

Financial Technology and Sustainable Banking: A Systemic Literature Review

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ABSTRACT

This study examines the evolving association between financial technology (FinTech) and sustainable banking through a systematic literature review. With the fast growth of digital financial innovations, FinTech has developed as a key driver for promoting sustainability, financial inclusion, and innovation in banking systems. The main objectives of this systematic literature review are identify the general characteristics of studies related to FinTech and sustainable banking, analyze the significance of selected articles, explore major keywords and their interrelationships, and identify dominant research themes. Following PRISMA guidelines, this review systematically reviewed articles indexed in the Scopus database published between 2020 and November 2025. At first, 8,988 articles were identified using a comprehensive keyword search strategy; after title and abstract screening, 80 relevant English-language articles from economics, business, and social science disciplines were selected for analysis. Descriptive, citation, keyword co-occurrence, and thematic analyses were employed to synthesize findings. Results indicate a growing scholarly interest in the FinTech–sustainability nexus, highlighting FinTech’s role in facilitating green finance, improving ESG monitoring, enhancing operational efficiency, and expanding financial access to underserved populations. However, challenges such as cyber security risks, data privacy concerns, energy-intensive technologies, and regulatory gaps persist. The review concludes that FinTech has strong probability to advance sustainable banking, but its benefits depend on supportive regulatory frameworks, digital literacy, and continuous innovation, while future research should emphasize empirical, interdisciplinary, and context-specific approaches.

Keywords: Fintech, Sustainable Banking, Financial Inclusion, Green Finance, Digital Transformation

JEL Classification: G21, G23, Q01, Q56, O33 and O16.

Introduction

The global financial environment has different due to the quick development of financial technology, or fintech, which has opened up fresh avenues for sustainability, inclusivity & innovation. Fintech, which includes innovations similar to mobile banking, blockchain, peer-to-peer lending, crowdfunding, & digital payment systems, is the general term for the practice of digital technology to enhance financial facilities and procedures. (Arner et al., 2017). The convergence of these two fields offers a promising avenue for accomplishing the Sustainable Development Goals (SDGs) of the United Nations and transforming the global financial system (Ghouse & Aslam, 2025). Fintech-driven mobile payment systems and microfinance encourage financial inclusion by giving underbanked and unbanked general people access to proper financial services, which helps to reduce poverty and promote social sustainability. (Demirgüç-Kunt et al., 2022).

Fintech has become a vital enabler of sustainable financing in recent years. It improves the mobilization and distribution of funds for environmentally friendly initiatives like waste management, renewable energy, and green infrastructure. (Ng & Griffin, 2018). Artificial intelligence (AI) and block chain technologies are enhancing green finance mechanisms' accountability, traceability, and transparency. For example, digital platforms are enabling small-scale investors to take part in green investment opportunities, while blockchain applications are being utilized to manage sustainable supply chains and authenticate carbon credits. (Zavolokina, Dolata, & Schwabe, 2016).

The connection between fintech and sustainability is still complex and poorly understood, despite these encouraging advancements. Fintech can create new risks and disparities, but it can also hasten the transition to sustainability through increased efficiency, accessibility, and innovation. Concerns regarding cybersecurity, data privacy, energy usage, and digital disparities between geographical areas and social groups are brought up by the growth of digital finance. (Mhlanga, 2020). Additionally, not all Fintech applications naturally support sustainability; if improperly controlled, some may even jeopardize social or environmental aims. For instance, removing cryptocurrencies uses a lot of energy, which rises carbon emissions and degrades the environment. (Kou et al., 2021).

However, scholarly research on Fintech and sustainability is still dispersed, frequently concentrating on either the Fintech aspects while ignoring their overall environmental effect. Early research focused mostly on how fintech may enhance financial services and market efficiency. (Arner et al., 2017), However, more recent studies examine how it affects environmental management, inclusive growth, and green financing. (Ozili, 2022). However, there isn't a thorough synthesis of the expanding corpus of literature. To find patterns, conceptual frameworks, and empirical data connecting fintech breakthroughs to sustainable results, a systematic review is required.

Various researches have been conducted on fintech and sustainability; however, a comprehensive review of the Fintech and sustainability is necessary to understand the up-to-date summary of previous literature (Paul et al., 2021).

This paper is a systematic review, which offers important insights into the existing body of knowledge on FinTech and sustainable banking, thus striving to contribute to a deeper comprehension of the two concepts. The study is divided into methodology, results and discussion, and conclusion sections. It covers study characteristics, significance of articles, themes, and keyword associations, mainly based on articles indexed by Scopus published by November 2025.

Methodology

This section includes the sources of data, data collection process, and data analysis techniques used

in this study.

Sources of Data and Search Strategy

The study is based on a systematic review of articles on the impacts of financial inclusion, particularly on financial technology and sustainable banking. The required data for the systematic review were retrieved from a Scopus database, which is based on a wide range of high-quality research journals and is considered a multidisciplinary database. English-language articles were considered within the economics, business, and social sciences disciplines until 2025. To ensure a comprehensive search, various synonymous terms of impact (effect, influence, importance, and significance) and inclusion (involvement, participation, and access) were used. Finally, the search strategy is presented to explain the identification of articles.

TITLE("fintech" OR "Sustainable banking") AND PUBYEAR > 2019 AND PUBYEAR < 2026 AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (OA , "all"))

Data Collection Process and Articles Screening

Using the above-mentioned search strategy initially, articles were extracted on 3rd November 2025. From the total of 8988, the first level of screening was done based on title and abstract. We removed 8908 articles which were not related to financial technology and sustainability banking so only 80 articles were selected. The inclusion and exclusion criteria are mentioned Table 1.

Table 1

Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Document Type: Articles Language: English Subject Area: Business, Management and Accounting Focused on Fintech and sustainability banking	Books Non-English articles Review articles Study not related to Fintech and sustainability banking

The inclusion and exclusion criteria used for the selection of articles are given in table 1. For this systematic review, journal articles papers that are English language-based from Business, Management and Accounting are included. Likewise, the studies conducted to measure Financial Technology and sustainability banking are only considered. Those documents which are non-English articles, review articles, published as book chapters, and that are not related to financial technology and sustainability banking are not included in this study.

Data Analysis Techniques

The various data analysis techniques were used in fulfilling the objectives of this review. The general characteristics of the selected papers were analyzed by using yearly publication trends, journal distribution, country-wise contributions, data sources, and statistical tools used. Citation analysis was done to analyze the significance of articles, while keyword co-occurrence mapping was used in finding the relationships among major keywords with the help of VOSviewer software. Lastly,

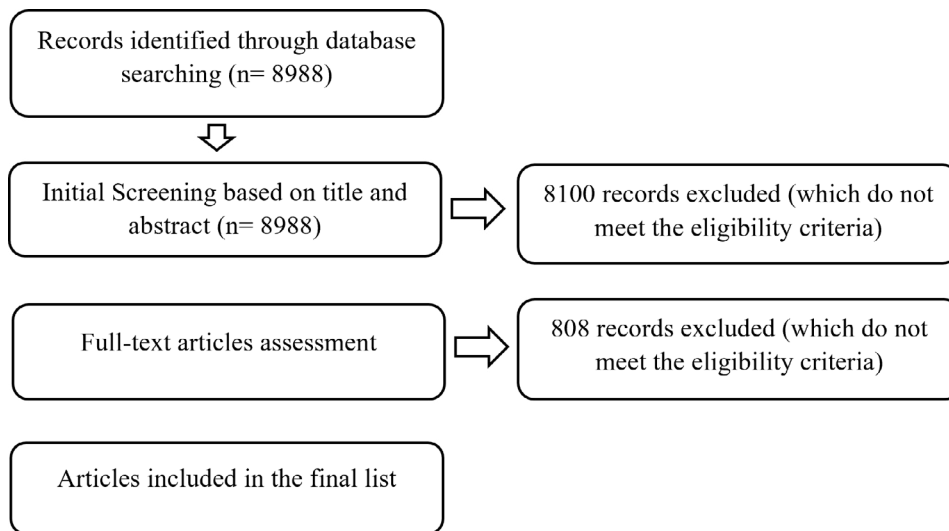
thematic analysis was done in identifying key themes in financial technology and sustainability.

Results and Discussion

This review identified 88 articles as of November 3rd on financial technology and sustainability. This section shows the overall analysis of the retrieved.

Figure 1

PRISMA Framework



Descriptive Analysis

To know the overall characteristics of selected studies, we have conducted different analysis in this section such as yearly distribution, distribution as journals, country-wise distribution, data sources, and statistical tools used in the selected studies.

Figure 2

Yearly Distribution of Articles

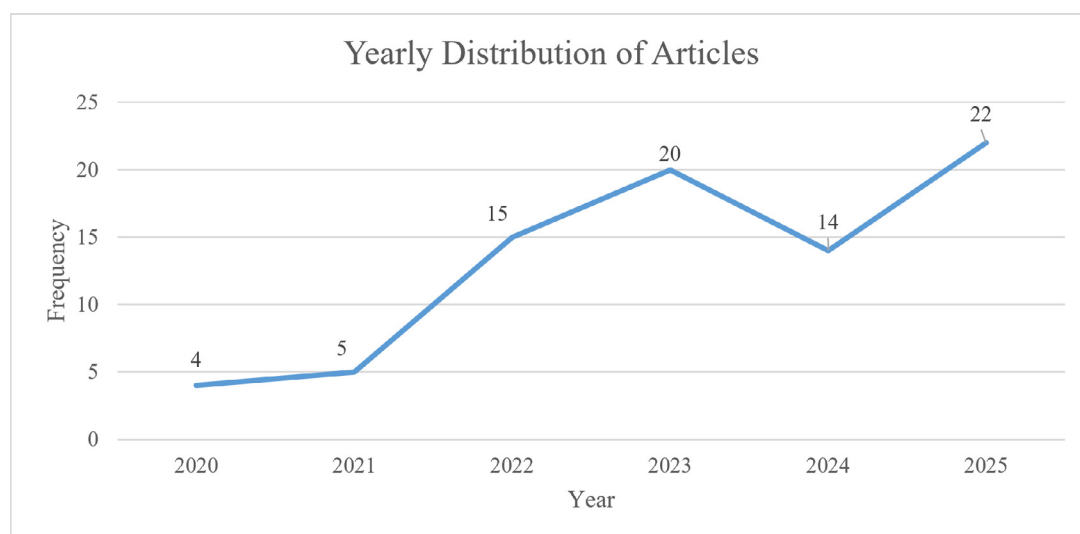


Figure 2 yearly distribution of articles refers to the number of research articles published each year on the chosen topic, therefore allowing the detection of trends, the tendencies of development, and changing scholarly interest over a certain period. It can be noticed that there is an evident growth in the works concerning FinTech and sustainability between 2020 and 2025. Quite a few studies were registered within the early years (4 articles in 2020, 5 articles in 2021), meaning it is a relatively new area of research. In 2022, with 15 articles, the publications increased evidently, and reached a peak in 2023 and 2025, with 20 and 22 articles, respectively, which underlines a growing academic interest. Despite the slight decline registered in 2024, namely 14 articles, the overall trend in this distribution relies on the increase in recognition given to FinTech's contribution to sustainable banking, green finance, and financial inclusion.

Table 2

Publications per Journal

Journal	Frequency	Percentage
Journal of Risk and Financial Management	12	15
Risks	5	6.25
Sustainable Futures	4	5
Cogent Business and Management	3	3.75
Research in International Business and Finance	3	3.75
WSEAS Transactions on Business and Economics	3	3.75
Banks and Bank Systems	2	2.5
International Journal of Accounting and Economics Studies	2	2.5
International Journal of Business and Society	2	2.5
Other journals (In just 1-1 articles each)	44	55
Total	80	100

Published research articles on a specific topic, thus indicating the scope of multidisciplinary. From Table 2 above, we see the research on FinTech and sustainability is wide. The Journal of Risk and Financial Management tops as it has 12 publications (15%), thus indicating that there is an enormous interest in scholarly research relating to financial risks alongside sustainability. Risks contributes by 6.25%, followed by Sustainable Futures with 5%. This can be related to FinTech innovation and sustainability. Similarly, there is Cogent Business & Management, as well as Research in International Business and Finance, which have 3.75%-python. Furthermore, there is evidence that around 55% of the publications are single publications.

Table 3

Country-wise Distribution

Country	Frequency	Percent
Cross-country	34	42.5
Indonesia	7	8.75
India	6	7.5
Jordan	6	7.5
Africa	4	5
China	4	5

Italy	3	3.75
Saudi Arab	3	3.75
Yemen	2	2.5
Croatia	1	1.25
Nigeria	1	1.25
Oman	1	1.25
Pakistan	1	1.25
Russia	1	1.25
Somalia	1	1.25
Spain	1	1.25
Switzerland	1	1.25
Uganda	1	1.25
UK	1	1.25
Ukraine	1	1.25
Total	80	100

Country-wise distribution of studies refers to the geographic spread of every research publication across various countries. This reflects the regional research concentration and global research engagement. As seen in Table 3, a significant proportion is comprised of studies conducted across multiple countries (42.5%). This implies that numerous researchers investigate FinTech and sustainability concepts in more than one country. Likewise, single-country research is dominated by Indonesia (8.75%), India (7.5%), and Jordan (7.5%). Countries like Africa and China contribute to single-country research to a moderate extent, i.e., 5%. Similarly, single-country research in Italy and Saudi Arabia contributed to 3.75%. There are several countries, i.e., Yemen, Croatia, Nigeria, Oman, Pakistan, Russia, Somalia, Spain, Switzerland, Uganda, UK, and Ukraine, which have contributed to single-country research to a limited extent, ranging from 1.25% to 2.5%.

Sources of Data

Table 4

Number of Articles by Data Source

Source	Frequency	Percentage
Primary Data	23	28.75
Secondary Data	57	71.25
Total	80	100

Table 4 presents the distribution of articles with respect to their data sources. From the reviewed articles, 71.25% used secondary data, indicating that most of the researchers depend on databases, various reports, and records that were already published for analysis. Only 28.75% of the articles collected data from primary sources through survey, interview, or direct observation. It is observed that most of the research in the reviewed literature preferred readily available information over field-level data collection, possibly because of convenience, cost, or the nature of the research question that was addressed.

Citation Analysis

Citation analysis shows the number of citations a document or an author or a journal etc. has received

during a certain period. This paper includes citations by documents, citations by journals, and citations by country.

Table 5

Citations by Documents

S.N.	Document	No. of Citations
1	Arner (2020)	458
2	Luo (2022)	143
3	Broby (2021)	130
4	Asif (2023)	87
5	Kumari (2022)	78
6	Merello (2022)	70
7	Deng (2021)	69
8	A (2022)	64
9	Sannino (2020)	49
10	Adu (2022)	46
11	Ellili (2023)	45
12	Galeone (2024)	41
13	Òbeda (2022)	36
14	Lanfranchi (2022)	35
15	Baker (2023)	33
16	Anshari (2020)	31
17	Dicuonzo (2024)	30
18	Museba (2021)	29
19	Pu (2021)	22
20	Al-Shari (2023)	21

Table 5 shows the citations of various papers used in this study and covers works with at least 20 citations. Among the 80 papers used for the study, only 20 papers have citations of 20 times or more. The most highly cited paper is Arner 2020, with 458 citations, showing a very strong academic impact and foundational contribution. This is followed by Luo 2022 with 143 citations and Broby 2021 with 130 citations. Thus, these works are also widely referenced and serve as pivotal works. Mid-level citations stand for works such as Asif 2023, Kumari 2022, and Merello 2022, with citations of 87, 78, and 70, respectively. These show the growing relevance of these works. The rest of the documents, such as Sannino 2020, Adu 2022, Ellili 2023, and many other documents, fall within the range of 21-49 citations, therefore showing a moderately relevant recognition within the academia. In general, the citation pattern demonstrates a situation where just a few dominant key papers serve as core references for the field, while numerous newer studies are gradually gaining scholarly attention.

Table 6

Citations by Journal

S.N.	Source	No. of Citations
1	European Business Organization Law Review	458
2	Journal of Risk And Financial Management	222

3	Technology in Society	143
4	Financial Innovation	130
5	Risks	95
6	Research in International Business and Finance	83
7	Technology Innovation Management Review	78
8	Technological Forecasting and Social Change	70
9	Management Decision	49
10	Business Strategy and The Environment	46
11	Journal of Financial Services Marketing	45
12	Journal of Business Research	36
13	Geneva Papers on Risk And Insurance: Issues and Practice	35
14	Cogent Business and Management	31
15	International Journal of Asian Business and Information Management	31
16	Journal of Enterprising Communities	29
17	International Journal of Computing and Digital Systems	17
18	Problems and Perspectives in Management	16

Table 6 shows the number of citations by the journal with at least 15 citations. The European Business Organization Law Review with 458 citations leads, indicating high influence in the field. It is followed by the Journal of Risk and Financial Management with 222 citations, and Technology in Society, with 143 citations, thus revealing their great scholarly impact. Other influential sources include the journals Financial Innovation with 130 citations, Risks with 95 citations, and Research in International Business and Finance with 83 citations. Journals such as Management Decision, Business Strategy and the Environment, and Journal of Financial Services Marketing have their citations falling within the moderate level. In general, citations reflect a heterogeneous set of journals contributing to fintech, risk, and sustainability research.

Table 7

Citations by Country

S.N.	Country	Documents	Citations
1	United Kingdom	5	682
3	Australia	2	480
4	Germany	1	458
6	Hong Kong	1	458
8	Luxembourg	1	458
10	India	13	278
11	China	7	257
12	Italy	5	167
14	United Arab Emirates	5	153
15	Saudi Arabia	7	125
16	Spain	3	111
17	Jordan	8	76
18	Finland	1	64
19	Ireland	1	46
22	Malaysia	7	32

23	Brunei Darussalam	1	31
24	France	2	31
25	South Africa	5	31
30	Netherlands	1	29
34	Indonesia	6	25
35	Yemen	2	24
36	Bahrain	2	22
40	Cyprus	1	22
41	Lithuania	1	22
45	Thailand	1	22

Table 7 presents the country-wise citations of the documents with the numbers of the document cited. The United Kingdom ranks highest with 682 citations from 5 documents, indicating the high influence of its research. Australia follows with 480 citations, while Germany, Hong Kong, and Luxembourg each record 458 citations, driven largely by highly cited individual papers. India and China exhibited substantial productivity with growing citation impacts, with 13 documents and 278 citations and 7 documents and 257 citations, respectively. European countries like Italy, the UAE, and Saudi Arabia also contribute considerably. A number of countries, such as Malaysia, South Africa, Indonesia, Yemen, Bahrain, and Thailand, have fewer citations despite multiple publications. In general, the data reflect a diverse global contribution with leading positions in citation influence by the Western countries.

Key word co-occurrence

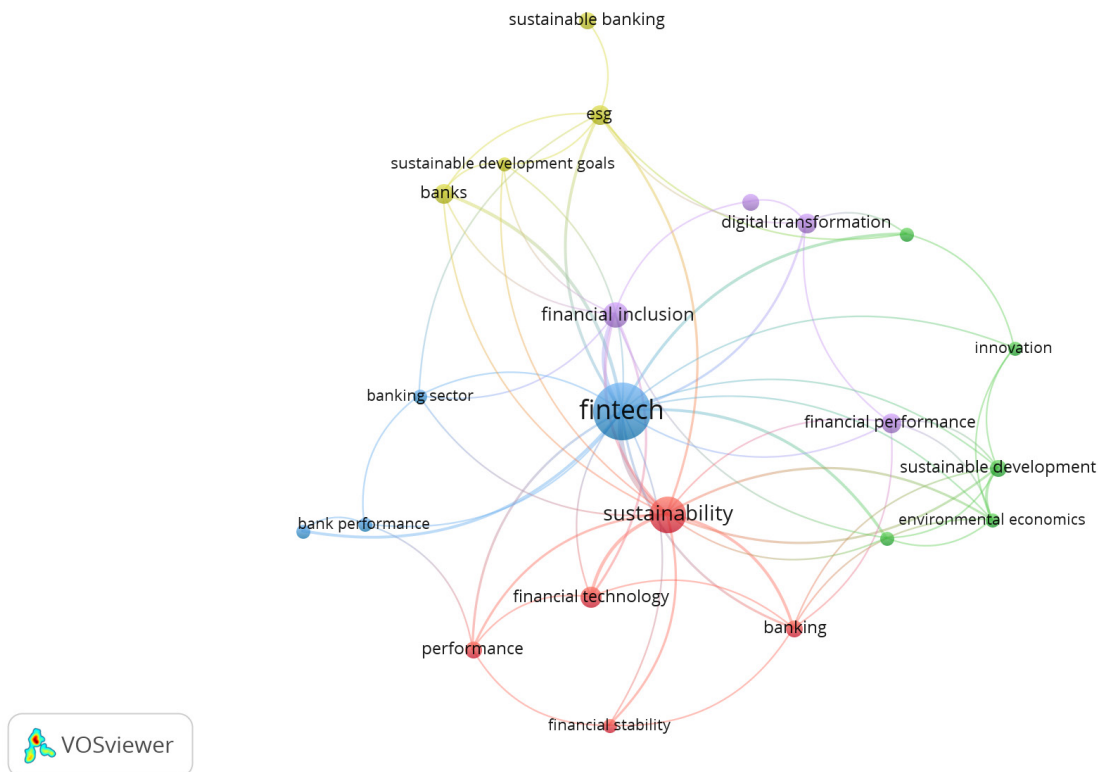


Fig. 4: Keyword Co-occurrence

Keyword co-occurrence analysis is an analysis of how often certain keywords appear together in research articles to show major themes and relationships of a field. Figure 4 shows the keyword co-occurrence map using VOSviewer, taking into account only keywords which appeared at least three times. That means 22 keywords met the threshold. Among these, FinTech is the most important keyword; it has the highest frequency and the strongest links to related terms. FinTech is also closely related to financial inclusion, sustainability, bank performance, and digital transformation, placing it in the middle and indicating broad research coverage regarding the subject of sustainable banking and financial innovation.

Themes

FinTech Adoption and Digital Transformation

Several articles highlight FinTech as unique of the key drivers of the digital transformation in the financial sector. Relevant study underlines how digital payments, mobile banking, blockchain, and AI solutions develop functional efficiency and access to services. For instance, Arner (2020) and Broby (2021) show that digital transformation accelerates improvement and variation in the face of financial services. These studies actually endorse that Fintech adoption is a key path toward modernization of the entire ecosystem of banking and experience of customers.

Sustainability and Green Financial Practices

There is important research focusing on embedding sustainability into finance. Certain studies look at ESG, green bonds, green banking and environmental risk management. Merello (2022) and Deng (2021) cite how sustainable financial practices contribute to environmental resilience and support continuing financial stability. This theme reveals a global trend encouraging institutions to link financial growth with environmental responsibility.

Financial Inclusion and Access to Finance

Most of the papers explain how the use of digital tools advocates for financial inclusion, especially within developing economies. Asif, 2023, and Kumari, 2022, indicate that Fintech increases access among unbanked populations through a reduction in transaction costs and geographical barriers. These findings support the notion that financial inclusion plays a vital role in poverty reduction and inclusive economic growth.

FinTech, Risk Management, and Financial Stability

Another related theme is to know how Fintech affects financial consistency and the management of risk. Further research, like that of Ellili (2023) and Adu (2022), explores cybersecurity risks, regulatory challenges, & general risks brought about by digital innovations. These studies suggest that strong regulatory outlines are essential to balance innovation with safety.

Bank Performance and Competitiveness

Additional works discuss how Fintech diffusion affects efficiency, bank profitability and competitiveness. According to Lanfranchi (2022) and Sannino (2020), digitalization can improve the

level of performance indicators through cost savings and rapidity in the supply of financial services. Yet, technological shocks require old-style banks to strategically adjust.

Regulatory Frameworks and Policy Implications

Numerous authors examine regulatory and policy responses to rapid financial innovation. Arner (2020) and Dicuonzo (2024) discuss adaptive regulations, digital governance mechanisms, and consumer protection. The government was forced to update the current framework due to the risk of digital banking, cryptocurrency, and cross-border Fintech services.

Discussion

With its transformational potential and new problems, the results of this systematic literature review show that academic interest in the integration of Fintech and sustainable banking is expanding. The yearly publication trend indicates a growing momentum, where research output has increased substantially after 2021, peaking in 2025. This upward trajectory is indicative of FinTech's widespread recognition as a driver of sustainability, financial inclusions, and increased efficiency within banking.

According to existing research, digital innovation is becoming more and more important in today's financial systems, from improving transparency and streamlining operations for banks and other financial institutions to broadening their research.

A key theme emanating from the reviewed studies is how Fintech contributes to sustainability and green finance. There is an increasing application of digital technologies like block chain, artificial intelligence, and big data analytics in promoting green finance, supporting carbon tracking, and ensuring transparent ESG practices. This reinforces the perspectives of Merello 2022 and Deng 2021 on the critical role of FinTech in enhancing environmental governance and supporting sustainable development models. Citation analysis further reinforces this trend; highly cited works such as Arner 2020 and Luo 2022 focus on the interaction between financial innovation and systemic sustainability transformations.

The issue of financial inclusion is another significant element that comes up in the literature review. In reality, the majority of these studies. Which were carried out to developing nations like Jordan, Indonesia and India emphasize how alternative credit platforms, digital payments, as mobile banking lower access obstacles. This is in alignment with earlier works such as Asif (2023) and Kumari (2022), who report that Fintech solutions reduce transaction costs and improve accessibility among underserved populations. The keyword co-occurrence map confirms "financial inclusion" as one of the dominant clusters associated with "Fintech" and "sustainability," and suggests that particularly inclusion-oriented innovations are central to driving social sustainability outcomes.

Another important insight concerns the geography of research. While cross-country studies dominate 42.5%, reflecting the global nature of research, the representation of individual countries is highly asymmetrical. It is dominated by Indonesia, India, China, and Jordan, with limited contributions from others. This implies that while Fintech diffusion may be global, research attention remains concentrated in a few countries where digital banking and inclusion are growing rapidly. Similarly, citation patterns indicate that the research influence of Western countries, mainly the United Kingdom, Australia, and Germany, is higher, reflecting greater academic and regulatory engagement in Fintech and sustainability discourse.

It also highlights the increasing concerns about financial stability, cybersecurity, and regulatory

preparedness. Other studies, such as Ellili (2023) and Adu (2022), indicate that though FinTech increases operational efficiency, it creates new forms of systemic risk, including data breaches, fraud, and technological disruptions. The call for strong governance frameworks reverberates in many literature materials, especially with increased cross-border financial activities and rapid digital transformation. Among many highly cited works on regulatory challenges are those by Arner (2020) and Dicuonzo (2024); both argue for adaptive policies and increased international cooperation in safeguarding consumer interests and systemic stability.

Furthermore, the analysis of data sources shows that most studies make use of secondary data (71.25%), suggesting a relatively stronger emphasis on macro-level assessments rather than field-level empirical investigations. This suggests that while large datasets are available and quantitative methods are increasingly in use, there is a corresponding lack of primary research into the behavioral and institutional dimensions of FinTech adoption.

This review, therefore, identifies FinTech as a key driver of sustainable banking, enabling solutions for inclusion, environmental management, and improvements in bank performance. At the same time, risks arise that call for coordinated regulatory responses, improvements in digital literacy, and ongoing innovation. Future studies will be informed by deeper empirical analysis, wider geographical coverage, and interdisciplinary approaches to even better capture the developing relationship between FinTech and sustainability.

Conclusion

This study assumes a systematic overview of the extant literature related to the relationship between FinTech and sustainable banking by undertaking a review of publications indexed on Scopus up to 2025. The outcomes of this study revealed mounting academic interest in this subject given the importance of FinTech for promoting sustainable banking, financial inclusion, digital finance, and green finance. FinTech is emerging as a trend with important co-occurrences with the other keywords, such as sustainability, banking, and inclusive finance. At present, despite the benefits of FinTech, cybersecurity threats, concerns around data privacy, energy consumption, and regulatory challenges are key issues which impact sustainability.

The implications of the study are several. Firstly, it will benefit researchers in obtaining a thorough understanding of the latest trends, key issues, and areas of investigation in the realms of FinTech and sustainable banking. Secondly, the implications of the study will benefit policymakers and practitioners in the financial industry in appreciating the importance of a conducive environment for sustainability and the deployment of FinTech solutions for enhancing financial sustainability and inclusion. Thirdly, the findings of the study will ensure adequate consideration of the need for the integration of technological innovation with environmental and social governance.

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