

The confluence of financial literacy and fintech: A bibliometric and systematic study

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Abstract: This study conducts a bibliometric analysis to explore the relationship between financial literacy and fintech by systematically reviewing the literature. The research method involved studying relevant literature, authors, and publications, as well as analyzing the terms "financial literacy" and "fintech" using a sample of 200 publications from the Scopus database (2017-2024). The research tool used was Biblioshiny, a web-based tool from the bibliometric package in R, and the 20 most influential publications were further examined to provide valuable perspectives on the current state of research. The findings suggest a need to shape the development of financial literacy and education policies and indicate that further in-depth data exploration is needed to guide researchers in identifying new research avenues within financial literacy and fintech. The study concludes that emerging economies significantly contribute to this field, evidenced by developing countries—especially China, India, and Indonesia—leading in publication volume, while Nigeria, Germany, and Lebanon have the highest citation impact. International collaboration analysis reveals that developed countries typically cooperate more, with China and Indonesia exhibiting the most robust collaboration networks.

Keywords: *Bibliometrix, Financial Knowledge, Financial literacy, Fintech, Bibliometric analysis, Systematic review.*

1. Introduction

“Possessing the skills and knowledge on financial matters to confidently take effective action that best fulfils an individual’s personal, family, and global community goals”. – The National Financial Educators Council.

Greater financial literacy, research suggests, results in better financial decisions. This is essential for successfully implementing fintech solutions, improving financial management, and leveraging the advantages of digital financial tools. The financial services sector is undergoing unprecedented change driven by FinTech [1] with advancements like mobile payment systems, automated investment advice, app-based investing, and internet banking affecting financial planning, well-being, and economic disparities [2].

1.1. Financial Literacy

The fundamental right of consumers to understand goods and services before committing to a purchase is at the core of financial literacy, according to dictionary definitions. Encompassing product information, practical guidance, and essential knowledge, skills, and attitudes [3] financial literacy is a strong determinant of financial well-being. The ability to make informed decisions is therefore vital for sound financial choices [4] and differences in financial literacy early in life are a major factor in explaining disparities in retirement wealth [4]. Moreover, financial education or literacy is seen by some as a key enabler of financial inclusion Ozili [5] empowering individuals to make educated judgments about saving, borrowing, and managing their finances [6].

Although essential for money management, financial literacy on its own is inadequate for the successful implementation of fintech solutions. Addressing the structural barriers that prevent people from using financial technology requires more than just knowing how to spend and handle money. Conversely, if a lack of awareness about these digital services is the primary challenge, then improving financial literacy can certainly enhance fintech integration and use. For nations facing persistent challenges, future research should focus on developing original concepts, strategies, and initiatives that synergistically boost both fintech adoption and financial literacy.

Given the current and unexpectedly complex situations, financial education – which equips individuals with necessary financial knowledge and supports good financial behaviour – is of paramount importance. In their paper [7], Tim Kaiser and Annamaria Lusardi provide a concise narrative overview of the rapidly growing empirical literature on financial literacy and financial education. The authors clearly show how financial literacy is measured and discuss its demographic correlations. They briefly summarize findings from papers demonstrating the effects of financial literacy on financial behavior outcomes, noting that results indicate a significant positive impact. Furthermore, Kaiser and Lusardi assess papers examining the causal effects of financial education programs. They conclude that financial education has a causal effect on financial literacy. On average, such interventions boost financial knowledge by 10 to 20%, and this can lead to changes in financial behavior.

A similar study, Nogueira, et al. [8] by Manuel et al., found that higher education is positively and significantly associated with financial knowledge and financial behaviour. Additionally, unequal access to health and education, as well as high debt levels, were negatively associated with financial literacy.

Furthermore, financial literacy helps maintain sound saving behaviour. The paper Ananda, et al. [9] reveals several key findings. First, it demonstrates a significant positive relationship between financial literacy and saving behaviour. Second, it shows that risk aversion significantly moderates this relationship. Finally, the paper indicates that the three-way interaction among financial literacy, risk aversion, and financial confidence significantly impacts investors' saving behaviour.

The link between financial literacy and well-being is further supported by Naznin et al.'s research in Naznin, et al. [10] which demonstrates a strong, significant positive impact of financial attitude on financial well-being, with financial knowledge and behaviour playing indirect roles mediated by financial self-efficacy. Expanding on the importance of financial literacy, Devender et al.'s study, Devender, et al. [11] utilized bibliometric and content analysis to conclude that financial literacy, inclusive education, and capability are crucial for the financial well-being of SMEs.

Emphasizing the importance of financial literacy in decision-making, Deepak et al.'s research in [12] reveals that financial resilience significantly moderates the effect of financial literacy on women's intention to invest. In a related vein, paper, Shafiee, et al. [13] demonstrates that personalized financial tools can effectively educate individuals and improve their pension-related decisions through tailored data services.

In their study, Rehman and Mia [14] Khurram Rehman and Md. Aslam Mia systematically reviewed papers published in the Scopus database from 1981 to 2024. Their results clearly suggest that religious and technological factors influence financial literacy.

Due to overconfidence, even investors with financial knowledge sometimes face unnecessary charges. The study Inghelbrecht and Tedde [15] examines the negative impact of overconfidence on investor trading behavior. Findings indicate that overconfident investors trade more frequently than rational investors but do not show worse performance. Additionally, stress does not appear to affect their trading behavior.

Indeed, financial literacy aids in reducing energy poverty. The study [16] "conducted by Tao et al. [16] examines this relationship in Chinese households and finds that a high level of financial literacy has a strong and dynamic effect on alleviating energy poverty.

1.2. Fintech

As the FinTech era progresses, financial inclusion is contingent upon accessibility, user-friendliness, and particularly, visualization. The way financial information is presented significantly influences the choices made by those with poor financial literacy [17, 18]. Therefore, collaboration with financial institutions, businesses, and entrepreneurs is essential to develop supply-side solutions that enhance financial literacy and address disparities among different demographic groups [19].

Recognizing its vast scope to enhance financial inclusion and improve the performance of the financial sector, the paper Ferilli, et al. [20] by Ferilli, et al. [20] examined the joint impact of FinTech development and the COVID-19 outbreak on the cross-country Digital Financial Divide (DFD). The study found that high levels of FinTech development reduce a country's DFD, improve the adoption of e-banking services, and increase financial inclusion in Europe.

The positive impact of fintech on performance is particularly evident in the banking sector. In their study, Jungo, et al. [21] analyze the role of literacy, innovation, and financial inclusion in mitigating the negative impact of corruption on bank performance across various countries and continents. Their findings show that financial literacy, financial inclusion, and financial innovation have a positive influence on bank performance and contribute to the reduction of credit risk.

Aracil, et al. [22] presents a similar empirical analysis of the effect of mobile money (m-money) on financial inclusion. Their results confirmed that FinTech-based m-money can effectively serve as a first step in transitioning towards wider financial inclusion levels, influencing both deposit and credit-based financial inclusion.

More in-depth studies are necessary to fully understand the impact of fintech on SDG goals. In their paper [23], Nicola and Peterson cited that FinTech not only disrupts current traditional systems but also introduces innovations that promote equality and sustainable development. They also praised the importance of interdisciplinary approaches and called for a deeper exploration of the long-term impact of FinTech innovations on financial inclusion.

For fintech to capture a significant market share, trust and security are key drivers of success. According to a study by Amnas et al. titled [2]. "FinTech was found to promote financial inclusion. The results also highlighted trust, service quality, and perceived security as important factors for the adoption of FinTech services.

Emphasizing the importance of trust and security for fintech to gain market share, Hajar et al.'s study, Fatorachian, et al. [1] investigated product-market fit for FinTech startups as well as the opportunities and challenges of entering new markets. The paper concluded that trust, which includes security and convenience, is a fundamental milestone for startup success.

It appears that fintech does not have a significant direct or indirect relationship with the trust consumers place in traditional banks. Yang [24] confirm that exposure to scandal influences FinTech adoption through the erosion of trust in banks. Furthermore, in their paper [25] presented online lab experiment results that were insignificant. The authors concluded that trust in traditional finance does not appear to be a significant driver in the increased usage of FinTech.

Fintech significantly contributes to the financial ecosystem and its industries. Kou and Lu [26] in their literature review [26] investigated five emerging financial technologies and concluded that these technologies contribute to the finance ecosystem. Claire et al.'s paper, Hong, et al. [27] offers empirical evidence regarding the impact of FinTech platform distribution on the asset management industry. The findings clearly indicate that these platforms improve distributional efficiency but do not necessarily lead to allocational efficiency.

While focusing on fintech valuation, Moro-Visconti [28] highlights the importance of economic and financial viability for business model sustainability. Separately, the paper by Shahid, et al. [29] utilizes panel data from 2017 to 2024 to investigate the impact of institutional quality and FinTech on CO2 emissions. Their findings clearly indicate that FinTech reduces environmental quality. The authors recommend that all countries promote green and clean energy in FinTech mining and suggest that nations should foster FinTech activities by incorporating strict regulations such as the US ban on

carbon-intensive mining, Singapore's MAS Green Finance Action Plan, the EU's energy efficiency rules for data centers, and China's ban on cryptocurrency mining to ensure environmental sustainability.

Financial literacy, similar to higher education, significantly mediates both the adoption of fintech innovations and the increased risk-taking observed in financial institutions. Zaimovic, et al. [30] in support this, demonstrating the mediating role of digital financial literacy and a serial mediation of its components—digital financial knowledge, attitudes, and behaviour—in the link between business experience and fintech adoption. Furthermore, Selem et al.'s paper [31] reveals a strong correlation between a greater fintech presence and increased risk-taking by financial institutions.

Ionut et al.'s paper [12] also found similar results while exploring the relationship between financial literacy and higher education. This study identifies trends and key linkages between financial literacy and societal well-being, emphasizing the role of digital innovation.

Investigating the development of early digital financial literacy in young Chinese children, Huihua et al.'s study He, et al. [18] clearly found that these children possess initial knowledge and skills in coin identification, denomination comparison, and equivalent exchange. Additionally, the study revealed a positive attitude towards mobile phone payment contrasted with a negative attitude rooted in a perceived lack of necessary skills for successful financial transactions.

Examining the BNPL landscape in their paper Loomis and Cockayne [4] developed a feminist framework for Fintech analysis. Their findings clearly show BNPL's severe and predatory targeting of young, low-income women, which exacerbates inequality by increasing credit and debt.

2. Materials and Methods

This study utilizes two main methodologies: systematic reviews and bibliometric analysis.

Table 1.
Illustrates the research objectives.

Analysis	Objectives of research	Methodology
Bibliometric analysis	Analyze the temporal shifts in Financial Literacy and Fintech.	Publication Trend
	Evaluate and discover the highest-ranking countries, pivotal publications, and key researchers in the area of Financial Literacy and Fintech.	Citation analysis
	Study the collaborative networks between nations in Financial Literacy and Fintech research, focusing on their structure and patterns.	Co-authorship analysis of countries
	Clarify the theoretical foundations of the terms used in Financial Literacy and Fintech	Co-occurrence analysis
	Investigate the collaborative relationships between countries and the level of shared publication activity in this field.	Bibliographic coupling of countries
Systematic review	To uncover any trends related to the sources and methods used to gain knowledge about Financial Literacy and Fintech.	Analyzing citations of influential papers.

2.1. Database For the Study – Scopus

For this study, the Scopus database was essential for acquiring trustworthy and authentic data to achieve our objectives. Its wide scope, rapid updates, and analytical tools allowed for the inclusion of high-quality, peer-reviewed financial research during data gathering [27]. Therefore, an appropriate database is paramount for reliable information.

2.2. Screening Parameters for Selecting Relevant Research.

The current research examines the relationship between financial literacy and fintech within the period of 2017 to 2024. To identify pertinent publications, the search string "Financial literacy" OR "Financial Knowledge" AND "Fintech" OR "Financial technology" OR "Financial technologies" OR

"Finance technology" was employed. For the bibliometric analysis presented in Figure 1, fintech served as the illustrative example within the domain of financial literacy research.

The study dataset, comprising 330 documents from the Scopus database, was obtained on January 28, 2025. After applying exclusion criteria, 130 documents were excluded, leaving a final dataset of 200 papers for bibliometric analysis. Microsoft Excel was used for additional filtering and tabulation, while R programming was employed to generate the network map.

2.3. Bibliometric Analysis

This section primarily presents the findings of bibliometric analysis approaches, which were applied to a significant number of articles to determine the most prevalent topics in the literature on financial literacy and fintech.

2.4. Descriptive Analysis

To understand the current direction of financial literacy and fintech research, a comprehensive descriptive analysis was performed, detailing publication and citation trends and evaluating the work of significant authors, prominent journals, and major contributing countries.

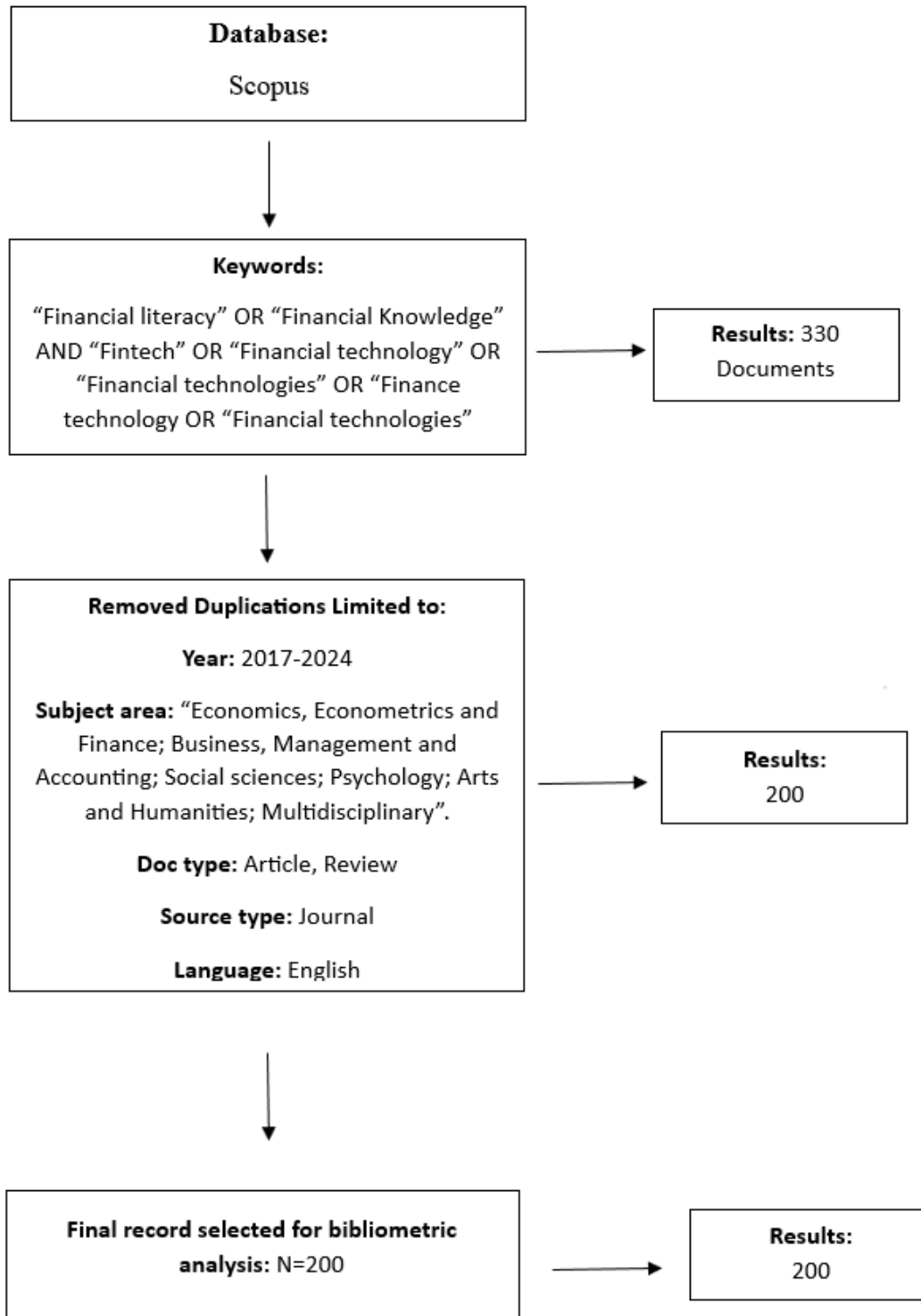


Figure 1.
Showing the architecture of the study.

3. Results

3.1. Annual Publication Trend

Researchers provide a comprehensive assessment of the development, advancement, and recurring themes in studies focusing on Financial Literacy and Fintech through their yearly research publications. Figure 2 illustrates the quantity of publications from 2017 to 2024. Between 2017 and 2020, a total of ten publications on financial literacy and fintech appeared, with no significant publishing trends observed in 2019. Subsequently, publications in this area gained prominence. This indicates a recent surge in research attention towards Fintech and financial literacy, particularly evident in 2021. From 2021 to 2024, 190 articles were published. The COVID-19 pandemic significantly influenced both people's financial literacy and the role of Fintech in their lives. Overall, the annual volume of research on financial literacy and Fintech shows a clear and steady upward trend over time.

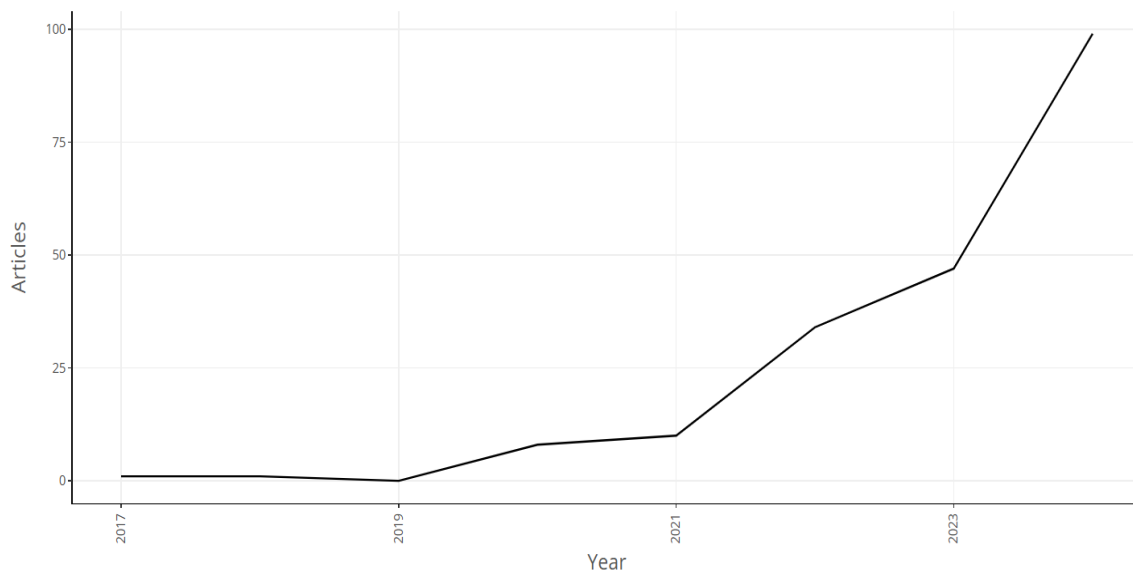


Figure 2.
Annual publication trend (2017-2024).

3.2. Leading Countries with Total Publication

Indonesia conducted a significant amount of financial literacy and fintech research from 2017 to 2024, publishing 144 papers, the highest among all countries. India was the second most active with 83 articles, and China ranked third with 59. These top-performing nations in fintech innovation and financial literacy research are depicted in Figure 3.

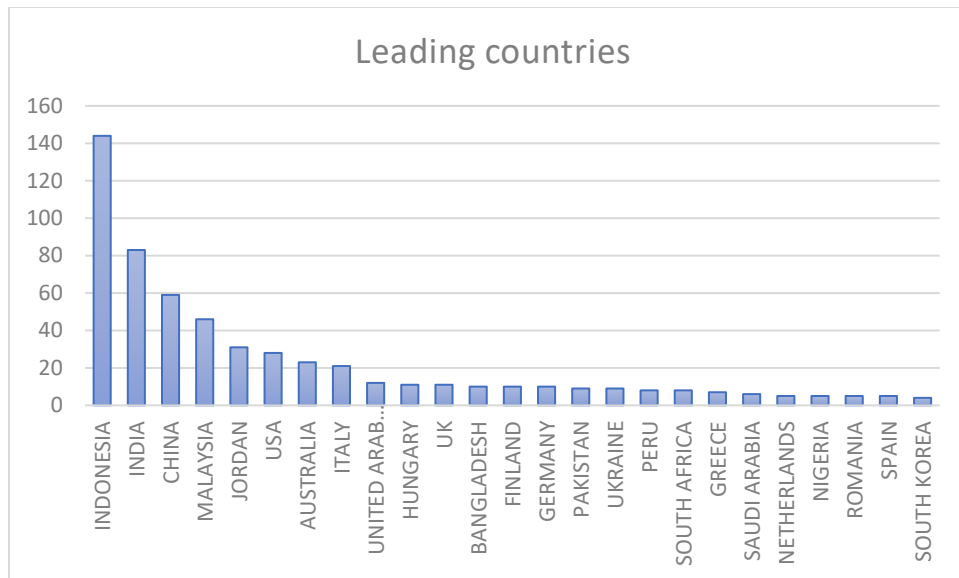


Figure 3.
Leading countries (2017-2024).

3.3. Top Nations with Total Citation

The most cited country in the research on financial literacy and fintech was Nigeria (202 citations), with Germany (198) and Lebanon (119) ranking second and third, respectively. This highlights the significant research contributions from emerging economies. Figure 4 visually represents the leading countries based on the total citations in this field.

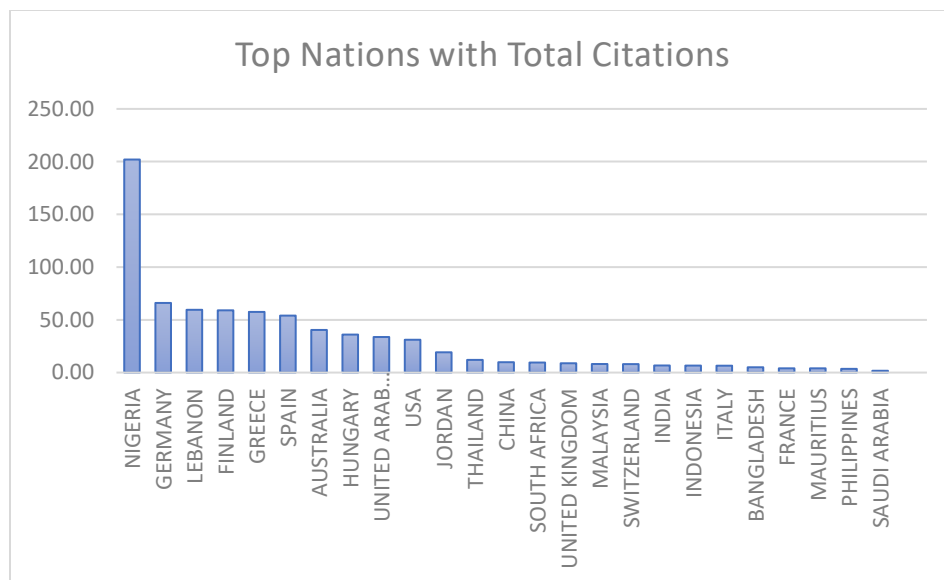


Figure 4.
Top nations with total citations (2017-2024). Source: Scopus database.

3.4. Prominent authors

The most well-known authors in fintech and financial literacy research, based on their publications, are listed in Table 2. The number of articles published by each author suggests their level of contribution to the field. Setiawan B leads with six articles, and Nathan RJ follows with four.

Table 2.
Prominent authors.

S.No	Authors	Articles
1	Setiawan, et al. [32]	6
2	Nogueira, et al. [8]	4
3	Hasan, et al. [17]	3
4	Kaiser and Lusardi [7]	3
5	Okat, et al. [25]	3
6	Amnas, et al. [2]	2
7	Aracil, et al. [22]	2
8	Alkhwaldi, et al. [33]	2
9	Del Sarto and Ozili [23]	2
10	Devender, et al. [11]	2

3.5. Impactful Journals

Researchers and scholars can incorporate novel and stimulating ideas into their scholarly writings by identifying the most renowned journals in a specific research area. This enables them to select the most reputable and pertinent outlets for publishing their findings. Figure 5 presents the top ten journals publishing research articles on financial literacy and fintech between 2017 and 2024, accounting for a total of 42 publications. "Sustainability (Switzerland)" emerged as the most influential journal with nine articles in this research domain. Figure 5 also indicates that the "Journal of Risk and Financial Management" and the "International Journal of Bank Marketing" ranked second with four publications each, followed by other journals.

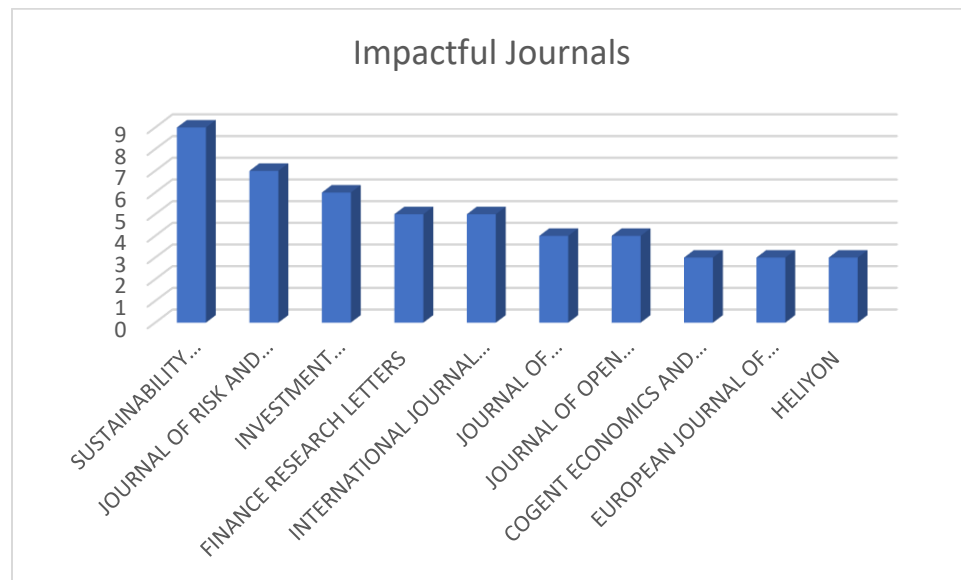


Figure 5.
Impactful Journals (2017-2024).

3.6. Research Journals with Sources Impact

Table 2 displays the most influential journals in academia based on key metrics such as h-index, g-index, m-index, number of citations, number of articles, and year of publication.

Table 3.

Research Journals with their Source Impacts.

Element	“h_index”	“g_index”	“m_index”	“TC”	“NP”	“PY_start”
Sustainability (Switzerland)	9	9	1.8	257	9	2021
International Journal of Bank Marketing	4	5	1	125	5	2022
Journal of Risk and Financial Management	4	7	1	93	7	2022
Cogent Economics and Finance	3	3	0.75	37	3	2022
Finance Research Letters	3	5	0.5	428	5	2020
Journal of Open Innovation: Technology, Market, and Complexity	3	4	0.6	175	4	2021
Applied Economics	2	2	1	7	2	2024
Borsa Istanbul Review	2	2	0.667	81	2	2023
Heliyon	2	3	0.5	70	3	2022
Information Sciences Letters	2	2	0.667	24	2	2023

Source: Scopus database

3.7. Bradford Law

Between 2017 and 2024, 134 research papers examined financial literacy and fintech. Applying the Bradford Law classification system, these research articles were categorized into three zones, with the top 20 most significant journals listed in Table 4. Journals within Zone 1 likely contain key articles on financial literacy and fintech, and this zone is considered the nuclear zone due to its substantial research contributions. The distribution of the 134 research journals across the zones is as follows: Zone 1 – 17, Zone 2 – 51, and Zone 3 – 66.

Table 4.

Bradford Law.

Source	Rank	Freq	cumFreq	Zone
Sustainability (Switzerland)	1	9	9	Zone 1
Journal of Risk and Financial Management	2	7	16	Zone 1
Investment Management and Financial Innovations	3	6	22	Zone 1
Finance Research Letters	4	5	27	Zone 1
International Journal of Bank Marketing	5	5	32	Zone 1
Journal of Infrastructure, Policy and Development	6	4	36	Zone 1
Journal of Open Innovation: Technology, Market, and Complexity	7	4	40	Zone 1
Cogent Economics and Finance	8	3	43	Zone 1
European Journal of Finance	9	3	46	Zone 1
Heliyon	10	3	49	Zone 1
International Journal of Social Economics	11	3	52	Zone 1
Journal of Ecohumanism	12	3	55	Zone 1
Review of Integrative Business and Economics Research	13	3	58	Zone 1
African Journal of Science, Technology, Innovation and Development	14	2	60	Zone 1
Applied Economics	15	2	62	Zone 1
Borsa Istanbul Review	16	2	64	Zone 1
Cogent Social Sciences	17	2	66	Zone 1
Finance India	18	2	68	Zone 2
Global Business and Finance Review	19	2	70	Zone 2
Information Sciences Letters	20	2	72	Zone 2

3.8. Three-Field Plot

A three-field plot (Sankey diagram) was created to illustrate the percentage of study subjects for each country and the current status of the cited articles across the 20 most frequently investigated journals, linking journal, keyword, and country of reference. Figure 6 displays this three-field plot for the top journals in fintech and financial literacy, which include the Journal of Ecohumanism, the Borsa Istanbul Review, Investment Management and Financial Innovations, Cogent Social Sciences, and Cogent Economics and Finance. These journals primarily focus on financial literacy, fintech, and financial inclusion. While a significant portion of the content in these journals originates from Indonesia, the United States, India, and Malaysia, the research on financial literacy and Fintech is predominantly concentrated in underdeveloped countries. This highlights the need for further studies in both developing and underdeveloped contexts.

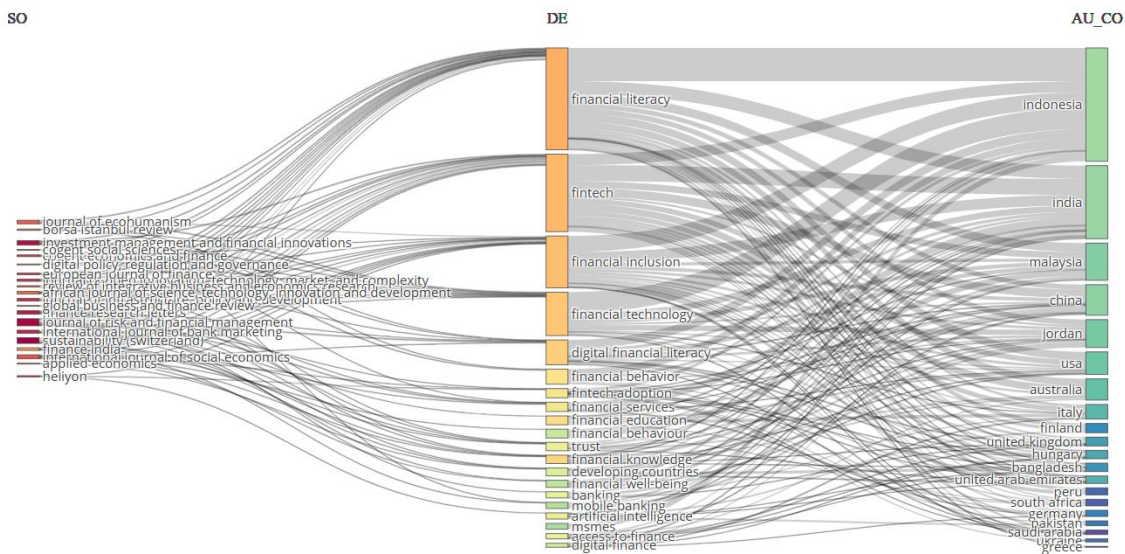


Figure 6.
Three Field Plot Analysis.

3.9. Co-Occurrence of Network

Within a specific study collection, the co-occurrence network visualization illustrates the terms that most frequently appear together in article titles, abstracts, and keyword sections. These networks are valuable for identifying connections and overlaps between seemingly disparate research subjects. According to Figure 7, the most frequently used keywords are "fintech," "financial literacy," and "financial technology."

4. Systematic Evaluation and Critical Analysis of Articles with High Citations

Table 5.
Systematic review of literature.

Author	Citation	Title	Journal	Research focus	Research Methodology	Major Research Findings
Yue, et al. [34]	227	The rise of digital finance: Financial inclusion or debt trap?	Finance Research Letters	This research centers on the influence of digital money on households. Digital banking has played a significant role in expanding financial inclusion, but it has concurrently raised concerns about the potential for greater individual indebtedness.	Regression analysis	A higher DFI index was linked to an increased probability of households becoming trapped in debt.
Ozili [5]	208	Financial inclusion research around the world: A review	Forum for Social Economics	Policy circles are currently debating controversies and problems surrounding financial inclusion. This is occurring against a backdrop of recent shifts in financial inclusion practices across various nations and regions.	Systematic literature review	The implementation of financial inclusion poses differentiated challenges for industrialized and developing countries alike.
Jünger and Mietzner [35]	197	Banking goes digital: The adoption of FinTech services by German households	Finance Research Letters	This research recognizes the reasons underlying Germany's comparatively lower adoption of digital financial technologies. The study analyzes the connection between household traits and the likelihood of FinTech adoption.	Principal Component Analysis (PCA), Regression analysis	The utilization of FinTech services was more prevalent among households demonstrating higher levels of financial knowledge and proficiency. Younger respondents displayed an increased propensity to adopt FinTechs, suggesting a greater receptiveness to digital innovation among this age group.
Hasan, et al. [17]	133	How does financial literacy impact on inclusive finance?	Financial Innovation	The objective of this research was to ascertain the relationship between individuals' financial literacy levels and their ability to access and effectively utilize financial services.	Logistic regression, Probit regression, Complementary log-log regressions	The report states that financial inclusion is crucial for reducing poverty and boosting prosperity in developing countries.
Setiawan, et al. [32]	113	User innovativeness and fintech adoption in Indonesia	Journal of Open Innovation: Technology, Market, and Complexity	This study investigates the factors influencing Fintech adoption in Indonesia, with a particular focus on how Fintech can enhance financial inclusion for unbanked populations. Specifically, it examines the relationships between user attitude, financial literacy, innovativeness, and Fintech adoption.	Path modelling	Contrary to popular belief, financial literacy had the least significant impact on fintech adoption in this study. This finding suggests that because fintech often requires relatively low levels of financial literacy, it holds significant potential for reaching unbanked individuals.
Kass-Hanna, et al. [6]	112	Building financial resilience through	Emerging Markets	This research explores the association between financial and digital literacy and	Correlation and regression analysis.	The study found that digital and financial literacy were important components in

		financial and digital literacy in South Asia and Sub-Saharan Africa	Review	financial behavior that builds resilience. Specifically, it investigates how both traditional and digital literacy influence financial behaviors such as saving, borrowing, and risk management.		construction. The results highlight the necessity of redefining traditional financial literacy to encompass digital literacy, suggesting a dual approach that combines both financial and digital literacy.
Philippas and Avdoulas [19]	107	Financial literacy and financial well-being among generation-Z university students: Evidence from Greece	European Journal of Finance	This research evaluates the link between three important elements: financial literacy, financial vulnerability, and financial prosperity, focusing on Generation Z university students in Greece who encountered a unique financial crisis.	• Chi-square tests • Logistic regressions • Marginal effect analysis	The study found that financially literate students were better prepared to cope with unforeseen financial setbacks, and their level of financial knowledge significantly contributed to the financial well-being of Greek university students.
Chan, et al. [36]	99	Towards an understanding of consumers' FinTech adoption: the case of Open Banking	International Journal of Bank Marketing	This study aims to identify the key factors influencing consumer acceptance of Open Banking. To achieve this, the study utilizes a model that builds upon the Unified Theory of Acceptance and Use of Technology (UTAUT) by incorporating perceived risk, initial trust, and financial literacy.	Structural equation modelling	Social pressure plays a vital role in the adoption of well-performing technology. Factors like easy-to-use systems and initial trust lower perceived risks, encouraging the uptake of Open Banking. Nevertheless, a lack of financial literacy can lead to skepticism about these novel services.
Kumar, et al. [3]	78	The interplay of skills, digital financial literacy, capability, and autonomy in financial decision making and well-being	Borsa Istanbul Review	This study examines these links in light of the COVID-19 pandemic and the increased usage of financial technology.	Structural equation modeling (PLS-SEM)	Skills directly impact perceived financial well-being and financial decision-making. Impulsivity did not have a substantial mediating effect on financial decisions.
Alkhwaldi, et al. [33]	65	Towards an Understanding of FinTech Users' Adoption: Intention and e-Loyalty Post-COVID-19 from a Developing Country Perspective	Sustainability (Switzerland)	This study explores the factors motivating Jordanians to adopt and continue using FinTech services in the post-pandemic era. It develops a more comprehensive understanding of FinTech adoption in Jordan's specific post-COVID context by integrating the UTAUT model with innovation openness, financial knowledge, and risk tolerance.	Structural equation modeling (SEM), AMOS 26.0	Individuals' comfort with uncertainty influences how supportive resources affect their intention to use FinTech. Their openness to innovation shapes their perceptions of both usefulness and ease of use. Ultimately, the expectation of performance benefits, social pressure, and the availability of support drive adoption intentions, fostering long-term loyalty to FinTech services.

5. Conclusion

Due to the increasing use of electronic channels for communication by customers in recent years, many financial firms have been compelled to reorganize their channel management and reduce their branch and agency networks to offer more customer self-service and hybrid client engagement. Consequently, research on fintech and financial literacy has skyrocketed since 2020, most likely in response to the COVID-19 pandemic, which accelerated the adoption of digital financial services.

Emerging economies are making significant contributions to the study of financial literacy and fintech, evidenced by the leading publication volumes from developing countries such as China, India, and Indonesia, and the highest citation impact seen in Nigeria, Germany, and Lebanon. This study identifies key authors and journals that have substantially advanced the field. Notably, "Sustainability (Switzerland)" and the "Journal of Risk and Financial Management" are prominent journals, while Setiawan B. and Nathan RJ are recognized as influential authors. Analysis of international collaboration patterns reveals that developed countries generally exhibit greater cooperation, with China and Indonesia demonstrating the most robust collaborative networks.

6. Limitations and Future Research Directions

This research suggests that future investigations should focus on developing strategies to enhance financial literacy and the adoption of fintech, particularly in developing and impoverished nations. The findings can assist policymakers in formulating educational initiatives and regulations that promote financial literacy and fintech usage, ultimately fostering economic empowerment and financial inclusion. To ensure effectiveness and quality, establishing certification requirements for fintech-based financial education programs is recommended.

7. Practical and Social Implications

Financial institutions should develop hybrid service models that combine digital convenience with human assistance for individuals with varying levels of digital and financial literacy, particularly during complex decisions. Fintech applications should incorporate just-in-time financial education at crucial decision points, such as explanations before investment options and loan comparisons with visual aids. To foster peer learning, financial institutions should encourage networks where experienced fintech users guide novices, which would be especially beneficial for younger and older individuals.

To enhance local economic resilience, support should be provided to small businesses in implementing fintech solutions through implementation assistance and community seminars. Fintech-based debt management initiatives that integrate educational components with practical resources for credit enhancement and debt reduction should be established. Furthermore, comprehensive education on digital financial security measures, particularly for newly digitized populations, is crucial to reduce vulnerability to fraud and scams. Finally, fintech platforms should be leveraged to raise awareness about sustainable investing options and the environmental impact of financial decisions.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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