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Mapping of Financial Technology (FinTech) Research: A Bibliometric Analysis

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Abstract

FinTech, the word which is derived from "financial technology", is the technology and innovation which their objectives are to offer better services and technologies in the financial services industry in the current and advanced technology age and the industrial revolution. Financial services such as banks, insurance, stock brokerage, investments and all other related services that manage money are nowadays depended more on the technology to gain competitive advantages and to help the decision-makers to make a better judgement for the businesses. With the growth of FinTech, there are various studies that have been conducted in this field. Thus, this study aims to present the current trend of the study on FinTech. This study adopted a bibliometric analysis based on the data obtained from the Scopus database. Based on the keywords used, which is related to the FinTech in the title of the article, the study manages to obtain 486 documents for further analysis. Various tools have been employed, such as Microsoft Excel to conduct the frequency analysis, VOSviewer for data visualization, and Harzing's Publish or Perish for citation metrics and analysis. This study reports the results using standard bibliometric indicators such as publication year, document type, source type, source title, languages, subject area, keywords analysis, geographical distribution, authorship, active institutions, and citation analysis. Based on our findings, there is a tremendous growth of publications on FinTech over the years since 2015. The increasing number of works on FinTech indicates the importance of technology on the financial services industry, and there are for sure some impacts on the economy and public lifestyle.

Keywords: *Financial Technology, FinTech, Financial Services, Bibliometric Analysis, Scopus Database*

1. Introduction

Financial technology or "FinTech" refers to the use of technology to deliver financial services and solutions [1, 2]. While according to Anyfantaki [3], FinTech refers to technology startups that are emerging to compete with traditional banking and financial market players, offering several services, from mobile payment solutions and crowdfunding platforms to online portfolio management and international money transfers. Nicoletti [2] further elaborate that startups were offering fintech that capable in term of speed and flexibility, and with cutting-edge business models. Arner et al. [1] stressed that FinTech is not an inherently novel development for the financial services industry. In fact, according to them, FinTech just refers to the application of technology to finance. The early adopters of computers are from the banking industry in which the first commercially used mainframe was built for a bank [2]. The introduction of Automatic Teller Machine (ATM) in 1967 by Barclays Bank [4] is one of the examples of FinTech. According to Volcker [5], former chairman of the US Federal Reserve, said: "The most important financial innovation that I have seen in the past 20 years is the automatic teller machine ('ATM'), that really helps people and prevents visits to the bank, and it is a real convenience." Since then, financial and banking-related technologies have moved forward with various types of innovations such as mobile banking, internet banking, cryptocurrencies and blockchain.

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There are a few stages of the evolution of FinTech [1, 6]. Table 1 summaries the evolution of FinTech adapted from Arner et al. [1], Arner et al. [6], Nicoletti [2], Ashta and Biot-Paruerot [7], Sharma [8] and Vardhman [9]. FinTech 1.0, for example, exist since 1866 in which at that time, the transatlantic cable was successfully constructed for communication between Europe and the Americas [2]. Since then, there are many innovations in FinTech has been introduced, and they mature from time to time parallelly with the development of the technology.

Table 1. Evolution of FinTech

Era	Period	Technology Evolution	Some Innovations in FinTech
FinTech 1.0	1866-1967	Analog technology	1866: Transatlantic Cable 1918: Fedwire Funds Service 1934: IBM®801 Bank Proof Cash Machine 1945: Cheques 1950: Diner's Club 1958: Credit Card 1966: Telex
FinTech 2.0	1967-2008	Digitalization and Globalization	1967: ATMs 1971: NASDAQ invented Electronic trading and IPO 1973: Society for Worldwide Interbank Financial Telecommunication (SWIFT) 1981: Bloomberg – Innovative Market Solutions (IMS) 1982: TradePlus 1990s: Internet Banking 1993: Citicorp initiate Financial Services Technology Consortium 1995: Online checking account 1995: First Virtual Bank – Security First Network Bank 1997: First Mobile Payment 1998: PayPal 2000: Crowdfunding 2006: Amazon Web Services (Cloud Computing)
FinTech 3.0	2008-2014	Global Financial Crisis, ushered a new age of FinTech startups and rapid digitalization and revolution in FinTech	2009: Cryptocurrencies (Bitcoin) 2011: Google Wallet 2013: Apply Pay (Digital Wallet/Mobile Payment)
FinTech 3.5	2014-2017	Market Reform	2014: Blockchain Technology R3 is formed 2015: Hyperledger 2016: First FinTech bachelor program 2017: Cryptomina - Coinbase
FinTech 4.0	2018-present	Industry Revolution 4.0.	

Adapted from Arner et al. [1], Arner at al. [6], Nicoletti [2], Ashta and Biot-Paruerot [7], Sharma [8], Vardhman [9]

FinTech nowadays is often perceived as a marriage between financial services and information technology [1]. In addition, the advances in finance and technology especially with recent development in industry revolution 4.0, such as internet of things (IoT), cybersecurity, cloud computing, blockchain, big data and analytics, which indirectly also involve with the FinTech, there are many academicians and researchers were looking on various issues related with it. Thus, this article will table the current states of the research on FinTech and view the growth of the research in this area. Hence, the objective of this paper is to present the trend of the previous study on FinTech and map it with the global development of the field. The remainder of this paper is organized as follows. First, we present a review of the literature on the overview of bibliometric analysis and previous studies on related papers of FinTech. Secondly, we present the methods

that cover in this study. The analysis and findings section that follows displays the results obtained from the documents gathered in the Scopus database. The conclusion segment thereafter discusses the summary, limitation and the recommendation for future research.

2. Literature Review

Bibliometric Analysis

According to Rehn et al. [10], "bibliometrics is often used to assess scientific research through quantitative studies on research publications. Bibliometric analyses are based on the assumption that most scientific discoveries and research results eventually are published in international scientific journals where they can be read and cited by other researchers." Pritchard [11] defined bibliometric as "the application of statistical and mathematical methods to books and other media of communication." The bibliometric study usually has been used in evaluating the quantity and quality of the published documents to observe trends or pattern of a specific research area [12]. A bibliometric analysis is rising in popularity to be one of the strategies to report research trend and impact [13]. According to Ahmi and Mohammad [13], most common indicators being observed using bibliometrics analysis include classification of publication, citations, authorship, publication impact and country.

The bibliometric indicators, however, can be classified into three different groups such as quantity indicators, quality indicators and structural indicators [14]. The quantity indicator, according to Durieux and Gevenois [14], refers to the productivity of a particular researcher, the quality refers to the performance of a researcher's output, while the structural indicators indicate the connections between publications, authors, and areas of research. In other words, we can evaluate the growth or the trend or the productivity of the publication by analysing the quantity of publication of specific research domain. The performance (and the impact) of the publication can be evaluated through the number of citations or citations per year, total h index or g index, cite score and some of the other various matrices. Other studies investigate the performance of the publications through impact per publications (IPP) and the impact factor (IF) [15]. While, the structural indicators (or the engagement) of the published materials can be measured using the analysis such as co-authorship, co-citation, and bibliographic coupling. By using the specific software, VOSviewer for example, a few bibliometric techniques such as co-authorship analysis, citation-based analysis and co-word analysis [16] can easily be conducted.

Previous Studies

As the bibliometric studies become quite popular recently, there are some studies that have been conducted related to financial technology or FinTech. For example, Junior and Cherobim [17] who analysed 43 articles/books obtained from a few databases focused on three approaches. First, on the process on how those articles have been reviewed and published; second, the concentration of publication in the specific journal; and three, the categorisation of the fintech papers that include the categorisations of FinTech itself, the theory of disruptive innovation; FinTech and theories of administration or economy; and the regulatory and legislative aspects. In fact, their paper is more concentrate on the systematic review on the fintech studies rather than presenting the bibliometric data on fintech. While, Wu [18] mapped the article on fintech that they gathered from the ISI Web of Science databases by presenting the top journals based on the number of citations and pre-defined research areas which are, payments, deposit and lending, insurance, capital raising, investment management, and market provisioning. Still et al. [19] explores the emergence of FinTech ecosystems and present the content and relationships in FinTech research and a case study of the innovation on two of the biggest retail banks in Finland. Their results show how existing players have developed numerous relationships in FinTech innovation.

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Liu, Li and Wang [20] recently presented the scientometric analysis on the 629 FinTech business model papers from the Web of Science database. They analyse in terms of overall growth trend, research area, research institutions, core authors, citation network and clusters, the key and pivot nodes and the dynamic evolution of co-cited keywords in the FinTech business model. They conclude that the latest hot topics in the FinTech are mobile payment, microfinance, peer-to-peer lending platform and crowdfunding. Another latest study by Li et al. [21] conducted the co-word and co-citation networks using CiteSpace to 2,877 articles on Internet finance that they obtained from the Web of Science database. Based on the findings, they recognised six main emerging research topics related to Internet finance, that is, Internet bank, peer to peer lending (P2P lending), crowdfunding, big data finance, digital currency and fintech.

Table 2. Previous articles on FinTech related studies and bibliometric analysis

Author	Domain/Search Strategy	Data Source & Scope	TDE	Bibliometric Attributes Examined
Junior and Cherobim [17]	"fintech" or "fintechs" or "fintec*"	Emerald, ProQuest, Science Direct, Scopus, Web of Science and Google Scholar	1,749	- Type of publications - Source title
Wu [18]	fintech-related	Web of Science (2015-2017)	885	- Journal rank by total citations - Keywords distribution
Still et al. [19]	'fintech'	Web of Science (January 1, 1980 and May 24, 2018)	110	- Frequency of paper - Co-occurrence of terms based on titles and abstracts
Liu, Li and Wang [20]	"financial technology", "finance technology", "fintech", "fin-tech" and "e-finance"	Web of Science (1995 to 2017)	629	- Publication trend - Paper classification - Highly cited journal - Active institutions - Core authors - Citation network and clustering - Co-citations analysis - Co-cited keywords
Li et al. [21]	internet financ* or online financ* or electronic finance* or e-financ* or internet-based financ* or internet banking or online banking or electronic banking or e-banking or internet-based banking or internet bank or online bank or electronic bank or e-bank or internet-based bank or	Web of Science (2008-2018)	2,887	- Co-word - Co-citation networks
Martínez-Climent, Zorio-Grima and Ribeiro-Soriano [22]	"peer-to-peer lending" or "peer to peer lending" or "equity crowdfunding" or "equity crowd-funding"	Web of Science (2008-2018)	237	- Publications per year - Highest country - Productive journals - Authors productivity - Type of publication

TD = Total Documents Examined

Martínez-Climent, Zorio-Grima and Ribeiro-Soriano [22] have conducted the bibliometric analysis on the documents published in the Web of Science on the field of financial return crowdfunding such as peer-to-peer lending (P2P) and equity crowdfunding (EC). Their focus, however, only on a certain part of the financial instruments instead of on the FinTech overall. The summary of the related studies on FinTech which have conducted using bibliometric analysis (including the attributes examined) is as per Table 1. All of the papers were using the Web of Science database as a main source of data to analyse the bibliometric analysis. There is only one study using Scopus as one of their data sources. To date, as far as our concern, there is no other

research (except as per Table 1) has been conducted especially focuses on the term on FinTech that presents the extensive bibliometric analysis.

3. Methods

This study used the data obtained from the Scopus database as of April 2020. The following keywords have been used to search relevant article which is related to FinTech such as "fintech" OR "fintechs" OR "fin-tech" OR "fin-techs" OR "financial technology" OR "financial technologies" OR "finance technology" OR "finance technologies" that contained in the title of the article. We focus on the title of the articles because it represents the relevant topic which is significant with the research area and the aim of the study. According to Chen [23], the title of an article should incorporate information that potentially used to attract readers attention, as it is the first element that readers will first observe. Based on the query, a total of 486 documents have been obtained for us to conduct the bibliometric analysis. In examining the bibliometric analysis, there are some tools available in order to examine the data. For the purpose of this paper, we used (1) Microsoft Excel to calculate the frequencies of the published materials and to design the relevant chart and graph; (2) VOSviewer (www.vosviewer.com) to construct and visualising the bibliometric networks; and (3) Harzing's Publish and Perish software to calculate the citations metrics and some of the other frequencies.

4. Results

Based on the data obtained from the Scopus database, we will analyse the bibliometric attributes such as publication by year and annual growth, document types and source types, the language of the document, subject area, keywords analysis, country productivity, authorship, active institution and citation analysis. Most of the findings are presented as frequency and percentage. The co-occurrence of the author keywords is mapped using VOSviewer, and we report citation analysis as citation metrics and disclosed the top 10 most cited articles in FinTech.

Publication by Year

Table 3. Publication Year and Annual Growth

Year	Number of Published Articles	Percentage (N=486)	Cumulative Percent	Growth Rate (%)
1986	1	0.21	0.21	
1991	1	0.21	0.41	0.00
2002	1	0.21	0.62	0.00
2003	1	0.21	0.82	0.00
2006	1	0.21	1.03	0.00
2008	1	0.21	1.23	0.00
2010	3	0.62	1.85	200.00
2011	4	0.82	2.67	33.33
2013	2	0.41	3.09	-50.00
2015	10	2.06	5.14	400.00
2016	27	5.56	10.70	170.00
2017	64	13.17	23.87	137.04
2018	145	29.84	53.70	126.56
2019	166	34.16	87.86	14.48
2020	59	12.14	100.00	-64.46
Total	**486**	**100.00**		

The first article published on FinTech was by Nayer [24] who was looking at the chit fund and see how the traditional financial technology can co-exist with modern financial technologies. There is not so much development of the publication related to FinTech topic, and there are a few

years that the related publication on FinTech not even exist until the term become popular in 2015. Since then, the number of publications has tremendously increased from year by year. Table 3 present the total number of publications, percentage, cumulative percentage and growth percentage of document publish on FinTech. The largest number of publications on FinTech, as shown in Table 3 and Figure 1 was in 2019, representing a total of 166 publications which is almost half of the total publications on FinTech. It is expected that the number will increase in 2020 as the topic which is related to industry revolution 4.0 is widely debated and has a big impact on the financial service industry.

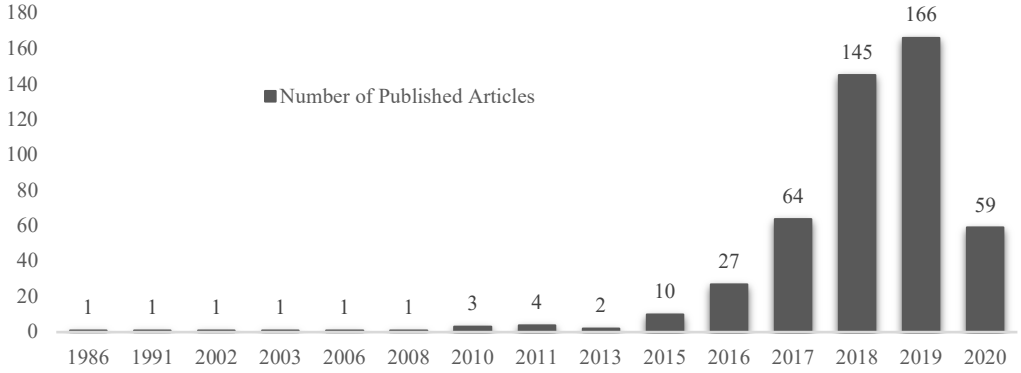

Figure 1. Number of publications per year on FinTech

Document and Source Type

We also analyse the document gathered from the Scopus database based on the document type, source type, as well as the source title. The document type can be either journal article, conference paper, review, article, book, book chapter, or editorial. Figure 2 presents the chart of the document type analyses from this study. Journal articles represent more than half (268, 55%) of the articles published in FinTech followed by conference paper (112, 23%) and book chapter and review paper which have the same total number of publications (34, 7%).

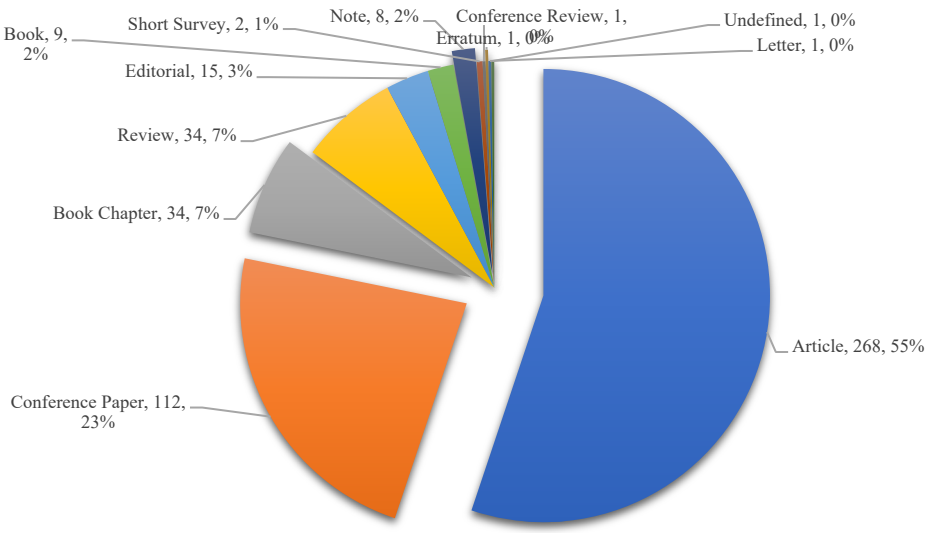

Figure 2. Document Type of the Published Articles

While there are various document types for the published articles on FinTech, there are also different categories of source type identified in this study. Table 4 shows that most of the articles are published in the journal compared to conference proceedings and books.

Table 4. Source Type

Source Type	Number of Published Articles	Percentage (N=486)
Journals	324	66.67
Conference Proceedings	92	18.93
Books	35	7.20
Book Series	32	6.58
Trade Publications	3	0.62
Total	486	**100.00**

Source Title

The studies of FinTech also were published in various journals, proceedings and books. Table 5 below shows the top source title that the articles on FinTech have been published based on the minimum number of 5 publications produced by each source title. It can be seen from the table that Economist United Kingdom host the highest paper on FinTech.

Table 5. Top Source Title

Source Type	TP	% (N=486)
Economist United Kingdom	14	2.88
ACM International Conference Proceeding Series	10	2.06
International Journal of Advanced Science and Technology	9	1.85
Impact of Financial Technology FinTech on Islamic Finance and Financial Stability	8	1.65
Advances in Intelligent Systems and Computing	7	1.44
Cutter Business Technology Journal	7	1.44
International Journal of Scientific and Technology Research	6	1.23
IOP Conference Series Materials Science and Engineering	6	1.23
Journal of Advanced Research in Dynamical and Control Systems	6	1.23
Financial Innovation	5	1.03
International Journal of Innovative Technology and Exploring Engineering	5	1.03
Investment Management and Financial Innovations	5	1.03
Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	5	1.03

TP = Total Publications

Languages of Documents

Based on Table 6, English is commonplace for most of the publications in this research domain (271; 98.19%). Other encountered languages include Russian, German, Portuguese and Spanish. Two of the documents has been published in dual languages, i.e. in English and Russian and another article in English and Spanish.

Table 6. Languages Used for Publications

Language	Number of Published Articles *	% (N=488)
English	478	97.95
Russian	4	0.82
Spanish	3	0.61
Chinese	1	0.20
German	1	0.20
Portuguese	1	0.20
Total	488	100.00

*two documents have been published in dual languages.

Subject Area

This study next classifies the published documents based on the subject area as summarizes in Table 7. The distribution of research on FinTech emerges mainly from business, management and accounting (218, 45%), computer science (197, 41%) and economics, econometrics and finance (161, 33%). However, there are also other subject areas that also published articles on FinTech such as social sciences, engineering, decision sciences and mathematics as reported in Table 7.

Table 7. Subject Area

Subject Area	Number of Published Articles *	% (N=486)
Business, Management and Accounting	218	44.86
Computer Science	197	40.53
Economics, Econometrics and Finance	161	33.13
Social Sciences	104	21.40
Engineering	102	20.99
Decision Sciences	49	10.08
Mathematics	21	4.32
Environmental Science	18	3.70
Energy	17	3.50
Materials Science	17	3.50
Biochemistry, Genetics and Molecular Biology	8	1.65
Arts and Humanities	7	1.44
Physics and Astronomy	7	1.44
Medicine	6	1.23
Psychology	4	0.82
Chemical Engineering	3	0.62
Earth and Planetary Sciences	3	0.62
Pharmacology, Toxicology and Pharmaceutics	3	0.62
Agricultural and Biological Sciences	2	0.41
Chemistry	2	0.41
Health Professions	1	0.21

*Some documents are categorized in more than one subject area

Keywords Analysis

For the keyword analysis, this study firstly has generated the word cloud for the author keywords using WordSift (https://wordsift.org). With the maximum of 100 number of words, and √n scale setting, the result of the word cloud is presented in Figure 3. The figure showed the top 100 words (or part of keywords) used from the published article on FinTech. The size of each word represents the total number of occurrences for the keywords. Apart from the keyword that has been used to search the title of the document, the word cloud portrays other emerging keywords such as financial, technology, innovation, service, digital, payment, banking and blockchain. Other keywords, although the size is relatively small, it is the fact that the words have been used to accommodate the topic of FinTech research. It is important to highlight that all of the words generated in Figure 3 is the trending words used along with the FinTech research. Thus, we can predict that future research on FinTech can be focused on these keywords.

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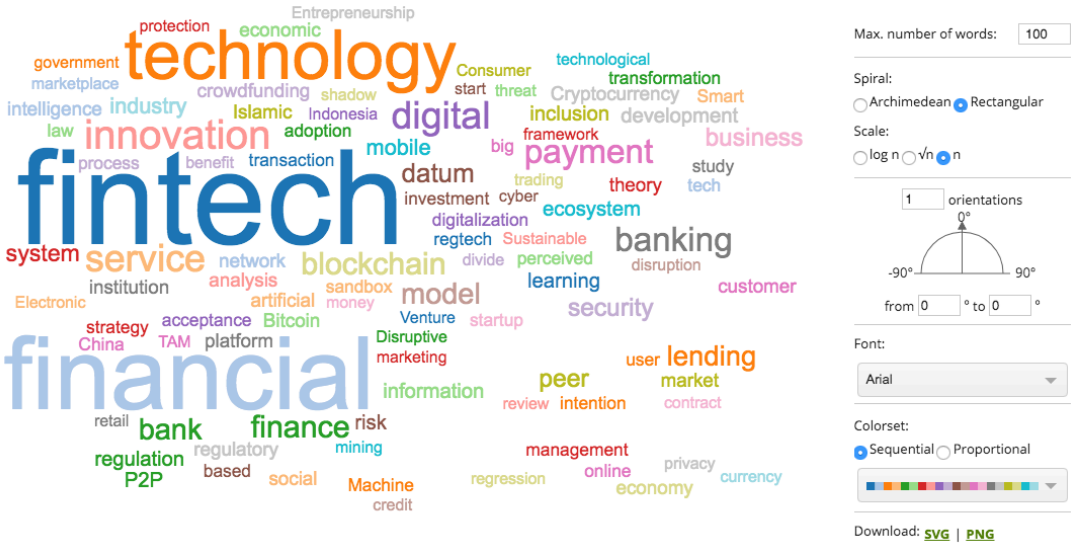


Figure 3. Word cloud of the author keywords

We then further analyse the author keywords for the co-occurrences of it using VOSviewer. VOSviewer is a software tool used for constructing and visualising bibliometric networks. Figure 4 presents a network visualisation of the authors' keywords produced by VOSviewer in which colour, circle size, font size, and thickness of connecting lines indicate the strength of the relationship amongst the keywords [16]. Related keywords, as indicated by the same colour, are commonly listed together. For example, the diagram suggests that blockchain, bitcoin, artificial intelligence, financial services industries, computer science and computer applications which are coloured in blue are closely related and usually co-occur together.

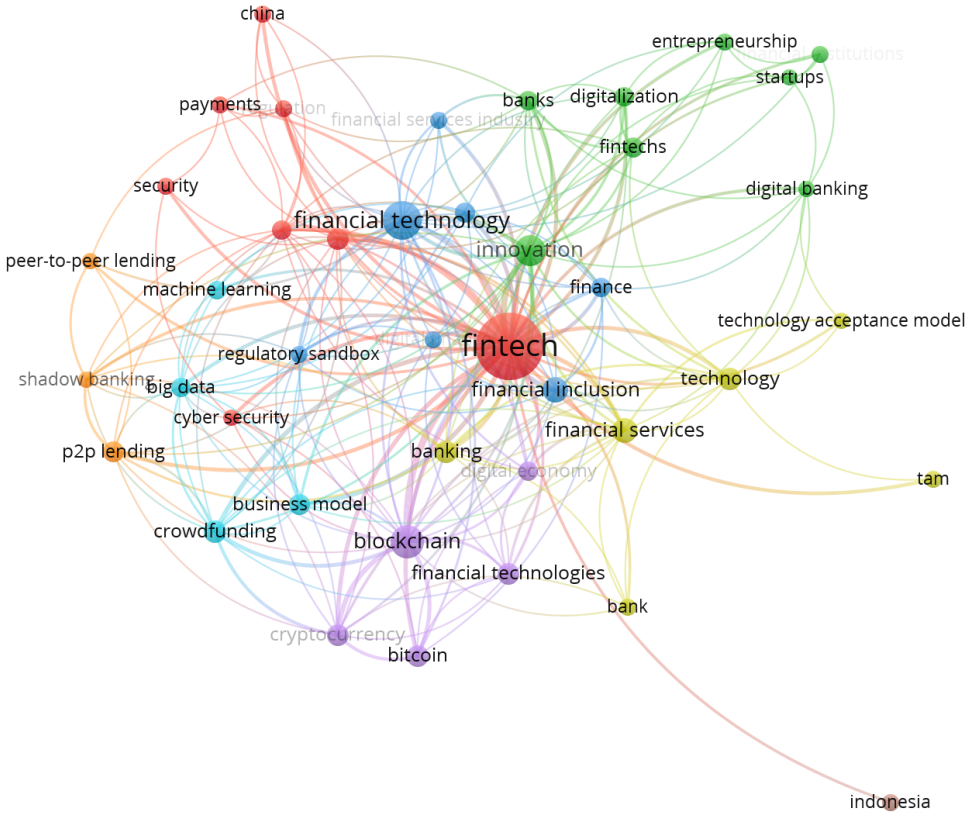
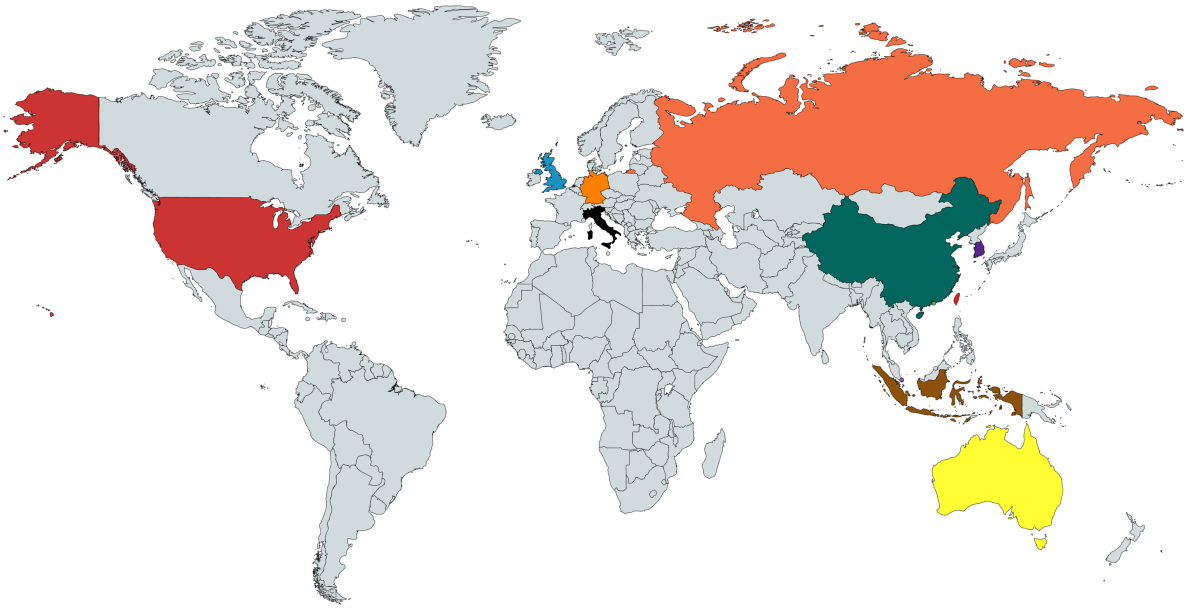


Figure 4. Co-occurrence analysis of the author keywords

Geographical Distribution of Publications

In total, there are 69 countries contributed to the articles on FinTech, where the top 10 publishing countries were coloured in Figure 5. The country has been counted based on the affiliation of the authors. For example, if the article is co-authored by four authors where two of them are from the United States and another two from Malaysia, it will be counted as one (1) the United States and one (1) Malaysia. Based on the results, we found that the United States produced the most publications followed by Indonesia, China, United Kingdom, Germany and South Korea.



United States	71	France	7	Hungary	3	Georgia	1
Indonesia	51	Japan	7	Norway	3	Ghana	1
China	45	Ukraine	7	Portugal	3	Greece	1
United Kingdom	40	Thailand	6	United Arab Emirates	3	Iceland	1
Germany	32	Turkey	6	Egypt	2	Iran	1
South Korea	31	Ireland	5	Estonia	2	Iraq	1
India	26	Romania	5	Luxembourg	2	Kazakhstan	1
Australia	20	South Africa	5	Malta	2	Lebanon	1
Russian Federation	19	Sweden	5	Saudi Arabia	2	Morocco	1
Singapore	17	Bahrain	4	Tunisia	2	North Macedonia	1
Hong Kong	16	Belgium	4	Armenia	1	Qatar	1
Malaysia	15	Canada	4	Brunei Darussalam	1	Slovenia	1
Italy	11	Denmark	4	Cambodia	1	Sri Lanka	1
Taiwan	11	Latvia	4	Cameroon	1	Tajikistan	1
Netherlands	9	Pakistan	4	Chile	1	Viet Nam	1
Brazil	8	Poland	4	Colombia	1	Undefined	31
Spain	8	Austria	3	Croatia	1		

Figure 5. Countries contributed to the articles on FinTech

Authorship

Table 8 shows the number of author(s) per documents. While 136 (28%) documents are single-authored, the remaining documents (350; 72%) are reported as multi-authored publications with the number of authors ranging between two and 10. There are 17 documents where the author name not available and cannot be obtained from the Scopus database.

Table 8. Number of Author(s) per Document

Author Count	Frequency	% (N=486)	Total Contribution
0	17	3.50	0
1	136	27.98	136
2	125	25.72	250
3	103	21.19	309
4	64	13.17	256
5	23	4.73	115
6	9	1.85	54
7	4	0.82	28
8	4	0.82	32
10	1	0.21	10
Total	**486**	**100.00**	**1190**

*No author name available

Active Institutions

We also analyse the top affiliation of the author. Most of the research on FinTech is comes from Bina Nusantara University, Indonesia, followed by Soongsil University, South Korea, The University of Hong Kong, Hong Kong and University of New South Wales, Australia.

Table 9. Most Active Institutions

Affiliation	Frequency	% (N=468)
Bina Nusantara University	11	2.35
Soongsil University	8	1.71
The University of Hong Kong	7	1.50
University of New South Wales	7	1.50
University of Zurich	6	1.28
Singapore Management University	6	1.28
The University of Sydney	6	1.28
Financial University under the Government of the Russian Federation	5	1.07
Woosong University	5	1.07
Universitas Indonesia	5	1.07
K L Deemed to be University	5	1.07
Singapore University of Social Sciences	5	1.07

Citation Analysis

The productivity of researchers also can be measured by the number of citations and citation per year. Table 10 summaries the citation metrics for the retrieved documents as of April 2020. Table 10 shows the total number of citations with average citation per year for all retrieved documents. As indicated, there are 1743 citations reported in 34 years (1986 – 2020) for 486 retrieved articles with an average of 51.26 citations/year.

Table 10. Citations Metrics

Metrics	Data
Publications years	1986-2020
Citation years	34
Papers	486
Citations	1743
Cites/year	51.26
Cites/paper	3.59
Authors/paper	2.45
h-index	19
g-index	32

Meanwhile, Table 11 discloses top 10 most cited articles (based on the number of times being cited) as per the Scopus database. The document entitled "The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application" by Au and Kauffman [25] has so far received the highest number of citations (202 citations or an average of 16.83 citations per year). However, if we consider the most impactful article based on the citation per year, the papers by Lee and Shin [26] and Gai, Qiu and Sun [27] are among the most impactful articles that received 26.5 and 24.5 respectively citations per year.

Table 11. Top 10 Cited Articles

No	Authors	Title	Source	TC	CY
1	Au and Kauffman [25]	The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application	Electronic Commerce Research and Applications	202	16.83
2	Gabor and Brooks [28]	The digital revolution in financial inclusion: international development in the fintech era	New Political Economy	66	22
3	Gomber, Kauffman, Parker and Weber [29]	On the FinTech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services	Journal of Management Information Systems	62	31
4	Gomber, Koch and Siering [30]	Digital Finance and FinTech: current research and future research directions	Journal of Business Economics	55	18.33
5	Lee and Shin [26]	FinTech: Ecosystem, business models, investment decisions, and challenges	Business Horizons	53	26.5
6	Gai, Qiu and Sun [27]	A survey on FinTech	Journal of Network and Computer Applications	49	24.5
7	Leong, Tan, Xiao, Tan and Sun [31]	Nurturing a FinTech ecosystem: The case of a youth microloan startup in China	International Journal of Information Management	46	15.33
8	Nguyen [32]	Blockchain-A Financial Technology for Future Sustainable Development	3rd International Conference on Green Technology and Sustainable Development, GTSD 2016	39	9.75
9	Shim and Shin [33]	Analyzing China's FinTech Industry from the Perspective of Actor-Network Theory	Telecommunications Policy	37	9.25
10	Puschmann [34]	FinTech	Business and Information Systems Engineering	34	11.33

TC= Total Citations; CY = Citations per Year.

5. Conclusion

This study has initiated a review of all kinds of scholarly works published to date on the topic of FinTech. The study reports the trend of the previous studies using selected bibliometric indicators as obtained from the Scopus database. Overall, bibliometric details of 468 documents were extracted from the Scopus database. The results indicate that the topic on FinTech is started becoming an emerging topic since 2015 and boosted dramatically in 2019. Most of the articles were published in the journal, and English becomes a primary language. While 28% of documents are single-authored, 60% of the documents, have either two to four authors. The data also shows an increasing trend in the number of authorships per document over time. As for the contributing authors, the United States reported the highest numbers of contributing authors, followed by Indonesia, China, and the United Kingdom. Instead of Indonesia, there are also sizable contributions of scholarly works on this research domain from other Asian countries.

Issues about FinTech mainly comes from business, management, and accounting, computer science and economics, econometrics, and finance. However, the topic also gets attention from other subject areas such as social sciences, engineering, decision sciences, and mathematics. Along with the increase in the frequency of publications per year, this study also indicates a higher average number of authors per document over the years. This trend, to some extent, shows greater collaboration among authors in this area. Despite valuable insights offered by this article, readers should take into account several limitations. Firstly, this study employed specific query/keywords to locate the initial list of scholar works published as indexed by Scopus. Nevertheless, this practice has been commonplace for earlier bibliometrics related studies. Even though Scopus is among the most extensive online databases that index all scholarly works, it does not entirely cover all available sources. Thus, some exclusions are very much expected from this study. Furthermore, no search query is 100% perfect for capturing all the scholar works in this area. Thus, false positive and false negative results are always anticipated.

Secondly, FinTech is a relatively new term that only recently being used [2]. There are possibilities that other kinds of research that have been conducted before was focused on financial technology. However, it was not directly called as FinTech. Thus, those studies were excluded from this study. Despite these limitations, this study presents the bird's eyes view of the current trend of FinTech research globally.

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