Bibliometric Analysis on the Central Bank Digital Currency and Monetary Policy

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Abstract. This paper provides a comprehensive review on the literature on Central Banks Digital Currency and monetary policy, involving 293 published documents in scientific journals indexed by the Scopus database from 2013 to 2022, focusing on the key influences and the intellectual structure. Bibliometric citation analysis approach was employed. RStudio, VOSviewer and Excel software were used in data analyses and bibliometric testing. The authors discuss the influential and conceptual aspects of the published literature on Central Banks Digital Currency and monetary policy. The analysis revealed that the *Journal of* JOURNAL OF PAYMENTS STRATEGY AND SYSTEMS is the most cited source. Nevertheless, the list of the most cited papers reflects that research in this field is still rare. Further, the authors find that Central Banks Digital Currencies discussed within the context of monetary policy. This paper will contribute as guide to authors and future work in Central Banks Digital Currency and monetary policy.

Key words: Digital currency, central banks, monetary policy, CBDC

1. Introduction

Technology progressions and new business strategies have resulted in innovations in retail payment, but for policy makers, these developments can have detrimental impacts, especially with regards to the role that public sector plays in providing a digital payment instrument for the contemporary economy and in proposing the potential of prominent changes within the setting of retail payment, in addition to adapting with the decline in cash usage. In this dynamic environment, central banks must monitor these new developments closely and analyze their implications, so that the banks could continue performing their duties. During the COVID-19 pandemic especially, electronic payment has been particularly useful because the conventional payment methods were not practicable owing to movement restrictions and lockdowns (Didenko et al., 2020). In line Digital technology has significantly changed how economy is growing and how society thinks (Mohammed et al., 2023).

Central bank digital money (CBDC) is a digital form of fiat money serving as legal currency, and the popularity of CBDC has been on the rise owing to its potential. In fact, CBDC can fully supplant the actual cash. CBDC, as the new liability of central bank, seems to be a reasonable next step in the progress of official coinage, that is, from metal-based money, to metal-backed banknotes, to physical fiat money (Mancini-Griffoli et al., 2018). In this regard, central bank digital currency entails any electronic, fiat obligation of a central bank which may be used to store value or make payments (Meaning et al., 2018).

The potential of issuing digital currency from a central bank (CBDC) has been a subject of debate among policy makers, like the issuance of cryptographic tokens by central bank, and these tokens share some similar technical components as Bitcoin or other cryptocurrencies. With CBDC established, central bank could engage in large-scale intermediation through competition with private financial intermediaries for deposits (Fernández-Villaverde et al., 2021). Keister and Sanches (2021) discussed digital currency in their study and stated that it could increase exchange efficiency. However, the authors also mentioned the issues associated with the use of digital currency such as, crowded out bank deposits, increased funding costs to banks, and decreased investment. In this regard, pilot projects are being or will be executed by several central, and at least one CBDC namely the Sand Dollar of Bahamas is currently operational.

Central Bank Digital Currency (CBDC) is essentially a virtual money that is backed and issued by a central bank. The increased popularity of cryptocurrencies and stable coins implies the need for central banks all over the world to provide an alternative of fiat money.

A total of 117 Countries all over the world have been considering GDP. As of May 2020, 35 countries were actually contemplating CBDC usage, while 61 countries were already entering the advanced exploration stage involving the development, pilot, or launch of CBDC. On the other hand, full introduction of digital currency was observed in 11 countries. Notably, in 2023, it was expected that pilot program in China involving 260 million people will be expanded to nearly the entire country. Meanwhile, in Jamaica, CBDC has been introduced, known as JAM-DEX. Further, CBDC was in advanced stage in 18 G20 countries, whereby 7 of these 18 nations were reporting that their CBDC was in pilot stages. In general, G20 countries have demonstrated substantial progress, and within the past 6 months, these countries have allotted new resources in these projects. In 2023, it was projected that more than 20 countries will make substantial efforts in CBDC piloting, and as reported, by 2023, several countries including Australia, Thailand, Brazil, India, South Korea and Russia would be initiating or resuming their pilot testing.

Table 1: Central Bank Digital Currency

Stage	# of countries	Countries
Lunched	11	Nigeria, Jamaica ….
Pilot	17	China, south Korea, Russia, Saudi Arabia, Australia ……
Development	33	Untied state, Canada, brazil, France, united kingdom, Japan…….
Research	39	Czech republic, Hungary, New Zealand …..
Inactive	15	Argentina, Egypt, Denmark …..
Canceled	2	Ecuador, Signal
Total	117	

Source: author gathering

Recent literature primarily focused on central bank digital currency and impacts on monetary policies in some different countries, albeit the literature is in its early stage but quickly growing, therefore it has become imperative to synthesize the overall literature related to digital currency and monetary policies around the world from different perspectives. In this time span there are no works collect or categorize the previous efforts in one document. The current paper

the contribution of this review provide and identify the most contributed authors whose publications could serve as a future benchmarks for researchers, the geographic coverage of central bank digital currency and monetary policy issues, and the most relevant journals. In line this review contributes to serve both researchers and policymakers by identifying research streams, condensing the findings of the most-cited papers. Last not least specify research gaps that provide directions for future research on central bank digital currency and monetary policy.

The study explores the extent to which the researchers would benefit from a wider application of the relationship between central bank digital currency and monetary policies. This study contributes to the literature by providing up to date review of the most recent studies related to central bank digital currency and business research and to help other researchers carry out studies in various subjects related. This study is expected to contribute to the literature in terms of the link between central bank digital currency and monetary policies. The classification of the literature can lead to identifying several open research questions to be explored very shortly.

The rest of the paper proceeds as follows. Section 2 discusses Literature review. Section 3 discusses the method used for the study. Section 4 reports findings from the bibliometric and content analyses of the selected papers on central bank digital currency and monetary policy. Section 5 concludes the study, and present the practical and theoretical implications and limitation.

2. Literature Review

Studies on digital currencies are on a rapid increase, and some were highlighting the potential of central bank digital currency alongside its varied choices of design. Accordingly, Bech and Garratt (2017) presented a taxonomy of money types, alongside the comparison of various types of potential digital currencies with current payment options, which could become a useful foundation. In a study by Mancini-Griffoli et al. (2018), issues associated with potential digital currency were comprehensively reviewed along with citations to various related papers. Relevantly, Kahn et al. (2019) and Kumhof and Noone (2018) deliberated the design choices for central bank in the adoption of digital currencies.

The issues of CBDC and its implications for payment systems, implementation of monetary policy, and financial stability have been examined in various studies. In their study, Keister and Sanches (2021) stated that in a perfectly competitive banking sector whereby deposits of banks are used in transactions, central bank digital currency may crowd out private bank deposits, resulting in banking system disintermediation. This is because, households and firms that find this new option as more lucrative may take considerable amount of funds from private bank and deposit it into the central bank digital

currency, and this may increase the costs of bank-funding which may cause bank lending and investment to decline. While By managing the Monetary, Payment System, and Financial System Stability areas, the Central Bank is dedicated to ensuring and upholding the value stability of the currency (Legowo & Juhartoyo 2022).

In addition, CBDCs crowd out bank deposits (Gross & Schiller, 2021) but can still be mitigated if the central bank increases central bank funds or dissuade large-scale accretion of CBDC by way of low CBDC interest rates. However, a flow of retail deposits into a CBDC could result in a loss of low-cost and stable funding for banks (Boaret al., 2021), and increase in rates of interest on bank loans (Mersch, 2017). The potential of CBDC benefits to be offset by the undesirable consequences of central bank disintermediating a large part of banks business models (Meaning et al., 2018). Digital currency could increase exchange efficiency but may also crowd out bank deposits, increase funding costs of bank, while also reducing investment.

CBDC can be a virtually costless medium of exchange, while assuring secure value store, and steady unit of account (Bordo & Levin, 2017) providing that it is account based and of interest-bearing, while true price stability is fostered by the framework of monetary policy. In another study, George et al. (2021) highlighted the benefit and economic effects of policy rules of the CBDC interest rate, and found that the price-based and quantity-based policy rules essentially bring better social welfare as opposed to the use of fixed-interest regimes. Also, agents who utilize CBDC appear to be at an advantage as opposed to those who do not. In their study, Barrdear and Kumhof (2016) examined the issuance of central bank digital currency (CBDC) with a universally-accessible and interest-bearing central bank liability as competitor to bank deposits, as medium of exchange, and reported that CBDC issuance of 30% of GDP against government bonds could increase GDP by 3% permanently because of lower real interest rates. However, the issuance of a CBDC by one economy would increase asymmetries in the international monetary system as it decreases monetary policy autonomy and welfare in the other economy (Minesso et al., 2022).

Schilling et al. (2020) were among those who reported the impact of central banks digital currency on monetary policy. CBDC can be an attractive alternative to the conventional demand deposits in private banks, but in offering CBDC accounts, there are some banking issues that central bank has to face including the issue of maturity transformation when making available the liquidity to private customers during "spending" shocks (Minesso et al., 2022). Notably, a CBDC can have attributes identical to cash or deposits, and can be interest bearing, and a CBDC with direct competition with deposits decreases credit and output of bank. On the other hand, a cash-like CBDC may annihilate cash. Meanwhile, the ideal CBDC design swaps bank intermediation against the social value of preserving the varied instruments of payment. The international monetary system is generally based on the US dollar (Agur et al., 2022), while cryptocurrencies have not been able to carry out money functions. However, CBDC on its own is not a threat to the key role of the US dollar, and CBDC may help central banks to establish an alternative cross-border payment system. Kochergin and Dostov (2020) added that CBDCs can enhance the traditional payment systems, and so, it can help improve the economic and social development. Relevantly, Davoodalhosseini (2021) stated that CBDCs are able to optimize the operating toolbox of monetary policy, making its transmission more efficient. Additionally, Nelson (2018) indicated that CBDC issuance will significantly affect central bank's management and financial regulation.

3. Methodology

A bibliometric method was used in this study to obtain quantifiable results on central bank digital currency and monetary policy studies published between 2013 and 2022. The combination of descriptive, integrative, systematic, or meta-analytic reviews with bibliometric review will assure reliable and valid measurable outcomes (Martínez-Climent et al., 2018). The use of bibliometric analysis and content analysis is increasingly common among scholars (Koskinen et al., 2008;

Alrawashdeh et al., 2022; Alshater et al. 2020). In addition, the method is differentiable from other comparable review techniques in offering an in-depth and insightful key aspects of the subject under scrutiny.

Bibliometric comprises the use of statistical methods to bibliographic data study (Pritchard, 1969). Meanwhile, quantitative methods should be used in screening the intellectual structure of scientific domains (Hota, Subramanian & Narayanamurthy, 2019), and quantitative methods have been commonly used when researcher wants to establish a general outlook of a given journal (Bar-Ilan, 2008). Through bibliometrics, large amounts of data could be explored, organized and analyzed (LezamaNicolás et al., 2018), allowing the researcher to understand the past and the present, and then determine the future directions.

In this study, Excel, VOSviewer and RStudio were the tools of analysis employed, in addressing the research questions. Among this software, VOSviewer was employed in the construction of networks involving journals, scientific articles, researchers, countries, organizations, and terms. Items in the networks can be linked through co-occurrence, citation, co-citation connections, co-authorship, and bibliographic coupling. The linkage allows the formation and display of bibliometric networks called maps (van Eck & Waltman, 2010).

The categories examined in this study were citations, network contents and the performance in general. Through the analysis of general performance, researcher could obtain data on literature growth over time, in addition to data on prominent authors, countries, and affiliations. Through citation analysis, researcher could determine the most cited authors, papers, and journals. Finally, network content, co-occurrence and clustering analyses were performed, with the inclusion of co-citation and bibliographical coupling.

Bibliometric analysis involves performance analysis and science mapping, whereby the former is associated with the contributions of the elements of research, and the latter presents the links between these elements.

Science mapping looks into the links between the elements of research (Cobo et al., 2011), and it involves the intellectual interactions and structural connections among research elements. Citation, co-citation, co-word and co-authorship analyses, and bibliographic coupling are among the techniques used in science mapping, and when combined with network analysis, Tunger and Eulerich (2018) indicated that science mapping could show the bibliometric and intellectual structures of the research domain.

4. Results and Discussion

The results associated with three major categories reviewed in this study are comprehensively discussed in this section. Accordingly, the following section presents the overview of publication on the gathered input data, followed by a section that discusses Citation Analysis, and then a section that discusses Network Analysis.

4.1 Publication Overview

Bibliometric analysis process begins with data analysis of general information (publication overview). As displayed in Table 2, there were 293 documents obtained from analyses carried out in this paper, and these documents were published in the period between 2013 and 2022. The documents were obtained from 217 sources including Journals, Books, and others.

Based on data from Scopus database, each document was cited 4.113 times on Average, and this average value was considered not very high owing to the small number of available documents in the database (293 documents). The small number documents can be associated with the newness of the topic in the literature, and, within the past three years, there has been an increased interest towards this subject among scholars. Furthermore, each document was cited 1.2 times per year on average, and this implies good connection and increasing academic collaboration in studies involving Digital currency

and central banks.

Table 2: Summary of the Overview

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2013:2022
Sources (Journals, Books, etc)	217
Documents	293
Average years from publication	1.2
Average citations per documents	4.113
References	15188
DOCUMENT TYPES	
article	230
book	6
book chapter	28
conference paper	51
conference review	4
erratum	1
note	12
review	4
short survey	1
Authors	670
Author Appearances	765
Authors of single-authored documents	116

The period of study was 9 years, specifically from 2013 to 2022, and this time duration shows the increasing interest towards the subject (Digital currency and central banks) among scholars. As can be observed in Figure 2, the number of publications indexed in the Scopus database was showing annual increase, from one document published each in 2013 and 2014, to 147 documents published in 2022. Additionally, the highest number of publication can be observed in the past three years, following the increased adoption of digital currency among some central banks globally.
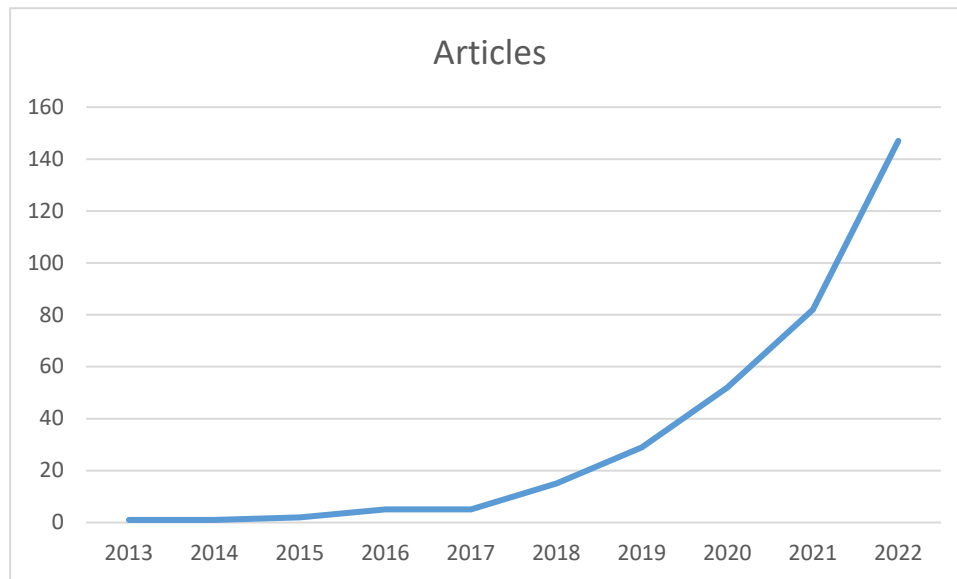

Fig.1: articles growth pattern

4.2 Most influential authors, affiliations, and countries

Scientific community of authors, sources, and affiliations were among the factors contributing to the increase in the number of articles in this field. Accordingly, Table 3 provides guidance in identifying leading journals in this field, and as observed, Elsevier, MDPI, Springer Nature, Taylor & Francis and IEEE have been among the sources of the most productive journals. As shown by the table, 19 related documents were found in JOURNAL OF PAYMENTS STRATEGY AND SYSTEMS, while 8 documents were found in JOURNAL OF ECONOMIC DYNAMICS AND CONTROL, and 7 documents was found each, in LECTURE NOTES IN NETWORKS AND SYSTEMS and RESEARCH IN INTERNATIONAL BUSINESS AND FINANCE. Based on the results, all sources were related to finance and economy. Meanwhile, three sources were published with Elsevier affiliated publisher.

Table 3: Most relevant journals

Sources	Articles	Publisher	SJR 2021
JOURNAL OF PAYMENTS STRATEGY AND SYSTEMS	19	Henry Stewart Publications	0.246
JOURNAL OF ECONOMIC DYNAMICS AND CONTROL	8	Elsevier	1.154
LECTURE NOTES IN NETWORKS AND SYSTEMS	7	Springer Nature	0.151
RESEARCH IN INTERNATIONAL BUSINESS AND FINANCE	7	Elsevier	1.043
CHINA ECONOMIC JOURNAL	6	Taylor & Francis	0.338
SUSTAINABILITY (SWITZERLAND)	6	MDPI	0.664
FINANCE: THEORY AND PRACTICE	5	Government of Russian Federation	0.198
IEEE ACCESS	5	IEEE	0.927
JOURNAL OF CENTRAL BANKING THEORY AND PRACTICE	5	Walter de Gruyter	0.357
JOURNAL OF MONETARY ECONOMICS	5	Elsevier	4.767

Analysis was performed to identify the most relevant publication institutions in researches in Digital currency and central banks. As can be viewed in Table 4, SEOUL NATIONAL UNIVERSITY, which is a national public research university in Seoul, had released 15 documents. Meanwhile, 10 documents were published by STATE KEY LABORATORY OF INFORMATION PHOTONICS AND OPTICAL COMMUNICATIONS, and 8 documents were published each, by NINGBO UNIVERSITY and SCHULTE ROTH AND ZABEL LLP.

Table 4: Most relevant institutions

Affiliations	Articles
SEOUL NATIONAL UNIVERSITY	15
STATE KEY LABORATORY OF INFORMATION PHOTONICS AND OPTICAL COMMUNICATIONS	10
NINGBO UNIVERSITY	8
SCHULTE ROTH AND ZABEL LLP	8
BEIJING UNIVERSITY OF POSTS AND TELECOMMUNICATIONS	7
CATHOLIC UNIVERSITY OF ÁVILA	7
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA	7
NOTREPORTED	7
UNIVERSITY OF COIMBRA	6
BOCCONI UNIVERSITY	5

Countries most productive in the publication of documents related to Digital currency and central banks were shown in the following Table 5, and as shown, China was rated the highest publisher with 117 documents published, followed by USA with publication of 70 documents, UK with 52 publications, and South Korea with 51 documents published.

Table 5: Number of articles per country

Region	Freq	Region	Freq
CHINA	117	INDIA	28
USA	70	ITALY	23
UK	52	SPAIN	21
SOUTH KOREA	51	SWITZERLAND	21
GERMANY	44	CANADA	20

4.3 Citation Analysis

Citation analysis is performed to examine the frequency and graphs of citations articles, whereby one document is linked to another document. This analysis is also performed to analyze documents to find their connections with other documents. In this study, citation analysis was part of bibliometric methodology to examine Digital currency and central banks. Bibliometric analysis involves performance analysis and science mapping. Specifically, performance analysis is performed to determine the contributions of research elements, while science mapping is performed to identify the relationships existing between research elements (Cobo et al., 2011; Ramos-Rodrígue & Ruíz-Navarro, 2004). Science mapping also identifies the intellectual interactions and structural connections existing among research elements, and among the techniques used in science mapping are: citation analysis, co-citation analysis, co-word analysis, co-authorship analysis, and bibliographic coupling. When the techniques are combined with network analysis, the bibliometric and the intellectual structure of the research domain could be identified (Tunger & Eulerich, 2018).

In visualizing the network, VOSviewer was used in this study. Here, every node within a network signifies an entity like keyword, journal article, author, country, and institution. In Figures 2, 3, 4, 5 and 6, the nodes represent coupling of countries, Co-authorship among countries and Co-citation of the top journals. Here, it should be noted that: node size signifies topic occurrence, the link between the nodes signifies co-occurrence between topics, link signal thickness signifies the occurrence of co-occurrences between topics, bigger node denotes higher occurrence of the topics, and thicker link between nodes denotes higher occurrence of the co-occurrences between topics. Each thematic cluster has specific color, and the nodes and links with a given cluster describe the coverage of the theme (cluster) of the said topics (nodes) and the links between the topics (nodes) that exist under the said theme.

Most Cited Documents:

The most cited documents related to Digital currency and central banks obtained from Scopus database for the 2013-2022 period are laid down in Table 6. In the analysis performed, the chosen articles were those cited 20 times at minimum. As shown, a document titled "Semi-strong efficiency of Bitcoin" authored by David Vidal-Tomás and Ana Ibañez (2018) which was published in Finance Research Letters, had been cited 130 times, and this was followed by a book chapter titled "Understanding Bitcoin: Cryptography, Engineering, and Economics" authored by Pedro Franco published in Wiley Online Library in 2014, which had been cited 96 times. All documents displayed in Table 6 were published by very reputable and specified economic and finance journals.

Table 6: Most cited documents

Rank	Authors/year	Title	Source title	Cited
1	David Vidal-Tomás & Ana Ibañez. 2018	Semi-strong efficiency of Bitcoin	Finance Research Letters	130
2	Pedro Franco. 2014	Understanding Bitcoin: Cryptography, Engineering, and Economics	Wiley Online Library	108
3	Pasquale, et al., 2017	Current Trends in Sustainability of Bitcoins and Related Blockchain Technology	Sustainability	96
4	Markus K.Brunnermeier & DirkNiepelt. 2019	On the equivalence of private and public money	Journal of Monetary Economics	44
5	Alexey Yu. Mikhaylov. 2021	Development of Friedrich von Hayek's theory of private money and economic implications for digital currencies	TERRA ECONOMICUS	42
6	Jesús, et al., 2021	Central bank digital currency: Central banking for all?	Review of Economic Dynamics	28
7	Qian Yao. 2018	A systematic framework to understand central bank digital currency	Science China Information Sciences	26
8	Nikola Fabris. 2019	Cashless Society – The Future of Money or a Utopia?	Journal of Central Banking Theory and Practice	25
9	He Sun, 2017	Multi-Blockchain Model for Central Bank Digital Currency	IEEE Xplore	25
10	JohnBarrdear & MichaelKumhof. 2022	The macroeconomics of central bank digital currencies	Journal of Economic Dynamics and Control	23

Most Cited Countries:

Figure 2 presents the Geographical contribution on the publications on Digital currency and central banks for the 2013-2022 period, in terms of the most active countries, represented by frequency of publication. Notably, the countries referred to the country of affiliation of the author during publication. As shown in the Figure, USA, Spain and China led the research on Digital currency and central banks.
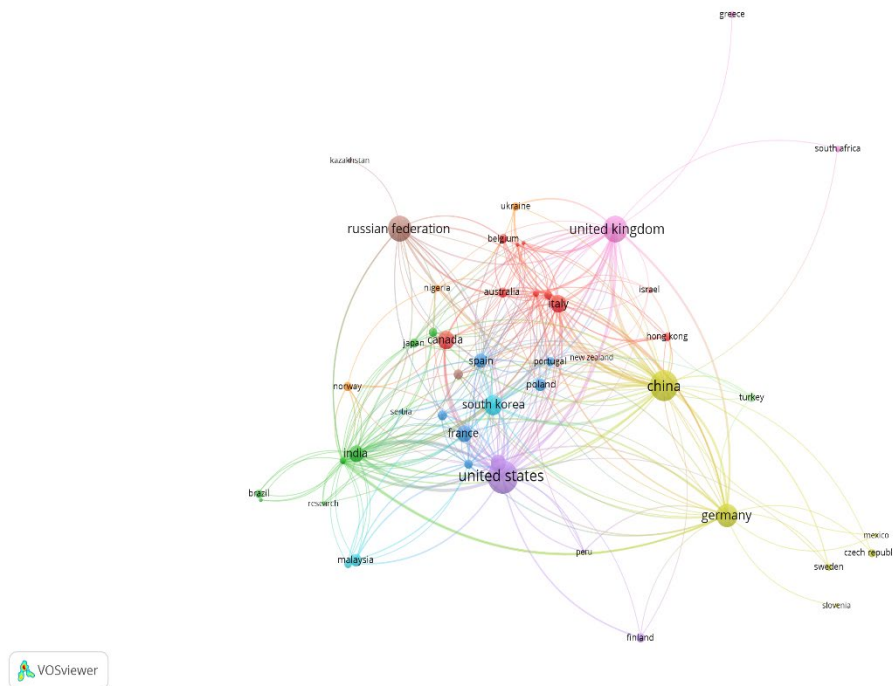

Fig. 2: Most cited countries

Network Analysis:
Co-Citation Analysis:

Co-citation analysis has been commonly used by scholars, and this analysis involves the execution of automatic clustering for big datasets and the identification of cases in which two documents cite similar third work in their lists. Small (1999) described this technique of analysis as a measurement in the identification of the link existing between cited articles. This technique of analysis was performed in this study and the results are displayed in Figure 3. As shown, there were three major sources. The first source was finance research letters (cited 78 times) with overall strength of connection of 5534 highest Co-citations of sources, while the second source was Bis quarterly review (cited 62 times) with overall strength of connection of 1462 highest Co-citations of sources. In particular, Bis is an acronym of Bank for International Settlements owned by 63 central banks globally, accounting for approximately 95% of world GDP in total. Bis was established in 1930. Journal of monetary economics was the third source with 56 citations and overall strength of connection of 1815 highest Co-citations of sources.
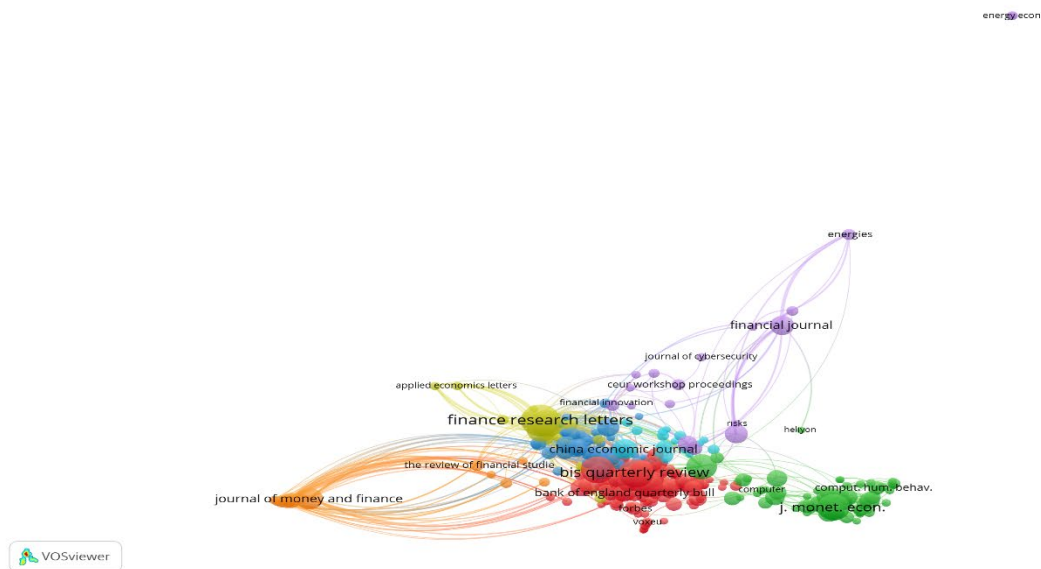

Fig. 3: Co-citations of sources

Co- Authorship Analysis:

The analysis of co-authorship or the analysis of network visualization of key authors is carried out to identify the links among key authors based on citation (Pattnaik et al., 2020). In this study, the analysis was carried out to find out the papers with the highest score - higher score means stronger link between two documents. Accordingly, results of co-authorship network analysis performed in this study are displayed in the following Figure 4. As shown, thick and large nodes means that the author in question is very important in the field in question. As shown, the document authored by Auer R. was cited 160 times with 4309 total link strength, and thus, the author was regarded as the most influential in Digital currency and central banks domain, followed by the work by Kumhof M. that had been cited 124 times with the overall link strength of 3494.
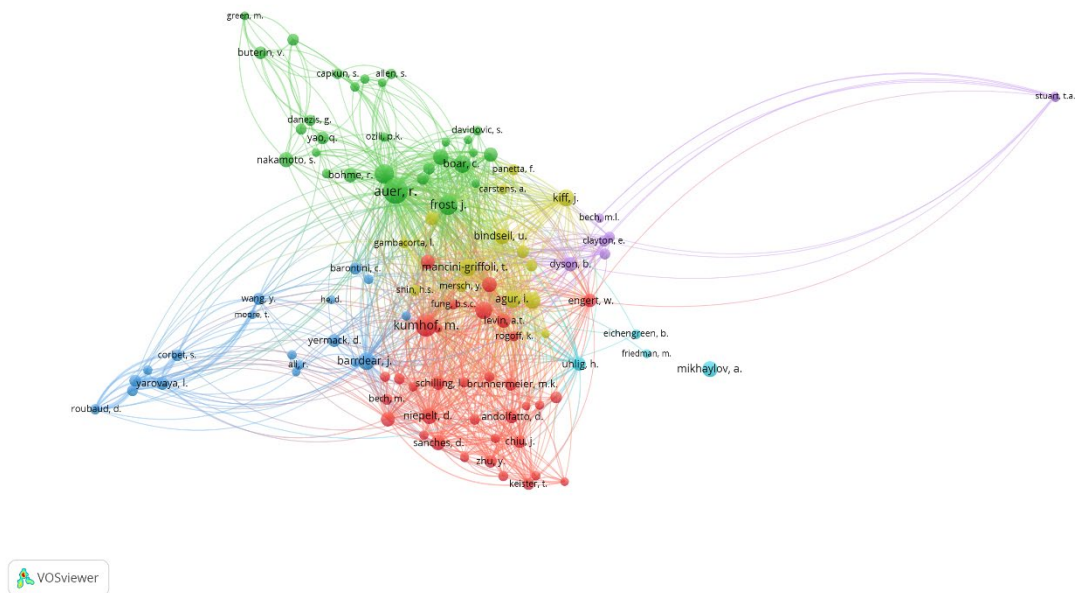
Fig.4: Co-citation of authors

Keyword Occurrence and Connectivity:

Keyword analysis is performed to refine the clusters and identify the research streams. Accordingly, VOSviewer software was used in this study to execute the keyword analysis and the results are displayed in the following Figure 5. The results involved four clusters (Digital currency and central banks studies cluster, central bank cluster, blockchain cluster, and digital currency cluster). As shown, Digital currency and central banks studies cluster was the most prominent cluster, followed by central bank cluster, blockchain cluster, and lastly, digital currency cluster. Next, the top 20 keywords employed by authors were displayed in Figure 5. The use of keywords facilitates the use of bibliographical coupling in the identification of the streams within that Digital currency and central banks. Based on these results, researcher makes recommendations for future studies.
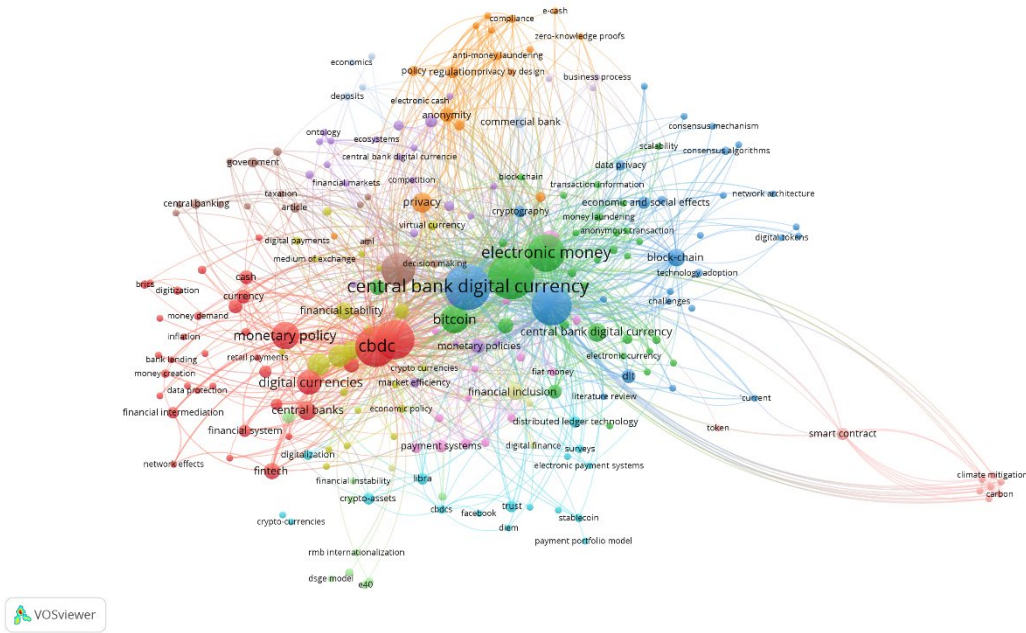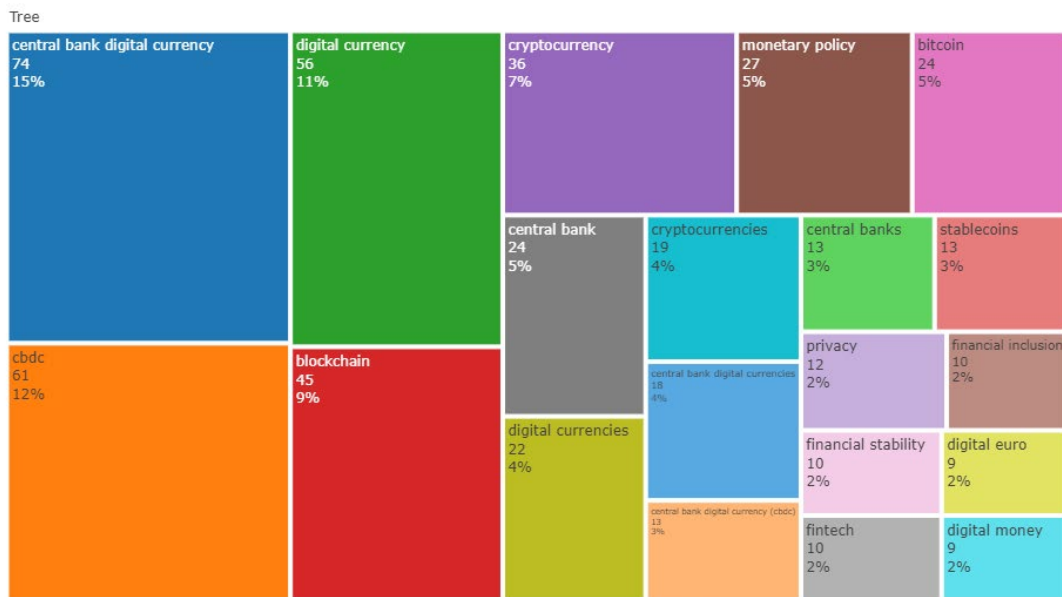
Fig.5: Keyword occurrence and connectivity

Fig.6: Tree map for top 20 keywords used by authors

5. Conclusion

In this study, scientometric overview of Central Banks Digital Currency and Monetary Policy was presented, involving publications of related documents during the 2013 – 2022 period. During this period of 9 years, a total of 293 documents on Central Banks Digital Currency and Monetary Policy were published. These documents were primarily in the form of articles with 15188 Scopus citations. It was clear from the results that the past four years were witnessing dramatic increase in the number of publications and citations of documents related to Central Banks Digital Currency and Monetary Policy.

As shown, year 2020 onwards showed the highest number of documents published. Most documents were authored by two or three authors.

As shown, a work titled "Semi-strong efficiency of Bitcoin" by David Vidal-Tomás and Ana Ibañez published in 2018 was the most cited document (cited 130 times), followed by a work titled "Understanding Bitcoin: Cryptography, Engineering, and Economics" authored by Pedro Franco in 2014 (cited 108 times), and next in line was a paper titled "Current Trends in Sustainability of Bitcoins and Related Blockchain Technology" written by Pasquale et al. in 2017 (cited 96 times), which was followed by a paper titled "On the equivalence of private and public money" authored by Markus K. Brunnermeier and DirkNiepelt in 2019 (cited 44 times).

In terms of countries most contributive to the literature on Central Banks Digital Currency and Monetary Policy; USA was the leading country, followed by China, and UK. In terms of the frequency of being cited, USA was the leading country, followed by Spain and China. With respect to the institutions most contributive to the literature in question, SEOUL NATIONAL UNIVERSITY in Korea was the leading institution, followed by STATE KEY LABORATORY OF INFORMATION PHOTONICS AND OPTICAL COMMUNICATIONS which is an independent institution, and NINGBO UNIVERSITY in China. Lastly, scholarly works on Central Banks Digital Currency were published in high-ranked journals in the field including JOURNAL OF PAYMENTS STRATEGY AND SYSTEMS, JOURNAL OF ECONOMIC DYNAMICS AND CONTROL, and LECTURE NOTES IN NETWORKS AND SYSTEMS.

To sum up, the past decade has seen the adoption of digital currencies among central banks as one vital academic outlet for high-quality papers in the domains of economics and finance. This study presents understanding to both readers and journals stakeholders through its prediction on the impacts of future path and publication trends of CBDC on monetary policy globally.

Limitation

The survey's focus on the bibliometric analysis from the Scopus database is one of the study's shortcomings. The database has a number of flaws that have reduced the research's universality. Failures are books like preprint books, Google books, and conference proceedings that aren't well covered in the Scopus database. Additionally, it excludes works that were released in tongues other than English. Furthermore, there is a good likelihood that not all articles included in the Web of Science indices are covered by the study. In addition, figures from other sources, such as the science website, were not included in the study. The study also did a retrospective examination of visual analysis between 2013 and 2022. The full temporal study would have provided insight into how the trends were formed.

References

Agur, I., Ari, A., & Dell'Ariccia, G. (2022). Designing central bank digital currencies. *Journal of Monetary Economics*, *125*, 62-79.

Al-Omoush, K. S., Al Attar, M. K., Saleh, I. H., & Alsmadi, A. A. (2019). The drivers of E-banking entrepreneurship: an empirical study. *International Journal of Bank Marketing*, *38*(2), 485-500.

Alrawashdeh, N., Alsmadi, A. A., & Anwar, A. L. (2022). FinTech: A Bibliometric Analysis for the Period of 2014-2021. Quality - Access to Success 23(188), pp. 176-188.

Alshater, M. M., Atayah, O. F., & Khan, A. (2022). What do we know about business and economics research during COVID-19: a bibliometric review. *Economic Research-Ekonomska Istraživanja*, *35*(1), 1884-1912.

Alshater, M. M., Hassan, M. K., Khan, A., & Saba, I. (2020). Influential and intellectual structure of Islamic finance: a bibliometric review. *International Journal of Islamic and Middle Eastern Finance and Management*.

Alsmadi, A. A., Sha'ban, M., & Al-Ibbini, O. A. (2019, February). The Relationship between E-banking Services and Bank Profit in Jordan for the Period of 2010-2015. In *Proceedings of the 2019 5th International Conference on E-Business and Applications* (pp. 70-74).

Alsmadi, A. A., Shuhaiber, A., Alhawamdeh, L. N., Alghazzawi, R., & Al-Okaily, M. (2022). Twenty years of mobile banking services development and sustainability: A bibliometric analysis overview (2000–2020). *Sustainability*, *14*(17), 10630.

Alsmadi, A., Alrawashdeh, N., Al-Dweik, A., & Al-Assaf, M. (2022). Cryptocurrencies: A bibliometric analysis. *International Journal of Data and Network Science*, *6*(3), 619-628.

Bar-Ilan, J. (2008). Informetrics at the beginning of the 21st century—A review. *Journal of informetrics*, *2*(1), 1-52.

Barrdear, J., & Kumhof, M. (2016). The macroeconomics of central bank issued digital currencies.

Barrdear, J., & Kumhof, M. (2022). The macroeconomics of central bank digital currencies. *Journal of Economic Dynamics and Control*, *142*, 104148.

Bech, M. L., & Garratt, R. (2017). Central bank cryptocurrencies. *BIS Quarterly Review September*.

Boar, Codruta and Andreas Wehrli (2021) "Ready, steady, go? Results of the third BIS survey on central bank digital currency," Bank for International Settlements Paper No. 114, January.

Bordo, M. D., & Levin, A. T. (2017). *Central bank digital currency and the future of monetary policy* (No. w23711). National Bureau of Economic Research.

Brunnermeier, M. K., & Niepelt, D. (2019). On the equivalence of private and public money. *Journal of Monetary Economics*, *106*, 27-41.

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for information Science and Technology*, *62*(7), 1382-1402.

Davoodalhosseini, S. M. (2022). Central bank digital currency and monetary policy. *Journal of Economic Dynamics and Control*, *142*, 104150.

Didenko, A. N., Zetzsche, D. A., Arner, D. W., & Buckley, R. P. (2020). After Libra, Digital Yuan and COVID-19: Central Bank digital currencies and the new world of money and payment systems.

Fabris, N. (2019). Cashless society–the future of money or a utopia?. *Journal of Central Banking Theory and Practice*, *8*(1), 53-66.

Fernández-Villaverde, J., Sanches, D., Schilling, L., & Uhlig, H. (2021). Central bank digital currency: Central banking for all?. *Review of Economic Dynamics*, *41*, 225-242.

Franco, P. (2014). *Understanding Bitcoin: Cryptography, engineering and economics*. John Wiley & Sons.

George, A., Xie, T., & Alba, J. D. (2021). Central bank digital currency with adjustable interest rate in small open economies. *Available at SSRN 3605918*.

Giungato, P., Rana, R., Tarabella, A., & Tricase, C. (2017). Current trends in sustainability of bitcoins and related blockchain technology. *Sustainability*, *9*(12), 2214.

Gross, J., & Schiller, J. (2021). A model for central bank digital currencies: Implications for bank funding and monetary policy. *Available at SSRN 3721965*.

Hota, P. K., Subramanian, B., & Narayanamurthy, G. (2020). Mapping the intellectual structure of social entrepreneurship research: A citation/co-citation analysis. *Journal of Business Ethics*, *166*(1), 89-114.

Kahn, C. M., Rivadeneyra, F., & Wong, T. N. (2019). Should the central bank issue e-money?. *Money*, 01-18.

Keister, T., & Sanches, D. R. (2021). Should central banks issue digital currency?. *Available at SSRN 3966817*.

Kochergin, D., & Dostov, V. (2020, June). Central Banks Digital Currency: Issuing and Integration Scenarios in the Monetary and Payment System. In *International Conference on Business Information Systems* (pp. 111-119). Springer, Cham.

Koskinen, J., Isohanni, M., Paajala, H., Jääskeläinen, E., Nieminen, P., Koponen, H. & Miettunen, J. (2008). How to use bibliometric methods in evaluation of scientific research? An example from Finnish schizophrenia research. *Nordic journal of psychiatry*, *62*(2), 136-143.

Kumhof, M., & Noone, C. (2018). Central bank digital currencies-design principles and balance sheet implications.

Lezama-Nicolás, R., Rodríguez-Salvador, M., Río-Belver, R., & Bildosola, I. (2018). A bibliometric method for assessing technological maturity: the case of additive manufacturing. *Scientometrics*, *117*(3), 1425-1452.

Mancini-Griffoli, T., Peria, M. S. M., Agur, I., Ari, A., Kiff, J., Popescu, A., & Rochon, C. (2018). Casting light on central bank digital currency. *IMF staff discussion note*, *8*(18), 1-39.

Martínez-Climent, C., Zorio-Grima, A., & Ribeiro-Soriano, D. (2018). Financial return crowdfunding: literature review and bibliometric analysis. *International Entrepreneurship and Management Journal*, *14*(3), 527-553.

Meaning, J., Dyson, B., Barker, J., & Clayton, E. (2018). Broadening narrow money: monetary policy with a central bank digital currency.

Mersch, Y. (2017). Digital Base Money: a few considerations from a central bank's perspective. In *Annales des Mines-Realites industrielles* (No. 4, pp. 33-35). FFE.

Mikhaylov, A. (2021). Development of Friedrich von Hayek's theory of private money and economic implications for digital currencies. *Terra Economicus*, *19*(1), 53-62.

Minesso, M. F., Mehl, A., & Stracca, L. (2022). Central bank digital currency in an open economy. *Journal of Monetary Economics*, *127*, 54-68.

Nelson, S. (2018). Private information and price regulation in the us credit card market. *Unpublished Working Paper*.

Pritchard, R. D. (1969). Equity theory: A review and critique. *Organizational behavior and human performance*, *4*(2), 176-211.

Schilling, L., Fernández-Villaverde, J., & Uhlig, H. (2020). *Central bank digital currency: When price and bank stability collide* (No. w28237). National Bureau of Economic Research.

Small, H. (1999). Visualizing science by citation mapping. *Journal of the American society for Information Science*, *50*(9), 799-813.

Sun, H., Mao, H., Bai, X., Chen, Z., Hu, K., & Yu, W. (2017, December). Multi-blockchain model for central bank digital currency. In *2017 18th International conference on parallel and distributed computing, applications and technologies (PDCAT)* (pp. 360-367). IEEE.

Tunger, D., & Eulerich, M. (2018). Bibliometric analysis of corporate governance research in German-speaking countries: applying bibliometrics to business research using a custom-made database. *Scientometrics*, *117*(3), 2041-2059.

Van Eck, N., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *scientometrics*, *84*(2), 523-538.

Vidal-Tomás, D., & Ibañez, A. (2018). Semi-strong efficiency of Bitcoin. *Finance Research Letters*, *27*, 259-265.

Yao, Q. (2018). A systematic framework to understand central bank digital currency. *Science China Information Sciences*, *61*(3), 1-8.

Mohammed, N., Al-Malah, D. & Yousif, A. (2023). An Empirical Study on the Impact of Digital Innovation in Achieving the Digital Organizational Identity. *Journal of System and Management Sciences*, *13*(1), 467-484.

Legowo, N., & Juhartoyo, Y. (2022). Risk Management; Risk Assessment of Information Technology Security System at Bank Using ISO 27001. *Journal of System and Management Sciences*, *12*(3), 181-199.