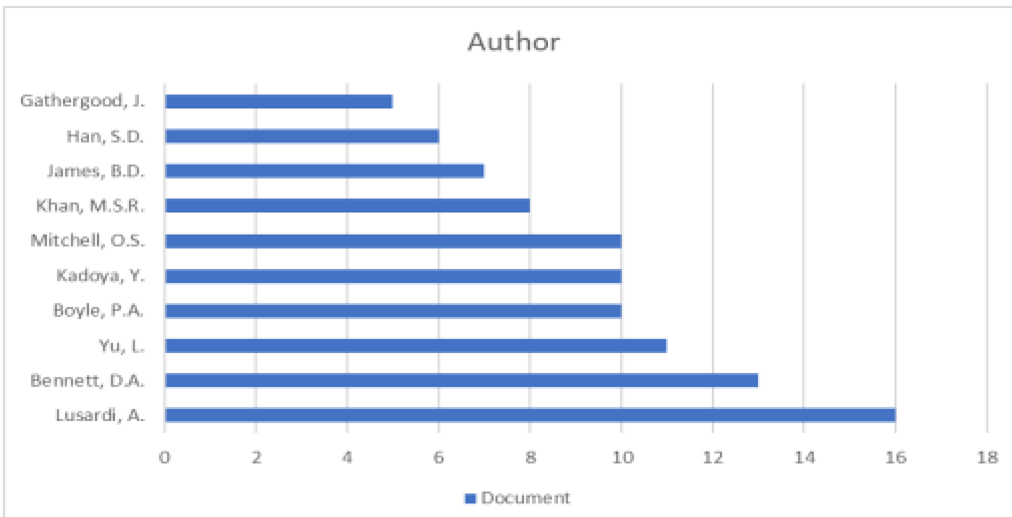



**Fig. (3).** Author analysis.

far away. This is an important concern to study financial literacy on decision making.

## AUTHORS

Researchers' interest in the topic of financial literacy is growing. The following figure describes the 10 researchers who have most frequently researched the topic of financial literacy over 20 years (2002-2021). From the Vosviewer analysis in Fig. (**2**), it can be seen that the dominating author, Annamaria Lusardi, is networked with 14 authors (Olivia S. Mitchell, Tabea Bucher Koenen, David Boisclair, Pierre Carl Michaud, Maaten Van Rooij, Vilsa Curto, Robert Clark, Rob Alessie, Van Ooijen, Andrea Hasler, Paul J Yakoboski) and there are 16 articles. It can be seen from the results of the analysis that Annamaria Lusardi is networked with Olivia S. Mitchell which is the most dominating seen from the largest dot, namely with a link strength of 7. One of the studies conducted by Annamaria Lusardi with Olivia S. Mitchell with the title of the article the economic importance of financial literacy: Theory and evidence and a total of 972 citations with the finding that older US residents show financial illiteracy, only about half can answer a simple calculation of 2 percent and know about inflation and only a third can answer all three questions correctly.

## COUNTRY

Fig. (**3**) shows the different contributions of each country to the study of financial literacy. Developed countries show the largest contribution to the study of financial literacy. The top three developed countries that have the largest contribution are the first United States, the second is the United Kingkom and the third is Italy. America dominates with the biggest dot

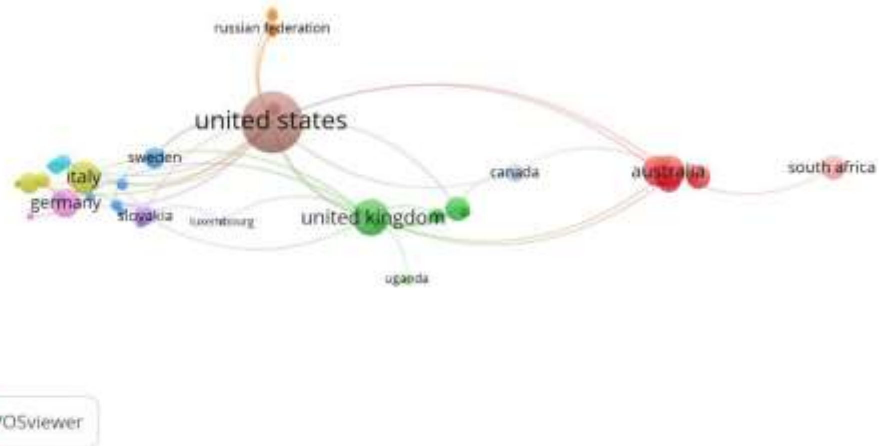



**Fig. (4).** Country analysis using VOSviewer

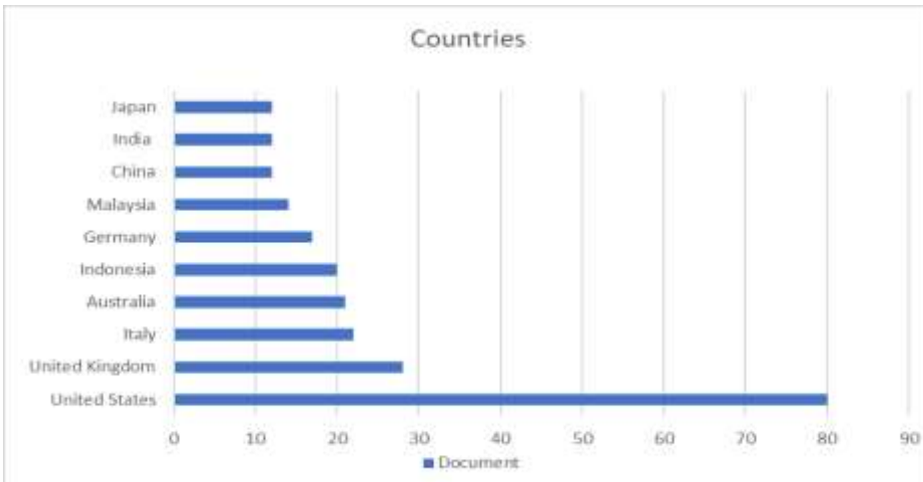



**Table 3.** Most productive countries.

with almost 80 publications, which is the most productive country in studying financial literacy. Studies on financial literacy in the United States show that financial literacy is very low among young people, women and the less educated. Many respondents lack key knowledge of financial concepts and fail to plan for retirement, even when retirement is 5-10 years away. This is important because being able to develop and implement a retirement plan is retirement security (Lusardi and Mitchell, 2011). Therefore, it is important to improve the study of financial literacy in the United States, where the United States is a developed country that should be in line with its excellent financial literacy.

## CITATION ANALYSIS

Based on the analysis conducted related to citation analysis, it shows that the authors with the most frequently cited articles are (Lusardi and Mitchell, 2014a). Next in order for the most cited articles are (Van Rooij et al., 2011) and (Lusardi and Mitchell, 2007a).

## CONTENT ANALISIS

Content analysis is research that is an in-depth discussion of a particular issue or topic. The articles analyzed in this study are the 10 most frequently cited articles and are empirical studies rather than theoretical concepts. The purpose of this content analysis is to determine the measurement of financial literacy and the methodology used in each article. Table 4 shows the measurements and methodologies used by researchers in conducting research related to the topic of financial literacy. Based on the content analysis conducted, a measurement of financial literacy can be obtained. Studies that have been conducted state that financial literacy is largely determined by a person's knowledge about finance. Financial literacy is very important to encourage a person to achieve prosperity. Every country needs to measure or know the level of financial literacy of its citizens so that they can develop a regulation or develop a financial education model that can be applied so that financial literacy can be improved. The basis for determining a person's level of financial literacy is determined using a microeconomic approach (Lusardi and Mitchell, 2014a) where it is assumed that each individual in carrying out financial execution must have expertise and be able to make calculations related to financial market conditions.

Research instruments used to measure financial literacy can be found using various research methods such as surveys or literature reviews. Based on the data, it can be seen that the survey methodology is mostly carried out by the author. The

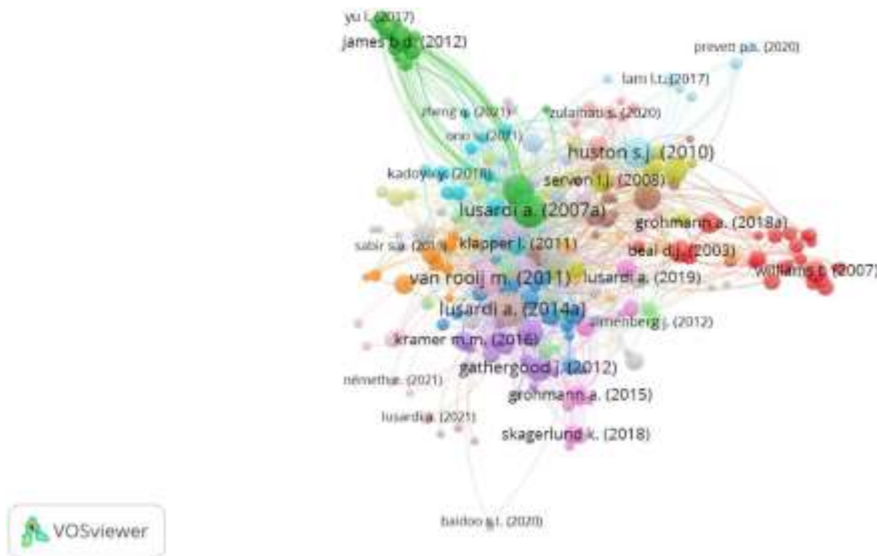
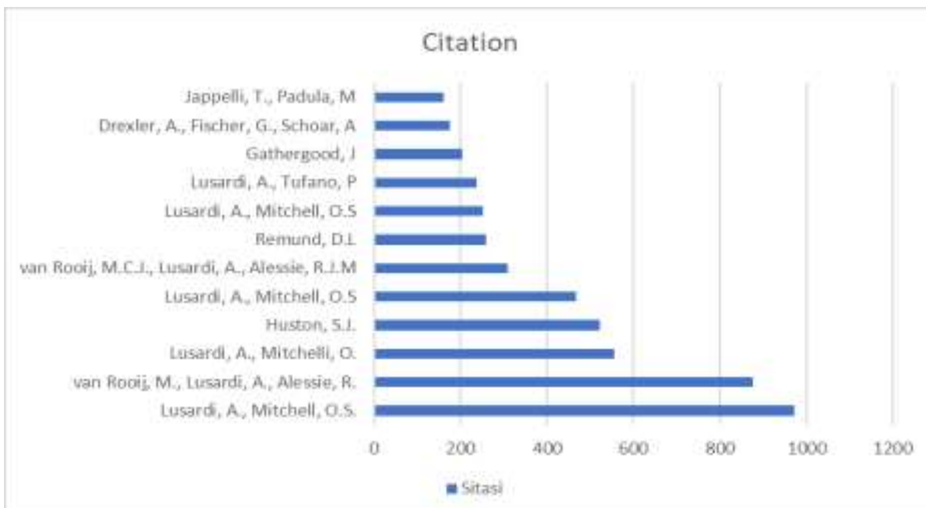



**Fig. (5).** Citation analysis using VOS viewer.




basis of measuring financial literacy is to assess a person's knowledge related to knowledge of compound interest, inflation, and risk (Lusardi and Mitchell, 2014a), (Lusardi and Mitchell, 2007a), (Lusardi and Mitchell, 2011), (Gathergood, 2012). The instrument is based on questions that match the financial literacy indicators. A person's literacy level can be known by calculating the correct answers from the respondents. Each question will be scored. The correct answer will be given a score of 1 while 0 for the wrong answer. The more correct answers the respondent has a high score on financial literacy. Conversely, if there are many questions that are not answered correctly, the financial literacy score will be low.

The questions compiled in a financial literacy survey instrument start from general knowledge of the indicator to more in-depth knowledge of the indicator. Based on this measurement method, financial literacy measurement can also be divided into two, namely: Basic Financial Literacy and Advanced Financial Literacy. Research conducted on financial literacy is more appropriate to use the survey method. Most of the research conducted to determine financial literacy in various countries is done by survey. The survey method is considered the most appropriate for financial literacy measurement because the measurement must be done per individual. Each individual has different financial understanding from one another.

**Table 4. Measurement on Financial Literacy.**

| Num. | Author | Measurement | Methodology |
|---|---|---|---|
| 1 | (Lusardi and Mitchell, 2014a) | Numeracy and capacity to do calculations related to interest rates<br>Uderstanding of inflation<br>Understanding of risk diversification | Survey |

| | | | |
|---|---|---|---|
| 2 | (Van Rooij et al., 2011) | Basic Financial Knowledge<br>Advance Financial Knowledge | Survey |
| 3 | (Lusardi and Mitchell, 2007a) | Percentage Calculation<br>Lottery Division<br>Compound Interest | Survey |
| 4 | (Huston, 2010) | Basic concepts<br>Borrowing concepts<br>Saving/investment concepts<br>Protection concepts | Literatur Review |
| 5 | (Lusardi and | 2. Percentage Calculation | Survey |
| | Mitchelli, 2007) | Lottery Division<br>Compound Interest<br>Political Literacy | |
| 6 | (van Rooij et al., 2012) | Understanding of interest compounding<br>Understanding of inflation<br>Understanding of risk diversification | Survey |
| 7 | (Remund, 2010) | Basic Financial Literacy<br>Advanced Financial Literacy | Literatur Review |
| 8 | (Lusardi and Mitchell, 2011) | knowledge of financial concepts ability to communicate about financial concepts<br>Aptitude in managing personal finances<br>Skill in making appropriate financial decisions confidence in planning effectively for future financial needs | Survey |
| 9 | (Lusardi and Tufano, 2015) | Understanding of Interest Rate<br>Understanding of Inflation<br>Understanding of Risk Diversification | Survey |
| 10 | (Gathergood, 2012) | Interest compounding real vs nominal returns portfolio diversification. | Survey |

Financial literacy studies in various countries show that financial literacy will differ based on individual characteristics. Individual characteristics are distinguished by gender, age and education.

*Gender,* Studies conducted in various countries by comparing financial literacy in men and women were found to be different, where men have a greater level of financial literacy than women (Lusardi and Mitchell, 2014a). Study by Lusardi and Mitchell (2011) conducted in the US found that women have lower financial knowledge than men. The data was collected using a survey method that asked about three main indicators of financial literacy: interest, inflation and risk. Data from the entire sample showed that 22.5% of women were able to answer all questions correctly while 38.3% of the male sample were able to answer correctly. The study also showed that 50% of the female sample did not know at least one of the indicators asked while only 34.3% of the male sample did. Financial literacy study conducted by Van Rooij et al. (2011) in the Netherlands divided the sample by gender with 673 women and 834 men respectively. The results showed that on average, men have higher financial knowledge than women based on both basic financial knowledge and advanced financial knowledge questions. Research results by van Rooij et al. (2012) on retirement planning skills found that men have a higher success rate compared to women. Findings by (van Rooij et al., 2012) which is a development of previous research by (Van Rooij et al., 2011) shows that men's financial knowledge is better than women, especially in retirement planning. Based on some results from studies that show that financial literacy in men is still better than women. These findings can be explained because men in acting are more concerned with ratios (common sense) and have confidence than women who rely more on feelings (Barber and Odean, 2001), (Bannier and Neubert, 2016), (Bannier et al., 2019), (Matsumoto et al., 2013). Other findings suggest that financial asset ownership for women is less likely than men to own risky assets. (Jianakoplos and Bernasek, 1998), (Charness and Gneezy,

**Table 5. Presents the Author, Article Title, Journal Name, Number of citations, H-Index, SJR Score and Quartile.**

| Author | Article Title | Journal Name | Citation Amount | Journal H-Index | Sjr Score | Quartile |
|---|---|---|---|---|---|---|
| (Lusardi and Mitchell, 2014a) | The economic importance of financial literacy: Theory and evidence | Journal of Economic Literature 52(1), pp. 5-44 | 972 | 160 | 11.771 | Q1 |
| (Van Rooij et al., 2011) | Financial literacy and stock market participation | Journal of Financial Economics 101(2), pp. 449-472 | 876 | 256 | 11.673 | Q1 |
| (Lusardi and Mitchell, 2007a) | Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth | Journal of Monetary Economics 54(1), pp. 205-224 | 557 | 130 | 4.988 | Q1 |
| (Huston, 2010) | Measuring Financial Literacy | Journal of Consumer Affairs 44(2), pp. 296-316 | 523 | 62 | 0.582 | Q1 |
| (Lusardi and Mitchelli, 2007) | Financial literacy and retirement preparedness: Evidence and implications for financial education | Business Economics 42(1), pp. 35-44 | 467 | 13 | 0.173 | Q4 |
| (van Rooij et al., 2012) | Financial Literacy, Retirement Planning and Household Wealth | Economic Journal 122(560), pp. 449-478 | 309 | 160 | 4.683 | Q1 |
| (Remund, 2010) | Financial literacy explicated: The case for a clearer definition in an increasingly complex economy | Journal of Consumer Affairs 44(2), pp. 276-295 | 259 | 62 | 0.582 | Q1 |
| (Lusardi and Mitchell, 2011) | Financial literacy and retirement planning in the United States | Journal of Pension Economics and Finance 10(4), pp. 509-525 | 253 | 29 | 0.501 | Q2 |
| (Lusardi and Tufano, 2015) | Debt literacy, financial experiences, and over indebtedness | Journal of Pension Economics and Finance 14(4), pp. 332-368 | 237 | 29 | 0.501 | Q2 |
| (Gathergood, 2012) | Self-control, financial literacy and consumer over- indebtedness | Journal of Economic Psychology 33(3), pp. 590-602 | 203 | 97 | 1.114 | Q1 |
| (Drexler et al., 2014) | Keeping it simple: Financial literacy and rules of thumb | American Economic Journal: Applied Economics 6(2), pp. 1-31 | 176 | 82 | 12.996 | Q1 |
| (Jappelli and Padula, 2013) | Investment in financial literacy and saving decisions | Journal of Banking and Finance 37(8), pp. 2779-2792 | 162 | 161 | 1.580 | Q1 |

2012). It is generally a fact that women are more risk averse (Dohmen et al., 2011), (Halko et al., 2012) and that women have less financial knowledge than men (Dwyer et al., 2002), (Van Rooij et al., 2011), (Bucher-Koenen et al., 2017), (Bollen and Posavac, 2018), (Cupák et al., 2018), (Almenberg and Dreber, 2015) besides that women in making decisions are also less consistent (Glenzer et al., 2014). Study conducted by Graham et al. (2002) stated that women's risk-taking ability and level of trust are lower than men. A study conducted by (Cupák et al., 2021) stated that self-confidence is an influential factor in explaining the gender gap in investment decisions in risky assets. Results also show that although education and financial literacy may be very important factors in reducing the gender gap in risky asset investment. Gender equality is the norms related to gender roles in society. These norms underlie differences in confidence among all other characteristics, and this leads to lower female participation in risky asset markets.

*Age*, Financial literacy studies also show different knowledge based on age. Financial literacy research in the US conducted by Lusardi and Mitchell (2011) divides the age group into 4, namely under 35 years old, 36-50 years old, 51-65 years old, and above 65 years old. The findings of the study stated that the 51-65 years age group was able to correctly answer more questions related to financial literacy than the other age groups. The under 35 age group was found to have the lowest level of financial literacy. Lusardi and Mitchell (2014a) compares these age groups in different countries with different findings from previous research. The financial literacy research in the Netherlands showed that the age group of 36- 50 years old has the highest financial literacy and the lowest with age above 65 years old. Research in Germany found that the age group with the highest financial literacy is 36-50 years old and the lowest is over 65 years old. The findings of the financial literacy level in Switzerland stated that the 36-50 years age group had a higher level, while the age above 65 years showed the lowest level of financial literacy. Based on these results, on average, the 36-50 years age group has a better understanding of financial literacy, this age can be classified as productive age. People at productive age tend to be more active in working, managing finances, and seeking financial information to maintain their current and future welfare. People above 65 years of age are considered to have a low level of financial literacy. This condition could be due to the fact that these people have entered retirement age or do not understand current developments related to finance.

*Education,* the level of education will certainly determine one's financial literacy. Study conducted van Rooij et al. (2012) stated that people with low education or only graduated from primary school only have a lower level of financial literacy compared to people who graduated from vocational or university higher education. Lusardi and Mitchell (2011) in his research stated that someone who graduated from high school and below has the lowest level of literacy, in contrast to university graduates or even postgraduates they will tend to have a high level of financial literacy. Based on this observation, the level of financial literacy is in line with the level of education. The higher a person's level of education, the higher their financial literacy, and vice versa, if their level of education is low, their financial literacy is also low. This condition is very possible because a person's knowledge will tend to increase if they have a high level of education.

## SUGGESTIONS FOR FUTURE RESEARCH

The limitations in this study are: first, this bibliometric research uses the sciencedirect database. Other databases can be used in future research such as Emerald, or WoS. The keyword search can be modified by entering additional keywords, so that more publications that are relevant to the study of financial literacy topics can be found. Further research can also be done by conducting content analysis by looking at the antecedents and consequences of financial literacy.

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