

Systematic Literature Review on Crypto Currency Adoption and Ways to Look Beyond

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Abstract

Cryptocurrency represents a recent and substantial breakthrough within the realm of finance. The objective is to provide a currency that is independent of government creation, control, or backing. Cryptocurrency employs blockchain technology as its foundational financial platform. The adoption of cryptocurrency has surged, leading to a substantial expansion in the market. The main goal of this study is to identify key contributors, central areas, current dynamics, and suggest potential directions for future research within this particular field. The systematic literature review (SLR) follows the guidelines set forth in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol. In this paper, a methodological approach is utilized that combines a systematic literature review with bibliometric, network, and content analysis techniques. A set of 105 studies sourced from the Dimensions database is scrutinized to explore the research efforts related to this subject. By employing bibliometric methods, five separate research clusters have been identified, and a comprehensive content analysis has been performed on the papers affiliated with these clusters. The primary research focus in this domain centers on the investigation of factors affecting cryptocurrency adoption, the security concerns related to crypto usage, returns linked to cryptocurrency investments, environmental and legal considerations associated with cryptocurrency mining, and the diverse applications of cryptocurrency across various sectors.

Keywords: Cryptocurrency adoption · Systematic literature review · Bibliometric analysis · Network analysis · Content analysis · Co-citation

1. Introduction:

The cryptocurrency sector has rapidly advanced in recent years, with a corresponding increase in its adoption. Cryptocurrencies employ cryptographic techniques to securely transmit digital data, guaranteeing the validity and legitimacy of transactions. It is regarded as an innovation within the realm of virtual currencies and the financial sector alike. Cryptocurrency is designed to replace traditional paper currencies, offering a peer-to-peer means of exchange. The cryptocurrency sector has witnessed tremendous growth. The cryptocurrency market experiences fluctuations because of its notable volatility. The market value of the industry surpasses that of several prominent technology companies and even some national economies.

Bitcoin pioneered the realm of digital currencies and continues to hold the top position. Its original purpose was to enable direct online transactions between individuals, deliberately bypassing the necessity of involving traditional financial institutions (Adam and Dzung Alhassan 2020). Despite the considerable attention it has garnered, the latest research conducted by (Ooi et al. 2021) highlights that security and trust are identified as "the primary barriers preventing

governments from sanctioning Bitcoin transactions, potentially deterring many prospective Bitcoin users." In their 2022 study, (Koroma et al. 2022) investigate how trust impacts the decision-making behavior of citizens concerning blockchain-based cryptocurrencies.

As of November 2019, Bitcoin ranks as the sixth most widely circulated currency globally (Saiedi, Broström, and Ruiz 2021). In summary, cryptocurrency adoption is taking place rapidly and on a widespread scale. While an increasing volume of theoretical literature is dedicated to exploring the factors that drive individuals or businesses to embrace cryptocurrencies, studies investigating the factors propelling cryptocurrency adoption are lacking (Cohen 2017), (Dierksmeier and Seele 2018).

This study suggests conducting a comprehensive literature review coupled with bibliometric analysis, which integrates both qualitative as well as quantitative approaches to consolidate existing research, pinpointing emerging research avenues, pinpoint areas with limited research, and offer guidance for future research. In this context, following research queries are explored:

Question 1: What are the present trends in cryptocurrency publications in terms of journals, authors, institutions and countries and institutions?

Question 2: What constitutes intellectual framework within recent research areas and budding elements that are interconnected with the subjects of cryptocurrency and consumer trust?

Question 3: What areas show gaps, and what paths should future research take?

2. Methodology

2.1. Analysis Method

Bibliometric analysis, among the various methodologies available for conducting a systematic review, has gained popularity in numerous disciplines and enjoys broad utilization (Ruggeri, Orsi, and Corsi 2019). Bibliometric techniques have the potential to mitigate subjective bias and direct researchers toward the most pertinent studies, thereby enhancing the quality of a SLR (Zupic and Čater 2015). Furthermore, SLR is well-suited to uncover the present scenario of research as well as prospects for future directions (Paul and Bhukya 2021). In present study, a SLR methodology was employed in conjunction with bibliometric analysis to conduct a thorough assessment of cryptocurrency and consumer trust. The goal was to offer insights into prevailing research interests and uncover emerging trends in this field.

Bibliometric methods typically center on practices like citation analysis along with co-citation analysis, and bibliographic coupling (Zupic and Čater 2015). In current work, citation analysis was employed for furnishing information regarding magnitude and influence of researches pertaining to cryptocurrency. Additionally, for exploring dominant themes and constructing a scientific map, researches were categorized in clusters using bibliographic coupling analysis which has the capacity to shed light on current developments and evolving patterns, rendering it an apt choice for this research. For bibliometric analysis and graphical representation, we employed VOS Viewer software (version 1.6.15). Subsequently, an in-depth analysis of the content within every cluster is conducted. The study provides a synthesis of findings, identifies research gaps, and explores potential directions for future research.

2.2. Data Extraction Process:

The term "cryptocurrency" was utilized as a keyword to gather data. Search has been conducted specifically based on titles, abstracts, and keywords, as opposed to conducting fulltext searches, to enhance pertinence of results. To uphold quality of studies included in our review, we implemented a filter that only considered articles published in prominent peer-reviewed journals. Furthermore, the selected articles were required to be written in English (Vrontis et al. 2021).

In accordance with the PRISMA protocol, the initial phase of the screening process revolves around the identification of pertinent articles. The search strings used in the Dimensions database resulted in the discovery of 427 scholarly articles that have undergone a peer review process. At this juncture, the identified articles may exhibit duplications and could potentially

encompass publications in languages other than English. After the initial phase, we conducted a screening process by setting the language filter to English, which served to reduce the number of articles. In the end, after removing duplicates and non-English articles, a total of 266 articles were retained. Finally, 105 articles are selected for in-depth reading, bibliometric coupling and cluster analysis after screening the title and abstract.

Figure 1 depicts the searching steps undertaken.

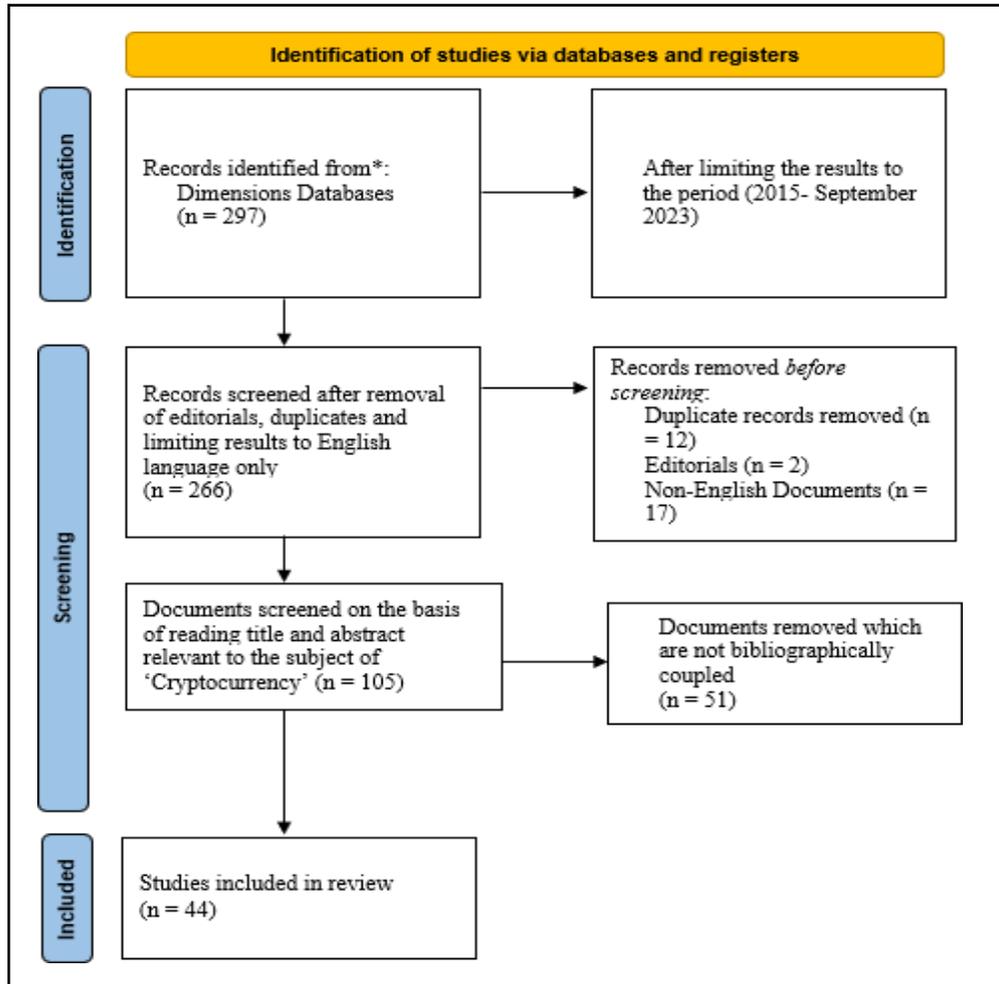


Fig. 1: PRISMA Systematic Review Protocol 2020

Source: Author's own workResults

2.3. Trend of publication in time/evolution of publications

Figure 2 illustrates the yearly progression of publications. It has been identified that research

publications only started to emerge from 2017 and experienced a significant increase since then. It's important to highlight that the post-2017 surge aligns with the formal acknowledgment of cryptocurrencies by governments and financial markets. This trend demonstrates that the subject being examined is relatively recent and increasingly capturing attention, providing evidence of the theme's significance.

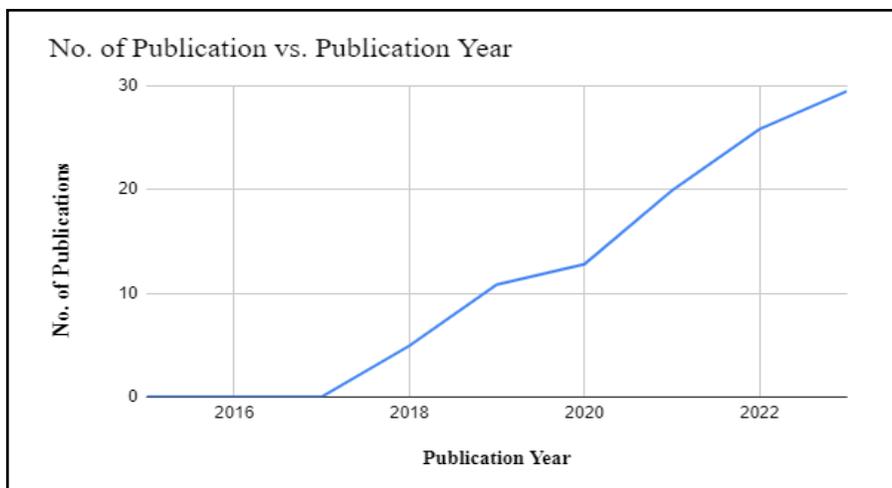


Fig. 2: Year Wise Publication Trend (2018-2023)

Source: Author’s own work

2.4. Leading journals, institutions (Universities), and countries:

Based on the primary sources gathered, it is apparent that the study of cryptocurrency and consumer trust takes on a multidisciplinary approach. It is evident that a wide range of journals have made contributions to this field. As for the author's affiliated institution, the universities that produced the most publications were Hong Kong Polytechnic University in China, the University of Technology, Sydney in Australia, and the University of Pretoria in South Africa. Research efforts have spanned the globe, with contributions from institutions in 68 countries. The leading contributors in terms of publication numbers are the USA, United Kingdom, and China, closely followed by Germany, Australia, and Malaysia.

2.5. Citation Analysis:

Citation analysis involves tallying how frequently a specific article is referenced by other articles, aiming to gauge its prominence and influence within scientific community (Ding and Cronin 2011). We conducted an examination of the worldwide citations received by 105 papers, utilizing the "total times cited count" data from Dimensions AI.

Sl. No.	Title	Author	No. of Citations
1	Risks and Returns of Cryptocurrency	(Liu and Tsyvinski 2021)	329
2	Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry	(Polasik et al. 2015)	272
3	Convergence of blockchain and artificial intelligence in IoTnetwork for the sustainable smart city	(Singh et al. 2020)	263
4	Tokenomics: Dynamic Adoption and Valuation	(Cong, Li, and Wang2021)	244
5	Bitcoin emissions alone could push global warming above 2°C	(Mora et al. 2018)	237
6	Opportunities for Use of Blockchain Technology in Medicine	(Radanović and Likić2018)	221
7	Blockchain adoption: A value driver perspective	(Angelis and Ribeiro daSilva 2019)	211

8	The Energy Consumption of Blockchain Technology: Beyond Myth	(Sedlmeir et al. 2020)	205
9	Beyond Bitcoin: What blockchain and distributed ledger technologies mean for firms	(Hughes et al. 2019)	203
10	Blockchain 3.0 applications survey	(Di Francesco Maesa and Mori 2020)	199

Table 1: Top 10 papers by global citation Source: Author’s own work

2.6. Bibliometric Analysis

The bibliometric approach utilizes bibliographic information sourced from publication databases to create visual representations of scientific domains (Zupic and Čater 2015). Furthermore, it serves as a proficient method for depicting, assessing, and tracking research articles within a journal. While commonly employed in fields like information science and library science, its usage has also extended to recent applications in social science research. Ultimately, bibliometric analysis leads to a comprehensive examination of research content and its evolution (Ramos-Rodríguez and Ruíz-Navarro 2004). The most widely employed general methods to achieve these outcomes are citation and co-citation analysis

2.6.1. Co-Authorship Analysis:

In order to understand the cooperative relationships between institutions and countries, we performed a co-authorship analysis using VOSviewer software. The network of institutional co-authorship does not display any significant dominance in the field of cryptocurrency. Figure 3 depicts the collaborative framework.

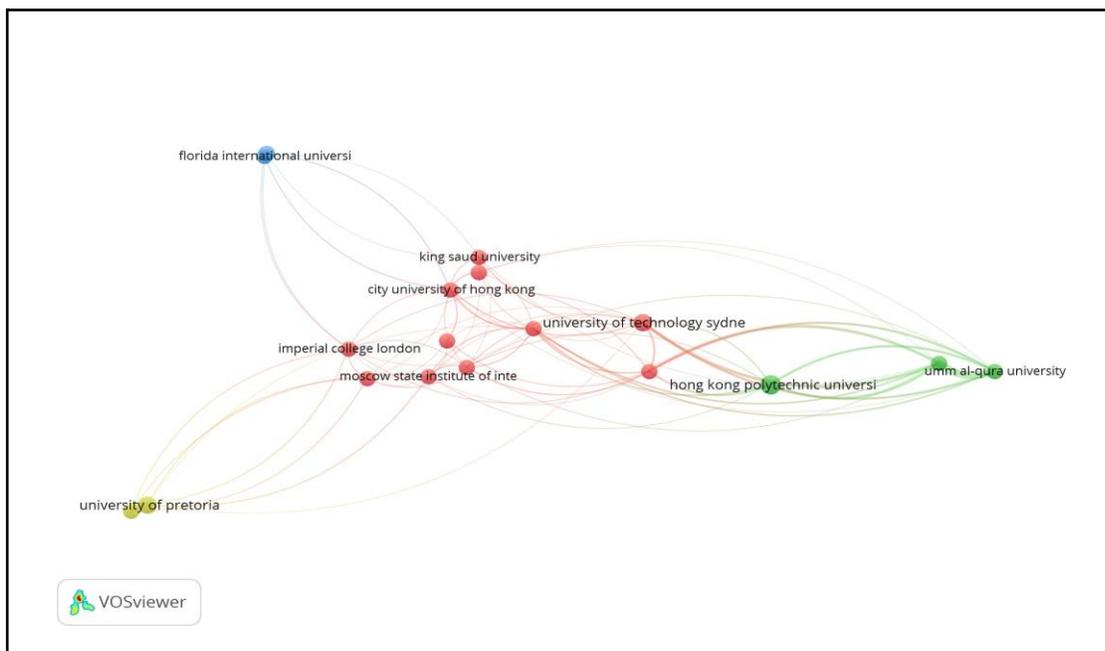


Fig. 3: Institution wise co-authorship framework Source: Author’s own work

2.6.2. Countrywise Co-Authorship Analysis:

Upon examining the network of co-authorship across nations, it became evident that, various countries showed footprints in the area of publications where USA holds the comparatively stronger co-authorship connections with other nations while United Kingdom ranking second. This network is depicted in Figure 4.

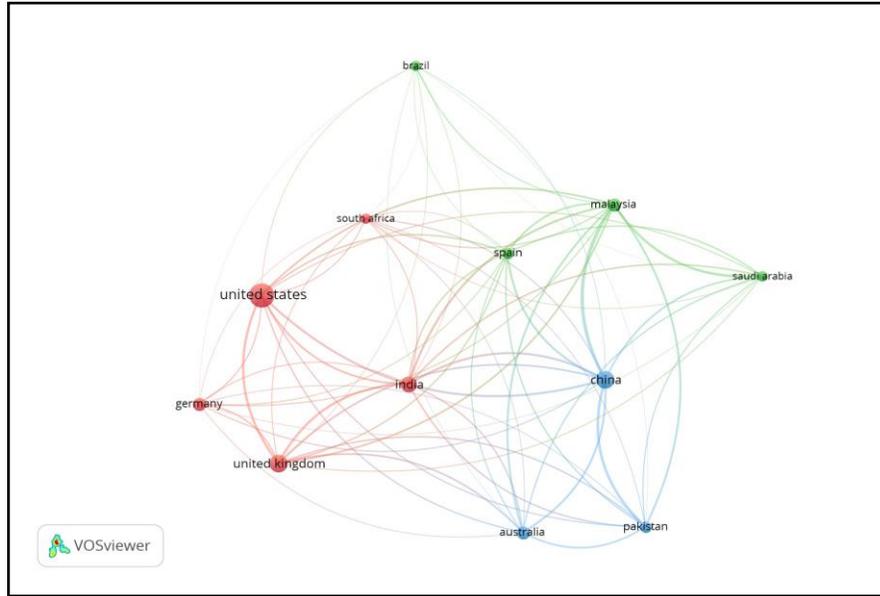


Fig. 4: Country wise co-authorship framework
Source: Author's own work

2.6.3. Bibliographic Coupling Network:

In this paper, for bibliographic coupling analysis documents which have 25 similar citations were considered which resulted into 44 documents. These 44 papers were employed in the bibliographic coupling analysis, leading to the formation of 5 prominent clusters. The articles, represented as nodes, were categorized into these 5 clusters according to their connection strength represented as edge density, and then visualized in a bibliometric network.

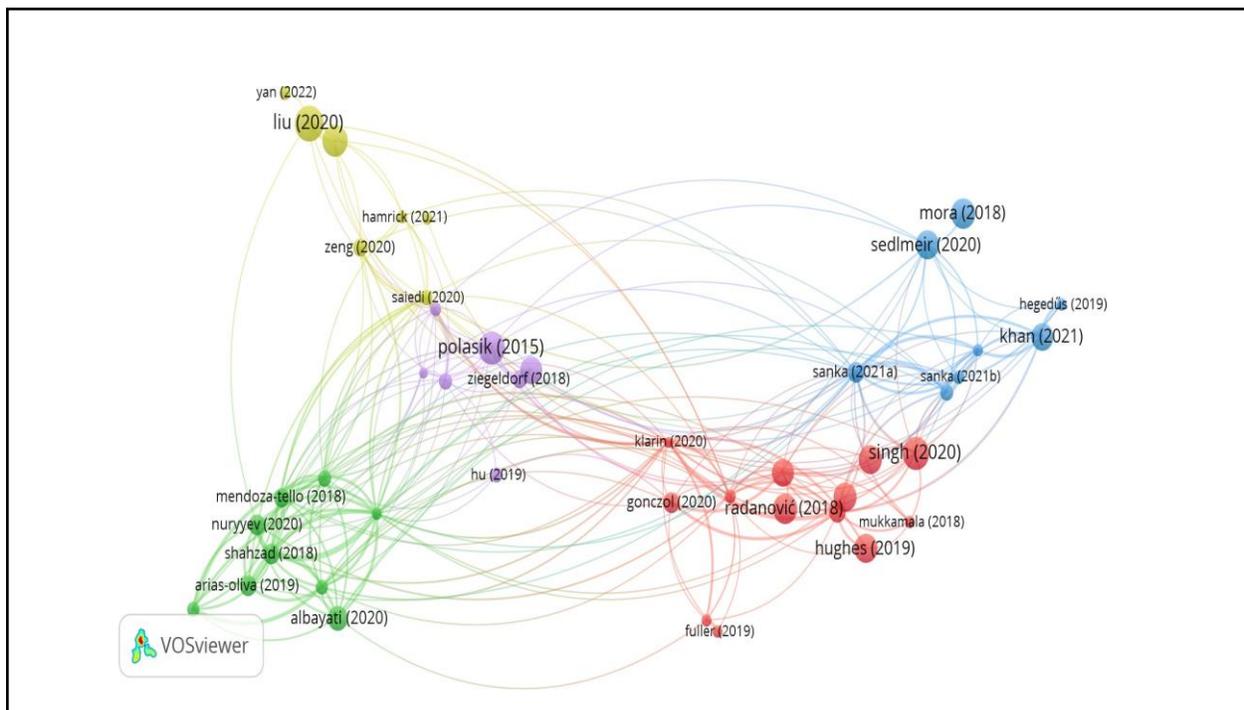


Fig. 5: Bibliographic Coupling Network
Source: Author's own work

3. Content analysis:

Leveraging 5 clusters derived from bibliographic coupling analysis, we proceeded to perform a content analysis of 44 articles which are bibliographically coupled. This analysis aimed for uncovering sub-theme, providing valuable insights. This also afforded us insights into the underlying sub-themes within each cluster. A comprehensive content-based explanation of each cluster is outlined below.

3.1. Cluster 1: Application of Blockchain Technology in Different Domains

(Singh et al. 2020) explained, swift integration of blockchain technology has triggered a transformative transition towards an emerging digital smart city environment. Moreover, the merging of Artificial Intelligence (AI) and blockchain technology is reshaping the infrastructure of smart cities, fostering the creation of sustainable ecosystems. We explore solutions for bolstering blockchain security, providing a summary of essential insights applicable to the development of diverse intelligent transportation systems based on the fusion of blockchain and AI. (Radanović and Likić 2018) worked on potential Applications of Blockchain Technology in the Field of Medicine. They anticipated that forthcoming applications would broaden to encompass medicine, science, education, intellectual property, and supply chain management. In the medical domain, potential uses might encompass medical education, biomedical research, health insurance, electronic health records, drug procurement etc. They also argued that adoption of blockchain technology comes with its share of drawbacks. Presently, this technology is in a nascent stage and suffers from a dearth of widespread or even specialized awareness, making it challenging to formulate a well-defined strategic outlook for its ultimate capabilities. (Hughes et al. 2019) argued that blockchain has the potential to stimulate innovation and enhance operational effectiveness in emerging sectors such as supply chains, digital arts management and healthcare. However, significant challenges on the technical, organizational, and regulatory fronts need to be addressed before widespread adoption becomes feasible. They delve into the evolution of blockchain technologies, tracing their progression from conventional software and web technologies. Subsequently, we assess their inherent advantages and explore emerging applications beyond the realm of cryptocurrency.

3.2. Cluster 2: Adoption and Usage Intention of Crypto Currency

(Albayati, Kim, and Rho 2020) aims to assess the practicality of blockchain technology by analyzing the behavioral factors that influence customers' inclination toward engaging in cryptocurrency transactions on a blockchain-based platform. Their research reveals that two influential factors, namely regulatory backing and user experience, play a pivotal role in fostering customer confidence in blockchain-based applications. Moreover, as users gain a certain level of experience, their confidence in utilizing blockchain-based applications grows, and a robust foundation of trust becomes a key driver for technology adoption. (Nuryyev et al. 2020) examines the determinants of cryptocurrency payment adoption intention within the small to medium-sized enterprises (SMEs) operating in the tourism and hospitality sector. The study employs the Technology Acceptance Model (TAM) as its analytical framework. The findings indicate the following: 1. Personal attributes like innovativeness and self-efficacy of managers/owners, coupled with social influence significantly influence the inclination to embrace new technology. 2. The perceived usefulness of the technology acts as an intermediary in the relationships between strategic orientation and social influence with the intention to adopt. 3. The perceived ease of use serves as an intermediary in the connection between self-efficacy and the intention to adopt cryptocurrency payments. The primary aim of empirical investigation done by (Shahzad et al. 2018) is to examine the utilization of cryptocurrencies, with a particular focus on Bitcoin, within the mainland Chinese population. In this study, it is suggested that awareness and perceived trustworthiness hold notable importance in shaping the inclination to use Bitcoin, with perceived usefulness playing a partial mediating role in the connection between perceived ease of use and the intention to use Bitcoin.

3.3. Cluster 3: Challenges, specifically environmental associated with Blockchain Technology

(Sedlmeir et al. 2020) vouched that, in discussions surrounding blockchain technology within academic, business, and societal contexts, one often encounters persistent generalizations concerning its substantial energy consumption. This

particular perception naturally gives rise to apprehensions regarding the broader adoption of blockchain technology, thereby impeding the swift adoption of what is widely recognized as a pioneering and transformative innovation. Nonetheless, it's crucial to recognize that blockchain technology is highly diverse, and therefore, sweeping assertions about its energy usage should be scrutinized with caution. In their research, (Mora et al. 2018) have demonstrated that Bitcoin is a resource-intensive cryptocurrency that is gaining prominence as both an investment and a payment system. In this study, they illustrated that if the anticipated adoption rate of Bitcoin aligns with that of other widely embraced technologies, the resultant carbon dioxide (CO₂) emissions alone have the potential to accelerate global warming beyond a 2°C increase in temperature in less than thirty years. (Khan et al. 2021) provide an all-encompassing examination of blockchain-powered smart contracts, addressing both their technical aspects and practical applications. Drawing upon the insights gathered from the survey, we pinpoint a range of challenges that require attention in forthcoming research, including legal considerations, dependence on "off-chain" resources, immutability, scalability, and issues related to consensus mechanisms.

3.4. Cluster 4: Issues underlying Bitcoin usage like Privacy, Investment Return

Objective of (Polasik et al. 2015) is to deliver a thorough empirical examination of Bitcoin's payment and investment attributes and how they influence the practice of e-commerce. Their findings reveal that the primary drivers of its returns include the popularity of Bitcoin, the sentiment expressed in cryptocurrency-related newspaper reports, the total number of transactions, users' familiarity with Bitcoin, and the scale of both the formal and informal economies, all of which play significant roles. (Henry, Herzberg, and Kate 2018) has demonstrated that the privacy assurance offered by Bitcoin has turned out to be misleading. Despite the increasing attention towards privacy-focused blockchains, a majority of blockchain users are still vulnerable to privacy breaches that capitalize on network-level information and access patterns that become exposed as users engage with blockchain technology. The need to comprehend whether and in what manner blockchain-based applications can offer robust privacy assurances is becoming more pressing. Numerous researchers recommend the utilization of anonymous communication networks, such as Tor, as a means to safeguard access privacy. The central pledge of financial privacy that Bitcoin once held is widely seen as unfulfilled. In this research paper, (Ziegeldorf et al. 2018) introduce CoinParty, a proficient decentralized mixing service that empowers users to reinstate their financial privacy within the realm of Bitcoin and similar cryptocurrencies. CoinParty occupies a distinctive position in the landscape of mixing services by ingeniously merging decryption mixnets with threshold signatures. It amalgamates the benefits of both previously suggested centralized and decentralized mixing services into a unified system. CoinParty can be readily implemented by any group of users, regardless of third-party involvement, and it can also be offered as a commercial or voluntary service, for instance, as a community service by privacy-conscious organizations.

3.5. Cluster 5: Returns associated with Cryptocurrency Investments

(Liu and Tsyvinski 2021) confirmed that the performance of cryptocurrencies is influenced by and can be foreseen through factors unique to cryptocurrency markets. Cryptocurrency returns are influenced by cryptocurrency network-related factors rather than factors associated with cryptocurrency production. We create the network factors to encapsulate the adoption of cryptocurrencies by users, while the production factors serve as proxies for the expenses associated with cryptocurrency production. Additionally, a robust time-series momentum phenomenon exists, and indicators of investor interest significantly predict forthcoming cryptocurrency returns. (Cong et al. 2021) formulate a dynamic asset pricing model (DAPM) for cryptocurrencies and tokens, enabling users to engage in peer-to-peer transactions on digital platforms. Here equilibrium price of tokens is ascertained by consolidating the transactional demand of diverse users, as opposed to the conventional valuation approach of discounting cash flows. Incorporation of tokens reduces the transaction expenses incurred by users on the platform by enabling them to benefit from the platform's expansion. Resulting intertemporal connection between user acceptance and token price amplifies the rate of adoption while mitigating fluctuations in the user base. (Zeng, Yang, and Shen 2020) explored the correlation between Bitcoin and traditional financial assets by examining their interconnectedness within the context of asset networks. Their findings

indicate a low level of interconnection between Bitcoin and traditional assets. Their examination reveals that while Bitcoin prices exhibit an increasing connection to other financial assets, the extent of this correlation has been demonstrated to be modest. Nonetheless, the interconnection through negative returns is considerably more pronounced than through positive returns, and it displays a visibly escalating trend in recent timeframes. In practical terms, our findings generally maintain their strength when applied to other widely recognized cryptocurrencies like ETH and Ripple.

4. Avenues for Future Research

This comprehensive literature review has revealed that despite ongoing progress in the field of study, significant research deficiencies are impeding the subject's further advancement. Therefore, we propose the following three future research directions related to household retirement readiness.

- i) Representative geographical spread: A disparity in geographic representation is evident when examining cryptocurrency knowledge, as evidenced by the publication counts from both developed as well as developing nations. Issues related to cryptocurrency is worldwide phenomenon which is imperative to foster research on this subject in regions that currently lack representation, such as in Africa.
- ii) Scarce theoretical framework: There has been a scarcity of academic research on the adoption of cryptocurrencies. Two models and their expanded iterations, specifically the TAM and UTAUT employed for elucidating technology acceptance grounded in behavioral intent. Research could gain insight by embracing alternative social theoretical frameworks to gain a more comprehensive understanding of what drives consumer acceptance and trust in cryptocurrencies.
- iii) The collaborative value generated between academia and the business sectors: Given that the majority of studies are conducted within an academic context, it is advisable to broaden the scope of research to encompass various sectors, including but not limited to food, health, and education, in order to encourage greater involvement from business managers.
- iv) Research on cryptocurrencies extending beyond Bitcoin: Market listings include over 2,000 cryptocurrencies (Arias-Oliva, Pelegrín-Borondo, and Matías-Clavero 2019). Nonetheless, majority of research concentrates on Bitcoin. Upcoming research should encompass additional cryptocurrencies and explore relevant acceptance from standpoint of consumer.

5. Conclusions

In present study, primary objective was, furnishing valuable resources for academicians, researcher scholars, and entrepreneurs. This investigation offers numerous contributions in the domain of cryptocurrency. Firstly, in response to the previously mentioned issue regarding the shortage of literature reviews on cryptocurrency adoption, this study incorporated a systematic literature review alongside bibliometric analysis. Additionally, we mapped the intellectual terrain of the topic by identifying clusters using bibliographic coupling analysis. This approach assists scholars in avoiding stagnation along with propelling the field ahead. Thirdly, by means of content analysis applied to respective clusters, identification of various obstacles hindering the expansion of knowledge are identified. Additionally, we proposed plausible research directions for future studies. Regarding the SLR integrated with bibliometric analysis, we present four prospective research directions which can be served as launching pads for upcoming investigations. The results also indicate that this subject is in its early stages of advancement, and there is a requirement for more quantitative and empirical research to be undertaken in this domain.

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