Exploring the Research Trends of Digital Finance and Financial Technology Integration : A Bibliometric Perspective

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Abstract*:* This study examines the literature from 2014 to 2024 available in Scopus, focusing on the merger of Financial Technology and Digital Finance and their impact on business growth. There was a notable spike in research activity globally after COVID-19, with China, India, Malaysia, the US, and the UK emerging as key contributors towards fostering global collaboration. The primary funding source is from the National Natural Science Foundation of China, while key scholarly output is AMC, IEEE, and Resources Policy. The most prominent research areas funded by these institutions include econometrics and the digital economy, alongside other rapidly advancing fields such as AI and Blockchain, reflecting critical developments in enabling technologies. Although the study is limited by the scope of the regional area focused on and the scope of the databases used, it also demonstrates the crucial role of digital finance in promoting financial inclusion, regulatory evolution, innovation, and the comprehensive study's impact. It calls for better regulation, more collaboration to support the advancement of ecosystems for digital banking, unified policies, and more integration of other fields.
Keywords: Financial Technology (FinTech), Digital Finance, Integration, Bibliometric Analysis, Scopus Database.

1. Introduction:

Financial Technology (FinTech) is revolutionizing the economy through the adoption of new technologies in mobile platforms and artificial intelligence. Advances in blockchain technologies have brought new efficiencies to investment management, customer service delivery, and other transactional operations (Zhao, Tsai & Wang, 2019; Saksonova & Kuzmina-Merlino, 2017; Gabor & Brooks, 2016). Over the last decade, the world has witnessed a significant disruption in the technology sector, financial technology being the latest in line. Unlike previous technological breakthroughs which focused on improving existing systems, FinTech emphasizes constructing entirely new systems for financial services. This shift in approach helps unlock greater opportunities for economic engagement, especially in developing countries where there is a greater need for accelerated growth. The architecture of the global economy is undergoing a tremendous transformation due to the increasing convergence of innovation, sustainability, digitization, and globalization. All these facets work in tandem to further improve the energetic contribution that innovation has towards achieving Financial Inclusion and sustainable economic growth. This profound transformation in technology has captured the attention of academicians, professionals, and policymakers, motivated by the understanding of FinTech as a game changer for providing fair access to finances and fostering inclusive economic development. Financial inclusion entails as the accessibility and utilization of appropriate financial

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services by all population segments, remains vital to fighting poverty as well as building economic fortitude, especially in rural areas (Demirgüç-Kunt et al., 2018). Thus, FinTech is not merely an advancement in technology, but it is a means for socio-economic change and development of structural transformation.

The speed of digitization has accelerated the growth of the financial sector, improved communication and data handling while increasing the operational efficiency of client(front) and administrative(back) functions (Kanungo & Gupta, 2021; Brandl & Hornuf, 2020). Initially set to modernize other traditional financial services, digitalization has over time sought to create new business and employment opportunities in the financial services sector (Gomber et al., 2017; Legner et al., 2017). Digital Finance represents a shift towards technology-based financial services and client-centered approaches in service delivery (Azizi et al. 2021; Anjum et al., 2017). Expanding on this positive disruption, (Ozili, 2018; Gomber et al. 2017; Barras, 1990) underscore how innovative financial service providers, as well as FinTech companies, have modified the boundaries and scope of financial intermediation through the creation of novel solutions. (Zavolokina et al. 2016) provide numerous examples showing how financial services have been digitized, which has led to the development of both FinTech and Digital Finance. This blend of technology includes blockchain based digital payment systems, mobile banking applications, peer-to-peer lending fintech's, and DeFi (Decentralized Finance) systems. (Arner et al. 2010) further point out that the rapid growth of FinTech in the past decade has intensely affected the existing financial service providers and altered the ways in which services are offered to and used by businesses and consumers.

The implications of FinTech and Digital Finance are profound, yet there remains little academic synthesis. (Bollaert et al. 2021) focus on the broader dimension of financial accessibility using FinTech tools such as loans, crowdfunding, and initial coin offerings. (Brika, 2022) looks at the evolution of scholarly focus on digital currencies and FinTech, whereas (Gomber et al. 2017) look at functional, technological, and institutional dimensions of FinTech innovations. (Sanka et al. 2021) accentuate the practical aspects of applied blockchain and the challenges that it presents; (Takeda & Ito, 2021) analyze the adoption patterns and financial appreciation of FinTech across industries, and (Cai, 2018) presents an extensive review of the literature on crowdfunding and blockchain. The emerging field of Islamic FinTech is also gaining scholarly interest, as (Alshater et al. 2022) examine the relationship of Islamic finance with FinTech. For the supply chain context, (Mukthar et al., 2024; Biju & Brika, 2022; Li & Xu, 2021; Wamba et al. 2019), present case studies of applying FinTech to logistics and transactions through Bitcoin and blockchain.

2. Why this Study?

With the rapid pace of developing technology, there are swift demands for global sustainability, as well as changes in socio-economic factors in society, especially for emerging markets. It is important, and critically so, to examine the ongoing parallel of Digital Finance and Financial Technology (FinTech). The development of FinTech has impacted the financial sector as it modernized the entire value chain of service provision, as well as the interaction of customers with businesses (Arner et al., 2017a). This is due to the rampant identification of traditional financial pathways, which are increasingly being referred to as 'leaky routes', being inefficient, which these advanced

digital solutions are readily exposing. The primary role of banks, venture capital, and stock market services was to organize the flows of information and systematically allocate capital, something that these institutions have a comparative advantage over (Boot & Thakor, 2000; Berger et al., 2005; Diamond, 1984). These speedy advancements in the FinTech industry pose a direct threat to these systems, which have long been relied on subsidized access to the system, high system transaction costs, and eligibility criteria built into the traditional banking framework (Bhattacharya et al., 2020).

Financial institutions have responded to this disruption by adopting new digital technologies and implementing innovative financing methods aimed at improving access to financial services among underserved populations. This not only strengthens the financial inclusion but also improves the public's perception and encourages the use of non-bank financial intermediation systems (Philippon, 2016). The transformation is driven by three primary technology facilitators: platformed finance ecosystems, algorithmic optimization strategies, and Distributed Ledger Technologies (DLTs). These tools are changing the design of financial systems, increasing the availability of credit, digital payments, and other financial services tailored to the needs of users, especially in underbanked and unbanked regions (World Bank, 2014).

Despite the developments, there is a gap in approaches within the available academic context regarding the implications of FinTech in contrast to banking. On the one hand, there is sufficient proof that supports the claim FinTech is replacing rather than complementing banking services. For instance, (Kim & Stahler, 2020; Gopal & Schnabl, 2020) provide evidence that P2P lending services such as Lending Club have curtailed the availability of traditional bank loans to small businesses, especially in the later years of the crisis. While (Balyuk et al. 2020) explain further this displacement hypothesis by noting that the entrance of digital lenders like Prosper Marketplace and Funding Circle has reduced the flow of bank credit to small businesses in more than 3,000 counties in the United States.

On the contrary, another set of literature claims that FinTech financing fulfils a complementary function by solving certain systemic market problems. According to (Tang, 2019), FinTech platforms appear to be excessively directed towards borrowers and firms located in economically depressed areas, with no or inadequate traditional banking systems, which are often referred to as credit deserts. (Jagtiani & Lemieux, 2019) argue in the same vein that the competition for market share among heavily concentrated banking sectors is so intense that it is served by non- bank lenders, and those gaps are often filled by traditional financial institutions that ignore those markets. (Cornelli et al. 2020) argue at the macro economy level that the framework of analyzing country specific dynamics tends to complement traditional banking, instead of supplanting, when considering FinTech credit, which results in greater diversification of capital supply and improved access to finance.

While these insights are rich and multidimensional, critically, there remains a gap in the emerging literature on FinTech that seeks to integrate it using a singular, cohesive, and multi-faceted approach—particularly focusing on the financial inclusiveness within rapidly evolving and technologically sustainable economies driven by the convergence of Digital Finance and FinTech. Past studies have addressed some thematic concerns like the technology acceptance model (Shaikh & Karjaluoto, 2015; Venkatesh et al., 2003; Davis, 1989) or the criteria of financial inclusion (Afjal, 2023; Demirgüç-Kunt

et al., 2018; Cull et al., 2009), Few have comprehended the variance of FinTech adoption from socio-economic perspectives, particularly in rural and low-income areas. Additionally, there are no unified models that evaluate the sustainability implications of FinTech innovation. Also, the gaps in the study of digital finance equity access in relation to the impact of laws and regulations persist. Additionally, none appear to have adopted a systematic bibliometric approach that comprehensively analyses the intellectual landscape and the development of themes in the literature.

Following this, the current review takes a comprehensive bibliometric approach to fill this gap. It builds upon previous work (Mukthar et al., 2024; Alfawareh & Al-Kofahi, 2024; Biju & Brika, 2022; Li & Xu, 2021) that seeks to map out the growth of research on FinTech and Digital Finance, locate major contributors and networks, and identify new trends that drive the debate on innovation and inclusion in finance. Thus, it answers the gap in literature by positioning the researchers as knowledge backdrops supporting decision makers, researchers, and business executives to develop targeted responses bolstered by relevant data to promote the use of technology, enable sustainable development, and harmonize the financial systems with the SDGs of the United Nations.

These aim to comprehend the objectives of this study:

- RQ1: What is the annual growth rate of published works around FinTech and Digital Finance?
- RQ2: Who are the key active participants in this research, including but not limited to contributors, funders, publishers, and affiliated countries?
- RQ3: What are the fundamental themes highlighted in the literature that shape the cutting edge of this discipline as revealed by the most important words of the text?
- RQ4: Which papers and authors received the largest number of citations and thus have the most significant impact on academia?
- RQ5: Which are the most strongly bibliographically coupled countries demonstrating well-established international partnerships in this research area and widespread dispersion of knowledge?

3. Methodology and Materials: -

This study uses bibliography to analyze the literature on the integration of Financial Technology with Digital Finance and track its changes over time. Since bibliometric analysis focuses on the quantifiable aspects of research such as output, productivity, and impact, it is useful for recognizing important scientists, developments, achievements, and even gaps in studied themes within the field. More recently, business and information science scholars began employing bibliometrics because of their ability to work with voluminous datasets and produce meaningful visual and statistical results with tools like Biblioshiny, VOSviewer, and MS Excel. These tools allow the mapping of co-authorships, analysis of keyword co-occurrences, citation measurement, and trend evaluation, thus providing insight into intellectual frameworks and emerging patterns. The Scopus database is selected as the primary source for data retrieval because of its extensive coverage, quality of indexed content, and interdisciplinary depth. Scopus is well known to have more breadth than other databases like Web of Science or even PubMed, since it holds a great amount of peer-reviewed material pertinent to FinTech and digital finance (Millian et al., 2019; Alfawareh et al., 2021). Earlier studies did not

contest its usefulness for bibliometric analysis as they considered the organized metadata and the relations with bibliometric tools to merit its use (Aria & Cuccurullo, 2017; Khan & Muktar, 2020). The study looks at publications from 2014 to 2024 as they corroborate with the rise in the use of digital innovations in finance and the increase of academic work in this field which optimizes relevance for the study (Alfawareh & Al-Kofahi, 2024).

3.1 Search String and Data Retrieval Process:

This investigation used an enriched bibliometric data collection procedure through Scopus beginning with a general search on the integration of FinTech and digital finance which returned 562 documents. To maintain a temporal relevance congruent with the digital finance boom, only works from 2014-2024 were retained which brought the results to 541. Further focusing on thematic relevance, filtering results through exact keywords representing core financial innovation terms reduced the number to 311. In line with scholarly diligence, only peer-reviewed journal articles and conference papers were selected, which brought the count down to 277 documents. Finally, the remaining documents were restricted to those published in English to maintain interpretive uniformity, bringing the dataset to 267 relevant academic documents.

4. Analysis and Interpretations:

Table 1: Main Information from the Data Retrieval

Description	Results
OVERVIEW	
Timespan	2016:2024
Sources (Journals, Books, etc)	197
Documents	267
Annual Growth Rate %	56.14
Document Average Age	2.66
Average citations per doc	14.14
References	11525
DOCUMENT CONTENTS	
Keywords Plus (ID)	1486
Author's Keywords (DE)	880
AUTHORS	
Authors	816
Authors of single-authored docs	30
AUTHORS COLLABORATION	
Single-authored docs	31
Co-Authors per Doc	3.33
International co-authorships %	23.22

DOCUMENT TYPES	
article	168

Source: Scopus Database/Collation- Biblioshiny (Aria and Cuccurullo, 2017)

Table 1 presents the gist of the entire information derived from the Scopus database and collated through Biblioshiny (Aria and Cuccurullo, 2017). It reveals the measurable growth in research around Financial Technology and Digital Finance from 2014-2024. All told, there were 197 sources, which included 267 books and journals in print. Indicative of a rapidly expanding sector, the average age of documents is 2.66 years, and the yearly growth rate is 56.14 percent. Even if the resources are high-impact, there are 11,525 references and 14,14 citations per document, demonstrating great academic involvement. Our keyword analysis shows 1,486 Keywords Plus (ID), and 880 author keywords (DE), demonstrating a wide range for a research scope that includes blockchain and digital payments, cryptocurrencies, digital currencies, and financial inclusion, among others. The analysis is based on 816 authors; only 30 of whom have produced a single-authored document. The 3.33 authors per document and 23.22% international co-authorship indicate a strong collaborative research environment. In terms of document types, there were 168 journal articles and 99 conference papers, indicating that there seems to be continued discussion around these emerging trends. That so many papers are conference papers speaks to the rapidly evolving nature of digital finance research. Their results validate the emergent standing of the domain of Financial Technology research, characterized by explosive growth, high citation impact, and strong international collaboration, highlighting its relevance in the context of the financial innovation landscape.

4.1 Publication Trends:

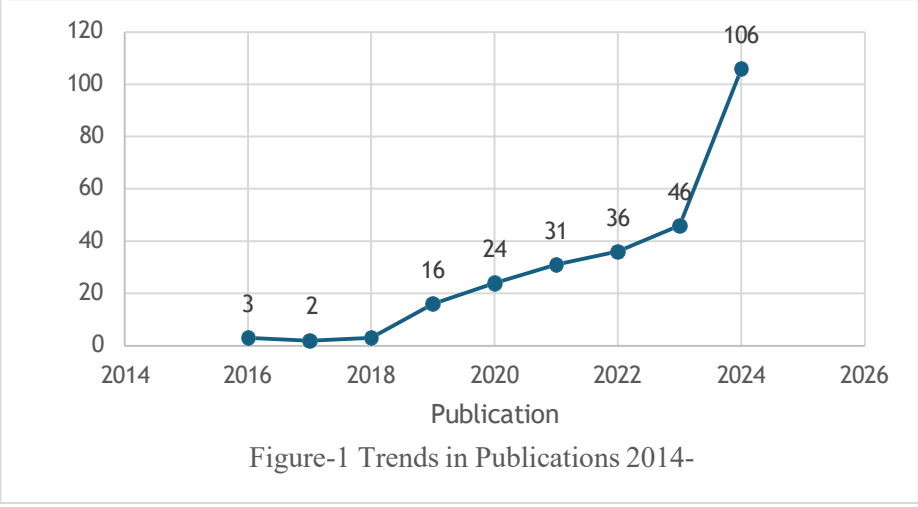


Figure-1 Trends in Publications 2014-

Source: *Scopus Database*

Examining the publication data for the years 2014-2024, it is evident that academia's embrace of Financial Technology and Digital Finance rose sharply after 2018. There was a relative lack of interest during 2014 to 2018, with very few publications released. Yet,

in 2019, a notable shift was witnessed: publications started to increase year on year, from 16 in 2019 to 24 in 2020. The reality of increasing awareness about digital payment gateways, advancing blockchain technology, and developing governance policies fueled this increased pace. This growth continued with 31 publications in 2021 and 36 in 2022; these years saw greater discussion on AI in finance, cybersecurity, and digital primacy frameworks regarding inclusivity. In 2023, the annual count reached 46, while 2024 brought a remarkable increase to 106 publications. These drastic changes highlight the attention towards the transformation of digital finance globally, with accelerating technology, and shifts in economic policy focusing on the need for sustainable financial development.

4.2 Top Leading Countries and Their Contribution:

***Source**: Scopus Database/ **Collation**-MS Excel*

As shown in Figure 2, the country-wise analysis of the contributions of research in Financial Technology and Digital Finance carves out China's position at the top with 108 publications owing to its strong infrastructure in FinTech, rampant adoption of digital payments, and innovations in consumer services like banking. Digital India initiatives led to the publication of 29 papers by India focused on digital banking, financial inclusion, and mobile payments. The UK (21) and the US (20) concentrate on issues pertaining to the regulations, AI, and blockchain technology. Malaysia (15) and Indonesia (12) mark the progress of the region towards full-fledged digital banking ecosystems. Saudi Arabia (12) correlates the expansion of its FinTech sector with Vision 2030, which aims for diversified economic transformation. Contributions from Pakistan (11), Spain (11), and Italy (9) focused on mobile banking, cyber security, and the financial governance of the EU. South Korea (9) and Russia (9), and the UAE (8) are active with work on digital wallets or modernization of the infrastructure. This growing interest from Canada, Taiwan, France, Jordan, Australia, and even Bangladesh is suggestive of the widening scope of FinTech research around the world, influenced by diverse regulatory frameworks, technological development, and the state of the

financial market.

Table 2: Prolific Authors

Authors	Documents	Articles Fractionalized
Wang Y	6	1.83
Liu Y	5	1.92
Wang J	5	1.73
Zhang Y	5	1.67
Li X	4	1.42
Zhou Y	4	1.87
Chen X	3	1.17
Khan S	3	0.73
Li J	3	0.90
Li Y	3	0.92

Source: *Scopus Database*

In Financial Technology and Digital Finance research, the efforts of chief contributors are featured in the Integrated Author Contributions table 2. Wang Y emerges as the leader in contribution with over six publications and a fractionalized authorship score of 1.83, suggesting purposeful participation in systems like digital payments and FinTech systems. Liu Y, Wang J and Zhang Y succeed him as they post five publications each. Liu, Wang and Zhang lose a bit of their contribution claim with 1.92, 1.73 and 1.67 as their respective scores indicate primary sponsorship over algorithmic finance, blockchain technology, and regulatory technology. Each of them has a varying level of individual involvement which is why their fractionalized scores vary. Li X and Zhou Y, with four papers each, work on economic inclusion and automated financial services, Zhou's higher fractionalized value (1.87) suggests more primary authorship. Alongside Liu, Chen X, Khan S, Li J and Li Y make three publications each for cybersecurity, mobile banking and digital wallets. Their fractionalized values are from 1.17 to 0.73 which indicates low contribution claim but higher degree of collaboration from these metrics. This highlights the interdisciplinary character of the ever-evolving landscape of financial technology research.

Table 3: Top Funding Institutions Across the Globe

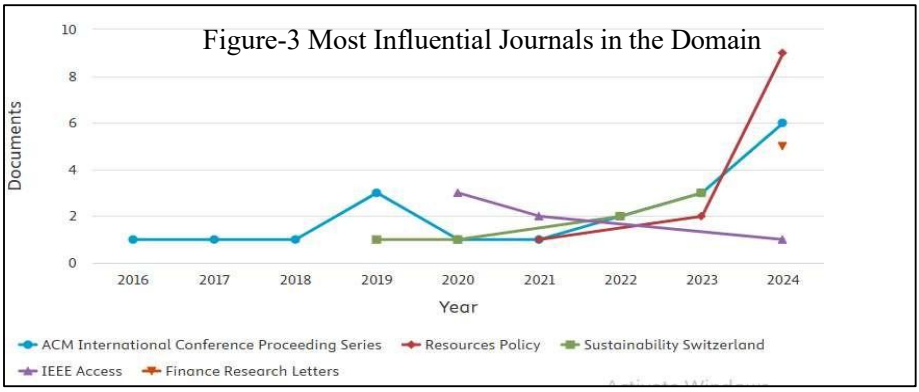
Funding sponsor	Documents
National Natural Science Foundation of China	16
National Office for Philosophy and Social Sciences	13
Ministry of Science and Technology of the People's Republic of China	10
Ministry of Education of the People's Republic of China	9
European Commission	7
Fundamental Research Funds for the Central Universities	6
Horizon 2020 Framework Programme	4

Ministry of Finance	4
Engineering and Physical Sciences Research Council	2
European Regional Development Fund	2

Source: *Scopus Database*

China funds finance technology and digital finance research in AI, blockchain, and risk modelling, while the National Office for Philosophy and Social Sciences (NOPS) focuses on monetary policy and regulation (13). Cybersecurity and financial infrastructure have improved thanks to the Ministries of Education (9) and Science and Technology (10). Table 3 also sheds further light on the fact that the European Commission (7) and Horizon 2020 (4) promote sustainable finance and regulation globally. The Fundamental Research Funds for Central Universities (6) and Ministry of Finance (4) strengthen institutional research in China, while the Engineering and Physical Sciences Research Council (2) and European Regional Development Fund (2) support computational finance and security. These funding patterns highlight a strong governmental push for FinTech innovation, prioritizing AI, financial security, and sustainability in digital finance transformation.

4.3 Influential Journals:



Source: *Scopus Database*

The research trends in Finance Technology and Digital Finance highlight a strong interdisciplinary presence across influential journals via Figure 3. ACM International Conference Proceedings Series (19) leads with a focus on AI, blockchain, and cybersecurity in finance, while Resources Policy (12) and Sustainability Switzerland (7) emphasize digital finance's role in sustainable investments and resource management. IEEE Access (6) and Finance Research Letters (5) contribute to blockchain advancements and financial risk analysis. International Review of Economics and Finance (4) and Economic Research Ekonomska Istrazivanja (3) examine FinTech's economic impact, The field of computational finance is investigated in both Advances in Intelligent Systems and Computing (3) and Lecture Notes in Computer Science (2). The presence of Frontiers in Public Health (4) and Environmental

Science and Pollution Research (2) highlights FinTech's role in healthcare and environmental sustainability. Business and management journals emphasize regulatory frameworks, corporate finance strategies, and risk management. The inclusion of engineering, social sciences, and decision sciences journals underscores digital finance's broader impact on technological innovation, financial inclusion, and sustainability. The diverse journal representation signifies that Finance Technology and Digital Finance research is shaping global economic, technological, and sustainable financial ecosystems.

Table 4: Documents by Subject Area

Subject area	Documents	Percentage
Computer Science	61	22.50%
Economics, Econometrics and Finance	36	13.60%
Engineering	31	11.40%
Social Sciences	27	10.20%
Business, Management and Accounting	26	10.00%
Environmental Science	19	7.30%
Decision Sciences	17	6.50%
Mathematics	14	4.90%
Energy	10	3.80%
Medicine	8	2.90%
Other	18	6.90%

Source: *Scopus Database*

The research trends in Finance Technology and Digital Finance in table-4.4 highlight a multidisciplinary approach, with Computer Science (22.50%) leading due to its role in AI, blockchain, cybersecurity, and big data in financial applications. Economics, Econometrics, and Finance (13.60%) emphasize financial inclusion, monetary policy, and risk assessment, while Engineering (11.40%) focuses on algorithmic trading and financial infrastructure. Social Sciences (10.20%) and Business, Management, and Accounting (10.00%) explore regulatory frameworks, digital transformation, and corporate finance strategies. Environmental Science (7.30%) signals growing interest in green FinTech and sustainable finance. Decision Sciences (6.50%) and Mathematics (4.90%) highlight data analytics, machine learning, and financial modelling. Energy (3.80%) and Medicine (2.90%) research digital finance applications in energy markets and healthcare funding. Because digital finance is so pervasive, the remaining 6.90% comes from fields as diverse as psychology, physics, materials science, agriculture, and multidisciplinary studies. These findings highlight the ways in which financial technology (FinTech) is influencing sustainability, healthcare, and energy markets in addition to transforming financial systems via technical innovation, economic modelling, and regulatory adaption.

Table 5: Most Cited Authors

Author	year	Title	Source	Total Citation	Total Citation /Year
LIU Y	2022	Influence Of Digital Finance and Green Technology Innovation on China's Carbon Emission Efficiency: Empirical Analysis Based on Spatial Metrology	Science Of the Total Environment	258	65
ZHANG Y	2024	Digital Economy Empowers Sustainable Agriculture: Implications for Farmers' Adoption of Ecological Agricultural Technologies	Ecological Indicators	42	21
WANG Y	2023	Drivers And Mitigants of Resources Consumption in China: Discovering the Role of Digital Finance and Environmental Regulations	Resources Policy	33	11
LI Y	2023	Digital Finance, Environmental Regulation, And Green Development Efficiency of China	Frontiers In Environme ntal Science	23	8
CHEN X	2023	How Does the Development of Fintech Affect Financial Efficiency? Evidence From China	Economic Research-Ekonomska Istrazivanja	20	7
ZHOU Y	2022	The Application Trend of Digital Finance and Technological Innovation in The Development of Green Economy	Journal Of Environme ntal and Public Health	26	7
LI J	2022	Can Digital Finance Reduce Industrial Pollution? New Evidence From 260 Cities in China	Plos One	23	6

WANG Y	2022	Can Digital Finance Promote Comprehensive Carbon Emission Performance? Evidence From Chinese Cities	Internation al Journal of Environme ntal Research and Public Health	20	5
LI X	2022	Can Digital Finance Promote Comprehensive Carbon Emission Performance? Evidence From Chinese Cities	Internation al Journal of Environme ntal Research and Public Health	20	5

***Source**: Scopus Database*

An investigation of the most frequently cited authors in the subject of Financial Technology and Digital Finance represented in Table 5. With the most citations, we find the study by Liu Y (2022) that examines how digital finance and green technology innovation have affected China's efficiency in reducing carbon emissions. It has 258 total citations, with an average of 65 citations per year. The paper was published in Science of the Total Environment. This indicates significant scholarly engagement and relevance in sustainability-oriented financial research. Zhang Y (2024) follows with a 42-citation study in Ecological Indicators that explores how the digital economy supports sustainable agriculture, showing a high citation rate of 21 per year despite being a recent publication. Wang Y (2023) has a well-cited paper in Resources Policy (33 citations, 11 per year) analyzing digital finance's role in resource consumption, further demonstrating the integration of financial technology with environmental concerns. Li Y (2023) and Chen X (2023) contribute with impactful studies on digital finance's effects on green development efficiency and financial efficiency, published in Frontiers in Environmental Science (23 citations, 8 per year) and Economic Research-Ekonomska Istraživanja (20 citations, 7 per year), respectively. Research like these shows that digital finance and environmental protection are becoming more intertwined. In the years 2022 and 2023, Wang Y conducted several studies on digital finance's effects on carbon emissions and farmer earnings. These papers appeared in the International Journal of Environmental Research and Public Health and Agriculture (Switzerland). Twenty-six citations were found for Zhou Y (2022) in the Journal of Environmental and Public Health, twenty-three citations were found for Li J (2022) in PLoS One, and Wang Y wrote a number of works that were published in both journals. Overall, the citation patterns indicate that digital finance research is heavily focused on sustainability, carbon emissions, and financial efficiency, particularly within the context of China. The high citation rates and recurring author names suggest an active, interconnected research community with significant contributions to policy-relevant discussions in digital finance and green economic development.

Table 6: Trending Keywords

Keyword	Occurrences	Total Link Strength

FinTech	154	489
Finance	64	325
Financial Technology	39	140
Blockchain	46	202
Blockchain Technology	21	109
Artificial Intelligence	22	133
Machine Learning	21	111
Digital Finance	38	93
Digital Transformation	10	41
Digital Economy	8	33
Cybersecurity	5	27
Data Privacy	5	28
Network Security	6	29
Financial Inclusion	11	48
Green Finance	8	53
Economic Growth	10	64
Economic Development	10	80
Sustainability	11	70
Big Data	12	48
Cloud Computing	7	30
Internet of Things	6	30

Source: Scopus Database

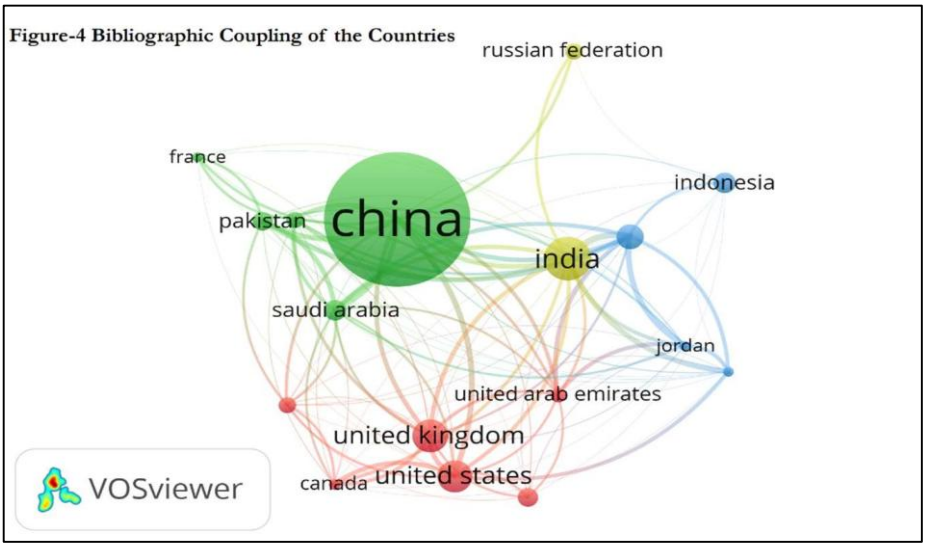
The trending keywords in Finance Technology and Digital Finance research highlight major themes in digital transformation, financial security, and market evolution. Table 6 denotes that FinTech (154 occurrences, 489 total link strength) remains the most dominant keyword, emphasizing its role in revolutionizing financial services. Finance (64, 325) and Financial Technology (39, 140) reinforce the seamless integration of digital models in banking, payments, and investment sectors. Blockchain (46, 202) and Blockchain Technology (21, 109) signify the increasing relevance of decentralized finance, smart contracts, and cryptocurrency solutions in secure transactions. Artificial Intelligence (22, 133) and Machine Learning (21, 111) highlight AI-driven advancements in fraud detection, credit scoring, and automated decision-making.

Digital Finance (38, 93), Digital Transformation (10, 41), and Digital Economy (8, 33) illustrate the expanding role of technology in reshaping financial ecosystems. Cybersecurity (5, 27), Data Privacy (5, 28), and Network Security (6, 29) emphasize the need for robust security measures against cyber threats. Financial Inclusion (11, 48) and Green Finance (8, 53) reflect increasing research on accessible and sustainable financial solutions. Economic Growth (10, 64), Economic Development (10, 80), and Sustainability (11, 70) demonstrate how digital finance drives global economic progress and environmental responsibility.

Big Data (12, 48), Cloud Computing (7, 30), and Internet of Things (6, 30) highlight the adoption of real-time analytics and data-driven decision-making in finance. Financial Institutions (13, 57), Financial Services (14, 75), and Financial Markets (8, 46) showcase structural transformations in banking, investment, and digital transactions. Risk Management (11, 82), Regulatory Compliance (6, 38), and Fraud Detection (6, 48) reinforce the critical need for regulation and security in financial systems. Smart Contracts (6, 26) and Privacy by Design (6, 35) underscore ongoing efforts to develop automated, secure, and privacy-focused financial applications.

The keyword trends indicate a growing interdisciplinary focus in Finance Technology and Digital Finance, integrating AI, blockchain, cybersecurity, sustainability, and regulatory compliance. The emphasis on financial innovation, risk management, and digital security suggests that research will continue to explore new ways to optimize financial systems while addressing key challenges in security, regulation, and accessibility.

4.4 Country-wise Bibliographic Coupling



***Source**: Scopus Database/ **Collation-** VOSviewer*

The bibliographic coupling analysis of leading countries in Financial Technology and Digital Finance research highlights the global distribution of scholarly contributions and their interconnectedness, shown in figure-4. China leads all countries with 108 documents, 1,647 citations, and total link strength at 1,770. As a result of its extensive participation in global research networks and its preeminent position in research output, China has become a center for academic impact and collaboration. With 29 papers and 171 total citations, India ranks second with 1,708 link strength, suggesting a significant global research connection. Malaysia is making a major effect in Southeast Asian digital finance research with 15 articles, 312 citations, and 1,654 connections. The US and UK are still among the top contributors, with 20 and 21 documents with 444 and 575 citations, respectively, strengthening their position as traditional pillars of research. With respective link strengths of 1,069 and 972, they show considerable integration

within the international research networks, encouraging international collaboration.

Countries like Italy, Spain and France participate with a moderate number of publications but with a different impact. While its 9 documents generate as many as 278 citations and a considerable link strength of 663, Spain and France, with moderate link strengths of 170 and 200, respectively, fall behind in citation scoring but uphold a reasonable research connectivity based on citations linked in networks. Saudi Arabia, Pakistan, and the United Emirates display an increase in link strength (1,105, 839, and 781, respectively) representing a significant rise in FinTech research in the region.

There are smaller but influential lenders such as South Korea, Taiwan, and Jordan. S Korea (9 documents and 197 citations) maintains moderate link strength (320); Taiwan and Jordan, however, demonstrate strong connectivity (648, 748, respectively), even with limited publication output. Indonesia (12 documents, total link strength of 80) and Russia (9 documents, total link strength of 170) have a limited role in international collaborations, with low total link strength values indicating these countries are not well integrated into international research networks. From the bibliographic coupling analysis, it can be observed that most of the research is concentrated in countries like China, India, and Malaysia, as well as Western economies like the US and UK which underlines the leadership of those states in digital finance and FinTech research. Emerging economies such as Saudi Arabia, Pakistan, and the UAE have shown growing scholarly presence, while European countries remain at moderate levels of impact. Asian and Middle Eastern nations accounted for high link strengths implicate the global interconnectedness dynamics in digital finance research that will develop and enhance the future financial innovation and the technology integration.

5. Implications of the Study:

The integration of Financial Technology and Digital Finance can be studied through a bibliography, provided there is a broad impact for policymakers and other stakeholders like academia or financial institutions. This also allows for the identification of emerging technological innovations and research trajectories across the globe. Countries such as China, India, the United States, United Kingdom, and Malaysia show the technological prowess of the country, signifying the need for international collaboration in developing unified regulatory frameworks to provide secure and inclusive digital finance ecosystems. The increasing importance of AI, machine learning, and blockchain calls for institutions to bolster their cybersecurity, infrastructure, and digital literacy to deepen trust and widen the access to finance. For policymakers, the findings underscore the balance between regulation and innovation—with great focus being placed incorporating green solutions as well as economic resilience through digital payments. The attention developing economies received showcases the importance localized policies that seek to understand and address surrounding issues and policies sponsored by the region's policymakers. Furthermore, the contributions from industry leaders help promote the strategic goals through innovation aimed at delivering consumer-centred financial services. Strengthening the overarching framework constructed through collaboration across the regulators, industry, and academia helps build a robust and equitable structure able to face emerging challenges in digital finance.

6. Limitation of the Study:

This bibliometric study on Financial Technology and Digital Finance has few limitations, which should be acknowledged. It relies solely on Scopus data, potentially omitting relevant research from other databases like Web of Science and IEEE Xplore. The quantitative focus on citations and keyword trends does not capture the qualitative impact of research on policy and industry. The study's timeframe (2014–2024) may overlook earlier foundational work, and regional concentration in China, India, and the US limits insights from emerging markets in Africa and Latin America. While trending keywords highlight key themes, newer topics like quantum finance and AI ethics remain underexplored. The analysis of funding agencies and research networks does not account for biases in funding distribution or regulatory gaps affecting global FinTech integration. Future research on the development of Financial Technology might benefit from a multidisciplinary, multi-database, and geographically diversified approach.

7. Conclusion:

This bibliometric study on Financial Technology and Digital Finance highlights the rapid growth and global convergence of research in this field, particularly post-COVID-19. The findings reveal China, India, Malaysia, the US, and the UK as leading contributors, with strong bibliographic coupling indicating increasing international collaboration. Funding agencies, influential authors, and top journals play a crucial role in shaping FinTech advancements, while dominant research areas span computer science, economics, finance, engineering, and business. Trending terms like FinTech, Blockchain, AI, and Digital Economy highlight the technological transformation in financial services, underlining the need for strong policies, increased security, and industry- driven innovation. Despite its valuable insights, the study is limited by its database scope, regional concentration, and lack of qualitative impact assessment. Future research should adopt a multi-database, interdisciplinary approach with a focus on regulatory harmonization and emerging financial technologies. The necessity of academics, executives in the financial industry, and government officials working together to promote inclusive digital finance solutions, global collaboration, and strategic investments in FinTech is emphasized in the research. This is done with the goal of ensuring a more secure financial future.

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