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FinTech Regulations: Need, Superpowers and Bibliometric Analysis

Abstract : This research paper describes **FinTech, Need of FinTech Regulations, Superpowers** that are shaping FinTech and **Bibliometric Analysis** on **FinTech Regulations**. It also discusses about Regulations that are prevailing in **UK, US and China** and also Regulating bodies therein. An extensive research has been done for academic publications since 2000 to 2019, focussing on country wide research publications, author statistics, top subject areas and different publication types in FinTech Regulations, using Scopus Database, Google Scholar, Research gate and tools like GPS visualizer. After all the research, has been concluded that these superpowers(UK,US and China) are leading in the Research of this topic as well and has highest number of publications on the topic “FinTech Regulations”.

Keywords: FinTech; FinTech Regulation, FinTech Laws; FinTech Rules

Introduction: FinTech

The word FinTech is made up of two words Finance and Technology, it is used to describe how new technology improves and automates the delivery and use of financial services. FinTech started to thrive during the 1990s when the Internet and online business plans of action emerged and in the next decade banking in many parts was at that point completely digitalized. FinTech is currently an innovative and emerging field, which attracts attention from the publicity as well as up-growing investments [1]. Fintech now portrays an assortment of budgetary exercises, for example, cash transfer, keeping a check with your cell phone, bypassing a bank office to apply for credit, fund-raising for a business start-up, or dealing with your ventures, for the most part without the help of an individual.

1. FinTech and Need of Regulations

Effective financial regulation is clearly crucial to innovation and the future success of the financial services industry and, in specific, FinTech.[5] FinTech’s substantial reliance on innovation—specifically, the Internet—prompts a more noteworthy requirement for guideline as online financial exchanges are inclined to a few security dangers. Further, the FinTech space is presented to the danger of illegal tax avoidance, Terrorist financing, and so forth.

FinTechs, in contrast to customary banks, might not have an unmistakable thought of controllers and administering bodies and the standards and guidelines that they need to hold fast to. This is because of a few elements. Each FinTech firm has a one of a kind and dynamic plan of action that capacities on the reason of advancement. Development prompts steady change and subsequently overseeing such organizations gets troublesome. Further, while some FinTechs may carry on like banks, they probably won't offer the whole scope of administrations that banks do. Hence, it gets difficult for FinTechs to be set under a similar administrative magnifying instrument as customary banks.

2. Superpowers shaping FinTechs

Due to the huge focus on digital innovation in Financial services UK, US and China are the superpowers (largest players) in the emerging FinTechs industry with access to three key resources that help them grow – affluent customers, access to capital and supportive regulations.[4] Out of these three key resources, Regulations has a huge impact on the success of FinTechs.

2.1 FinTech Regulations in UK

Policies, Regulation regimes and government programmes are the primary strength in UK FinTech's growth. The UK is a worldwide highest quality level for the progressiveness of its administrative system.[7]

There is no single regulatory Framework in UK that governs FinTech, but it is the way in which it is adopted for delivery of financial services, size and nature of their business. According to Financial Services and Markets Act 2000 – FCA and PRA are statutory regulators of UK Financial services, this act not only provides them statutory powers but also general powers to make rules under this act. FinTechs that need authorization should understand these rules and comply accordingly.

Due to rise in the number of FinTechs there are two regulatory frameworks that came into existence, first being Regulatory approach to crypt assets and second being changes in the Anti Money Laundering (AML) regime.

Through Project Innovate, a devoted program to help FinTechs to explore the administrative authorisation process, the FCA has built up a program that FinTechs depict as strong and cooperative, and altogether improving administrative complexities. Government programmes are key facilitators of solid FinTech ecosystem, these programmes bring together various stakeholders, make doors open for competition and rivalry and in this manner helps FinTechs scale and internationalize.[8] .Three core initiatives of Project Innovate are as follows -

- 1.Regulatory Sandbox – allowing authorised and unauthorised firms to test their business models, products and services and controlled environment
2. Advice Unit – it gives regulatory feedback to firms developing automated models and give cost advice and guidance to customers.
3. Innovation Hub - which gives a committed agreement to innovators business that are thinking about applying for authorisation or a variety of consent, need permission while doing as such, or don't should be approved however could profit by help.

Even though, UK regulatory authority has encouraged the growth of FinTech firms they are also concerned with the risk associated with them such as harm to consumers due to crypto asset scams, poor cyber security and integrity.

2.2 FinTech Regulations in US

In general, the US government supports Fintech Innovation, but also has put several regulations on financial services paid to the consumer. The US government abides 2 tier structure for regulating financial services. Federal Government mostly governs all the financial services and impose them extensively. Supporting Federal rules there are several state laws too which are applicable or imposed on financial services but they do not interfere with the federal laws.

Regulations by both Federal and State focus on Service Provides and nature of services both and it not only involves delivering those services but also regulations regarding their development, licencing and deployment, which are again imposed by both.

Various Government authorities that look after FinTech Regulations in US are: [6]

At Federal Level	At State Level
<ul style="list-style-type: none"> the Consumer Financial Protection Bureau (covering virtually all financial products and services for consumers) 	<ul style="list-style-type: none"> state banking departments;
<ul style="list-style-type: none"> the Federal Reserve Board of Governors (covering bank holding companies and processing of certain payments) 	<ul style="list-style-type: none"> consumer protection agencies;
<ul style="list-style-type: none"> the Federal Deposit Insurance Corporation (covering insured deposits at banks and credit unions) 	<ul style="list-style-type: none"> secretaries of state
<ul style="list-style-type: none"> the Federal Housing Authority (covering residential mortgage loans) 	<ul style="list-style-type: none"> state securities commissions.
<ul style="list-style-type: none"> the Office of Federal Housing Enterprise Oversight (covering residential mortgage loans) 	
<ul style="list-style-type: none"> the Federal Financial Institutions Examination Council (covering the examination of most licensed or chartered financial institutions) 	
<ul style="list-style-type: none"> the Financial Crimes Enforcement Network (covering financial institutions, including money transmitters) 	
<ul style="list-style-type: none"> the SEC (covering investment securities) 	
<ul style="list-style-type: none"> the Commodity Futures Trading Commission (covering commodities, including many virtual currencies). 	

[source : Lexology Survey of US FinTech Market]

And the areas to which these laws are related are as Electronic Fund Transfer, Equal Credit Opportunities, Fair Trade Opportunities, Securities Exchange, Fund Exchange, Commodities Exchange, Laws related to patents, trademark and copyrights, electronic signatures etc.

There is a complexity in the FinTech regulation in US due to different rules and regulations imposed by Federal and State government and absence of any single framework dedicated to FinTech specially. There should be clear understanding from Service Provider's side regarding what he is offering and their nature to abide by these laws and regulations. And due to flourishing FinTech conditions in US this is the need of time to stop cyberattacks and penalties and protection of consumers as a whole.

2.3 FinTech Regulations in China

FinTechs Regulations in China

FinTech Business in China is growing since 2018 and so the risks associated with are. Keeping this in mind, The China Government keeps on reinforcing the Regulation over Fintech business to handle potential risks that comes in with the use of Fintech Technology.

Since 2018, China has made its rules regarding online payment business stricter. All businesses that are engaged with Online Payment were required to separate their direct settlements with any of the commercial banks, to stop money laundering, according to orders from People's Bank of China.[1]

As of now, there is no single regulatory framework prevailing in China. Various rules and measures regarding products and services related to FinTechs.

Product/Service	Regulator	Legislation
Online Payment	People’s Bank of China	Rules for payment services by Non-Banking Financial Institutions
P2P Lending	China Banking and Insurance Regulatory Commission	Rules for management of service activities of Internet Lending Information Intermediaries
Equity crowd funding	China Securities regulatory commission	Enforcement of the scheme of dedicated regulation on Equity crowd funding
Funding Sales on the Internet	China Securities regulatory commission	Measures for the sale of securities and money market funds
Insurance Sales on the Internet	China Banking and Insurance Regulatory Commission	Measures for the supervision of Internet Insurance Services
Online trust business and consumer financing	China Banking and Insurance Regulatory Commission	N/A
Blockchain Information Services	Cybersecurity Administration of China	Governing rules on Blockchain Information Services

Table 1: Rules and measures regarding regulations of FinTech in China.[source: Survey by ICLG.com]

Due to several confusing regulations, FinTech experts in China are looking forward for better laws and regulations so as to cope up with the fast-growing innovation and technology.

3. Bibliometric Analysis on FinTech Regulations

3.1 Bibliometric Analysis

It is required for the analysts to have the top to bottom information about the continuous examines in their separate field and authors who add to research this data continues changing with time. Due to the advancement of new technologies, and new researches everyday some pieces of information are added to the databases. Bibliometric Analysis is the use of statistical methods to analyse articles, books, journals and other publications [2]. This study uses geographical analysis, top author, affiliations, universities, document, year wise publications and citation analysis. In this paper Scopus database is used to construct the literature. Several networks have been built regarding keywords and the title of the researches on Fintech Regulations, citations, and authors.[3]

3.2 Significant Keywords

The query for research was bifurcated into two – Master Keywords and Primary keywords. As this study aims at Fintech Regulations, Master Keyword used was – “FinTech Regulations” and Primary keywords which are words synonyms to Master Keyword are used such as Laws and Rules with combination of OR is used. The table below shows the strategy used for research

Master Keyword	“Fintech Regulations”
Primary Keyword “AND”	“law” OR “rules”

Table 2 : The proposed keyword strategy

3.3 Initial Search Results

The query used “**Fintech Regulation**” OR “**Laws**” OR “**Rules**” generated 979 results which was used as string for Advance Research in Scopus Database. Out of these 979 results 959 were restricted to English Language. The table below shows the language of publications and publication counts pertaining to each language.

Sr. No.	Publication Language	Publication count
1.	English	959
2.	Chinese	4
3.	Spanish	4
4.	Russian	3
5.	French	3
6.	German	3
7.	Croatian	1
8.	Portuguese	1
9.	Italian	1
Total		979

Table 3 : Fintech Regulations publishing languages and their publication counts.

For this research is Scopus Database all types of already published and unpublished publications are considered. There are many types of publications such as Articles, Journals, conference paper, book chapters in a database. When researched for FinTech Regulations, Publication types that formed the majority were Articles and Conference papers and very few researches got published in notes, Conference reviews and letters. The table below shows the different publication types and their percentage as a whole of 979 publications

Publication Type	Publication count	% of 979
Article	616	62.92
Conference paper	147	15.02
Review	72	7.35
Book Chapter	71	7.25
Book	46	4.69
Editorial	12	1.23
Note	6	0.61
Conference Review	2	0.20
Letter	1	0.10
Undefined	6	0.61

Table 4 : Publication type related to Fintech Regulation

Below is the visual presentation of Publication Types and their respective percentage contriution

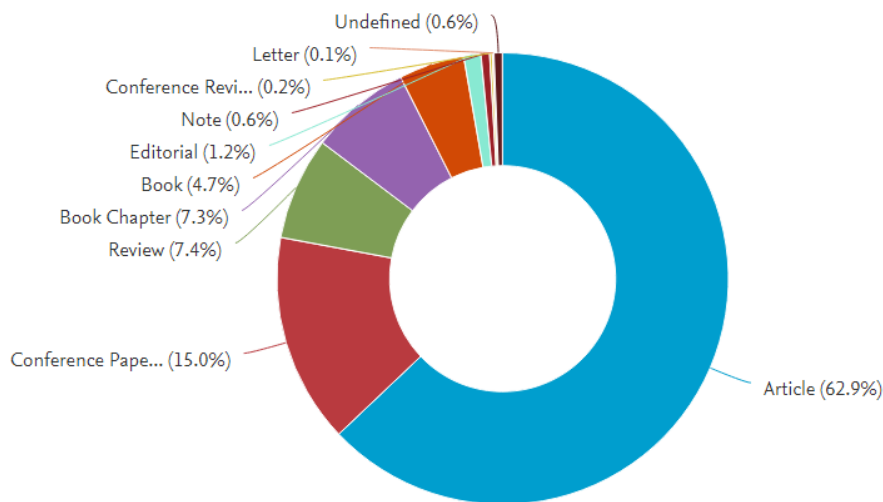


Figure 1 : Top 10 publication type related to Fintech Regulations. [Source – Scopus Database]

3.4 Preliminary Data Highlights

When the results were analysed from the query all types of publications that is articles, journals, conference reviews, book chapters etc... were considered from the year 2000 – 2019, from which it can be seen that the trend has been increasing since 2015 and is researched and explored more and more since then. Below line graph shows this trend:

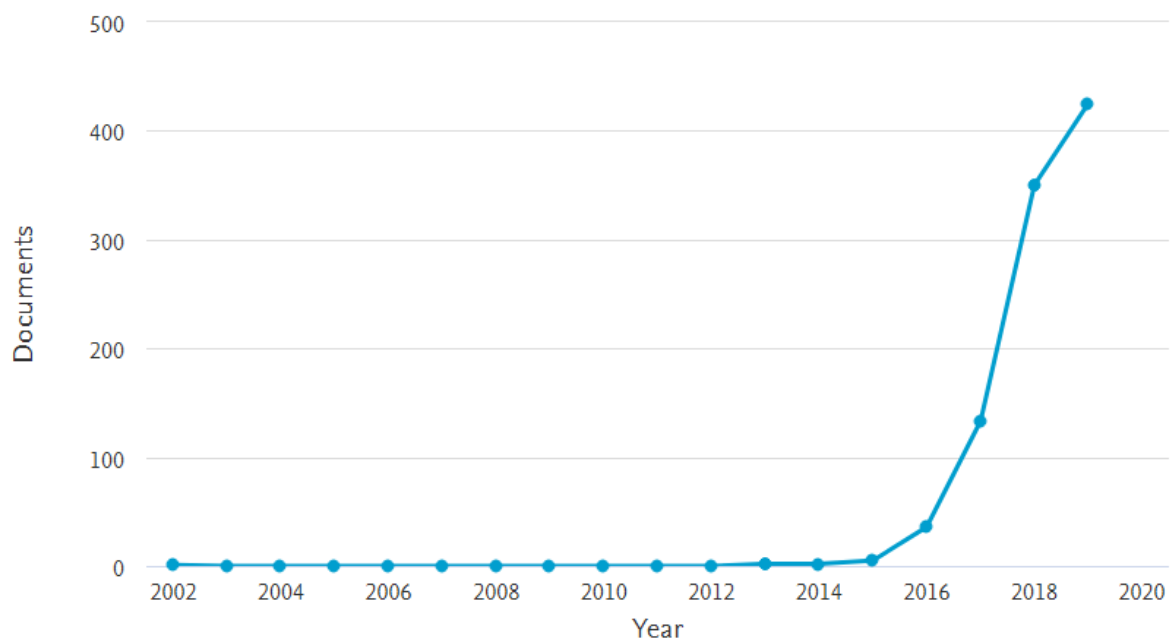


Figure 2: Year wise publications on Fintech Regulations (2000 – 2019) [source – Scopus Database].

3.5 Country Wise Research distribution

To know in which parts of the world most research is being conducted on FinTech Regulation, Data that was generated using Scopus database which showed countries that have contributed mostly to this research was entered as Input in an open source site known as gpsvisualiser.com, which gave visual representation of data on the world map, the output that was being generated out of it was that it showed that most of the research has been done in European countries.



Figure 3: Geographic locations of researches related to Fintech Regulations

The analysis was carried further to find out Number of publications by different countries which showed that United States and United Kingdom has most number of published articles.

Country	Publications
United States	194
United Kingdom	128
China	104
Germany	63
Australia	59
Italy	47
India	40
Netherlands	37
Russian Federation	34
France	33

Table 5: Geographic locations of researches related to Fintech Regulations (2000-2019) [Source: Scopus Database]

Below is the horizontal Bar Chart representing the same:

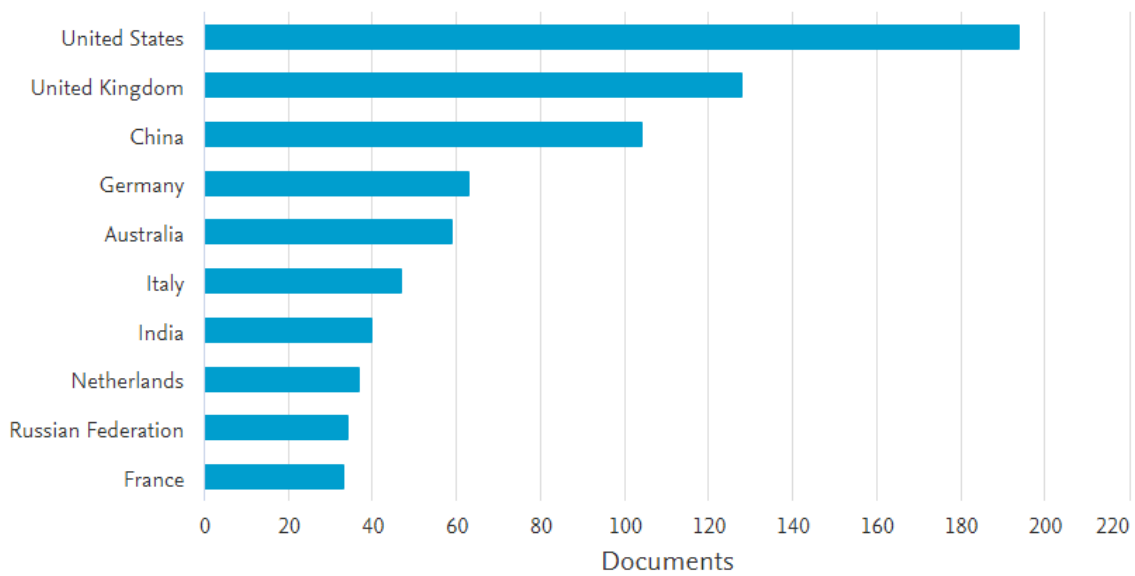


Figure 4: Geographic locations of researches related to Fintech Regulations (2000-2019) [Source: Scopus Database]

3.6 Author Statistics

Figure shows the top 10 authors contributing to the research of Fintech Regulations from (2000 –2019) to understand the influence of a particular author on the Research which showed that Author- Yuan, G. has the most influence on the research.

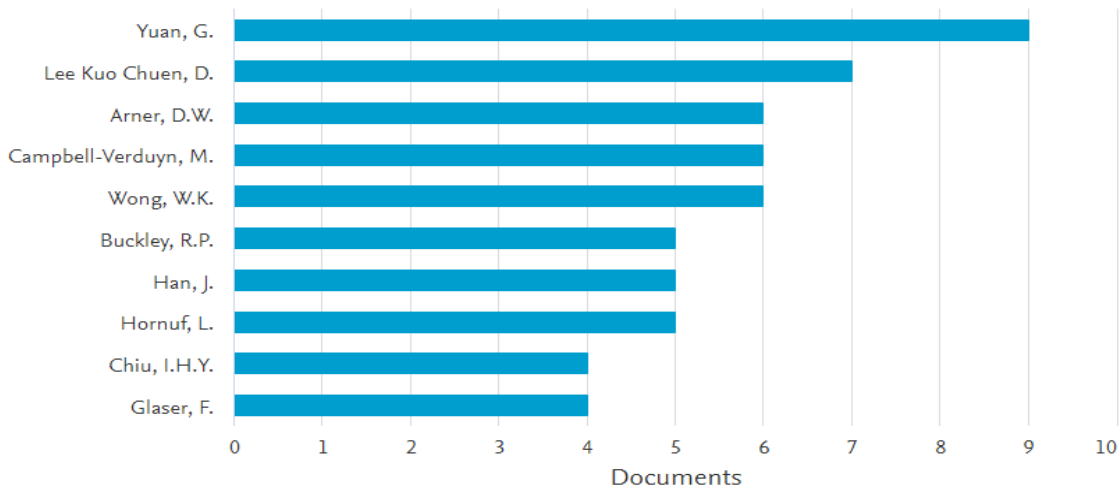


Figure 5: Top 10 Authors of researches related to Fintech Regulations (2000-2019) [Source: Scopus Database]

3.7 Affiliation Statistics

This statistic shows that the research is subject of concern to which of the Universities. The table below shows the Universities (affiliations) and their number of publications.

Affiliation	Number of Papers
University of Hong Kong	16
Shanghai University of Finance and Economics	16
The University of Sydney	13
University of New South Wales UNSW Australia	13
Singapore Management University	11
UCL	11
Singapore University of Social Sciences	11
Bina Nusantara University	10
Chinese University of Hong Kong	9
University of Oxford	9

Table 6:: Top 10 most popular affiliations and their number of publications (2000-2019). [Source: Scopus Database]

Citation Analysis

When analysed from the year 2010 to 2019 the citation count of publications is maximum in 2019 and is 3128 in all.

Year	<2010	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
No. of citations	99	12	9	8	11	9	11	31	154	686	1996	3128

Table 7: Number of Citations from the year 2010 to 2019.

3.8 Subject Areas

The figure below shows the subject area in which research FinTech Regulation is mostly been done when analysed it is done the most in Business Management area.

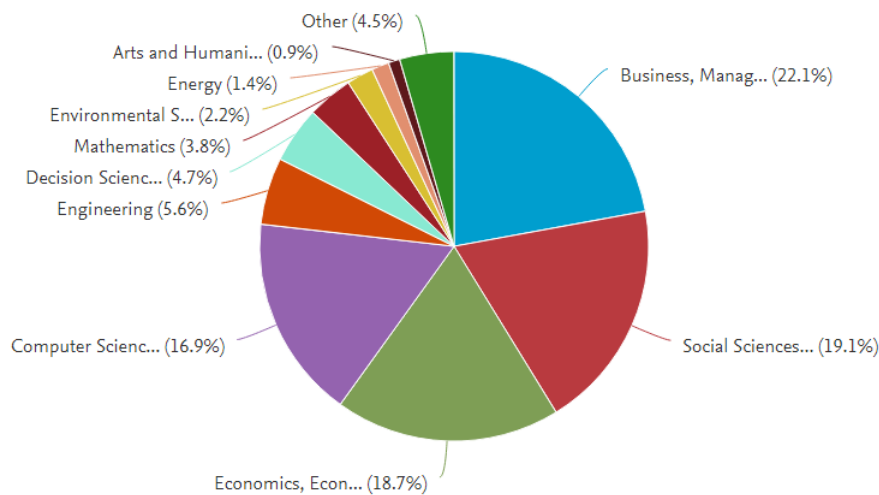


Figure 6: Top 10 Subject Areas of researches related to Fintech Regulations (2000-2019). [Source: Scopus Database]

3.9 Source Statistics

Figure shows the publication source in the area of Fintech regulations and the number of documents in a particular year which when analysed shows Lecture Notes in Computer Science Including Subseries Lecture Notes in

Artificial Intelligence and Lecture Notes in bioinformatics followed by Sustainability Standards has most documents.

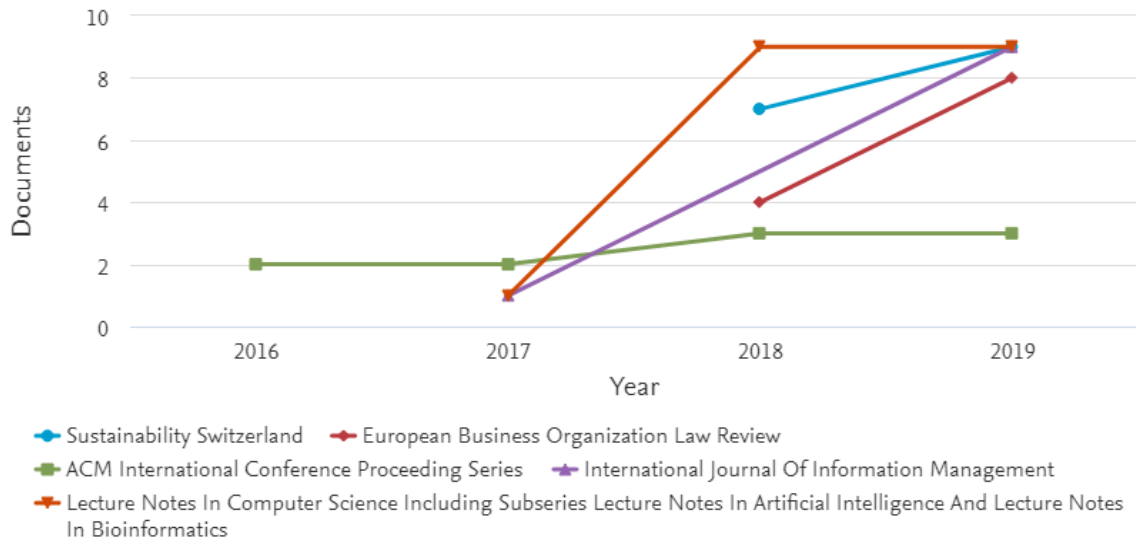


Figure 7: Publication Source and the number of documents. [source: Scopus Database]

5. Conclusion

This paper aims at Understanding Fintech, What are the need of Fintech Regulations, Which are the Superpowers in shaping FinTechs and understanding the Regulations that are prevailing in these superpowers – UK, the USA and China. There are different patterns or ways in which regulations are being imposed in these areas, but there is lack of dedicated authority imposing such regulations in all the three which make regulations complex and hard to abide, and due to this complexities many FinTech firms fail to comply with them and which in turn give rise to various cyberattacks and exploitation of consumer dealing with this advancement of technology. Bibliometric Analysis is done in the second part of this research using Scopus Database to know the advancement of research in this area, knowing geographical analysis of the research (where research is mostly done on this topic), which shows that these superpowers are leading in the Research of this topic as well and has highest number of publications on the topic “Fintech Regulations”.

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