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How Can FinTech Achieve Sustainable Finance Goals? A Systematic Literature Review

Pratiwi Nila Sari^{1*}, Rona Tumiur Mauli Carolin Simorangkir²

¹Bhayangkara Jakarta Raya University, Jakarta, Indonesia, email: pratiwi@ubharajaya.ac.id

²Mercu Buana University, Jakarta, Indonesia, email: rona_caroline@mercubuana.ac.id

*Corresponding: pratiwi@ubharajaya.ac.id

Abstract: The research question (RQ) in this article is “How can FinTech achieve sustainable finance goals”. According to RQ, we try to identify it through a systematic literature review. We identified articles related to fintech and sustainable finance published between 2019 to 2022. A systematic review is a type of research methodology that seeks to assess, locate, and examine all prior findings that are pertinent to a specific topic, research question, or emerging phenomenon. The review was conducted using a systematic review approach with PRISMA criteria, based on a thorough examination of pertinent literature (research articles, policy documents, and reports). Fintech & sustainable finance is the article least discussed by publishers, this is interesting because there is still minimal exploration of this issue. The articles that discuss fintech and sustainable finances from 2019 until 2022 only have 1 article namely 2020. From the results of the literature review that has been carried out, it can be seen that research journals discussing fintech and sustainable finance are still very rare, so it can be recommended that future researchers take research topics on fintech and sustainable finance.

Keyword: Fintech, Sustainable Finance.

INTRODUCTION

The impacts of climate change are now being felt by the global community. Unbalanced natural cycles have spurred an increase in environmental and social problems. When the global community is facing the Covid-19 pandemic, which has occurred in all parts of the world, has triggered an extraordinary crisis and at the same time become a momentum for all parties to evaluate the importance of implementing environmental, social and governance aspects in all development activities.

In the post Covid-19 financial services industry, environmentally friendly and sustainable finance is increasingly gaining attention, and is now becoming the mainstream through policy, regulation, market power, and most importantly, through consumer demand.

The problem of sustainable finance in fintech companies is an important issue that needs attention. FinTech has changed the way payments and financial services are provided

in society, but it has also led to several problems in the financial management of fintech companies.

Financial technology or “FinTech” refers to the use of technology to provide financial services and solutions. FinTech consists of digital innovations and modern technologies to enhance, develop, and automate financial services and is used to help and support companies, investors, and customers in managing their financial activities using specialized applications and software (al Hammadi, 2019). FinTech can attract customers with products and services that are more user-friendly, efficient, transparent, and automated (Moro-Visconti et al., 2020).

Sustainable finance and fintech are becoming increasingly interconnected, and the fintech is playing an important role in supporting sustainable finance initiatives.

The Financial industry and Fintech actively promotes sustainability and environmental awareness. The concept of sustainable finance has evolved as part of a broader idea of business sustainability over the last few decades. (Whiteman et al, 2013).

Sustainable finance considers how finance (investment and lending) interacts with economic, social and social and environmental issues (Schoenmaker, 2017). "Sustained financial systems (UNEP, 2016) are... systems that create, evaluate, and trade financial assets in ways that make up real wealth to serve the long-term needs of an inclusive and environmentally friendly economy."

Two key pillars of the current EU policy agenda are the Sustainable Financial Strategy and the Fintech Action Plan (formerly known as the Digital Finance Strategy). Despite this, the two disciplines have long been seen as distinct, even though they both have a lot in common and enormous potential for integration. In particular, Fintech appears to be able to address some of the issues with the current sustainable financial system. The Covid-19 pandemic issue highlights the importance of the relationship between sustainability, money, and technology. It compels all nations to reconsider their conventional paradigms and place a greater emphasis on technology and sustainability (Macchiavello & Siri, 2020).

A literature review in this study is needed to increase the understanding of the fintech and sustainable finance. Along with the increasing convenience and security offered by digital payment technologies, many consumers are now showing a greater interest in sustainability and demanding environmentally friendly initiatives, which are often aligned with digital payments. This article discusses the latest trends in the financial industry, including the impact of FinTech on sustainable finance.

The research question (RQ) in this article is “How can FinTech achieve sustainable finance goals?”. According to RQ, we try to identify it through a systematic literature review. We identified articles related to fintech and sustainable finance published between 2019 to 2022.

Theory of sustainability

Theory of sustainability states the balance between economic, social and environmental systems and the relationship between social and environmental challenges and the level of bank growth and innovation (Hutton & Cox, 2005). The best way to achieve sustainable value growth is to establish a strategic plan that can meet economic, social and environmental aspects. The sustainability approach provides opportunities and challenges for the banking industry as well as improving economic performance, social responsibility and environmental friendliness while still carrying out the bank's obligations to provide financial services and increase economic profits (Stankeviciene & Nikonorova, 2014).

In the OJK Sustainable Finance Roadmap Phase II (2021 - 2025), The financial services industry's all-encompassing support for sustainable economic growth through the balancing of social, environmental, and commercial objectives is known as sustainable

finance. Convincing corporate actors and society at large that attempts to produce profits will be better and more sustainable if they take into account natural resources and social repercussions on society is the main obstacle in adopting sustainable finance. This is known as the principle of profit, people, planet (3P).

Sustainable finance

Sustainable finance is an ecosystem supported by policies, regulations, norms, standards, products, transactions and financial services that focus on developing sustainable economic growth. In its implementation, sustainable finance prioritizes environmental, social and economic aspects to achieve sustainable development goals. Thus, sustainable finance is considered an important strategy in facing global challenges such as climate change and improving societal welfare.

Financial Technology (Fintech)

Fintech is a combination of two words, namely financial and technology, fintech is a service provider in the financial sector, most of which involve the help of technology. Financial technology is a financial services innovation that eliminates the need for paper money. Financial technology converts money to digital form in order to increase efficiency. FinTech is the term for financial solutions delivered through technology (Arner et al., 2015). The definition of fintech is an innovation in the financial services industry that utilizes the use of technology. Fintech products usually take the form of a system built to carry out specific financial transaction mechanisms. Fintech is here for those of you who want to access financial services practically, efficiently, comfortably and economically.

METHOD

The Procedure of Systematic Review

A systematic review is a type of research methodology that seeks to assess, locate, and examine all prior findings that are pertinent to a specific topic, research question, or emerging phenomenon (Wolor et al., 2021). Research question formulation, systematic literature review searches, article screening and search, analysis and synthesis, and final report preparation are standard steps in the systematic literature review process (Perry & Hammond, 2002).

Identifying the context and objectives, study questions, locating literature sources, choosing criteria, extracting data, and synthesizing data are the several phases that make up a systematic literature review (Cordeiro Vasconcelos et al., 2013).

The review was conducted using a systematic review approach with PRISMA criteria, based on a thorough examination of pertinent literature (research articles, policy documents, and reports) (Liberati et al., 2009).

Findings Literature Sources

The literature search strategy begins with the objective of the study. The study to be reviewed is collected through the Publish or Perish tool to search for journals using keywords "Fintech and "Sustainable Finance" The article was published in the last 4 years (2019 – 2022).

The databases used in this literature search is Scopus. The literature search involved Scopus databases searching by author name and publisher, starting from 2019 to 2022. The following databases are selected based on research that focuses on Fintech and Sustainable Finance.

Selection Criteria

Authors filter selected articles based on criteria that match the article theme. Published articles are selected from 2019 to 2022. The selected articles are in the form of journals; otherwise, they will not be included in the search. Next, the selected publishers come from renowned or Scopus publications such as Springer, Emerald, Elsevier, Wiley, and Oxford University Press, etc. Below is a summary of the selection criteria of the systematic literature survey presented in table 1.

Table 1. Filtering Data Criteria

No	Criteria	Scopus	Non Scopus	Total
1	Fintech	137	241	378
2	Fintech & Sustainable	12	16	28
3	Fintech & Sustainable Finance	1	0	1
4	Sustainable	13	10	23
5	Sustainable Finance	4	8	12
	Total	167	275	442

Source: Data Processed, 2024

The two main components of a systematic literature review are (i) determining the criteria of inclusion and exclusion of research, and (ii) assessing the quality of research to be included (Čablová et al., 2017). By using the inclusion and exclusion criteria, a long list of identified early publications is reduced to relevant specialist literature. Articles found through a database search from "Publish or Perish" with keywords "Fintech" and "Sustainable Finance". To remove identical articles with the same title from several search databases, a detailed check is performed on the articles identified at the first stage.

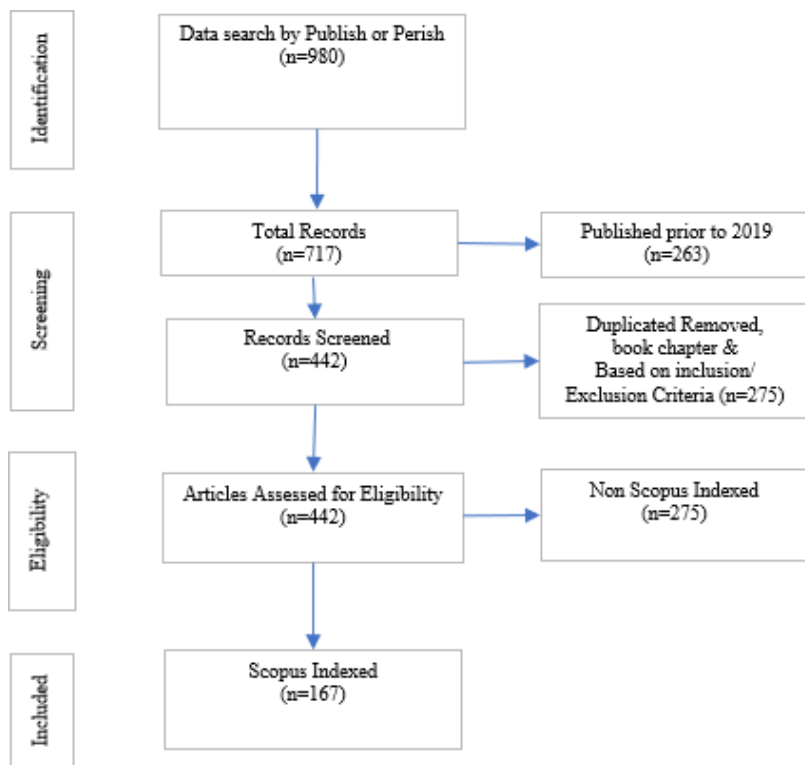
Three inclusion criteria were established for the first search:

(1) literature produced in the English language; (2) literature including at least one of the key phrases or words; and (3) research done within the last four years (2019–2022). Furthermore, filter criteria were utilized to decrease the quantity of publications. These criteria included the exclusion of books, papers published prior to 2019, and any material that did not fall within the purview of this review. Subsequently, articles that met the inclusion criteria but had no bearing on the topic were eliminated. 442 results were returned by the search when these inclusion and exclusion criteria were applied.

Figure. 1 below illustrates the full process of doing a systematic literature review, from the identification of publications from many sources to the entry of articles for additional analysis.

In the figure below, we can describe that determining articles, starting by looking for papers indexed in the Scopus database, is related to Fintech and sustainable finance. The first stage, we searched the database in Publish or Perish, which totaled 980 articles. In the second stage, we filtered articles by selecting articles based on predetermined criteria.

The selected criteria were articles in English conducted in the last four years (2019–2022). Apart from that, these criteria which were not appropriate included 49 books, 263 articles published before 2019, 8 duplicate articles, no more than 46 articles can't be downloaded and 172 articles which did not match the research title. From the results of the inclusion and exclusion criteria applied obtained results of 442 articles. After that, the next stage was to eliminate 276 articles that were not published in Scopus, resulting in 167 research data (N) that would be processed further.



Source: Primary data processed by researchers (2024)

Figure 1. SLR article search

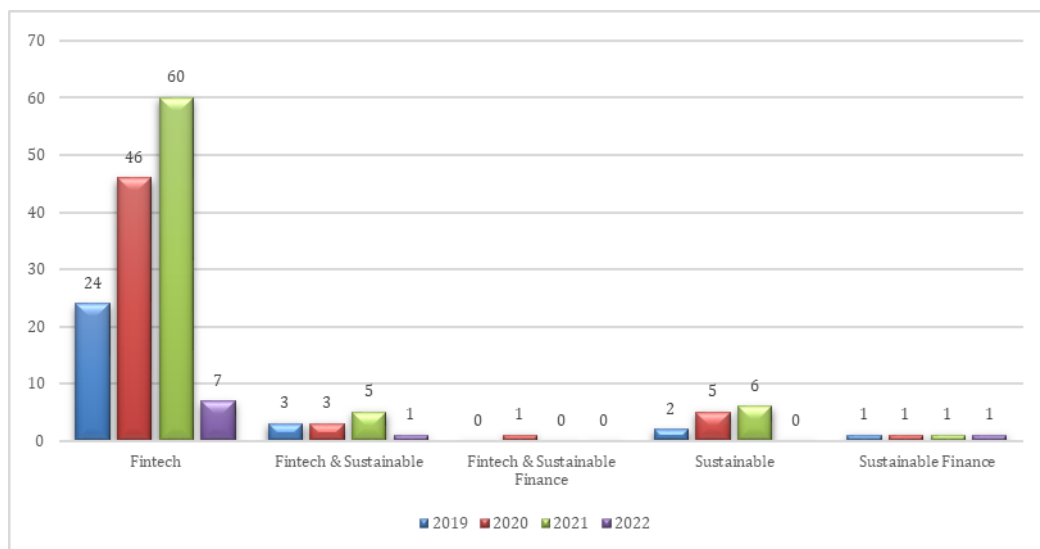
RESULTS AND DISCUSSION

In the initial analysis, the author presents data related to the author's name, article title, year and journal name. The next step is to display the selected publisher and the number of journals used. The last step is discussing the findings with relevant references.

Form the result the data showed 137 articles on Fintech indexed in scope, with a journal line. Next there are 12 articles on the theme of Fintech and sustainable, but only 1 article on the topic of fintech and sustainability finance (Macchiavello E. & Series M., 2020) published in the journal "European Company and Financial Law Review". Then for the topic sustainable there are 13 articles and 4 articles on sustainable finance.

Publication per Year

The number of articles related to fintech and sustainable finance was obtained from the Publish or Perish database. The number of articles found based on the keyword "fintech and sustainable finance" was 167 articles indexed by Scopus, consisting of 137 articles related to fintech, 12 articles about fintech & sustainable finance, only 1 article about fintech & sustainable finance, articles about sustainable finance totaling 13 articles and sustainable finance totaling 4 articles.



Source: Data Processed, 2024
Figure 2. Publication per year

In the figure above, the number of articles related to fintech in 2019 have 24 articles, in 2020 have 46 articles, 2021 have 60 articles and in 2022 have 7 articles. For articles on fintech and sustainable finance in 2019 there are 3 articles, in 2020 there are 3, in 2021 there are five and in 2022 there is one. One article on fintech & sustainable finance will only be published in 2021. Sustainable related articles in 2019 amount to 2 articles, 5 articles in 2020 and 6 articles in 2021. Articles related to sustainable finance per year one article each.

Classification of Articles by Publisher

From the 167 journal articles identified, 137 articles discussed fintech, 12 articles discussed fintech & sustainability, 13 articles had the title sustainable, 4 articles had a research theme of sustainable finance and only one research article discussed fintech & sustainable finance.

MDPI has become the largest publisher with 33 articles dealing with fintech with 25 articles, 2 articles on fintech & sustainable, 5 articles on sustainable research themes and one article dealing about sustainable finance. While publishers are ranked second to publish 28 articles during the year 2019 to 2022. Then there are Spinger and Taylor & Francis who have published 17 articles and 16 articles each over the last four years. Research on fintech & sustainable finance has only one article published by De Gruyter entitled “Fintech & Sustainable finance: Can technology contribute to achieving environmental goals” (E Macchiavello, M Siri, 2020).

CONCLUSION

The results show that of the 167 articles discussing fintech and sustainable finance throughout 2019-2022 with Scopus indexed criteria, there are 137 articles discussing fintech, 12 articles discussing fintech & sustainable, 1 article discussing fintech & sustainable finance, 13 articles discussing sustainability and 4 articles discussing sustainable finance. MDPI was the largest publisher with 33 articles discussing in this study. Meanwhile, many articles discussing sustainability were published by the MDPI publisher, totaling 5 articles. Articles discussing sustainable finance are only published by several publishers, namely De Gruyter, MDPI, Springer, Taylor & Francis with 1 article each. However, only 1 publisher published articles discussing fintech & sustainable finance, namely De Gruyter with writers Eugenia Macchiavello and Michele Siri.

The evolution of articles from year to year from 2019-2022 or the last 4 years shows a sharp decline in the fluctuation of articles discussing fintech. Fintech articles showed the highest number of discussions in 2021 of 60 articles, but dropped to only 7 articles in 2022. Fintech & Sustainable has the most discussions of articles in 2021 of 5 articles, but drops to only 1 published article in 2022. The top discussions on sustainable in 2021 are 6 articles, yet in 2022 there is no discussion of this topic. The discussions that discuss sustainable finance from 2019 to 2022 constantly have only 1 article in each year. The articles that discuss fintech and sustainable finances from 2019 until 2022 only have 1 article namely 2020.

Fintech & sustainable finance is the article least discussed by publishers, this is interesting because there is still minimal exploration of this issue. Eugenia Macchiavello and Michele Siri (2020) reveal that that FinTech is often defined as ‘technology-enabled innovation in financial services that could result in new business models, apps, processes or products with an accompanying material effect on the provision of financial services’.

It is a very diverse the universe that covers every facet of the financial system. Technology is seen as helpful in the sustainable finance sector because it can transmit large amounts of pertinent, accurate, and timely data at a low cost. It can also speed up the process of measuring and tracking sustainability criteria, reduce research expenses, and improve the pricing of environmental risks and investment opportunities.

Fintech's discussions in the area of sustainable finance need first to overcome a number of relevant barriers, some of which relate to technical, for example, the ability to secure operations in real-time. Then there are many regulatory issues related to Fintech that need to be resolved, especially from the point of view of customer and consumer protection.

Nevertheless, the systemic importance of Fintech may soon emerge given its exponential growth rate, increased connectivity with traditional sectors, new important economic functions running, changes caused by customer loyalty and its impact on regulatory stability and arbitration. Finally, Fintech can address partial and temporary shortcomings in standardization and validation of ESG reporting and rating, while allowing for certain adjustments.

From the results of the literature review that has been carried out, it can be seen that research journals discussing fintech and sustainable finance are still very rare, so it can be recommended that future researchers take research topics on fintech and sustainable finance.

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