

Mapping the Landscape of Fintech-Driven Financial Inclusion in Financial Services: A Bibliometric Study

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Abstract

Fintech possesses significant strength in this era of financial evolution. Modern times are defined by the adaptation of innovative technologies, which have a substantial impact on customers who have acknowledged the raw drawbacks of the traditional banking system. This has led to the introduction of new technologies to address these shortcomings. This study aims to review the digital banking system, which not only supports online banking and new financial technology but also promotes financial inclusion. Innovations such as digital banking and electronic wallets are cost-effective and timesaving for customers, thereby enhancing their financial accessibility.

A literature review and bibliometric analysis were conducted using the Scopus database to identify trends in digital financing. The study's purpose was to identify relevant documents within this database by adhering to predetermined parameters, including document type, publication period, and English language. Initially, 947 articles were found that supported the research title using keywords from Scopus. After applying subject-related filters, 884 documents were received for further refinement. This number was limited to 550 articles, then refined to 509 final documents, with 498 comprising English-language publications from 2017 to 2024.

The analysis shows that the primary subjects in this domain are finance, financial services, financial inclusion, the financial system, and financial markets, confirming the sector's central focus. Financial inclusion has contributed significantly to customer accessibility. Banking and digital payments, which lead to electronic money, mobile payments, and electronic wallets, greatly facilitate customers. The introduction of innovative technology has been instrumental in transforming the financial industry, driving the adaptation of new technology and innovation. This

transformation aligns with broader economic development, including economic growth, the eradication of poverty, and dynamic economic power.

The adaptation of FinTech is revolutionizing financial services, making transactions faster, more secure, and accessible to a broader audience. The current study found that the introduction and adaptation of technology in developing economies have established a new trend of self-service in digital finance. This leads to economic advancement in developed domains, as digital financing services are timesaving and cost-reduction strategies. Consequently, the trend of using digital financing is more pronounced in developed countries and is a driving force behind development in the modern world.

Keywords: Fintech, Banking Sector, Digital Finance, Bibliometric Analysis

1. Introduction

The operational mechanisms of financial technology (FinTech) have transformed the financial services industry, creating significant opportunities for financial inclusion and economic growth (Rachmad, 2025). FinTech, through the introduction of new applications such as mobile payments, peer-to-peer (P2P) lending, and artificial intelligence, has captured global attention by modernizing financial activities (Le Quoc et al., 2025).

The emergence of FinTech has led to rapid financial modifications, strengthening the efficiency of financial services and expanding the reach of financial institutions, particularly in underserved areas (Del Sarto & Ozili, 2025). Consequently, the strengthening role of FinTech in supporting financial access and economic sustainability has gained significant interest from researchers, practitioners, managers, and customers (Ullah & Begum, 2025). Financial inclusion, defined as the availability and accessibility of financial services to all segments of the population, is a major driver of robust economic growth, green growth, and poverty reduction (Puschmann, 2017).

Over the past decade, FinTech has experienced rapid growth, disrupting traditional financial institutions and reshaping how individuals and businesses access and use financial services (Okello Candiya Bongomin et al., 2025). Despite this significant growth in recent years, an estimated 1.7 billion young people remain without access to essential financial services, with the majority living in developing countries (Osuma, 2025). Financial exclusion, characterized by the limited use of

financial services, has been observed to widen the gap between poor and rich populations (Kishor et al., 2024).

FinTech offers solutions by merging financial services with digital innovation to provide low-cost remittances through a wide range of devices. Examples include digital banking, peer-to-peer lending, financial apps, and blockchain-based crowdfunding, all of which can contribute to poverty reduction (Mandić et al., 2025). Acknowledging the significant expansion of FinTech, these innovations introduce new technologies that replace traditional methods of financing, investing, and operational activities (Al Rifai & Albaker, 2025). The FinTech revolution holds substantial potential for customer satisfaction through tools like e-KYC (Electronic Know Your Customer) and AI, which facilitate easier and lower-cost services compared to traditional offerings (Kishor et al., 2024). FinTech leverages cost-effective and customized solutions for low- to medium-income individuals, enabling millions of unbanked people to access accounts via self-service platforms (Sujon & Management, 2025). Similarly, peer-to-peer lending is often more accessible than traditional financial institutions, offering lower credit rates and mitigating default risks (Del Sarto & Ozili, 2025).

Blockchain technology uses cryptographic techniques to secure data and reduce transaction fees. It is growing in regions with limited infrastructure, providing access to new markets and introducing innovative financial tools (Kalunda, 2023). Digital markets operate successfully through mobile payments in rural areas and small towns. Improved access for the unbanked population is a key outcome of recent FinTech inclusion efforts. This unique perspective helps bridge the gap between technological advancement and its practical adaptation (Okello Candiya Bongomin et al., 2025). Whereas Afjal (2023) conducted a brief bibliometric analysis on FinTech, this study provides a more detailed examination. Our research highlights the intersection of financial inclusion and technology adaptation. Tools like VOSviewer, CiteSpace, and Biblioshiny can create visual maps of research topics, identifying key themes and emerging areas in FinTech and financial inclusion, as demonstrated in the study by Li and Xu (2021).

Thus, while both studies contribute to the rapidly evolving field of FinTech, this research offers a specific focus, employs a different database, covers a more recent time span, provides policy recommendations, and underscores the importance of interdisciplinary and global approaches. Blockchain technology has the potential to enhance financial inclusion by promoting secure,

transparent, and cost-effective processes for documentation, registrations, and reporting (Del Sarto & Ozili, 2025).

Given the increasing attention towards FinTech and universal access to financial services, numerous wide-ranging investigations have emerged on subjects such as mobile banking, blockchain, digital marketing, peer-to-peer marketing, and automated trading using robotics with minimal human supervision (Kalunda, 2023). However, due to the multidisciplinary nature and rapidly evolving pace of technology, it can be challenging to comprehensively comprehend the scope, evolution, and major conclusions of these studies (Sujon & Management, 2025).

Addressing this challenge is facilitated by bibliometric analysis tools, which analyze cross-disciplinary impact. Their systematic application reveals the state of the research area, including patterns of publication activity, citations, authorship, and research topics (Okello Candiya Bongomin et al., 2025). The goal of this bibliometric analysis is to provide a systematic and methodical overview of the literature dedicated to studying the impact of digital financial services on improving financial inclusion and economic growth (Al Rifai & Albaker, 2025). In particular, the study addresses the following objectives:

- To analyze key themes, emerging topics, and research gaps in the examined field through a review of highly cited and frequently referenced literature.
- To assess the evolution of research over time by examining trends in publication volume, citation patterns, and geographic distribution.
- To map the intellectual structure of the field by identifying influential researchers, institutions, publication sources, and collaborative research networks.

2. Literature Review

The rapid evolution of Financial Technology (FinTech) has transformed financial ecosystems worldwide, presenting innovative solutions to longstanding challenges in financial inclusion and digital empowerment (Kishor et al., 2024). As digital technologies become deeply integrated into traditional financial systems, they enable underserved populations to access efficient and affordable financial services (Puschmann, 2017). Financial inclusion, defined as providing accessible and affordable financial services to marginalized and disadvantaged groups, is a critical driver of socio-economic development (Osuma, 2025). Extensive research emphasizes its strong

positive correlation with broader economic growth, poverty alleviation, and the reduction of inequality.

The mechanisms through which FinTech enhances inclusion are multifaceted. Jha and Dangwal (2024) highlight that digital channels like mobile and internet banking are pivotal in promoting economic activities within underbanked regions. Furthermore, peer-to-peer (P2P) lending platforms, as documented by Jia and Kanagaretnam (2024), significantly expand access to credit for individuals and small businesses historically excluded from traditional banking.

By simplifying access to financial services, FinTech effectively bridges the gaps left by conventional banking infrastructure. According to Okello Candiya Bongomin et al. (2025), the adoption of FinTech solutions reduces dependency on informal credit sources and fosters greater economic participation. Core innovations such as mobile wallets, digital payment systems, and blockchain technology provide secure, transparent, and inclusive financial solutions that are reshaping the industry (Kalunda, 2023). In developing nations, FinTech has emerged as a powerful tool for mitigating urban-rural income disparities (Kishor et al., 2024). These digital platforms foster entrepreneurship and empower women by facilitating easier access to credit and enhancing financial literacy (Al Rifai & Albaker, 2025).

Underpinning this financial revolution is the principle of digital inclusion, which ensures the availability of high-speed internet and robust digital infrastructure to enable equitable access. Osuma (2025) emphasizes that digital inclusion enhances the efficiency of P2P lending by leveraging alternative data for credit scoring, thereby improving the accessibility and affordability of loans. Integrating ethical values into these digital financial systems is crucial for addressing the socio-economic roots of exclusion (Kishor et al., 2024). Consequently, policies that actively promote digital inclusion help eliminate structural barriers, aligning financial system development with overarching social equity goals (Osuna, 2025).

Despite these significant advancements, formidable challenges remain. Regulatory hurdles, cybersecurity risks, and limited digital literacy continue to impede universal adoption. As noted by Jha and Dangwal (2024), future research should urgently address the behavioral dimensions of FinTech adoption, particularly within lower- and upper-middle-income nations where these barriers are most acute.

For sustainable progress, policymakers must prioritize investments in digital infrastructure and formulate inclusive financial policies. Encouraging strategic partnerships between FinTech firms and governmental bodies can accelerate the journey toward universal financial inclusion. The powerful synergy between FinTech, financial inclusion, and digital empowerment holds transformative potential for economies globally. However, addressing existing challenges through targeted research and thoughtful policy interventions is crucial for achieving equitable and sustainable development.

3. Materials and Methods

The review was conducted using a predefined search string within the Scopus database. The results were exported to a reference management program for analysis. The search phrase was constructed using keywords and phrases prevalent in the literature concerning the relationship between financial technology (FinTech) and financial inclusion. These terms were selected to encompass related aspects of FinTech's influence on economic growth and poverty alleviation. This method of keyword construction aligns with established bibliometric techniques, as it facilitates a comprehensive search scope (Demir et al., 2022).

Several filters were applied to refine the findings. The primary filter defined the publication period, encompassing documents published between 2017 and 2024. A secondary filter was applied to subject areas, including Business, Economics, Accounting, Finance, Management Science, Econometrics, Social Sciences, and Computer Science (to capture machine learning techniques). A subsequent filter limited the document type to final articles for analysis. A final filter specified the language, restricting the analysis to research papers published in English.

3.1 Search string

TITLE-ABC-KEY “financial inclusion” OR “FinTech adaptation”, “Digital payments”, “Unbanked”, “microfinance banking”, mobile money, FinTech innovation, embedded finance, consumer FinTech application, regulatory techniques, machine learning, poverty reduction, entrepreneurial finance, PUBYEAR>2017 AND PUBYEAR<2024 AND LIMIT-TO“ECON” OR LIMIT-TO-SUBJECTAREA, “SOCIAL SCIENCE” OR LIMIT TO SUBJECTAREA, “BUSINESS”, AND LIMIT TO DOCTYPE,” article” OR LIMIT TO LANGUAGE, “English”.

The study explores a search string to analyze a bibliometric analysis to investigate “Bridging the financial inclusion”. This research focuses on the role of Digital Financial Services within FinTech in adopting financial inclusion, economic development, and poverty reduction. The string was established using a combination of keywords, filters, and Boolean operators (AND, OR) to optimize search efficiency.

3.2 PRISMA Statement

This study utilizes the **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)** statement, a framework designed to ensure transparent and accurate reporting in systematic reviews. PRISMA guarantees that investigations are high-quality and aligned with research objectives (Jha & Dangwal, 2024). It verifies the validity and reliability of diverse reviews and facilitates trend analysis with the help of bibliometric techniques.

The purpose was to identify documents in the Scopus database that cohered to predetermined parameters (e.g., document type, publication period, English language). The initial search found 947 articles related to the research title and keywords. After applying subject-area filters, 884 documents remained for further screening. This number was limited to 550 articles, then to 509 final documents, with 498 comprising English-language publications from 2017 to 2024.

The PRISMA flow diagram analyses the search results and the sources for bibliometric research. The subject areas covered include Finance, Econometrics, Economics, Business Management, Social Sciences, Accounting, and Computer Sciences. The search string successfully identified 947 relevant studies. After the filtration process, the study recorded 884 articles at the screening stage, 550 for eligibility, 509 for final attribution, and 498 English-language articles that met the inclusion requirements concerning technology introduction and the adaptation of financial technology.

The current study employs artificial intelligence and bibliometric analysis tools. "Bibliometric" analysis has been used for extensive examination, including annual scientific production, average citations per year, core sources by Bradford's Law, and clustering by coupling (Afjal, 2023). The Scopus database was used for the search string, and BiblioShiny was used for the analysis, as both instruments cater to the inclusive functions required for this investigation.

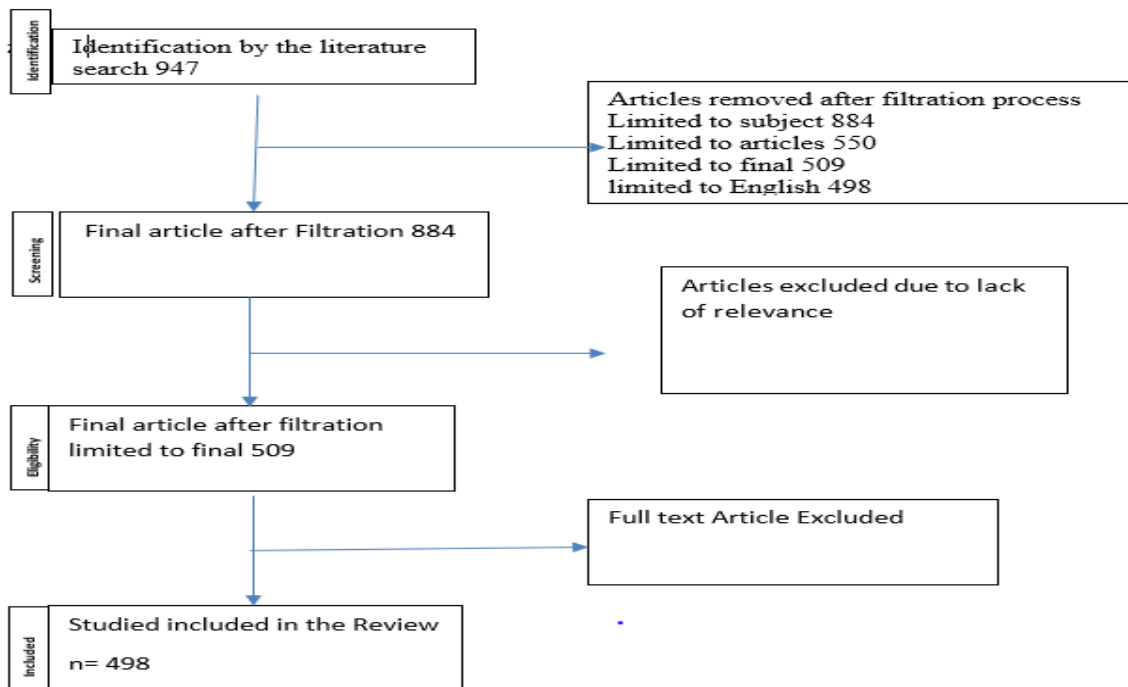


Figure 1: PRISMA flow diagram

4. Results

The results were generated using BiblioShiny. The analysis began with the innovative utilization of BiblioShiny, a robust and user-friendly web-based application designed to simplify the bibliometric procedure. This state-of-the-art tool streamlined the organization and examination of complex research data, enabling the researchers to identify trends and suggest directions for further studies on FinTech and financial inclusion, exploring how digital payments and services are transforming access to financial mechanisms and forecasting economic growth.

4.1 Annual Science Production

The data on annual science production illuminates the volume of research in Financial Technology (FinTech) and digital payments, specifically focusing on the output from the top academic journals in this field from 2017 to 2024. An increasing trend is observed from 2019 onward, with the number of published articles showing a consistent annual rise. The most significant growth is seen

from 45 articles in 2019 to an impressive 145 in 2024. The year 2024 indicates an emerging and strong trend in FinTech scholarship. Exponential growth can be observed from 2022 to 2024 (see figure 2).

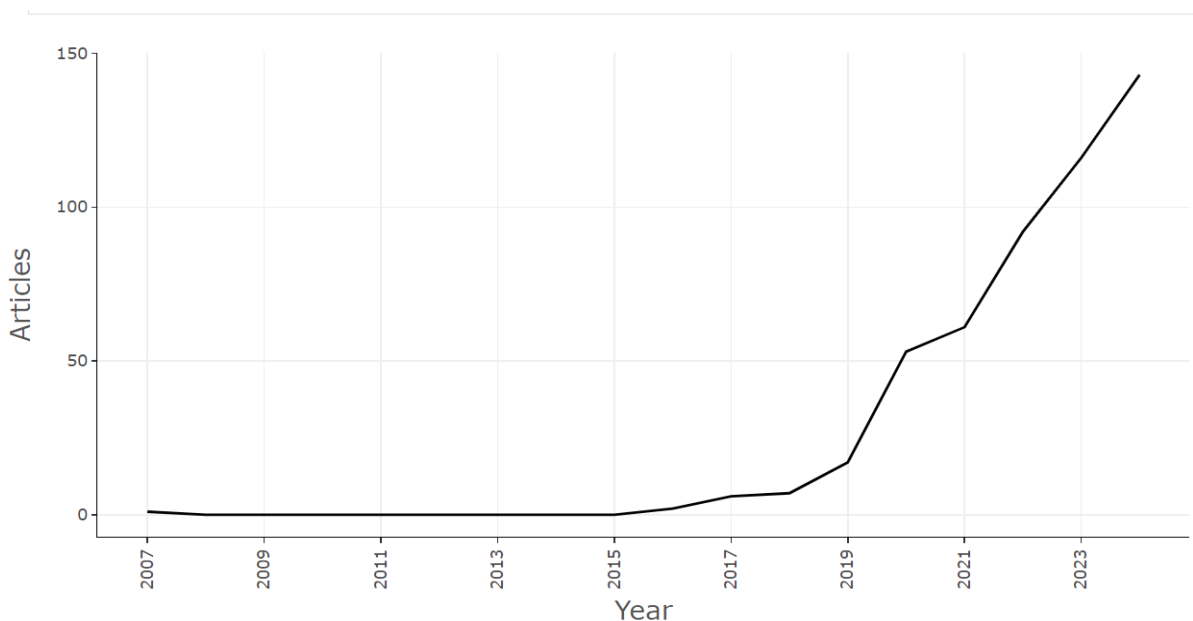


Figure 2: Annual Science Production

4.2 Average Citation per year

This figure shows the average citations per year for research on digital financial services in promoting financial access, economics, and inclusion. Citations per year from 2007 to 2016 reflect a gradually increasing trend (see figure 3). A peak appears in 2017-2018, likely due to landmark publications, followed by a sharp decline in 2019. The COVID-19 pandemic may have diverted researcher attention to other topics. Fluctuations in 2023 suggest the field is being renewed with novel studies.

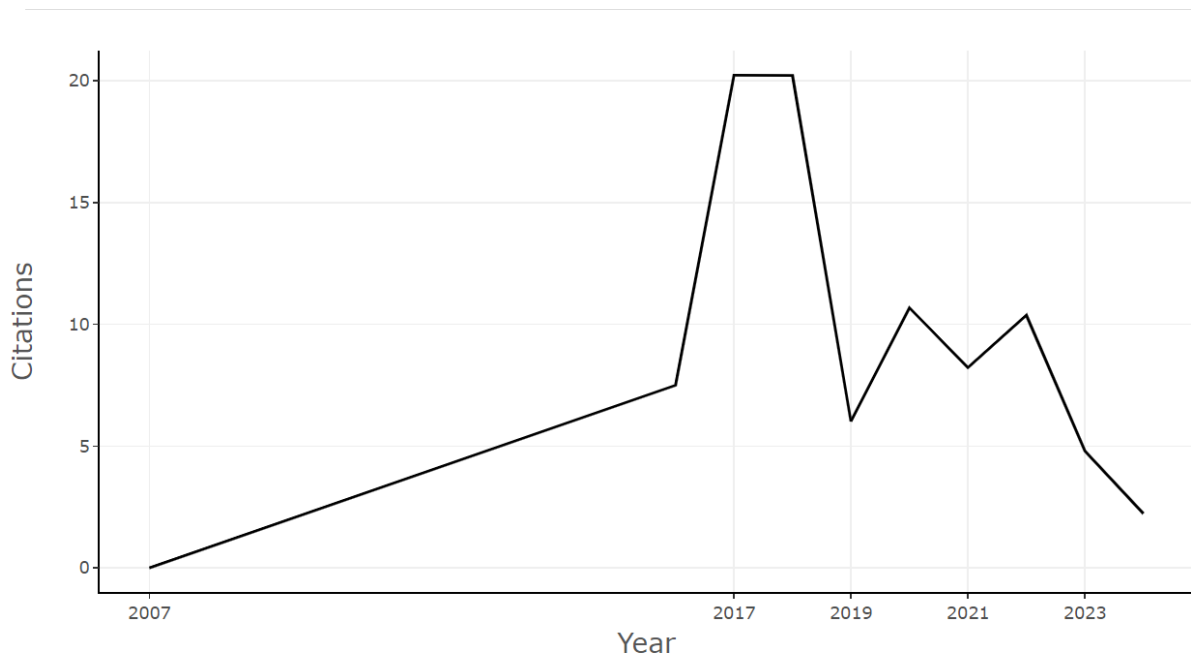


Figure 3: Average Citation per Year

4.3 Most relevant source

The X-axis reflects the number of articles, indicated by the bubbles at the end of each bar, and the Y-axis displays contributing journals (see figure 4). *Sustainability (Switzerland)* is the leading source with seventeen articles. *Journal of Risk and Financial Management* and *Resources Policy* have made significant contributions with sixteen articles each. A moderate contribution of seven research articles comes from *Cogent Economics and Finance*, *International Review of Financial Analysis*, *Journal of Open Innovation: Technology, Market and Policy*, and *Technological Forecasting and Social Change*. Journals with a lower contribution of five to six articles, such as *Finance Research Letters*, *Digital Policy*, *Regulation and Governance*, and *Environment and Planning A*, reflect the broader impact of the research area.

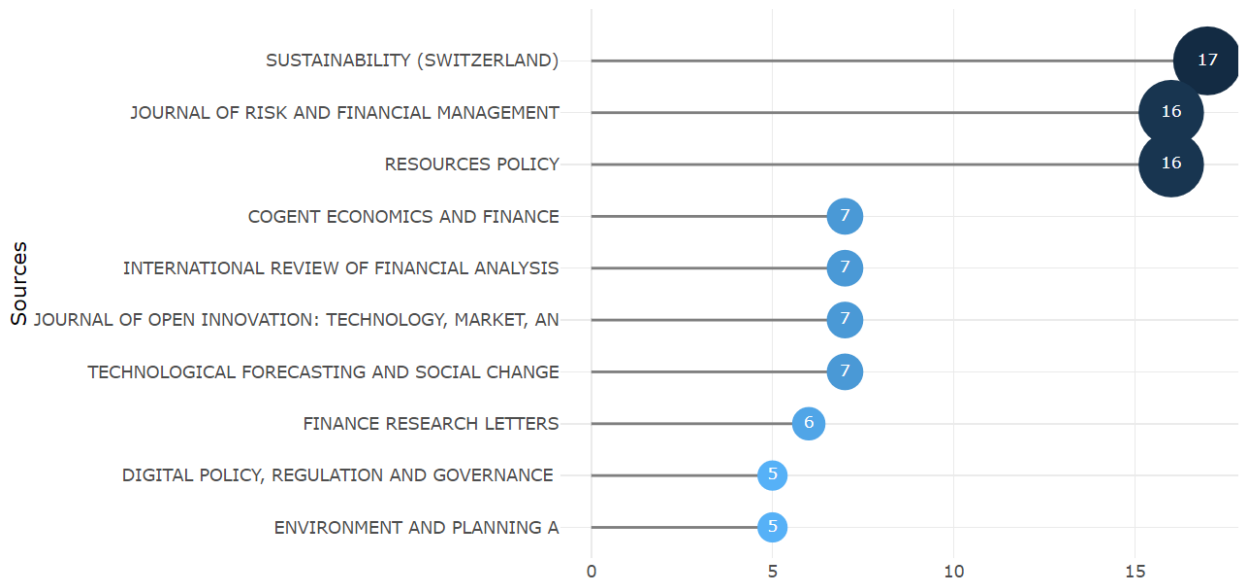


Figure 4: Most Relevant Source

4.4 Sources local impact

This chart measures the local impact (H-index) of multiple journals. The H-index is a metric that estimates the productivity and citation impact of publications. *Sustainability (Switzerland)* leads with an H-index of 13 (see figure 5). *Journal of Risk and Financial Management* follows with an H-index of 8. A moderate impact is reflected by an H-index of 6 for the *Journal of Open Innovation: Technology, Market, and Complexity*. The H-index range of four to five indicates recognized contributions from journals such as *Journal of Cultural Economy*, *Technological Forecasting and Social Change*, *Cogent Economics and Finance*, *Digital Policy, Regulation and Governance*, and *Environment and Planning*. This chart productively highlights potential outlets for future publications in this research theme.

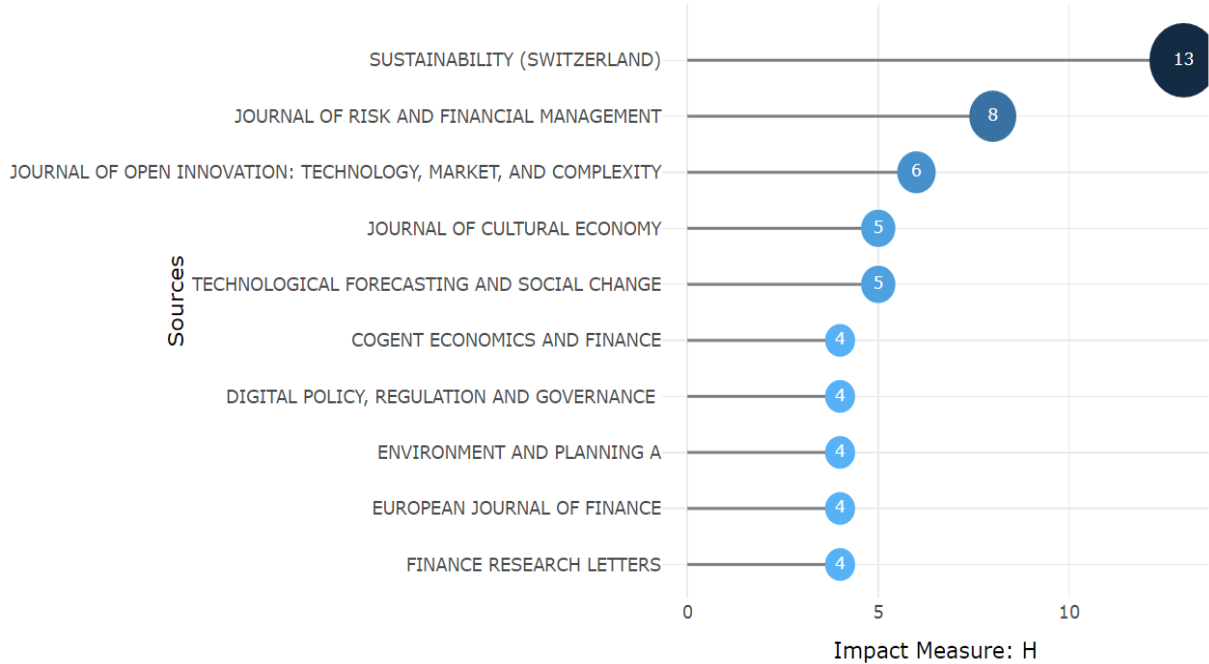


Figure 5: Sources Local Impact

4.5 Sources Production Over Time

This figure represents the cumulative number of publications from 2007 to 2024. The Y-axis shows the cumulative number of occurrences, and the X-axis indicates the years (see figure 6). Post-2020, many journals show a significant rise, reflecting a growing trend in the research area. The most active journal, *Journal of Risk and Financial Management* (blue line), shows the highest cumulative occurrences in 2024. *Journal of Open Innovation: Technology, Market, and Complexity* (green line) and *International Review of Financial Analysis* (yellow line) have also contributed significantly, though less than the leading journal. *Cogent Economics and Finance* (pink line) has contributed consistently but at a slightly lower level.

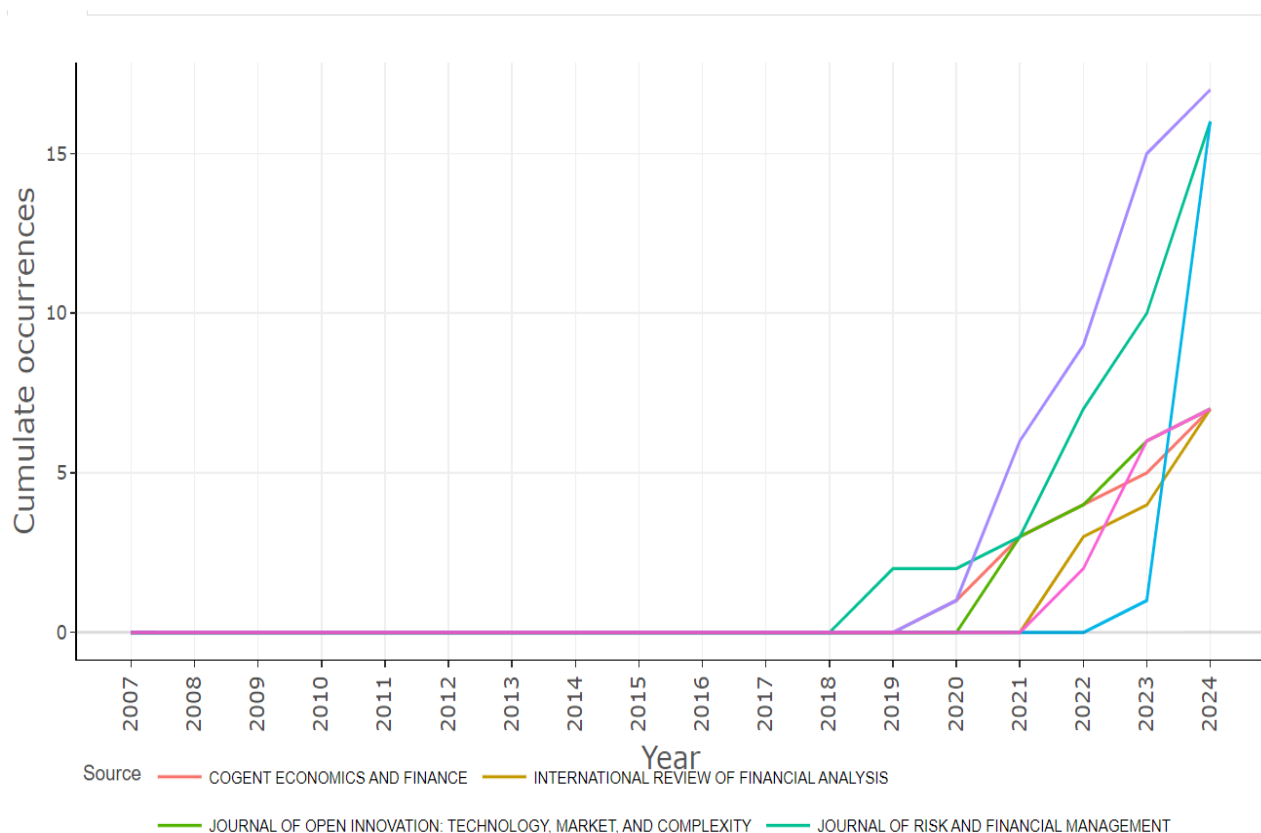


Figure 6: Sources production over Time

4.6 Authors Production Over Time

This chart reflects the contributions of different authors. Each row represents an author, and the bubble size reflects their contribution in terms of citations or publications. The timeline on the X-axis spans from 2018 to 2024 (see figure 7). OZILI PK is noted for consistent and high-impact contributions. BANNAH and SETIAWANB also show significant research contributions. Some authors, like ABEDINMZ and AL-OKAILYM, have occasional contributions represented by bubbles in specific years. A small group of authors, including FEKETE-FARKASM and OKELLO CANDIYA BONGOMIN, contributed impactful work in 2023-2024. Horizontal lines indicate a baseline of consistent research activity.

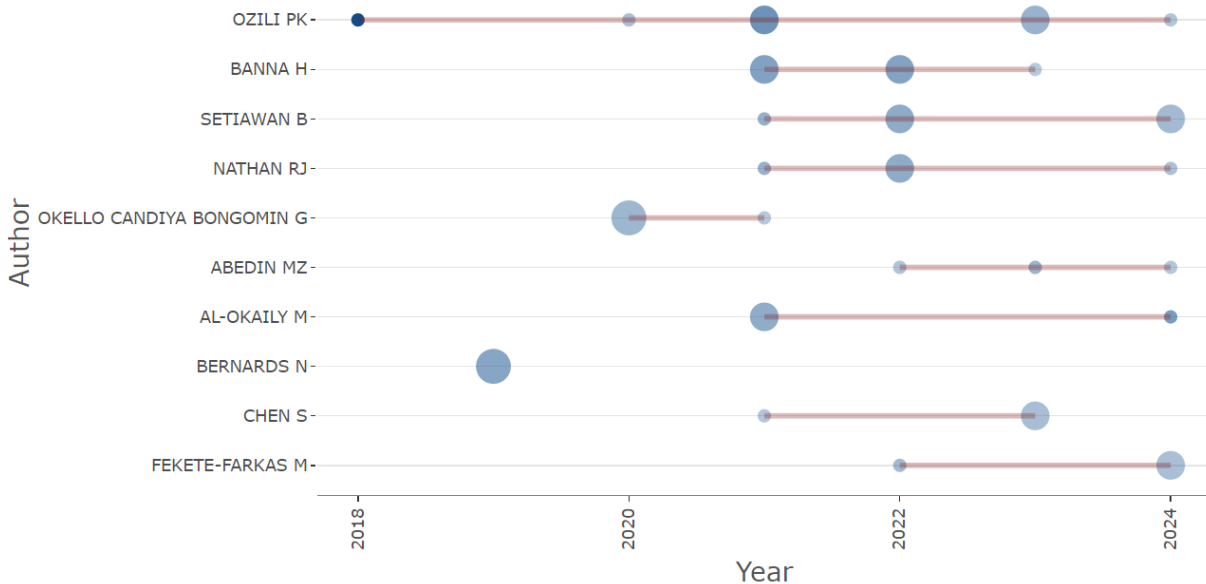


Figure 7: Authors' Production Over Time

4.7 Clustering by coupling

This 2D scatterplot visualizes thematic clusters. The Y-axis represents the impact of a theme, and the X-axis represents centrality, reflecting connectivity within the network (see figure 8). Themes in the top-right quadrant, such as "Financial System," "Africa," and "Financial Marketing," have high impact and high centrality, playing a significant role. The bottom-left quadrant, with themes like "Financial Inclusion," represents emerging areas with lower impact and centrality. The top-left quadrant contains high-impact but less central themes like "Developing World" and "Digitalization." The bottom-right quadrant suggests well-connected but lower-influence topics like "Entrepreneurship" and "Financial Services." Overall, the chart visualizes the thematic structure of the field.

both thematic areas and interdisciplinary gaps.’

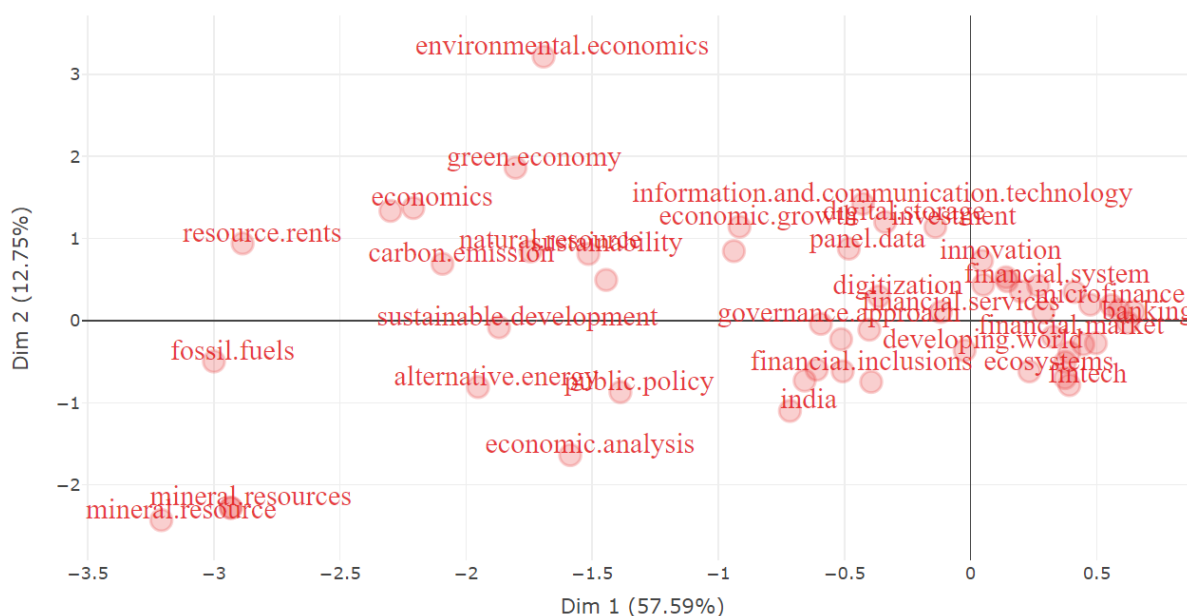


Figure 10: Factorial Analysis

4.10 Countries Collaboration world Map

This geospatial network map illustrates collaborations between countries. Regions are color-coded, with darker shades indicating higher research activity see figure 11. Lines connecting countries represent collaborations, with thicker lines indicating more frequent interactions. North America (United States) represents a significant hub. Asia (China, India, Southeast Asia) is well-connected, including links to Australia. Europe and Africa show slightly lower connection densities. This map highlights the global nature of research collaboration in this field.

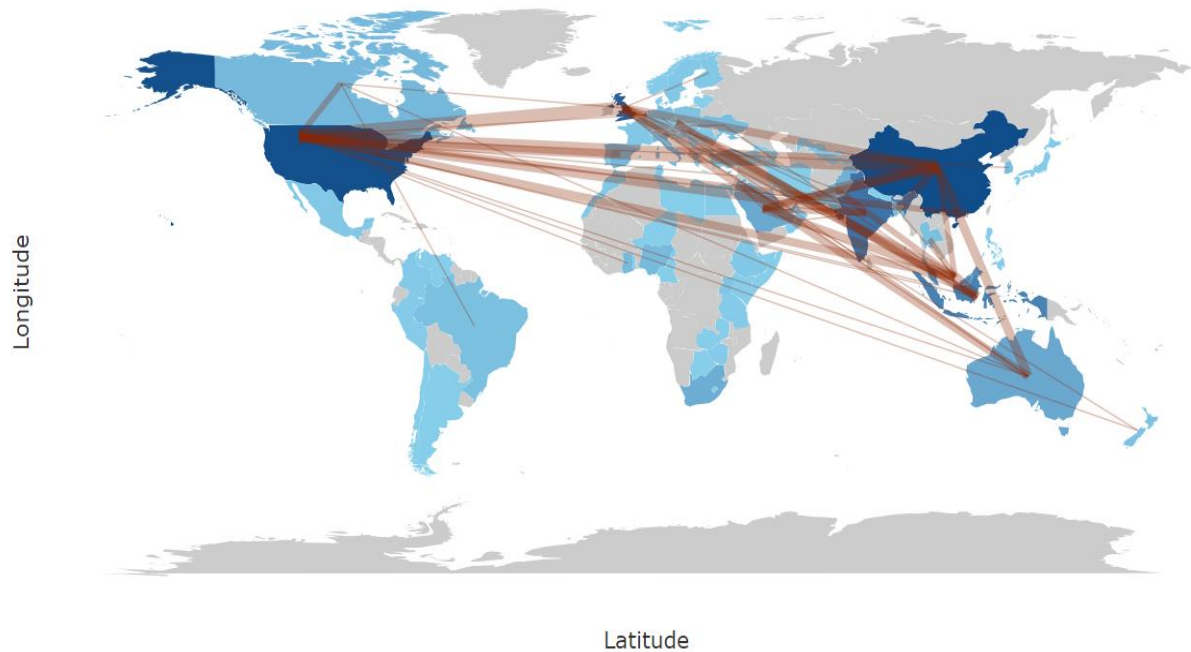


Figure 11: Countries collaboration world Map

4.11 World Cloud

The word cloud visually represents the most frequent terms in the analyzed literature. The primary subjects are the financial sector, indicated by prominent terms like "Finance," "financial services," "financial inclusion," "financial system," and "financial market." "Financial inclusion" is central, highlighting its role in customer accessibility see figure 12. Related terms like "Banking," "Digital payments," "electronic money," "mobile payments," and "electronic wallets" illustrate facilitating technologies. The introduction of modern technology and its connection to "Economic Development," "economic growth," and "poverty" underscores the transformative power of innovation in the financial industry.

identified as a potential moderator between green appeal and purchase intention rather than a direct predictor (Zhang et al., 2025). Future research could incorporate demographic variables as independent predictors, as this may yield significant results (Sangvi et al., 2025). The appeal of a green product is often strengthened by factors such as pro-environmental concern, awareness, price sensitivity, and, crucially, socio-demographic characteristics.

5.1 Implications

- **Practical Implications:** Companies currently offering or planning to introduce green products can utilize these findings to refine their market strategies. By prioritizing value-communicative pricing and impactful promotional campaigns that educate consumers, firms can enhance adoption rates and better navigate green market dynamics.
- **Theoretical Implications:** This study contributes a novel conceptual model that incorporates additional variables potentially influencing green purchase decisions, such as social influence, recycling participation, media exposure to environmental messaging, and perceived consumer effectiveness. This provides a foundation for more comprehensive future research.

5.2 Limitations and Future Research Directions

This study primarily examines general consumer behavior; applying the same framework to a specific product category (e.g., organic food, energy-efficient appliances) would enable the formulation of more targeted and actionable policy implications. In the context of global trends toward environmental sustainability, there is an urgent need for cross-disciplinary research on strategies that effectively attract environmentally responsible consumers.

Future studies could seek to expand the sample size and diversity to further validate and strengthen the reliability of these findings. The application of advanced statistical techniques, such as Structural Equation Modeling (SEM), would enhance the robustness of the analysis and provide a more comprehensive basis for managerial and policy decision-making.

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