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# Bibliometric Analysis of Central Bank Digital Currency Research

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## Introduction

The topic of central bank digital currency (CBDC) became relevant after the announcement of the planned issuance of Diem cryptocurrency in 2019. Central banks and other financial institutions became concerned about monetary sovereignty and financial stability. This has led to a strong interest to fully explore the possibility of the emergence of CBDC and its implications for countries' monetary policy. With the rapid growth of scientific output in the research topic, it is important to perform a bibliometric analysis of the central bank digital currency research. The data scope of our research consists of 61 papers, extracted from the Web of Science database; the analysis was conducted via VOSviewer software. Our paper firstly focuses on the methodology, then we write about our data and results. Finally, we move on to the conclusion.

## 1. Methodology

In this paper we use bibliometric analysis with the aim to segregate the most popular CBDC research topic trends by conducting co-citation, bibliographic coupling, co-authorship and co-occurrence analysis. This paper works with the articles from Web of Science (WoS) for the 2016–2021 period. We selected all indexed papers with a compound of words “Central Bank Digital Currency” and the abbreviation “CBDC” included in the topic title. That brings a total of 61 publications that will be used in the analysis. The analysis was conducted through a bibliometric study using Visualisation of similarities (VOS) viewer software.

## 2. Data and results

The results showed that in 2018 there was only 5 Web of Science indexed CBDC publications; 2019 also did not have a significant increase of papers as the record count was 10. However, we see a vast increase in the number of published CBDC research papers. We explored the dynamics of published papers thorough the years and found that the most papers about CBDC were published in 2020-2021 period.

At the moment the most papers are published by authors from China, England and USA. The most contributing countries in terms of publications are one of the biggest world's states, resulting in a relatively higher number of researchers, thus the possibility of their interest in researching CBDC is more likely. In addition, the previously mentioned states' central banks at the moment are making pilot versions of CBDC or at least are doing extensive research. It leads to growing scientists' interest in the topic in the mentioned countries. It is also interesting to see the visual representation of countries' publications (Figure 1). For now the biggest countries (China, England, USA, Russia) involved in CBDC research are dominating the shared references.

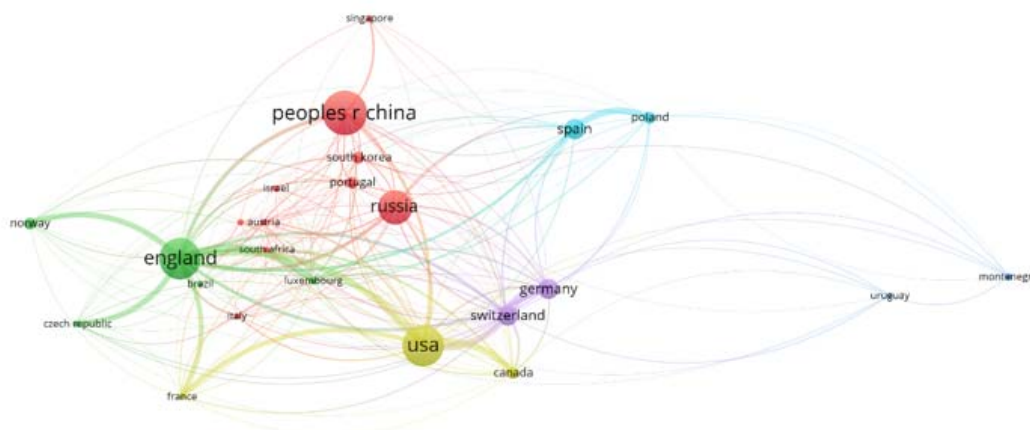


Figure 1. **Bibliographic coupling by country**

Source: compiled by authors

Among the top five publishers of CBDC related papers the most popular one is The China Economic Journal (or China Economic Review) with 6 publications; The Sustainability is also an important publication source with 4 publications of CBDC research; The IEEE Access and The Future Internet both equally published 3 papers from the CBDC research field. Both of the sources welcome multidisciplinary papers.

Bibliographic coupling analysis reveals that almost every paper is related in terms of citing the same references. The node which represents Fabris' (2019) paper "Cashless Society - The Future of Money or a Utopia?" is the biggest, meaning it is a publication which has the most shared references.

Moreover, we found the most cited articles by using co-citation analysis. The most cited article (in total 10 citations) is Nakamoto's "Bitcoin: A Peer-to-Peer Electronic Cash System". The second publication of Berentsen and Schar (2018), "The Case for Central Bank Electronic Money and the Non-case for Central Bank Cryptocurrencies", was also

cited 10 times. Further co-citation analysis reflect that the most cited authors or sources include European Central Bank (24 citations), Auer (22 citations), Bordo (19 citations), Kumhof (18 citations), and Tobin (18 citations).

Lastly, we explore which research papers are cited the most. The results suggest that Fabris' paper was the most popular citation; Brunnermeier's "On the equivalence of private and public money" was the second most cited source.

## Conclusions

Our analysis indicates that the field of CBDC has not been deeply explored. However, the growing relevance of the topic has led to a dramatic increase in the number of scientific articles on the subject in recent years. We identified that the most scientific articles are written by the biggest world's economies. Also, the most favourable journals for CBDC publications are those of multidisciplinary kind. Given the overall picture of the study, the involvement of the investigating states in the high-quality CBDC analysis is largely visible; we also see that publications and authors have a weak link in terms of how many times authors cite each other. Finally, for the subsequent studies we recommend using CBDC research papers listed in several databases as it would widen the research scope.

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