



Article

Cryptocurrency Taxation: A Bibliometric Analysis and Emerging Trends

Georgiana-Iulia Lazea ^{1,*}, Maria-Roxana Balea-Stanciu ^{1,*}, Ovidiu-Constantin Bunget ²,
Anca-Diana Sumănu ² and Ana-Maria Georgiana Coraș ¹

¹ Doctoral School of Economics and Business Administration, West University of Timisoara, 300115 Timisoara, Romania; anamaria.coras@e-uvt.ro

² Department of Accounting and Audit, Faculty of Economics and Business Administration, West University of Timisoara, 300115 Timisoara, Romania; ovidiu.bunget@e-uvt.ro (O.-C.B.); anca.sumanaru94@e-uvt.ro (A.-D.S.)

* Correspondence: georgiana.lazea87@e-uvt.ro (G.-I.L.); maria.balea95@e-uvt.ro (M.-R.B.-S.)

Abstract: This article conducts a comprehensive bibliometric analysis of 182 papers to trace the progression of research on cryptocurrency taxation. The study highlights prevailing patterns, influential contributors, and collaborative networks by utilising data from Scopus and the Web of Science Core Collection from 2002 to 2023. The findings underscore an interdisciplinary character, encompassing studies in legal frameworks, fiscal policy, economics, and technology. By employing analytical tools such as VOSviewer 1.6.20, Bibliometrix 4.0 and Microsoft Excel, the study identifies key themes and concepts focused on four main themes: international tax frameworks and regulatory variations, classification and reporting of crypto-related income, tax implications for emerging crypto segments, and issues surrounding compliance and enforcement. Tax treatment differs based on jurisdiction. Direct taxation may be levied as capital gains, income, or profit tax. Although cryptocurrency exchanges are not subject to value-added tax, intermediary services offered by platforms might incur this indirect tax. The insights generated are valuable for policymakers, scholars, and professionals aiming to comprehend the relationship between cryptocurrency and tax regulation. A limitation of the study is its exclusion of sources beyond the established timeframe. Given the fast-paced changes in cryptocurrency tax regulation, ongoing updates are crucial to capturing the full scope of this evolving field.

Keywords: cryptocurrency; taxation; tax accounting; sustainability accounting; direct taxation; indirect taxation; VAT; regulation



Academic Editors: David Vidal-Tomás and Zied Ftiti

Received: 8 January 2025

Revised: 30 January 2025

Accepted: 14 February 2025

Published: 3 March 2025

Citation: Lazea, G.-I., Balea-Stanciu, M.-R., Bunget, O.-C., Sumănu, A.-D., & Coraș, A.-M. G. (2025). Cryptocurrency Taxation: A Bibliometric Analysis and Emerging Trends. *International Journal of Financial Studies*, 13(1), 37. <https://doi.org/10.3390/ijfs13010037>

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The evolution of money, shaped by monetary institutions and policy, has undergone significant transformation over time (Davis, 2023; Schilling & Uhlig, 2019). Cryptocurrencies, particularly Bitcoin, represent a revolutionary financial innovation, challenging traditional central bank money (Bibi, 2023) by potentially displacing legacy banking, finance, and payment systems at lower costs (Porter & Rousse, 2016). In this context, Matkovskyy et al. (2020) analyse the impact of economic policy uncertainty (EPU) on the relationship between Bitcoin and traditional financial markets under the influence of economic policy uncertainty. These digital currencies are poised to disrupt domestic and international financial systems, raising questions about their long-term impact (Enajero, 2021) and the trust in this new ecosystem (Rehman et al., 2020). Cryptocurrencies offer an opportunity to establish rules that promote macroeconomic stability while generating profits. However,

moving away from the current equilibrium requires aligning policies, reducing taxes, and encouraging growth (Caton, 2020).

Blockchain technology is a significant innovation of the 21st century, with applications in various sectors such as finance, international trade, taxation, supply chain management, business operations, accounting and corporate governance (Kimani et al., 2020; Pimentel & Boulianne, 2020; Gomaa et al., 2019). Therefore, the emergence of virtual currency via blockchain technology highlights the need to regulate cryptocurrency transactions worldwide (Kuchеров & Khavanova, 2017). To achieve this, effective frameworks, including transaction tracking methods, are important for enterprise development and integration into the global economy (Sokolenko et al., 2019; Inger & Mathis, 2021). Moreover, the transition to the fourth industrial revolution has led countries to review their tax systems and the fast-paced development of cyber-physical technologies has played a decisive role in taxation on national and international levels (Vishnevsky & Chekina, 2018).

Cryptocurrencies, as digital assets, have captured the interest of investors and policymakers. Their adoption presents unique challenges in the realm of taxation, as governments struggle with how to tax these new financial instruments and how to develop new sustainable accounting practices. Consequently, investors, regulators, and consumers call for transparent systems and responsible practices. In this manner, sustainable accounting extends beyond mere financial figures. It encompasses an entire financial framework prioritising stability, ethical accountability, and ecological consciousness.

In efforts to address the environmental impact of blockchain technology, policymakers are promoting the adoption of more sustainable practices. These green technologies may also have implications for cryptocurrency taxation (CT) (Mohsin et al., 2023).

Cryptocurrency taxation faces challenges because they are borderless, which leads to increased ownership, and there is a large variety of digital currencies, each with different characteristics and tax implications. Therefore, governments have reacted by starting to develop regulations to stabilise the speculative markets and raise revenue. In response, regulators worldwide have developed their own distinct approaches, resulting in different legal frameworks of crypto classification—such as assets, inventory, payment methods, or even unconventional currencies.

In this evolving space, tax authorities are struggling to clarify how crypto transactions—everything from trading to mining to holding—should be treated under tax law. Not only is this a matter of compliance, but it is also a step towards creating an equitable, sustainable financial ecosystem that understands the potential of digital assets.

In this context, the objective of this study is to identify the intellectual structure, including relationships between different entities, and identify trends of focus within cryptocurrency taxation. In order to provide evidence-based insights and to accomplish the objective, the authors search to answer the following research questions:

RQ 1: Which countries, institutions, and authors are the most influential in CT, and how much do they collaborate?

RQ 2: Which are the most explored areas of study within this field?

Specifically, the authors believe that this bibliometric analysis is unique because it is the earliest study to comprehensively analyse the literature from both WoS and Scopus on CT using bibliometric methods. Therefore, it combines quantitative with qualitative research methods, providing valuable insights for policymakers, marketers, investors, brokers, researchers, and other professionals alike. The conclusions reveal pathways to the most important themes of the subject assessed.

Having identified the context, the relevance of the study lies in its interdisciplinary approach, integrating elements of economics, law, technology, and fiscal policy. Also, its objective is based on the growing importance of cryptoassets within the financial system

and the increasing need for clear taxation guidelines related to the activities involving these assets, such as mining, holding, or trading. The practice and literature lack a unified approach to crypto taxation across different regions, complicating the assessment of cryptocurrency value for tax purposes. This allows the article to address this emerging topic, especially considering the global regulatory challenges surrounding cryptocurrency taxation. For this reason, our paper seeks to address this gap by providing a comprehensive analysis of the existing research within the crypto taxation environment and offering an image of how these assets could be classified for tax purposes.

This paper is organised into five sections: introduction, research technique, exploratory bibliographic study of countries, academic institutions, and authors, bibliometric analyses of nascent trends, and conclusion. The introduction provides background, the methodology outlines our research approach, the exploratory study focuses on the overall research landscape, the bibliometric analyses explore specific topics and trends, and the conclusion summarises our findings and suggests future avenues for exploration.

2. Research Technique

2.1. Keywords and Selection of Data

To identify pertinent literature on cryptocurrency taxation, the authors developed a search strategy that used relevant keywords and searched Scopus (Elsevier, Amsterdam, The Netherlands) and the Web of Science (WoS) databases. These platforms are indispensable tools for researchers, as they provide access to quality peer-reviewed publications in scholarly literature, therefore ensuring credibility, relevance, and global access to the sources included in our study. By focusing on these databases, we aim to maintain methodological rigour and include studies that meet the highest quality control standards and scholarly validation. Moreover, Scopus and WoS have included citation tracking and impact measurement, which provide a framework for identifying influential manuscripts in the field. They also allow for downloading databases in different formats, which is necessary to process them using specialised software in bibliometric analyses.

A customised search strategy was applied to the aforementioned databases, using the Boolean string ("bitcoin" OR "cryptocurrenc*" OR "crypto*" OR "virtual currenc*" OR "digital currenc*" OR "initial coin offering") AND ("tax*" OR "tax* account*" OR "fiscal*") to retrieve articles that were aligned with the research topic. This string is effective in crypto taxation research because it covers different terminologies within the field of cryptocurrencies and captures articles on both direct and indirect taxation.

The study was based on a wide range of academic publications, such as journal articles, reviews, preprints, conference papers, and book chapters. English-language manuscripts were considered to maintain consistency and accessibility to a broader audience, including policymakers, academics and practitioners and reduce the risk of misinterpretations due to translation differences. Data were extracted from Scopus and the Web of Science on 25 September 2024.

The timeframe for this analysis spanned a period of significant advancements in the field, between 2005 and 2023 from the WoS and 2002 and 2023 from the Scopus databases. To ensure a complete dataset without fluctuations within the documents set and a consistent reference point, 2023 was selected as the final year.

To identify relevant literature, the research conducted in WoS, using carefully defined criteria, resulted in 139 research papers on cryptocurrency taxation in business economics and government law. Therefore, Figure 1 outlines our search process and the specific inclusion and exclusion criteria applied.

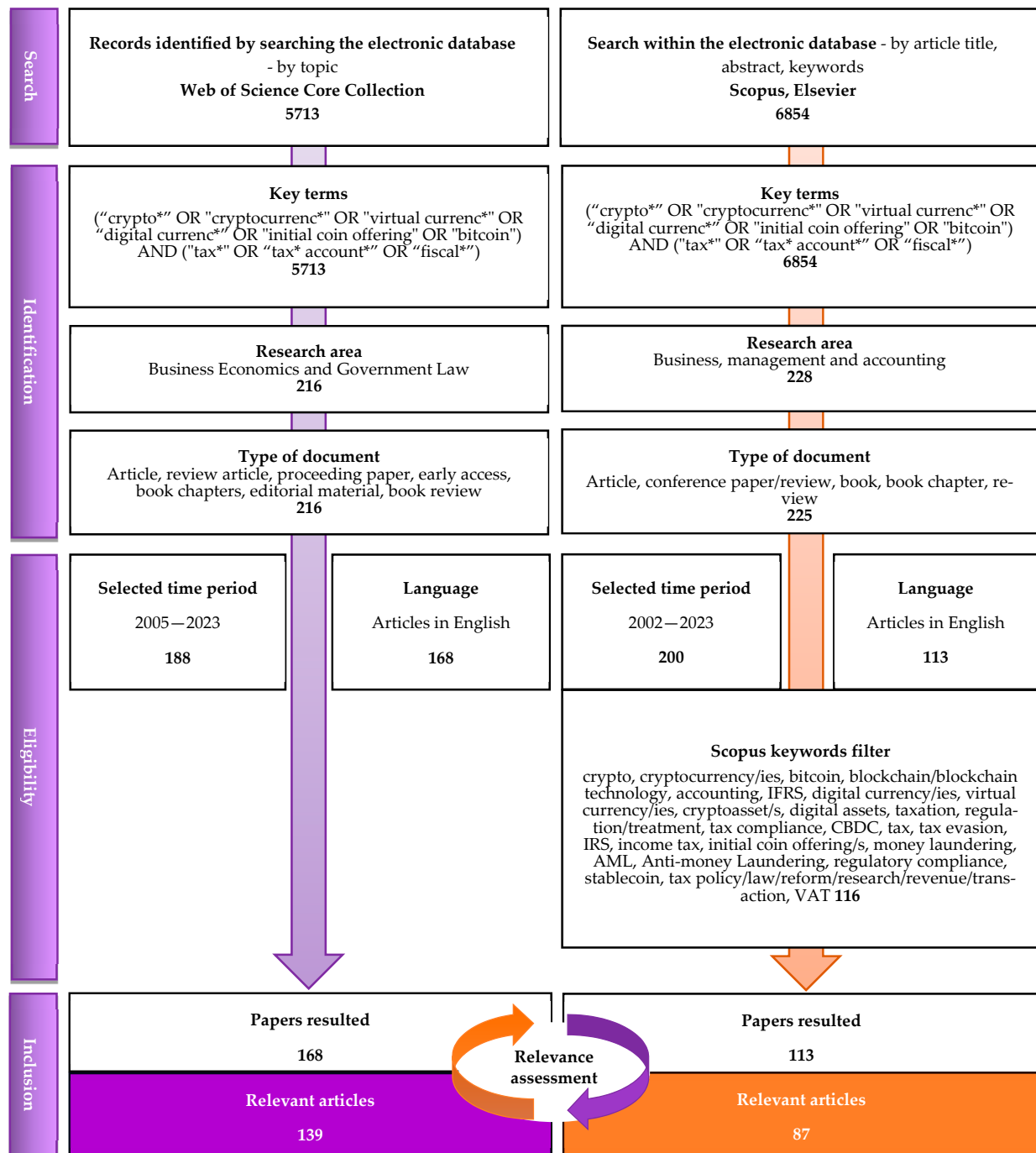


Figure 1. Methodical selection of databases from WoS and Scopus. Source: Flowchart prepared and designed by authors.

In parallel, we conducted a search in Scopus, focusing on business, management, and accounting research. The initial search produced 228 papers in the research area, but after careful review using the criteria in Figure 1, 141 were considered irrelevant.

2.2. Procedure of Data Refinement and Relevance Assessment

The primary goal of the study is to find and analyse existing research on cryptocurrency taxation in business economics, management, accounting, and legislation. Because of this, we aimed to locate papers that discuss both “cryptocurrency” and “tax”, according to the research string.

In order to ensure the quality of our analysis, a multi-step screening process was performed to assess the relevance of each included paper. Initially, we scanned both abstracts and full texts to identify articles specifically dealing with issues related to CT; any papers that were tangential because they lacked the necessary key terms or used them in irrelevant contexts were excluded. For instance, articles that used “tax*” to identify “taxonomy” related to cryptocurrencies were considered irrelevant as they did not refer to the subject of fiscal practices and taxation. This rigorous evaluation was compulsory for maintaining the relevance of the research.

To unify the results from both databases, we combined them using RStudio (Aria & Cucurullo, 2017). After removing duplicate papers, we were left with 182 unique manuscripts.



For consistency, we standardised the keywords in the merged database. This involved combining variations of terms such as “crypto/s”, “cryptocurrency/ies”, “cryptoasset/s”, “tax/es”, and “currency/ies”. Additionally, we unified phrases “central bank digital currency/ies/CBDC”, “decentralized finance/DEFI”, “anti-money laundering/AML”, “distributed ledger technology/DLT”, “multilateral trading facility/MTF”, “blockchain technology/blockchain”, “legal regulation/regulation”, “non-compliance/tax compliance/compliance”, “money/currency”. After this standardisation, we conducted an exploratory bibliographic study and analysed the research topics using keyword co-occurrence.

3. Exploratory Bibliographic Study

3.1. Yearly Scientific Output and Citations

To better understand the trends of academic research over the past two decades, Figure 2 presents the yearly scientific publications and average citations from 2002 to 2023. It includes two key metrics: article production (represented by the orange columns), which counts the number of articles published in a given year, and average citations (the light orange line), which is an average of the number of times a published article was cited in other research. The average number of citations per article can be seen as an indicator of research quality and impact. Higher citations suggest that the research is being widely recognised and influential.

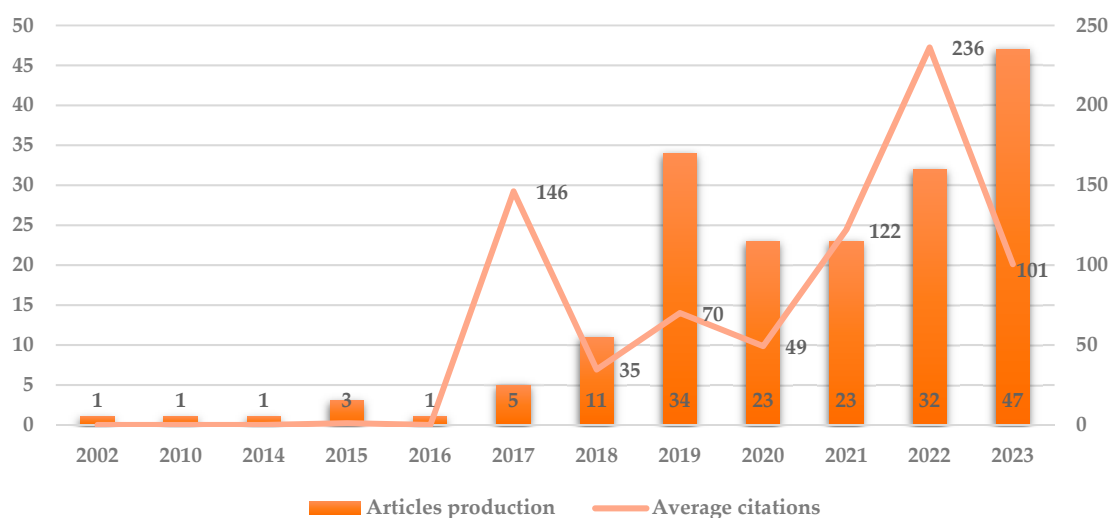


Figure 2. Scientific production and average citations for CT articles. Source: Graphic prepared by authors.

A key observation focuses on the general upward trend in article production over the years. This indicates an increasing interest and a surge in research related to the taxation of cryptocurrencies as countries grapple with finding the most suitable fiscal regulations. The highest number of articles was published in 2023 (47 publications), indicating a significant surge in research output during that year.

While a general correlation exists between high production and increasing citations, this relationship is not always consistent. For example, in 2017, there was a significant increase in citations (146 citations) despite a relatively low number of articles produced (five manuscripts). An observation might be that articles published in recent years may not have accumulated as many citations yet.

3.2. Publications' Sources

When taking into consideration the production of articles, the sources also play an important role. The graphic illustrated in Figure 3 presents the ranking of the top 10 academic journals based on their relevance to CT. The horizontal axis represents the number of articles published in each journal, while the vertical axis lists the journal titles.



Figure 3. Top 10 most pertinent sources for CT articles. Source: Graphic prepared by authors.

As a result, the English-language journal Intertax is the most relevant source for CT articles, with a significantly higher number of eight publications compared to the other journals, possibly due to its focus on international tax issues. Four English-language journals with international reach (Financial and Credit Activity-Problems of Theory and Practice, EC Tax Review, Australian Tax Review, and ATA Journal of Legal Tax Research) have published four articles each, suggesting a moderate level of relevance to CT research.

The remaining international journals (Applied Economics, Academy of Accounting and Financial Studies Journal, South African Journal of Economic and Management Sciences, EJournal of Tax Research, and Canadian Tax Journal) have published two or three articles each, indicating a lesser but still significant focus on CT topics, as a global concern.

3.3. Countries' Co-Authorship Analysis

In order to explore the international collaboration patterns among countries in research on CT, the authors designed Figure 4. In this design, the nodes represent countries, and the edges represent co-authorship relationships between them. The density of the edges indicates the frequency of these collaborations that have evolved over time. Lighter colours indicate more recent collaborations, while darker colours indicate older interest in the subject.

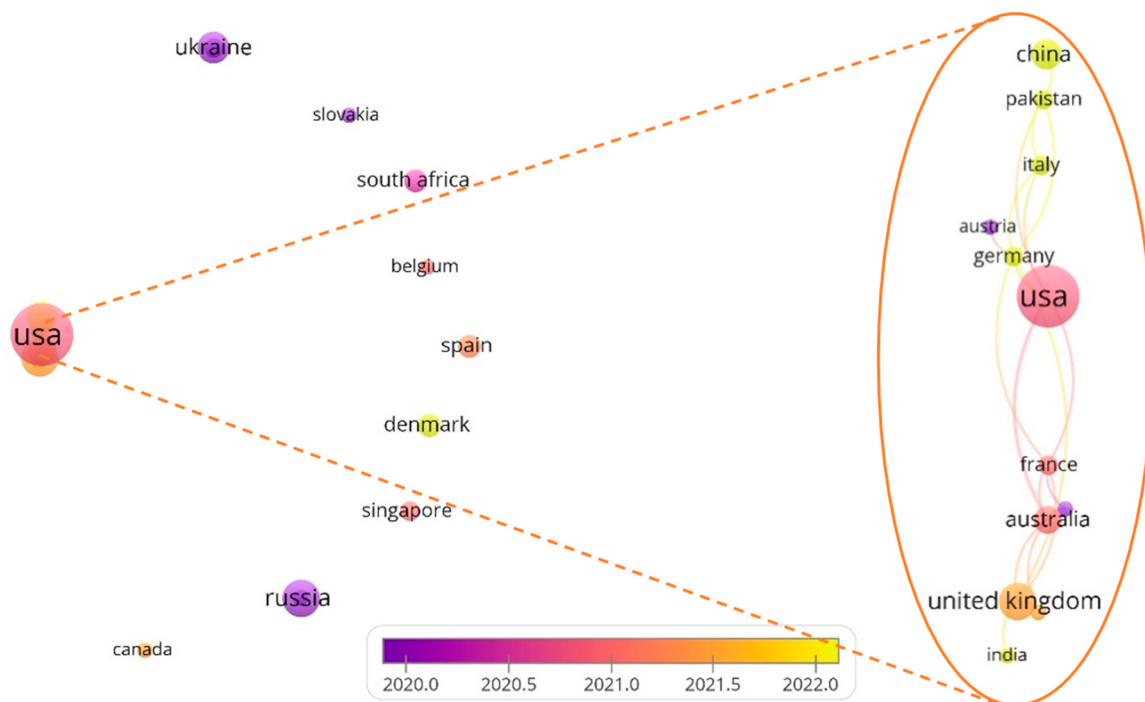


Figure 4. Visualisation of co-authorship between countries for CT articles. Source: Visualisation realised in VOSviewer.

The analysis followed a threshold of two documents and two citations for each country. Therefore, 24 of the 68 countries explored met the threshold. As a result of the visualisation, the USA is positioned at the centre of the network, suggesting its dominant role in CT research. It has strong connections with many countries: Germany, France, Australia, Austria, Italy, and the United Kingdom.

There are distinct clusters of European countries, indicating frequent collaborations within this region. This includes groups centred around the United Kingdom, France, which added their contribution around 2021, and Germany and Italy, with a contribution more recently in 2022.

Countries in the Asia-Pacific region, such as China, India, and Australia, also have connections with each other, as well as the USA and European countries, and have added their contributions between 2021 and 2022. The connections among different regions indicate a dynamic exchange of knowledge and ideas within the field.

3.4. Author Citation Network

Next in the analysis, the author citation network involves counting references to identify frequently cited authors and their collaborations. This step helps identify influential researchers and their contributions.

VOSviewer 1.6.20 (van Eck & Waltman, 2023) creates visual maps of these collaborations, showing the connections between researchers and their centrality within a research area. Each node represents a researcher, and the lines connecting the nodes indicate collaborative research projects. The dimension of the nodes/dots corresponds to the number of references, while the density of the connections between them represents the power or frequency of collaboration.

To identify influential authors, we used the strength association method, with a limit of two citations per author. This approach balances recognising established scholars with identifying emerging contributors. Out of 286 authors, 184 met the threshold. VOSviewer

analysed these authors' connections, revealing 35 linked authors. Unlinked authors were not cited by others in their clusters.

The network designed in Figure 5 represents researchers' interconnectedness and collaborative efforts. The distinct clusters of researchers suggest potential research communities or areas of specialisation within CT.

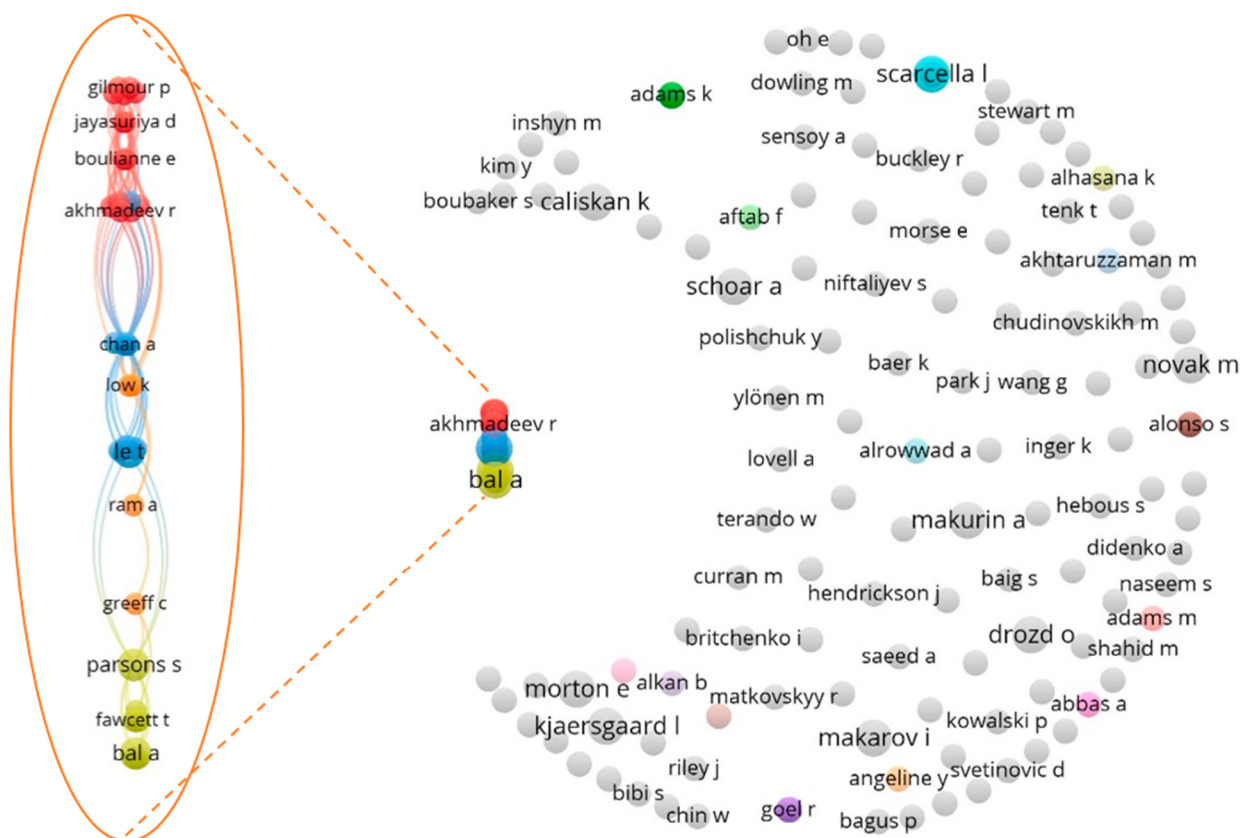


Figure 5. Visualisation of author citations for CT articles. Source: Visualisation realised in VOSviewer.

To gain deeper insights, Table 1 determines the names of the most cited researchers, mentioning the journal in which they published their research. Most of the cited papers have been published recently in journals related to law, taxation, and economics, reflecting the interdisciplinary nature of CT research and indicating a growing interest and research activity. The journals included are indexed in reputable databases such as Scopus or Web of Science, as citation analysis often relies on these databases to identify relevant publications and track citations.

Table 1. Top 10 worldwide cited authors.

First Author	Paper	Journal	Year	Total Citations
Andreevich MD	"Regulatory Regulation of the Issue and Circulation of Digital Currencies in the Countries of the Modern World"	<i>Springer Proceedings in Business and Economics</i>	2022	219
Adams MT	"Emerging Cryptocurrencies and IRS Summons Power: Striking the Proper Balance between IRS Audit Authority and Taxpayer Privacy"	<i>The ATA Journal of Legal Tax Research</i>	2021	57
Ryle PM	"Book Reviews"	<i>Journal of the American Taxation Association</i>	2019	57

Table 1. Cont.

First Author	Paper	Journal	Year	Total Citations
Terando WD	“Impact of the IRC Section 475 Mark-to-Market Election on Bitcoin Taxation”	<i>The ATA Journal of Legal Tax Research</i>	2017	57
Enajero S	“Cryptocurrency, Money Demand and the Mundell-Fleming Model of International Capital Mobility”	<i>Atlantic Economic Journal</i>	2021	46
Holden R	“The Law and Economics of Blockchain”	<i>Annual Review of Law and Social Science</i>	2022	41
Makarov I	“Cryptocurrencies and Decentralized Finance (DEFI)”	<i>Brookings Papers on Economic Activity</i>	2022	27
Lee DKC	“Asian CBDCs on the rise: An in-depth analysis of developments and implications”	<i>Quantitative Finance and Economics</i>	2023	26
Maniatis A	“Blockchain with Emphasis on Tax Law”	<i>Euromed Academy of Business Conference Book of Proceedings</i>	2019	25
Stiegler T	“Investment Trend in Digital Currencies—The Current State of Fiscal Treatment of Bitcoin Investments in Germany”	<i>BASIQ International Conference: New Trends in Sustainable Business and Consumption 2018</i>	2018	24

Source: Data processed by authors from Biblioshiny.

It can be observed that [Andreevich et al. \(2022\)](#) are the most cited authors and have had a significant influence on the field of CT. They explore how different countries are tackling the regulatory challenges of digital currencies. Moreover, their study highlights both similarities and differences in legislative approaches and concludes that the growing influence of cryptocurrencies could impact global currency flows. In contrast, the adoption of national digital currencies is set to expand further.

Federal courts work to balance government authority with the protection of citizens' privacy. [Adams and Bailey \(2021\)](#) believe this balance is crucial when the Internal Revenue Service (IRS) enforces tax laws, especially in cases involving sensitive data, like cryptocurrency transactions. They analyse this balance in their article, delving into the Coinbase versus US case, as the court allowed the IRS to access necessary information but limited the scope to safeguard taxpayer privacy.

[Terando et al. \(2017\)](#) emphasize in their study that Bitcoin is treated as property for tax purposes. However, traders can use the IRC Section 475 mark-to-market election to convert unrealised losses into ordinary deductions, benefiting from tax treatment similar to foreign currency.

[Enajero \(2021\)](#) considers that if cryptocurrencies are seen as disruptive financial innovations, economists must integrate them into traditional money market models because of their future influence on the demand for money and their impact on domestic and global capital mobility. According to the Mundell-Fleming model used in the study, results indicate that the use of cryptocurrency could eliminate differences in exchange rates and modify the effects of fiscal and monetary policies. Moreover, [Maniatis \(2019\)](#) explains that cryptocurrencies have gained recognition as legitimate payment methods and have become a popular alternative investment ([Shahid et al., 2019](#)).

[Holden and Malani \(2022\)](#) examine how the blockchain, beyond cryptocurrencies, impacts various areas of law, including evidence rules, securities regulation, taxation, and monetary policy, influencing legal and financial systems. Also, [Makarov and Schoar \(2022\)](#) provide an overview of cryptocurrencies and DEFI, comparing them to traditional finance.

Their paper outlines the benefits, such as reduced transaction costs, and challenges, like issues with tax compliance and anti-money laundering.

Lee et al. (2023) focus on a comprehensive analysis of Central Bank Digital Currencies (CBDCs) and examine how CBDCs could strengthen monetary policies, reduce costs, and fight corruption while addressing associated risks like valuation fluctuations, foreign currency dependence, and public concerns.

Stiegler et al. (2018) discuss the introduction of financial instruments that allow investors to participate in Bitcoin investments, including those traded on stock exchanges. Their article also explores the classification of digital currencies as an asset class and the relevant taxation aspects under the German Income Tax Act.

3.5. Citations at the Institutional Level

To further explore the research landscape, we analysed institutions using VOSviewer. This allowed us to identify influential organisations and their collaboration patterns.

Therefore, Figure 6 shows the map of the 213 institutions that published at least one article about CT. The network visualisation reveals limited collaboration among these organisations. Only 147 out of 213 have published at least one article with a minimum of two citations. This might indicate the early stages of CT studies, with institutions still developing their research agendas.



Figure 6. Organisation citation visualisation for CT articles. Source: Visualisation realised in VOSviewer.

The network shows several academic institutions, suggesting potential research communities. Some institutions, such as the University of Auckland, the Chinese University of Hong Kong, the University of Cape Town, and the University of Nottingham, seem to be more centrally located in the network, indicating their frequent collaborations with other organisations. The colour coding suggests the temporal dimension of the collaborations, with darker colours indicating more recent connections and article releases.

4. Bibliometric Analyses of the Investigated Topics

4.1. Keyword Co-Occurrence Examination

To further explore the topics related to CT, the visualisation of keyword co-occurrence, Figure 7, presents a network of interconnected terms. Each node represents a keyword, and the lines connecting them indicate the frequency with which these keywords co-occur in the analysed documents. The size of the nodes corresponds to the frequency of the keywords, while the thickness of the lines represents the strength of the association between them.

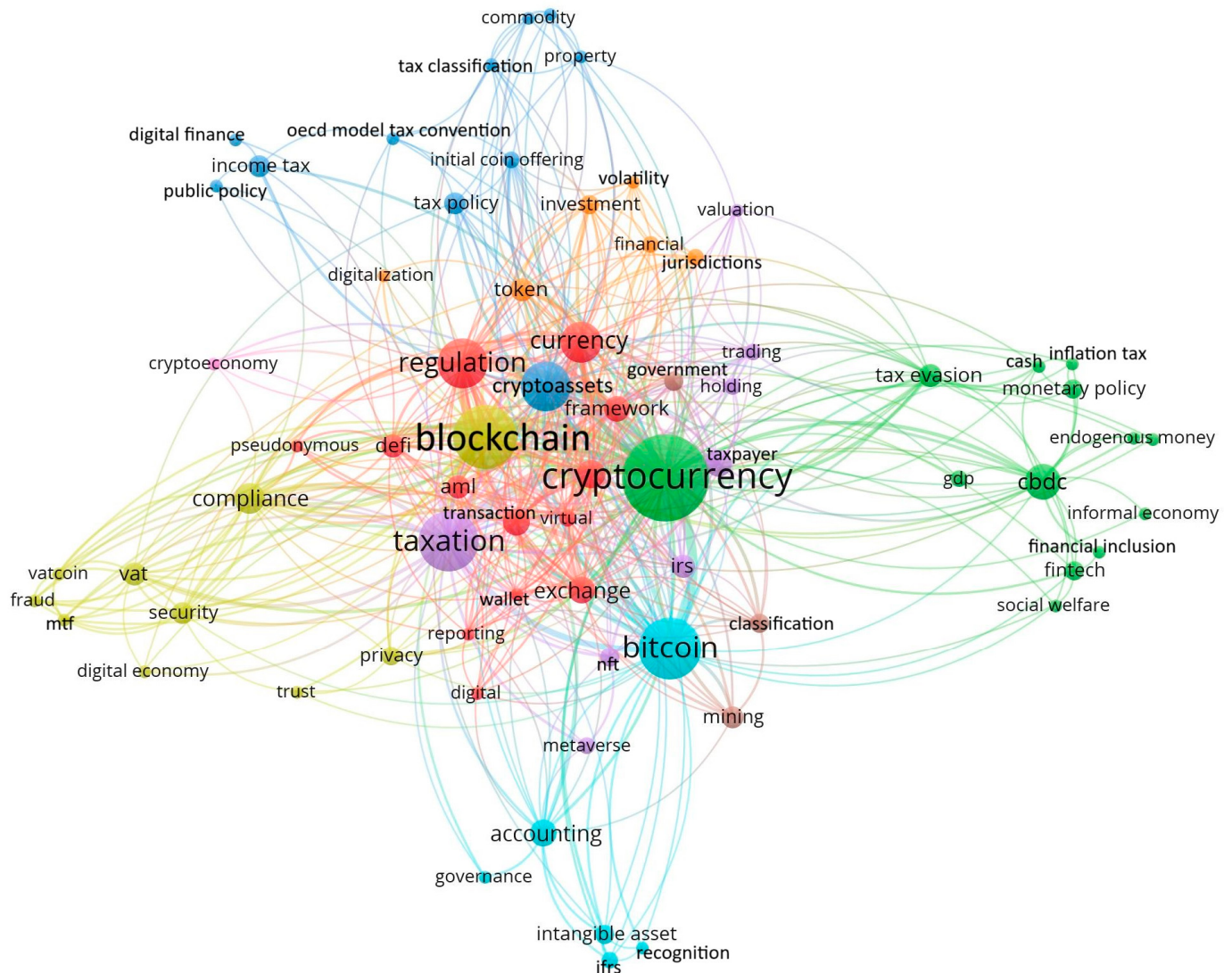


Figure 7. The keywords cluster of co-occurrences for CT studies. Source: Visualisation realised in VOSviewer.

Special attention was paid when setting a threshold of two occurrences for each keyword, resulting in 71 relevant terms out of 380. We chose a low threshold because the research in this emerging field is in the incipient phase, and we wanted to comprise a wide range of potentially relevant terms, even those that may not yet have achieved widespread recognition or usage.

As a result, the keywords “cryptocurrency”, “taxation”, and “blockchain” occupy a central position in the network, suggesting their strong association with other terms. The visualisation reveals the interconnections between several thematic clusters, as presented in Table 2, highlighting the complex and multifaceted nature of cryptocurrency taxation. The four emerging trends are international taxation and regulatory differences, tax classifi-

cation and reporting, tax implications for emerging crypto sectors, and enforcement and compliance. The interconnections between different thematic areas highlight the interdisciplinary nature of cryptocurrency taxation, involving elements of economics, finance, law, and technology.

Table 2. Keyword clusters with more than two items for CT in VOSviewer.

Clusters	Most Relevant Key Terms	Occurrences	Total Link Strength	Main Topic
Cluster 1 red (13 items)	AML	6	37	Financial regulations
	currency	18	101	
	DEFI	6	33	
	digital	2	11	
	exchange	8	54	
	framework	7	56	
	income	9	53	
	pseudonymous	2	11	
	regulation	27	139	
	reporting	2	18	
	transaction	8	57	
	virtual	3	24	
	wallet	2	18	
Cluster 2 green (13 items)	cash	2	9	Economic ecosystem and monetary policies
	CBDC	14	32	
	cryptocurrency	80	278	
	endogenous money	2	5	
	financial inclusion	2	3	
	fintech	4	8	
	GDP	3	3	
	inflation tax	2	5	
	informal economy	2	2	
	monetary policy	4	6	
	money demand	2	4	
	social welfare	2	5	
	tax evasion	6	31	
Cluster 3 blue (11 items)	commodity	2	9	Fiscal policies and tax regulations
	cryptoassets	26	90	
	digital finance	2	2	
	income tax	5	11	
	initial coin offering	3	21	
	OECD model tax	2	8	
	convention	2	9	
	property	2	4	
	public policy	2	9	
	securities	2	10	
	tax classification	5	19	
Cluster 4 yellow (10 items)	blockchain	44	167	Law compliance and security
	compliance	10	58	
	digital economy	2	6	
	fraud	2	16	
	MTF	2	16	
	privacy	4	15	
	security	5	29	
	trust	2	6	
	VAT	6	30	
	VATcoin	2	16	

Table 2. Cont.

Clusters	Most Relevant Key Terms	Occurrences	Total Link Strength	Main Topic
Cluster 5 purple (8 items)	holding	3	17	Fiscal system
	IRS	6	32	
	metaverse	3	7	
	NFT	4	15	
	taxation	38	163	
	taxpayer	8	47	
	trading	3	19	
	valuation	2	12	
Cluster 6 light blue (6 items)	accounting	8	27	Cryptocurrency financial reporting
	bitcoin	42	141	
	governance	2	5	
	IFRS	3	10	
	intangible asset	4	14	
	recognition	2	5	
Cluster 7 orange (6 items)	digitalisation	2	5	Investment and hedging
	financial	3	14	
	investment	4	26	
	jurisdictions	3	17	
	token	6	33	
	volatility	2	10	
Cluster 8 brown (3 items)	classification	4	24	Taxation on the nature of activity
	government	4	32	
	mining	5	23	

AML: anti-money laundering. DEFI: decentralised finance. CBDC: Central Bank digital currency. GDP: gross domestic product. OECD: Organisation for Economic Co-operation and Development. MTF: multilateral trading facility. VAT: value-added tax. IRS: Internal Revenue Service. NFT: non-fungible token. IFRSs: International Financial Reporting Standards. Source: Authors' projection.

To analyse the temporal distribution of articles, the co-occurrence overlay visualisation (Figure 8) shows the keywords' design according to the year in which they were utilised. The colour coding of the nodes and of the lines indicates the temporal dimension of the co-occurrences: with purple older apparitions, from 2019, like "bitcoin", "currency", "exchange", and "tax policy"; with pink occurrences between 2020 and 2021, "cryptocurrency", "taxation", "blockchain", "regulation"; with orange more recent apparitions, between 2021 and 2022, "cryptoassets", "compliance", "tax evasion", "monetary policy"; and with yellow the most recent word utilisation, from 2023, "income tax", "cbdc", "informal economy", "financial inclusion".

Therefore, the network exhibits temporal clusters, where groups of keywords are more strongly connected within specific time periods. This means that the research landscape in CT has evolved over time, with new concepts emerging as areas of focus. For example, the words "income tax", "cbdc", "informal economy", and "financial inclusion", in the context of developing economies, highlight a focus on the challenges cryptocurrencies bring to tax collection and financial inclusion. The access to financial services for individuals or businesses that are currently excluded from the formal financial system or in a grey zone will potentially increase the number of taxpayers and improve tax compliance. Therefore, this will help reduce tax evasion (Hendrickson & Luther, 2022) and improve the efficiency of tax collection.

Furthermore, the co-occurrence density map in Figure 9 highlights the most frequently used keywords. Darker orange shades represent the words with higher density. Thus, the terms "cryptocurrency" with 79 occurrences, "taxation" with 37 apparitions, "bitcoin" with 41 occurrences, "blockchain" with 45 occurrences, and "regulation" with 27 occurrences, appear most frequently. Consequently, this suggests that these terms are central to the

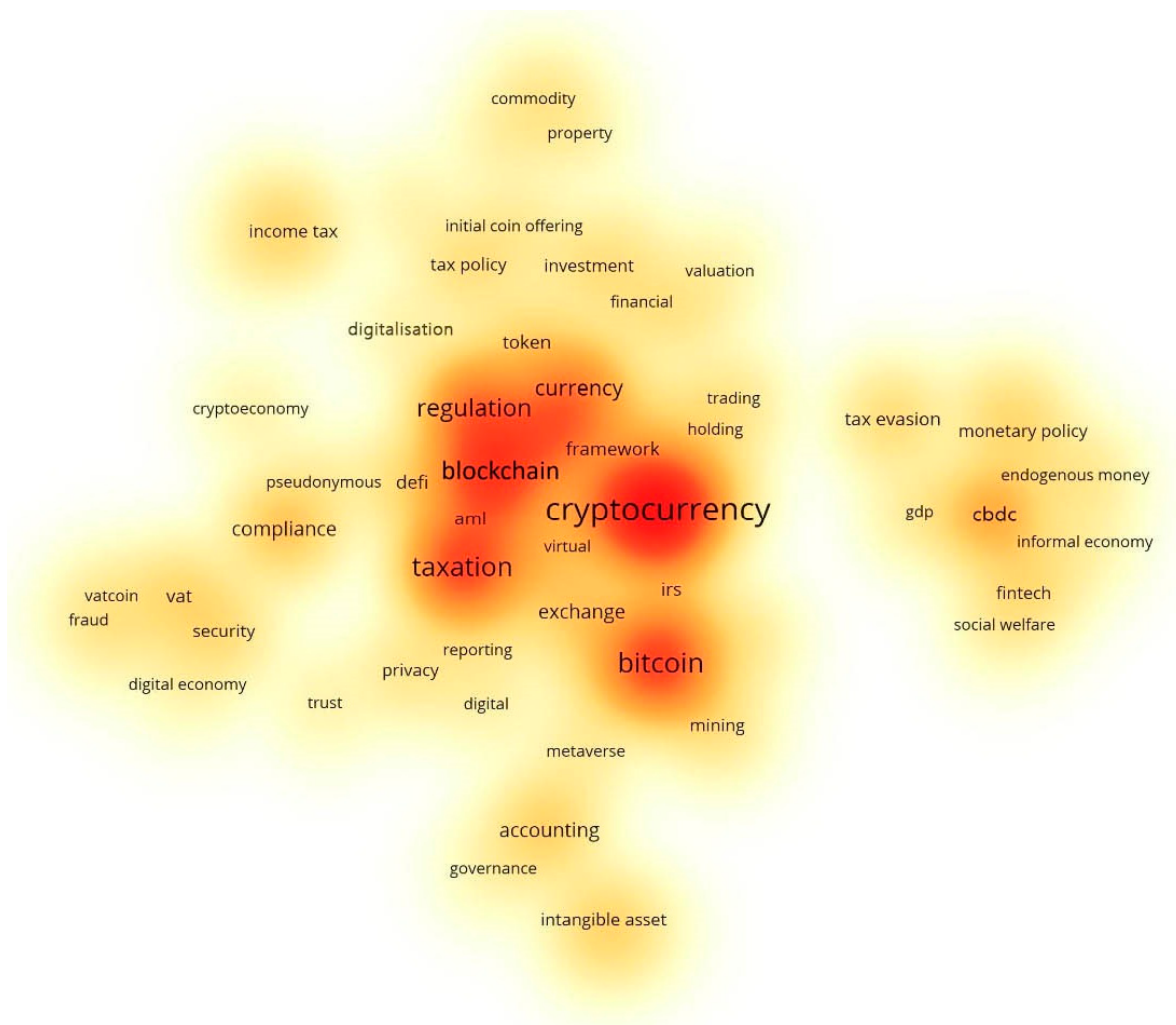


Figure 9. Co-occurrence density visualisation of author keywords for CT. Source: Authors' projection.

Therefore, cryptocurrency taxation involves complex issues (Parlaktuna & Gungul, 2019; Cassidy et al., 2020; Bozdoğanoglu, 2022; Obu & Ukpere, 2022; Cong et al., 2023) that touch on various aspects of financial regulation and personal finance (G. Wang & Hausken, 2021), legal structures, ethical considerations, macroeconomic impacts, and internalisation (Corbet et al., 2020). Davenport and Usrey (2023a) examine the current regulatory framework, discuss alternative tax treatments, and make policy recommendations for the tax treatment of cryptocurrency.

As a result, evolving from the co-occurrence cluster of keywords, our findings offer insights on international taxation, tax classification, tax implications for emerging crypto sectors, and enforcement and compliance.

Theme 1—International taxation and regulatory differences. Cryptocurrency tax treatment and market organisation strategies differ globally. In regions like Russia (Loginov et al., 2019; Shovkhalov & Idrisov, 2021; Nazarov et al., 2019), the European Union (EU), the USA, the United Kingdom (Inshyn et al., 2018), Turkiye (Parlaktuna & Gungul, 2019) diverse practices for taxing cryptoasset income highlight the need for updated legislation and effective tax controls (Egorova et al., 2023; Drozd et al., 2018; Chyzhmar et al., 2019).

Challenges in taxing virtual currencies like Bitcoin emphasise the evolving views of tax authorities (Bal, 2015; Miglietti, 2014; Tan & Low, 2017). While the OECD legislative efforts in the EU to unify terminology and taxation policies vary, some countries still reject their legal status (Chornous et al., 2019; Budak & Yilmaz, 2022). As Bitcoin could eventually

become a currency of world use (Frias & Freire, 2019), its long-term volatility stems from its composition and market dynamics, with international tax recognition potentially aiding stability (Jalal et al., 2020) and financial transparency (Gao, 2023). At the same time, Senarathne and Jianguo (2020) examine volatility spillovers between the Bitcoin market and the USA banking industry using the Unrestricted BEKK-GARCH model.

Notably, jurisdictions vary significantly in institutional adoption, accounting, finance and tax treatment of cryptocurrencies (Veuger, 2021; Tut, 2022). For instance, Bitcoin is legally recognised as a currency in the US, while the EU exempts Bitcoin from value-added tax as it does not classify as a material good (Maniatis, 2019). The development of common standards for cryptocurrency regulation, including licensing and government oversight, remains critical for effective control and market stability (Cui, 2010; Tipanov et al., 2021; Morozova et al., 2020). Shvayko and Grebeniuk (2020) also highlight the positive influence of currency liberalisation, the legalisation of cryptocurrency operations, and the implementation of blockchain technology.

Proactive regulation offers a path toward global harmony in digital currency management, though tax administration alone may not stabilise the digital market (Powell & Hope, 2019). Innovative approaches, such as a proposed “data money tax” and a dynamic regulatory framework for cryptocurrency exchange platforms, aim to address emerging challenges (Caliskan, 2022; Baer et al., 2023). Additionally, global tax policies must respond to the digitisation of economies, synthesising lessons to create consistent frameworks (Strauss et al., 2020), considering the economic result of the crypto activity. In this context, Bal (2019) provides a comparative review of virtual currency regulations in Australia, Germany, the Netherlands, the USA, and the United Kingdom, proposing a regulatory framework, and recommending improvements to existing income tax systems.

Direct taxation

It is common knowledge that direct taxation refers to taxes levied directly on the income, profit, or capital gain resulting from cryptocurrency activities. These taxes are paid directly to the government by the taxpayers and cannot be shifted or transferred to someone else. Some countries impose direct taxes such as capital gains tax (Baer et al., 2023; Ram, 2018), income tax (Egorova et al., 2023; Ram, 2018), or profits tax. While profits tax and capital gains tax are based on net revenue, income tax covers total income (Lazea et al., 2024).

National case studies and international perspectives highlight the diverse cryptocurrency taxation and regulation approaches (Bozdoğanoglu, 2019; Novak, 2020). Digital currencies, as alternative asset classes, present unique tax implications depending on jurisdiction.

Blockchain technology offers promising potential to streamline corporate tax loss compliance in Australia, but the complexity and flexibility of tax laws remain significant problems to its implementation (Morton & Curran, 2023). Additionally, issues surrounding income tax and governance arise in cases of cryptocurrency donations to deductible gift recipients (Liu et al., 2021). The Australian Tax Office is working on defining digital currencies and enforcing compliance with existing tax laws, with Bitcoin at the centre of these challenges (Emery & Stewart, 2017).

The USA imposes taxation on all cryptocurrency sales without exception, highlighting significant differences in regulatory approaches (Caliskan, 2022). However, the regulatory landscape for digital assets remains inconsistent. While the federal government has been slow to develop comprehensive rules for tokenised and non-tokenised assets, certain states have enacted specific laws, and recent legal frameworks aim to balance the interest of the SEC (Securities and Exchange Commission), investors, and innovative companies in the cryptocurrency industry (Essaghoolian, 2019; Cotler, 2023). Therefore, the USA applies a

progressive taxation system, with up to 37% tax on short-term capital gains and crypto income, or 0–20% for long-term capital gains from crypto activity, encouraging in this way investors (Koinly, 2024).

Nylen and Huels (2022) believe that simplifying regulations could improve federal income tax enforcement based on IRS guidance (Hsieh, 2019). While IRS classifications remain unchanged, the SEC and CFTC (Commodity Futures Trading Commission) have challenged this guidance through established authority and rulings (Davenport & Usrey, 2023b). This evolving framework also addresses the treatment of digital assets under tax, intellectual property, and securities laws, offering a detailed synthesis of US legal perspectives (McKeon & Schloss, 2021).

Alonso et al. (2023) aim to identify the origin and transaction operations of cryptocurrencies and the income derived from these transactions, determining tax payments according to Mexican tax legislation.

Nevertheless, Thailand has proposed a 15% withholding tax on every crypto transaction due to the rapid growth of its legally registered crypto exchanges (Chutipat et al., 2023). These differing policies often cause confusion for international traders or individuals residing in multiple jurisdictions.

On one hand, Huang et al. (2023) note the specific rules in Hong Kong, indicating that profits from selling cryptoassets held as inventory and staking rewards are taxable. In Singapore, cryptocurrency payments are legally viewed as a service that is subject to the GST (Goods and Service Tax) or 7% transaction tax over the resulting profit. Meanwhile, the Indonesian government is debating whether to legitimize crypto payments (Ilham et al., 2019). Researchers in Malaysia also examined the problems of cryptocurrency estate planning and suggested a framework to resolve these issues (Katuk et al., 2023; Angeline et al., 2021). Across Asia, contrasting regulatory and tax approaches, especially in countries that dominate global transaction volumes, reflect the challenge of having harmonised cryptocurrency policies (Cassidy et al., 2020).

On the other hand, South Africa encourages crypto donations by exempting them from capital gains tax, with the fair market value excluded from income and capital gain calculations (Vumazonke & Parsons, 2023). Nonetheless, the South African Revenue Service (SARS) admitted in 2018 that its advice regarding the income tax consequences of cryptoasset transactions was lacking. According to Vumazonke and Parsons (2023), SARS needs to issue clearer and broader guidance to help taxpayers better understand the tax consequences of crypto-related operations.

Salawu and Moloi (2018) investigate the views of accountants regarding cryptocurrency legislation in the Nigerian context. Their results suggest that cryptocurrencies have both risks and advantages, and careful decisions must be made in the field of legislation to secure the innovative progress that would benefit both companies and citizens.

The European Union's new regulatory framework for cryptoassets imposes specific reporting requirements for cryptoasset service providers, bringing greater transparency to the crypto space (Jozipović et al., 2022). Table 3 offers a practical insight on how cryptocurrencies are taxed across the EU, for a more applicable approach, and it outlines the tax type and percentage a natural person has to declare and pay for owning cryptoassets. It is important to note that Belgium, Croatia, Luxembourg, Malta, and Portugal have 0% taxes for long-term investors, which can be interpreted as encouraging investors. Meanwhile, Bulgaria, Greece, Hungary, Lithuania, Romania, Poland, Slovakia, and Slovenia are safe places for crypto holders, as they impose a low amount of tax on crypto in the EU or are tax-free for a certain period. It should be noted that, in some countries, personal income tax applies to taxable capital gains from cryptocurrency activity. In contrast, Austria, Denmark,

Finland, France, Ireland, Sweden, and the Netherlands demand high tax rates on crypto capital gains or personal income.

Table 3. The taxation of cryptoassets for natural persons across EU, 2024.

Country	Tax Percentage	Tax Base Type	Tax Rate Type	
Austria	27.50%	Capital gains tax	FTR	
Belgium	0% *-33%	Capital gains tax (*for long-term investors)	PTS	
Bulgaria	10%	Personal income	FTR	
Croatia	0% */18%	Capital gains tax (*if asset is held for over two years)	PTS	
Cyprus	0-35%	Personal income (based on profit and frequency)	PTS	
Czech Republic	15%/23% *	Capital gains tax (*23% over €70K)	PTS	
Denmark	37-52%	Personal income tax	PTS	
Estonia	20%	Personal income tax	FTR	
Finland	30-34%	Capital gains tax (30% under €30K, 34% over €30K)	PTS	
France	30%	Capital gain tax	FTR	
Germany	0-45%	Personal income tax (based on income)	PTS	
Greece	15%	Capital gains tax (beginning in 2025)	FTR	
Hungary	15%	Personal income	FTR	
Ireland	33%	Capital gains tax	FTR	
Italy	26%	Capital gains tax (over €2K, may increase to 42%)	FTR	
Latvia	25.50%	Personal income tax	FTR	
Lithuania	15%	Capital gains tax	FTR	
Luxembourg	0% */22-25%	Personal income tax (*holding more than six months)	PTS	
Malta	0%	Capital gains tax exemption	FTR	
The Netherlands	36%	Personal income tax (presumed return on total value)	FTR	
Poland	19%	Capital gains tax	FTR	
Portugal	0% */28%	Capital gains tax (*assets held for over one year)	PTS	
Romania	10%	Capital gains tax (if over €120)	FTR	
Slovakia	7%	Crypto-specific tax (on profits from over one year)	FTR	
Slovenia	0%	Capital gains tax exemption	PTS	
Spain	19-28%	Capital gains tax (based on income)	PTS	
Sweden	30%	Capital gains tax	FTR	
Colour code		0-19%	20-29%	>30%

Source: Data processed by authors from [Protos Staff \(2024\)](#), [Binance \(2024\)](#), and [Koinly \(2024\)](#).

Additionally, it can be seen that there are countries with flat tax rates (FTRs) and regions where a progressive taxation scale (PTS) is applied ([Sotiri, 2024](#)). In our opinion, this distinction underlines the varied approaches to CT, with countries opting for a simpler, uniform tax rate, which encourages compliance, and others implementing systems that adjust the tax based on profit, transaction volume, frequency, or holding period, which could be more beneficial for experienced investors. Therefore, governments should focus on the purpose of tax collecting to ensure exponential but sustainable revenue growth from taxes, particularly based on the public collection from investment assets like cryptocurrencies.

In Germany, investment in digital currencies has triggered tax measures, including the availability of waivers after a defined holding timeframe ([Stiegler et al., 2018](#); [Yayman, 2023](#)).

According to Romanian law, the Fiscal Code defines the income from the transfer of virtual currencies as taxable sources (if the gain is over €120 per year), according to Table 4. In addition, losses from depreciation or sales are allowed as expenses ([Păunescu, 2018](#)). If cryptoassets are classified as inventory, all income from their sale is taxed, while for investments, only the gains are taxable ([Bunget & Trifa, 2023](#)). For a more practical

approach, Table 4 presents the taxation of cryptoasset in Romania, outside the non-taxable period mentioned.

Table 4. The taxation of cryptoasset operations for private persons in Romania, 2024.

Operation	Tax Percentage	Tax Base
Conversion of cryptocurrencies into fiat money	10%	Profit/capital gain
Exchanges between cryptocurrencies	10%	Profit/capital gain
Payments with cryptocurrencies	10%	Gain from the difference between purchase price and market price at the time of the transaction
Compensation received from cryptocurrency mining (via PoW mechanism)	10%	Accounting value of the gain at the time of entry/receipt
Compensation received from cryptocurrency staking (via PoS/DPOS mechanism)	10%	Accounting value of the gain at the time of entry/receipt
Earning new tokens	10%	Accounting value of the gain at the time of entry/generation

Source: Data processed by authors from Legge (2022) and Bunget and Trifa (2023).

Denmark classifies cryptoassets as income gained through hobby or speculative activities and taxes them as per tax laws (Ferniss, 2023). According to Ferniss (2023), Danish tax laws can be improved in order to deal with the challenges posed by digital assets. There are four categories of cryptocurrencies: coins, utility tokens, security tokens, and asset tokens (Arslanian & Fischer, 2019; Kjaersgaard & Arfwidsson, 2019). Yet, the lack of appropriate legal structure creates a number of significant concerns (Kjaersgaard & Arfwidsson, 2019).

In Poland, the tax regulation enacted in January 2019 seems to treat revenue from using cryptocurrency as money, and its use and trade as capital gains rather than property. These regulations also clarify rules around tax-deductible expenses, providing a more structured approach to crypto taxation (Tyc & Siucinski, 2020). Additionally, earlier work examined Polish tax implications for Bitcoin transactions, reflecting the rapid growth of the cryptocurrency market (Kowalski, 2015).

Meanwhile, Slovakia evaluates cryptocurrency accounting within the context of international standards, focusing on applying a principles-based approach. IFRIC (International Financial Reporting Interpretations Committee) determined that IAS 2 standards are applicable to cryptocurrencies when they are held for sale in the ordinary course of business, providing clarity for their financial reporting (Blahušiaková, 2022); in this case, profits tax may apply.

Indirect taxation

Indirect taxation can be understood as a system through which an intermediary collects taxes from the final consumer. Unlike direct taxes, the entity that pays the tax to the government does not support the cost because it transfers it to the final person in the link. The end consumer obtains the cost by including a percentage in the final price of the goods or services.

A common type of indirect tax is the value-added tax (VAT), a final consumption tax (Ram, 2018). The business collects this tax from the consumer and remits it to the government. Cryptocurrencies like Bitcoin and blockchain technology will significantly impact future VAT practices and tax authorities (Kollmann, 2019). For VAT purposes, Bitcoin is not classified as a product or goods and services but as a means of payment (Kucherov & Khavanova, 2017). Many jurisdictions, such as the EU, Australia, Japan, and South Africa, explicitly exempt cryptocurrency trading from VAT because they are considered as payment rather than legal tender in VAT calculation (Baer et al., 2023; Egorova

et al., 2023). The same manuscript (Baer et al., 2023), however, states that the VAT treatment of rewards from cryptocurrency mining or transaction fees earned by miners should be subject to this indirect tax, with input VAT credits on mining expenses allowed. In these circumstances, the authors' concern is that the volatility of crypto prices leads to practical difficulties in assessing the VAT basis for transactions.

The VAT treatment of cryptoassets within the EU is also subject to debate. Bellucci et al. (2022) advocate for exempting cryptocurrency activities from VAT in Italy, a position mirrored in Ukraine, where cryptocurrency transactions are not taxed, following EU guidelines (Kolková, 2018; Volosovych & Baraniuk, 2018). The Skatteverket–Hedqvist case (CJEU Case C-264/14) further examines whether Bitcoin exchanges for traditional currencies through a company should be subject to VAT. The court ultimately suggested that such exchanges should be VAT-exempt (Judgment of the CJEU in Case C-264/14, 2015). Egorova et al. (2023) also advocate for tax exemption when cryptocurrencies are used as a means of payment.

Moreover, Greeff's (2019) study examines existing literature in a South African VAT environment, and the findings outline that receiving and exchanging Bitcoin for South African Rand will result in "double taxation".

A curiosity in matters of VAT, with practical application, is the study written by Ainsworth et al. (2016), which introduces VATcoin, a non-speculative cryptocurrency proposed to be built by governments, especially for VAT compliance. This private blockchain-built currency would be used only for VAT collection in order to prevent fraud, and it is designed for every transaction involving goods and services subject to VAT.

For a better visual understanding, Table 5 and Figure 10 summarise the studies related to taxation across various countries, categorised by the economic result of the crypto activity. The tax treatment takes into consideration direct and indirect taxation. The table shows that taxation topics in the context of cryptocurrencies are unevenly distributed. For instance, income tax (22% of the articles) and capital gains tax (15% of the articles) are frequently studied, while profit tax is the least addressed (7% of the articles). Indirect taxation, particularly VAT, also sees a significant amount of research (14% of the articles), but there are still many gaps in terms of comprehensive tax analysis across all regions. This projection serves as a design overview of the academic landscape on cryptocurrency and taxation, revealing which areas are well-researched and where there may be opportunities for further exploration.

Table 5. Taxation by the economic result of the crypto activity (tax treatment).

Authors	Countries	Direct Tax			Indirect Tax
		Income Tax	Profit Tax	Capital Gain Tax	VAT
(Ainsworth et al., 2016)	USA				✓
(Alexander, 2022)	The Netherlands				✓
(Alonso et al., 2023)	Mexico	✓			
(Baer et al., 2023)	USA, Japan, UK	✓		✓	✓
(Bal, 2019)	The Netherlands	✓			
(Barrdear & Kumhof, 2022)	UK	✓			
(Belda, 2023)	Spain				✓
(Blahušiaková, 2022)	Slovakia	✓			
(Budak & Yilmaz, 2022)	Türkiye	✓		✓	✓
(Caliskan, 2022)	USA	✓		✓	✓
(Caton, 2020)	USA			✓	
(Chudinovskikh & Sevryugin, 2019)	Russia	✓	✓		
(Cong et al., 2023)	USA, Singapore	✓		✓	

Table 5. Cont.

Authors	Countries	Direct Tax			Indirect Tax
		Income Tax	Profit Tax	Capital Gain Tax	VAT
(Chutipat et al., 2023)	Thailand		✓		
(Egorova et al., 2023)	Russia	✓		✓	✓
(Ferniss, 2023)	Denmark	✓	✓	✓	
(Gao, 2023)	China	✓			
(Greeff, 2019)	South Africa	✓			✓
(Holden & Malani, 2022)	USA	✓		✓	✓
(Hougan et al., 2023)	USA		✓		
(Hsieh, 2019)	USA	✓			
(Huang et al., 2023)	China		✓	✓	✓
(Ilham et al., 2019)	Indonesia, Malaysia	✓			
(Inshyn et al., 2018)	Ukraine	✓		✓	
(Kjaersgaard & Arfwidsson, 2019)	Denmark	✓			
(Kowalski, 2015)	Poland	✓			✓
(Kreminskyi et al., 2021)	Ukraine				✓
(Kshetri, 2023)	USA	✓	✓	✓	
(Kucherov & Khavanova, 2017)	Russia	✓			✓
(Kucheryavenko et al., 2019)	Ukraine		✓		
(Liu et al., 2021)	Australia	✓		✓	
(Makurin et al., 2023)	Ukraine	✓			✓
(Maniatis, 2019)	Greece				✓
(Morse, 2018)	USA			✓	
(Nazarov et al., 2019)	Russia	✓	✓		✓
(Niftaliyev, 2023)	Azerbaijan	✓			✓
(Novak, 2020)	Australia	✓		✓	
(Novak & Pochesneva, 2019)	Australia	✓	✓	✓	
(Oh & Zhang, 2022)	UK	✓			✓
(Pandey & Gilmour, 2024)	India, UK	✓		✓	✓
(Perkins, 2022)	UK			✓	
(Pimentel & Boulianne, 2020)	Canada	✓		✓	
(Podhorsky, 2023)	Canada	✓		✓	
(Ram, 2018)	South Africa	✓	✓	✓	✓
(Ren et al., 2023)	China				✓
(Rosa & Caminha, 2023)	Brazil			✓	
(Ryabova & Henderson, 2019)	USA	✓		✓	
(Scarcella, 2021a)	Australia	✓			
(Stiegler et al., 2018)	Germany, Romania	✓			
(Strauss et al., 2021)	South Africa	✓	✓	✓	✓
(Tan & Low, 2017)	Australia	✓		✓	
(Tyc & Siucinski, 2020)	Poland	✓		✓	
(Vishnevsky & Chekina, 2018)	Ukraine	✓	✓	✓	✓
(Vumazonke & Parsons, 2023)	South Africa	✓		✓	✓
(G. Wang & Hausken, 2021)	Norway	✓			
(Yayman, 2023)	Turkiye	✓	✓	✓	✓
Total number of articles		43	13	28	25
Percentage		22%	7%	15%	14%

Source: Authors' projection. The authors who expressed their point of view on tax treatment were considered.

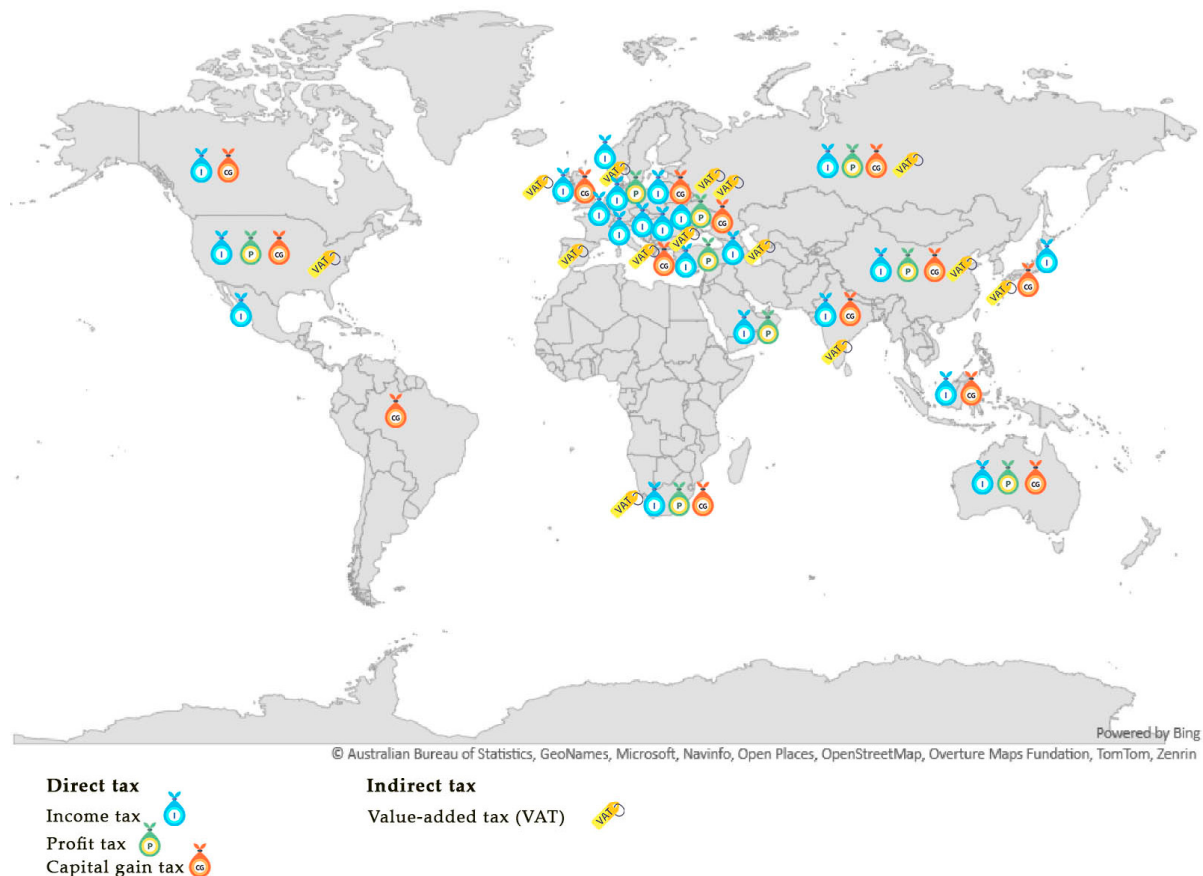


Figure 10. Taxation by the economic result of the crypto activity (tax treatment). Source: Authors' projection from Table 5 with MS Excel; free icons from flaticon.com (accessed on 14 December 2024) (FLATICON, 2024).

The broader economic implications of cryptocurrency markets include their impact on national banking networks and the need for solutions to address technological and market challenges (Kucheryavenko et al., 2019). Factors such as institutional quality, ethics, political risks, the relationship between private and national currencies, and tax haven status shape regulatory orientations and responses to cryptocurrencies (Kshetri, 2023; Holden & Malani, 2022). Chudinovskikh and Sevryugin (2019) argue that countries should establish uniform cryptocurrency regulations to prevent investment and capital migration to more liberal countries.

Harmonising tax and accounting rules across jurisdictions would enhance transparency and give businesses greater certainty (Makurin et al., 2023; Niftaliyev, 2023). Without such alignment, the current lack of clarity continues to create uncertainty, underscoring the need for more definitive regulatory frameworks (Sokolenco et al., 2019; Ilham et al., 2019; Lazea et al., 2024).

Theme 2—Tax classification and reporting. The decentralised nature of cryptocurrency and the limited tax reporting provided by exchanges present challenges for individuals in accurately reporting gains and losses (Davenport & Usrey, 2023a; Andreevich et al., 2022). One of the key difficulties lies in tracking the cost basis and fair market value for each transaction, given the high volume and variety of transactions. Generally, cryptocurrencies are treated as property for tax purposes (Terando et al., 2017), meaning that sales or exchanges trigger capital gains or losses. When cryptocurrencies are earned through activities like mining, holding, or trading, they are considered income and taxed based on the nature of the activity (Ram, 2018; Obrist & Pfister, 2019).

The IRS initially issued guidance in 2014, clarifying that (i) cryptocurrency is treated as property for tax purposes, (ii) exchanging or receiving cryptocurrency for goods or services constitutes a taxable event, and (iii) mining cryptocurrency triggers a taxable event (Cong et al., 2023).

Cryptocurrency mining taxation is still debated. Zatsepin et al. (2020) argue that mining, as a complex economic and legal process, should not be classified as a business activity or subjected to taxation, special regulations, or registration as an illegal business. Similarly, Canada's Department of Finance has proposed excluding digital asset mining from being treated as a commercial activity for tax purposes (Robertson & Ing, 2023).

Challenges persist in calculating mining costs, complicating future accounting and tax compliance (Makurin, 2023). In contrast, Bellucci et al. (2022) advocate treating mining as a business activity and taxing it like any other form of production to capture value during the mining process. Pelucio-Grecco et al. (2020) and Volosovych and Baraniuk (2018) suggest taxing mined cryptocurrencies only upon sale. We believe this approach accounts for price volatility, ensures a more stable tax base (Lazea et al., 2024), and avoids double taxation of the same asset while being in the possession of the same person.

For individuals *holding cryptocurrencies*, many authors suggest that they should be taxed like property or tradable commodities (Alsalmi et al., 2023; Jayasuriya & Sims, 2023; Smith et al., 2019; Terando et al., 2017; Cong et al., 2023; Huang et al., 2023; Podhorsky, 2023). A simple tax system can enhance compliance, making it easier for individuals and companies to meet their tax obligations. Angeline et al. (2021) stress the importance of companies following accounting standards (e.g., IFRS Foundation, 2024) to assess their tax liabilities (Davenport & Usrey, 2023b). Smith et al. (2019) also note that holding cryptocurrency for over a year, results in profits being taxed as long-term capital gains, often at a lower rate than ordinary income (Lazea et al., 2024).

Broader studies explore external factors influencing cryptocurrency ownership. Goel and Mazhar (2024) assert that countries with extensive underground economies tend to have greater cryptocurrency holdings, while increased foreign direct investment (FDI) correlates with positive cryptocurrency adoption. Further, researchers Makurin et al. (2023) discuss the classification of cryptocurrencies, proposing that they could be regarded as stocks or intangible assets. They comment on how this blockchain technology has revolutionised accounting practices by introducing triple-entry systems.

Cryptocurrency exchanges offer another taxation proposition (Cong et al., 2023; Nylen & Huels, 2022). Scholars such as Bellucci et al. (2022) and Volosovych and Baraniuk (2018) propose that such exchanges should be subject to capital gains tax. Others, like Kolková (2018), have argued that only the profit from converting cryptocurrency into fiat should be taxed rather than the entire transaction amount (Pelucio-Grecco et al., 2020; Lazea et al., 2024). These approaches aim at equitable taxation while minimising unnecessary burdens on exchanges and traders.

New intermediaries, such as cryptocurrency exchanges and wallet providers, create additional tax challenges. While Ehrke-Rabel and Zechner (2020) addressed the treatment of these entities for value-added tax, Q. Wang et al. (2023) examined the behaviour of Bitcoin exchanges during times of uncertainty about fiscal and monetary policy, shedding light on their stability and resilience in volatile markets.

Table 6 and Figure 11 summarise the global cryptocurrency tax framework according to the nature of crypto activities (mining, trading, or holding) explored in the database articles. The table also highlights the author's interest in modalities of regulation concerning digital assets; 24% of the articles focus on regulatory frameworks, demonstrating each country's position on legislative action concerning cryptocurrency. This is particularly relevant in

examining how different governments respond to the unique challenges of decentralised digital currencies.

Table 6. Taxation by the nature of the crypto activity and regulation.

Authors	Countries	Taxation of Cryptocurrency			Regulation
		Mining	Trading	Holding	
(Alonso et al., 2023)	Mexico				✓
(Artemenko et al., 2019)	Russia				✓
(Avi-Yonah, 2023)	USA				✓
(Baer et al., 2023)	USA, Japan, UK	✓	✓	✓	✓
(Bal, 2019)	The Netherlands				✓
(Bal, 2015)	The Netherlands				✓
(Baltgailis et al., 2023)	Latvia, Ukraine				✓
(Belda, 2023)	Spain				✓
(Bibi, 2023)	UK				✓
(Blahušiaková, 2022)	Slovakia	✓	✓	✓	✓
(Bubnova, 2020)	Russia				✓
(Budak & Yilmaz, 2022)	Turkiye	✓			
(Cassidy et al., 2020)	New Zealand, UK, Australia		✓		✓
(Caton, 2020)	USA				✓
(Chudinovskikh & Sevryugin, 2019)	Russia	✓			✓
(Cong et al., 2023)	USA, Singapore	✓	✓	✓	✓
(Egorova et al., 2023)	Russia	✓	✓	✓	✓
(Emery & Stewart, 2017)	Australia		✓		✓
(Ferniss, 2023)	Denmark				✓
(Holden & Malani, 2022)	USA				✓
(Hsieh, 2019)	USA				✓
(Huang et al., 2023)	China		✓	✓	
(Inger & Mathis, 2021)	USA	✓	✓	✓	
(Inshyn et al., 2018)	Ukraine				✓
(Jozipović et al., 2022)	The Netherlands				✓
(Kjaersgaard & Arfwidsson, 2019)	Denmark				✓
(Kowalski, 2015)	Poland	✓	✓		✓
(Kshetri, 2023)	USA				✓
(Makurin et al., 2023)	Ukraine	✓			
(Matkovskyy et al., 2020)	France				✓
(Morozova et al., 2020)	Russia, Switzerland	✓	✓		✓
(Morse, 2018)	USA		✓		
(Morton et al., 2023)	Australia				✓
(Nazarov et al., 2019)	Russia				✓
(Niftaliyev, 2023)	Azerbaijan				✓
(Novak, 2020)	Australia		✓		✓
(Pandey & Gilmour, 2024)	India, UK				✓
(Peláez-Repiso et al., 2021)	Spain				✓
(Perkins, 2022)	UK				✓
(Pimentel & Boulianne, 2020)	Canada	✓			
(Podhorsky, 2023)	Canada	✓			
(Ram, 2018)	South Africa	✓	✓		✓
(Rosa & Caminha, 2023)	Brazil				✓
(Ryabova & Henderson, 2019)	USA		✓	✓	✓

Table 6. Cont.

Authors	Countries	Taxation of Cryptocurrency			Regulation
		Mining	Trading	Holding	
(Scarcella, 2021a)	Australia		✓	✓	✓
(Schilling & Uhlig, 2019)	France, USA	✓			
(Strauss et al., 2021)	South Africa	✓	✓		
(Tan & Low, 2017)	Australia				✓
(Tyc & Siucinski, 2020)	Poland	✓	✓		✓
(Vishnevsky & Chekina, 2018)	Ukraine	✓			✓
(Vumazonke & Parsons, 2023)	South Africa	✓	✓		
(Q. Wang et al., 2023)	China				✓
(Yayman, 2023)	Turkiye	✓	✓		✓
(Ylonen et al., 2024)	Denmark				✓
(Zatsepin et al., 2020)	Russia	✓			
Total number of articles		20	16	8	44
Percentage		11%	9%	4%	24%

Source: Authors' projection. The authors who expressed their point of view on tax treatment were considered.

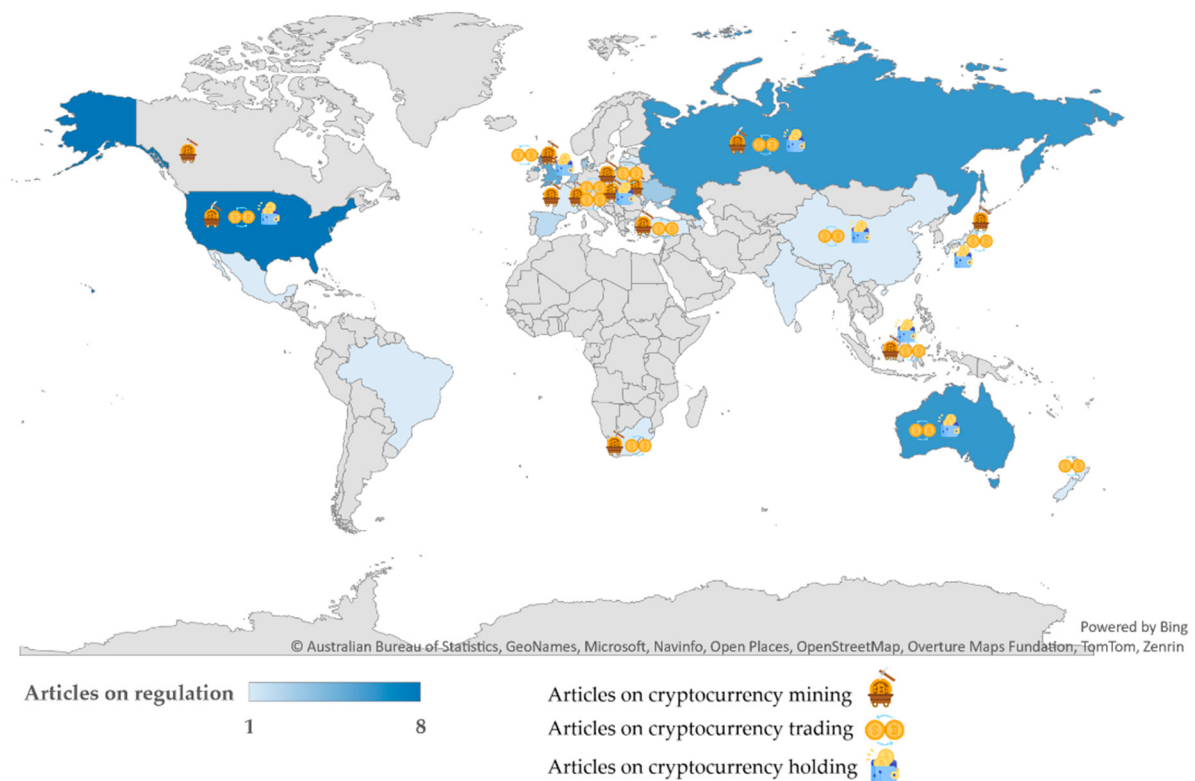


Figure 11. Taxation by the nature of the crypto activity and regulation. Source: Authors' projection from Table 6 with MS Excel; free icons from flaticon.com (accessed on 14 December 2024) (FLATICON, 2024).

Upon detailed analysis, approximately 11% of the reviewed articles contained information on taxation policies that are meant to regulate cryptocurrency mining operations in various countries. This finding underscores a limited but notable trend towards regulatory engagement with cryptocurrency creation, reflecting emerging governmental responses to the fiscal implications of digital asset creation. Meanwhile, approximately 9% of the studies reviewed discuss taxes applied to cryptocurrency trading, indicating a growing awareness among regulators of the need for taxation frameworks covering digital trans-

actions. Nevertheless, only 4% of the examined studies report on tax measures related to holding cryptocurrencies, suggesting that while this remains relatively uncommon, there is a gradual recognition of its importance within broader regulations.

Cryptocurrency taxation can extend beyond capital gains. [Huang et al. \(2023\)](#) propose that transaction taxes might apply depending on jurisdiction. [Kolková \(2018\)](#) highlights that those deductible expenses, like exchange fees, should be diminished from profits for accurate tax calculations.

When businesses accept cryptocurrencies for payment, the tax treatment tends to be similar to that applicable for traditional currency transactions, imposing income or sales taxes ([Pelucio-Grecco et al., 2020](#)). [Pimentel and Boulianne \(2020\)](#) suggest treating these transactions as “barter” exchanges ([Baer et al., 2023](#)).

Theme 3—Tax implications for emerging crypto sectors. The growth of decentralised finance (DeFi) and non-fungible tokens (NFTs) brings forth new questions for tax authorities ([Baer et al., 2023](#); [Pandey & Gilmour, 2024](#)). These nascent sectors present complications in taxing, especially for activities like staking rewards and yield farming.

In the DeFi sector, such activities can generate income, but it is often unclear when and how this income should be subject to taxation. The main question revolves around whether earnings from such activities should be taxed at the point of receipt as income or as capital gains upon disposal of the assets. These uncertainties showcase the need for clear guidance and uniform treatment.

The growth of DeFi in South Africa presents challenges for income tax legislation. [Parsons \(2022\)](#) offers guidance for taxpayers and calls on cooperation across jurisdictions to elucidate income tax results. [Makarov and Schoar \(2022\)](#) discuss the DeFi wider implications, comparing its prospective benefits and challenges to those of traditional financial intermediaries. They emphasise how the DeFi decentralisation could transform the financial structure while raising regulatory and tax concerns.

Similarly, NFT sales may be taxed differently depending on whether the seller is an investor, collector, or creator. For example, if the seller is an investor, the gains from NFT sales might be subject to capital gains tax. If the seller is a creator or collector, the applicable treatment for taxation could be ordinary income. The process of identifying the source of income and tax treatment of NFT transactions remains complex ([Gheorghiu, 2023](#)).

The sale or transfer of an NFT is a taxable event, but it is not always clear which tax classification will apply, creating difficulties with compliance. When NFT trading was subject to scrutiny, some trading behaviours followed, such as tax-loss harvesting and wash trading. This raises an important advocacy argument for the need to develop clear and coherent tax policies in new areas like NFTs ([Cong et al., 2023](#)).

In Australia, tax implications for holding, selling, and trading NFTs have also been explored, offering a high-level overview of their treatment under existing tax laws ([Lim, 2021](#)). According to [Morton and Curran \(2023\)](#), NFTs are considered capital gains tax assets, which means any capital gain or loss from selling, trading, or gifting must be reported for tax purposes. Furthermore, if an NFT is owned for personal purposes, capital gains tax may not apply, but if it is classified as collectable, it may be subject to taxation. NFT taxation can be the subject of another article because it involves complex analysis.

Broader considerations of digital taxation extend to the Metaverse, where networked tax systems must address issues around digital businesses, including digital advertising, e-commerce, user data, and virtual assets ([Belda, 2023](#)).

Theme 4—Enforcement and compliance. The lack of regulation and taxation of virtual assets signals a potential disregard for illegal activities and economic crimes ([Kreminsky et al., 2021](#); [Bubnova, 2020](#)). Cryptocurrencies and cryptoassets pose risks related to exchanges, financial crimes, money laundering and tax evasion ([Morgan, 2022](#); [Katrencik](#)

& Zatrochova, 2018; Kaygin et al., 2019) due to insufficient reporting and tax obligations (Scarcella, 2021a; Strauss et al., 2020). State regulation, including tax control (Volosovych & Baraniuk, 2018) and fiscal integrity safeguard strategies (Obu & Ukpere, 2022), is necessary to address these issues. Also, the digital transformation of tax returns and improved digital literacy and awareness can help manage these risks (Bozdoğanoglu, 2022).

Studies suggest tax authorities can increase Bitcoin's legitimacy by improving compliance and reducing tax evasion (Ryznar, 2019). Offshore regulators must adapt to cryptocurrencies to protect financial industries and maintain tax transparency (Perkins, 2022).

The fact that cryptocurrency owners' identity is pseudonymous (DAC 8, 2024) often leads to tax underreporting or non-compliance (Baer et al., 2023; Pimentel & Boulianne, 2020; Caliskan, 2022; Andreevich et al., 2022; Kreklewetz & Burlock, 2023; G. Wang & Hausken, 2021), because it makes identifying asset owners and determining tax liabilities difficult (Lazea et al., 2024). Bal (2019) recommends that tax authorities focus their efforts on virtual currency intermediaries rather than individual users, as intermediaries facilitate transactions and can provide valuable data to authorities, making tax compliance easier. Hendrickson and Luther (2022) also argue that eliminating cash and regulating alternatives like cryptocurrency could reduce criminal activity and tax evasion. However, blockchain technology could balance taxpayers' and tax authorities' needs. It has the potential to significantly reduce non-compliance risks, streamline tax obligations, and protect valuable data (Alexander, 2022).

Acknowledging the significance of tax compliance challenges concerning cryptoassets, the OECD has crafted the Crypto-Asset Reporting Framework (CARF) which aims to facilitate the gathering and automatic sharing of information related to crypto transactions (OECD, 2023). Together with CARF, the Directive on Administrative Cooperation 8 (DAC 8) focuses on sharing information about the gains and profits earned by EU crypto users (DAC 8, 2024).

In Ukraine, domestic state institutions are authorised to oversee tax regulations on cryptocurrency transactions, which lead to additional budget revenues, minimisation of unregulated economic activities, and combating cybercrime and terrorism funding (Volosovych & Baraniuk, 2018).

Moreover, in Romania, there was proposed a tax exemption period for crypto gains until the end of July 2025, but the amendment was not approved. This transitory measure aimed to enhance transparency regarding cryptocurrency transactions conducted by taxpayers in Romania, enabling a more accurate mapping of this market within the Romanian economy. By implementing this measure, investors could have transferred their earnings as investments into credit institutions in Romania, thereby generating additional cash flow for the economy (Adevarul, 2024).

The USA IRS (Adams & Bailey, 2021; Nysten & Huels, 2022) and the UK HMRC increasingly enforce crypto tax laws using advanced tracking tools. Penalties for non-compliance range from fines to criminal charges. The increased IRS enforcement has resulted in more tax compliance but also brings challenges such as migration to foreign exchanges to avoid regulation. This shows the persistence of problems related to regulatory oversight and tax law compliance (Avi-Yonah, 2023).

A few countries, such as Italy, Canada, and Israel, offer tax amnesty or voluntary disclosure programs to encourage reporting past crypto earnings, avoiding harsher penalties. For instance, in 2023, Italy introduced a program allowing taxpayers to report undeclared crypto holdings by paying taxes and penalties based on their value (Longo & Tomassini, 2023). Canada's Voluntary Disclosures Program (VDP) provides amnesty from criminal prosecution for voluntarily reporting unreported crypto transactions (Canadian Tax Amnesty, 2020). Israel tried a voluntary disclosure program, though data-sharing concerns

presented challenges ([Canadian Tax Amnesty, 2024](#)). These programs reflect global efforts to regulate cryptocurrency while offering reduced penalties for individuals who comply with tax laws.

Central Bank Digital Currencies (CBDCs) have been increasingly noted for their potential in reconfiguring the global financial landscape. Their design, purpose, and recent developments raise important considerations, particularly in Asia, where adoption risks are being closely examined ([Lee et al., 2023](#)). CBDCs are seen as tools to enhance macroeconomic stability, with potential benefits for central banks in terms of business stability and government bond impacts ([Barrdear & Kumhof, 2022](#)). Furthermore, the adoption of CBDCs could address challenges in the informal economy, offering solutions to tax evasion and improving fiscal policy capabilities ([Oh & Zhang, 2022](#); [Kwon et al., 2022](#)). CBDCs could also foster financial inclusion, particularly in Pacific island countries with high remittance costs ([Didenko & Buckley, 2022](#)). However, despite their benefits, challenges such as data protection concerns and the digital divide remain, and policymakers must carefully navigate these issues to realise their potential ([Scarcella, 2021b](#)).

5. Conclusions

Based on the research conducted, several key insights have emerged regarding the most influential actors in cryptocurrency taxation (CT) and the focal areas of study within the discipline. These findings clarify how various countries, institutions, and scholars shape the field and which topics are most frequently examined.

The response for RQ 1: Which countries, institutions, and authors are the most influential in CT, and how much do they collaborate? shows that countries like the USA, Germany, Ukraine, the United Kingdom, Russia, South Africa, and China, along with several institutions from these countries, are highly influential in shaping cryptocurrency taxation policies. Key authors such as Andreevich, Adams, Terando, and Enajero contribute extensively to the literature. Collaboration between these entities varies, with international institutions like the EU playing a crucial role in fostering cross-border dialogue, but global harmonisation efforts remain limited.

Equally important, the second response for RQ 2: Which are the most explored areas of study within this field? concludes that the most explored areas of study within cryptocurrency taxation revolve around tax classification, reporting, and enforcement. Scholars have delved into challenges related to capital gains taxation, income recognition from mining, staking, holding, and regulatory disparities across countries. For example, the taxation of cryptocurrencies worldwide varies significantly, with different countries adopting diverse approaches. The use of FTR in some countries, as opposed to PTS in others, highlights the contrasting tax strategies. In our opinion, a flat tax system simplifies the tax collection process and encourages compliance because the percentage that is payable is clear to the taxpayer. Meanwhile, progressive tax structures may offer benefits for long-term investors depending on factors like profit, transaction volume, or holding period. These varied taxation methods illustrate the wide range of policies across the EU or all over the world, each influencing the appeal of different countries for crypto investors.

Special attention is paid to the tax implications on emerging segments of the crypto market and to regulatory compliance issues. Emerging sectors like DEFI and NFTs are gaining academic attention, with research focusing on when and how income from activities like staking rewards, yield farming, and NFT transactions should be taxed. As demonstrated in various jurisdictions, including South Africa and Australia, the tax treatment of these digital assets is complex. Furthermore, the varied nature of NFT transactions—based on whether the seller is an investor, creator, or collector—adds to the complexity. The uncertainty about taxing these earnings as income or capital gains highlights the urgent

need for clear tax policies. Therefore, addressing these issues in another scientific article might be a way to ensure that different assets from the Metaverse are properly integrated into existing tax systems.

Compliance and enforcement strategies, particularly in relation to anonymous or pseudonymous transactions, are also critical topics, reflecting the dynamic and multifaceted nature of CT research. To tackle these problems, tax agencies need to adopt more robust state regulations, improve safeguards for fiscal integrity, and concentrate enforcement activities on intermediaries, who play a crucial role in promoting compliance. International endeavours to manage cryptocurrency consist of initiatives such as tax amnesty programs in nations including Italy, Canada, and Israel, which promote voluntary disclosure of unreported crypto income.

The findings offer insights for policymakers, academics, and practitioners seeking to understand the complex interplay between cryptocurrencies and taxation. The research also provides valuable windows into possible differences in tax regulations regarding cryptocurrencies in various jurisdictions, such as taxing capital gains and income from cryptocurrencies.

In conclusion, we want to stress the research's social, theoretical, and practical contributions. The manuscript highlights how proper regulation can reduce illegal activities, financial crimes, and tax evasion by examining the social impact of crypto activities. It also presents the role of a clear taxation procedure in ensuring fairness in the distribution of wealth and promoting transparency in the crypto economy.

From the theoretical point of view, this paper explores the complexities of taxation types and how different countries approach cryptoassets. It discusses various taxation models based on income types, such as income tax, capital gains tax, and profits tax, based on crypto activity, such as mining, holding, and trading taxation, or flat tax rates versus progressive taxation scales. The theoretical contribution also deals with tax compliance, the role of decentralisation, and the challenges that emerge from the pseudonymity of cryptocurrencies. This analysis contributes to the academic discourse on digital finance, crypto economy, regulatory frameworks, and tax policy development.

Practically, the article offers insights into how tax authorities can adapt their regulations to address the unique challenges posed by cryptocurrencies. It provides recommendations for improving tax enforcement, such as simplifying regulations, encouraging voluntary disclosure programs, or offering tax amnesty. One example which needs more research is the volatility of crypto prices that leads to practical difficulties in assessing the tax basis for transactions. These practical suggestions offer valuable guidance for policymakers and tax authorities aiming to establish effective and adaptable regulations.

Future research could analyse tax treatment for emerging technologies, such as DEFI or NFTs, to further enhance the understanding of cryptocurrency taxation. Another promising direction is studying the effects of tax reporting systems, which could address challenges in accurately reporting gains and losses from cryptocurrency activities. Finally, more attention should be given to how developing countries handle cryptocurrency taxation and its impact on tax collecting and compliance.

One limitation of the study is its exclusion of publications outside the specified time-frame. Moreover, the reliance on quantitative data may not always encompass the rich qualitative contexts. Also, the vast differences in regulatory approaches between countries represent a limitation, because it is difficult to make generalisations. In emerging economies, where cryptocurrency adoption is at an early stage, regulatory frameworks may be underdeveloped or absent, complicating the assessment of tax authorities. Considering the rapidly evolving nature of cryptocurrency taxation, regular updates are essential to ensure the comprehensiveness of this dynamic field.

Author Contributions: Conceptualization, G.-I.L., M.-R.B.-S. and O.-C.B.; methodology, G.-I.L. and M.-R.B.-S.; software, G.-I.L. and M.-R.B.-S.; validation, G.-I.L., A.-D.S. and O.-C.B.; formal analysis, G.-I.L., A.-D.S. and M.-R.B.-S.; investigation, G.-I.L., M.-R.B.-S. and A.-M.G.C.; resources, G.-I.L. and M.-R.B.-S.; data curation, G.-I.L. and M.-R.B.-S.; writing—original draft preparation, G.-I.L. and M.-R.B.-S.; writing—review and editing, G.-I.L., M.-R.B.-S. and A.-M.G.C.; visualization, G.-I.L.; supervision, O.-C.B.; project administration, G.-I.L., M.-R.B.-S. and O.-C.B.; funding acquisition, M.-R.B.-S., G.-I.L. and O.-C.B. All authors have read and agreed to the published version of the manuscript.

Funding: The APC was funded by the West University of Timisoara, Romania.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on the Web of Science Core Collection and Scopus or upon request from the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest.

References

- Adams, M. T., & Bailey, W. A. (2021). Emerging cryptocurrencies and IRS summons power: Striking the proper balance between IRS audit authority and taxpayer privacy. *ATA Journal of Legal Tax Research*, 19(1), 61–81. [CrossRef]
- Adevarul. (2024). Câștigurile uriașe din criptomonede, scutite temporar de impozitul pe venit. Care este motivul. adevarul. Available online: <https://adevarul.ro/economie/castigurile-urias-e-din-criptomonede-scutite-2401009.html> (accessed on 14 December 2024).
- Ainsworth, R. T., Alwohaibi, M., & Cheetham, M. (2016). VATCoin: The GCC's cryptotaxcurrency. *SSRN Electronic Journal*. [CrossRef]
- Alexander, G. (2022). Blocking the gap: The potential for blockchain technology to secure VAT compliance. *EC Tax Review*, 31(3), 140–155. [CrossRef]
- Alhasana, K. A. H., & Alrowwad, A. M. M. (2022). National standards of accounting and reporting in the era of digitalization of the economy. *Financial and Credit Activity: Problems of Theory and Practice*, 1(42), 154–161. [CrossRef]
- Alonso, M. A. G., Vega, T. D. J. V., Garcia, M. L. S., & Gonzalez, E. V. (2023). Virtual assets (cryptocurrencies) taxation according to the income tax law. In *Revista de derecho privado* (pp. 111–127). Univ Externado Colombia. [CrossRef]
- Alsalmi, N., Ullah, S., & Rafique, M. (2023). Accounting for digital currencies. *Research in International Business and Finance*, 64, 101897. [CrossRef]
- Andreevich, M. D., Petrovich, M. N., & Khoteevich, H. G. (2022). Regulatory regulation of the issue and circulation of digital currencies in the countries of the modern world. Springer proceedings in business and economics. In A. Rummyantseva, V. Plotnikov, A. Minin, & H. Anyigba (Eds.), *Challenges and solutions in the digital economy and finance*. Springer Nature. [CrossRef]
- Angeline, Y. K. H., Chin, W. S., Teoh Teng Tenk, M., & Saleh, Z. (2021). Accounting treatments for cryptocurrencies in Malaysia: The hierarchical component model approach. *Asian Journal of Business and Accounting*, 14(2), 137–171. [CrossRef]
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. [CrossRef]
- Arslanian, H., & Fischer, F. (2019). *The future of finance: The impact of FinTech, AI, and Crypto on financial services*. Springer International Publishing. [CrossRef]
- Artemenko, D., Novoselov, K., Efremenko, I., Nazarenko, G., & Palant, A. (2019). Trends and directions of supranational cryptocurrency operations regulations in the world economy. In K. Soliman (Ed.), *Vision 2025: Education excellence and management of innovations through sustainable economic competitive advantage* (pp. 7469–7475). International Business Information Management Association-IBIMA.
- Avi-Yonah, R. (2023). Comment on Cong et al., “Tax loss harvesting with cryptocurrencies”. *Journal of Accounting & Economics*, 76(2–3), 101612. [CrossRef]
- Baer, K., De Mooij, R., Hebous, S., & Keen, M. (2023). Taxing cryptocurrencies. *Oxford Review of Economic Policy*, 39(3), 478–497. [CrossRef]
- Bagus, P., & de la Horra, L. P. (2021). An ethical defense of cryptocurrencies. *Business Ethics the Environment & Responsibility*, 30(3), 423–431. [CrossRef]
- Bal, A. (2015). How to tax bitcoin? In *Handbook of digital currency: Bitcoin, innovation, financial instruments, and big data*. Elsevier Inc. [CrossRef]
- Bal, A. (2019). Developing a regulatory framework for the taxation of virtual currencies. *Intertax*, 47(2), 219–233. [CrossRef]
- Baltgailis, J., Simakhova, A., & Buka, S. (2023). Digital currencies and fintech innovation technologies for economic growth. *Marketing and Management of Innovations*, 14(3), 202–214. [CrossRef]

- Barrdear, J., & Kumhof, M. (2022). The macroeconomics of central bank digital currencies. *Journal of Economic Dynamics & Control*, 142(SI), 104148. [CrossRef]
- Belda, I. (2023). Metaverse and NFTs: New technological challenges in direct and international introduction. In *Idp-internet law and politics*. Universitat Oberta de Catalunya. [CrossRef]
- Bellucci, M., Cesa Bianchi, D., & Manetti, G. (2022). Blockchain in accounting practice and research: Systematic literature review. *Meditari Accountancy Research*, 30(7), 121–146. [CrossRef]
- Bibi, S. (2023). Money in the time of crypto. In *Research in international business and finance* (Vol. 65). Elsevier. [CrossRef]
- Binance. (2024). *Binance news*. Available online: https://www.binance.com/en/square/profile/binance_news (accessed on 14 December 2024).
- Blahušíaková, M. (2022). Accounting for holdings of cryptocurrencies in the Slovak Republic: Comparative analysis. In *Contemporary Economics* (Vol. 16, pp. 16–31). University of Economics and Human Sciences in Warsaw. [CrossRef]
- Bozdoğanoglu, B. (2019). Cryptocurrencies' low risk for money laundering and high risk for cybercrime: Desperation of tax administration or new future of taxation. In *Current perspectives in public finance*. Peter Lang AG. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112708817&partnerID=40&md5=b470161216d1b4edf5bd07396996e614> (accessed on 14 December 2024).
- Bozdoğanoglu, B. (2022). Evaluation of the effects of technology literacy and digital financial literacy on the investment and taxation process in crypto assets. In *Current issues and empirical studies in public finance*. Peter Lang AG. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138957012&partnerID=40&md5=5eaf96405cfa6b1f821d82dae2bc58e5> (accessed on 14 December 2024).
- Bubnova, Y. B. (2020). Financial markets security: Tax aspect. In D. Solovev (Ed.), *Proceedings of the international scientific conference—Far east con (ISCFEC 2020)* (Vol. 128, pp. 882–891). Atlantis Press.
- Budak, T., & Yilmaz, G. (2022). Taxation of virtual/crypto assets/currencies. *Sosyoekonomi*, 30(52), 37–54. [CrossRef]
- Bunget, O. C., & Trifa, G. I. (2023). Cryptoassets—Perspectives of accountancy recognition in the technological era. *Audit Financiar*, 21(171), 526–551. [CrossRef]
- Caliskan, K. (2022). The elephant in the dark: A new framework for cryptocurrency taxation and exchange platform regulation in the US. *Journal of Risk and Financial Management*, 15(3), 118. [CrossRef]
- Canadian Tax Amnesty. (2020, October 13). *CRA audits cryptocurrency revised*. Available online: <https://www.canadiantaxamnesty.ca/article/irs-crypto/> (accessed on 3 October 2024).
- Canadian Tax Amnesty. (2024, October 1). *Israel's anticipated, pilot voluntary disclosures program gets a rocky start—and lessons from Canada's voluntary disclosure program (VDP)*. Available online: <https://www.canadiantaxamnesty.ca/article/israels-anticipated-pilot-voluntary-disclosures-program-gets-a-rocky-start-and-lessons-from-canadas-voluntary-disclosure-program-vdp/> (accessed on 3 October 2024).
- Cassidy, J., Cheng, M. H. A., Le, T., & Huang, E. (2020). A toss of a (bit)coin: The uncertain nature of the legal status of cryptocurrencies. *eJournal of Tax Research*, 17(2), 168–192.
- Caton, J. L. (2020). Cryptoliquidity: The Blockchain and Monetary Stability. *Journal of Entrepreneurship and Public Policy*, 9(2), 227–252. [CrossRef]
- Chornous, Y., Denysenko, S., Hrudnytskyi, V., Turkot, O., & Sikorskyi, O. (2019). Legal regulation of cryptocurrency turnover in ukraine and the EU. *Journal of legal, ethical and regulatory issues*. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071435386&partnerID=40&md5=36d6da0b0c7d53b97ef44cb936f7d6d9> (accessed on 14 December 2024).
- Chudinovskikh, M., & Sevryugin, V. (2019). Cryptocurrency regulation in the brics countries and the eurasian economic union. *BRICS Law Journal*, 6(1), 63–81. [CrossRef]
- Chutipat, V., Kasemrat, R., Kraiwatit, T., & Phaksipaeng, I. (2023). Selection of cryptocurrency exchange platforms in a developing economy. *Corporate and Business Strategy Review*, 4(2), 344–350. [CrossRef]
- Chyzhmar, K., Yunin, O., Paterylo, I., Aliksieienko, I., & Shevchenko, S. (2019). Problem of protection against cyber crimes in the field of cryptocurrency circulation. *Journal of Legal, Ethical and Regulatory Issues*, 22(2), 1. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071454037&partnerID=40&md5=63d292718f005150d66d5929142784ed> (accessed on 14 December 2024).
- Cong, L. W., Landsman, W., Maydew, E., & Rabetti, D. (2023). Tax-loss harvesting with cryptocurrencies. *Journal of Accounting and Economics*, 76(2–3), 101607. [CrossRef]
- Corbet, S., Urquhart, A., & Yarovaya, L. (2020). Cryptocurrency and blockchain technology. In *Cryptocurrency and blockchain technology*. De Gruyter. [CrossRef]
- Cotler, B. (2023). Tokenized and non-tokenized assets: Legal considerations. In *The emerald handbook on cryptoassets: Investment opportunities and challenges*. Emerald Group Publishing Ltd. [CrossRef]
- Cui, J. (2010, August 24–26). *The issue of internet virtual currency should be uniformly issued by the monetary authorities—The topic raised and finished by levying tax on internet virtual transaction*. 2010 International Conference on Management and Service Science, MASS 2010, Wuhan, China. [CrossRef]

- Cyrus, R. (2023). Custody, provenance, and reporting of blockchain and cryptoassets. In *The emerald handbook on cryptoassets: Investment opportunities and challenges*. Emerald Group Publishing Ltd. [CrossRef]
- DAC 8. (2024). *Tax transparency rules for crypto-asset transactions (DAC8)*. European Parliamentary Research Service. Available online: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/739310/EPRS_BRI\(2023\)739310_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/739310/EPRS_BRI(2023)739310_EN.pdf) (accessed on 14 December 2024).
- Davenport, S. A., & Usrey, S. C. (2023a). Crypto assets: Examining possible tax classifications. *Journal of Emerging Technologies in Accounting*, 20(2), 55–70. [CrossRef]
- Davenport, S. A., & Usrey, S. C. (2023b). Does notice 2014-21 need an update? An analysis of potential tax classifications for cryptocurrency. *ATA Journal of Legal Tax Research*, 21(1), 22–44. [CrossRef]
- Davis, A. E. E. (2023). Genealogy of finance: Long-term history and alternatives. *Review of Radical Political Economics*, 55(4), 660–669. [CrossRef]
- Didenko, A. N., & Buckley, R. P. (2022). Central bank digital currencies as a potential response to some particularly Pacific problems. *Asia Pacific Law Review*, 30(1), 44–69. [CrossRef]
- Drozd, O., Basai, O., & Churpita, H. (2018). The specificities of using cryptocurrency in purchase and sale contracts. *Baltic Journal of Economic Studies*, 4(2), 274–281. [CrossRef]
- Egorova, M. A., Grib, V. V., Efimova, L. G., Kozhevina, O. V., & Slepak, V. Y. (2023). Research of the effectiveness of the system of legal regulation of tax relations for operations with cryptocurrency currently in force. In *Vestnik of Saint Petersburg university-law-vestnik sankt-peterburgskogo universiteta-pravo* (Vol. 14, pp. 564–579). St Petersburg University Press. [CrossRef]
- Ehrke-Rabel, T., & Zechner, L. (2020). VAT treatment of cryptocurrency intermediation services. *Intertax*, 48(5), 498–514. [CrossRef]
- Emery, J., & Stewart, M. (2017). The taxing challenge of digital currency. *Journal of Banking and Finance Law and Practice*, 28(3), 236–269.
- Enajero, S. (2021). Cryptocurrency, money demand and the mundell-fleming model of international capital mobility. *Atlantic Economic Journal*, 49(1), 57–69. [CrossRef]
- Essaghoolian, N. (2019). Initial coin offerings: Emerging technology's fundraising innovation. *UCLA Law Review*, 66(1), 294–343.
- Ferniss, J. (2023). Taxation of bitcoins and similar cryptoassets in Scandinavia with special focus on Danish law. *Intertax*, 51(1), 63–83. [CrossRef]
- FLATICON. (2024). *Access 18.0M+ vector icons & stickers*. Available online: <https://www.flaticon.com/> (accessed on 14 December 2024).
- Frias, A. E. C., & Freire, E. J. S. (2019). Financial shielding that Bitcoin grants to capitals in the world. *Investment Management and Financial Innovations*, 16(3), 49–61. [CrossRef]
- Gao, X. (2023). Digital transformation in finance and its role in promoting financial transparency. *Global Finance Journal*, 58, 100903. [CrossRef]
- Gheorghiu, L. (2023). Policy forum: Non-fungible tokens and their income tax treatment. *Canadian Tax Journal*, 71(1), 83–99. [CrossRef]
- Goel, R. K., & Mazhar, U. (2024). Are the informal economy and cryptocurrency substitutes or complements? *Applied Economics*, 56(20), 2470–2481. [CrossRef]
- Gomaa, A. A., Gomaa, M. I., & Stampone, A. (2019). A transaction on the blockchain: An AIS perspective, intro case to explain transactions on the ERP and the role of the internal and external auditor. *Journal of Emerging Technologies in Accounting*, 16(1), 47–64. [CrossRef]
- Greeff, C. (2019). An investigation into the output tax consequences of bitcoin transactions for a South African value-added tax vendor. *South African Journal of Economic and Management Sciences*, 22(1), 1–9. [CrossRef]
- Hendrickson, J. R., & Luther, W. J. (2022). Cash, crime, and cryptocurrencies. *Quarterly Review of Economics and Finance*, 85, 200–207. [CrossRef]
- Holden, R., & Malani, A. (2022). The law and economics of blockchain. *Annual Review of Law and Social Science*, 18, 297–313. [CrossRef]
- Hougan, M., Lawant, D., & Choudhury, G. (2023). Tax-loss harvesting in Crypto: A significant and underexplored opportunity for financial advisors. *Journal of Investing*, 32(3), 74–87. [CrossRef]
- Hsieh, A. (2019). The faceless coin: Achieving a modern tax policy in the changing landscape of cryptocurrency. In *University of Illinois Law Review* (pp. 1079–1116). Univ Illinois.
- Huang, R. H., Deng, H., & Chan, A. F. L. (2023). The legal nature of cryptocurrency as property: Accounting and taxation implications. *Computer Law and Security Review*, 51, 105860. [CrossRef]
- IFRS Foundation. (2024). Available online: <https://www.ifrs.org/issued-standards/list-of-standards> (accessed on 14 December 2024).
- Ilham, R. N., Erlina, Fachrudin, K. A., Silalahi, A. S., Saputra, J., & Albra, W. (2019). Investigation of the bitcoin effects on the country revenues via virtual tax transactions for purchasing management. *International Journal of Supply Chain Management*, 8(6), 737–740.
- Inger, K. K., & Mathis, M. (2021). Taxes: Taking a bite out of bitcoin. *Issues in Accounting Education*, 36(1), 57–64. [CrossRef]
- Inshyn, M., Mohilevskiy, L., & Drozd, O. (2018). The issue of cryptocurrency legal regulation in ukraine and all over the world: A comparative analysis. *Baltic Journal of Economic Studies*, 4(1), 169–174. [CrossRef]
- Jalal, R. N.-U.-D., Sargiacomo, M., & Sahar, N. U. (2020). Commodity prices, tax purpose recognition and bitcoin volatility: Using ARCH/GARCH modeling. *Journal of Asian Finance, Economics and Business*, 7(11), 251–257. [CrossRef]

- Jayasuriya, D. D., & Sims, A. (2023). From the abacus to enterprise resource planning: Is blockchain the next big accounting tool? *Accounting, Auditing and Accountability Journal*, 36(1), 24–62. [CrossRef]
- Jozipović, Š., Perkušić, M., & Gadžo, S. (2022). Tax compliance in the era of cryptocurrencies and CBDCs: The end of the right to privacy or no reason for concern? *EC Tax Review*, 31(1), 16–29. [CrossRef]
- Katrencik, I., & Zatrochova, M. (2018). 2017-Year of the cryptocurrency. In L. Slahor, & P. Czarnecki (Eds.), *Proceedings of the 11th international conference European entrepreneurship forum 2017: Eurozone: Evolution or revolution?* (pp. 64–72) Newton Academy.
- Katuk, N., Abd Wahab, N., & Kamis, N. S. (2023). Cryptocurrency estate planning: The challenges, suggested solutions and Malaysia's future directions. In *Digital Policy, Regulation and Governance* (Vol. 25, pp. 325–350). Emerald Publishing. [CrossRef]
- Kaygin, E., Topcuoglu, E., & Ozkes, S. (2019). Investigating the bitcoin system and its properties within the scope of business ethics. *Turkish Journal of Business Ethics*, 11(2), 186–192. [CrossRef]
- Kimani, D., Adams, K., Attah-Boakye, R., Ullah, S., Frecknall-Hughes, J., & Kim, J. (2020). Blockchain, business and the fourth industrial revolution: Whence, whither, wherefore and how? *Technological Forecasting and Social Change*, 161, 120254. [CrossRef]
- Kjaersgaard, L. F., & Arfwidsson, A. (2019). Taxation of cryptocurrencies from the Danish and Swedish perspectives. *Intertax*, 47(6–7), 620–634.
- Koinly. (2024). *Cryptocurrency tax guides*. Available online: <https://koinly.io/blog/tags/guides/> (accessed on 14 December 2024).
- Kolková, A. (2018). The use of cryptocurrency in enterprises in Czech Republic. In O. Dvouletý, M. Lukes, & A. J. Misar (Eds.), *Proceedings of the 6th international conference innovation management, entrepreneurship and sustainability* (IMES 2018). Oeconomica Publishing House.
- Kollmann, J. (2019). The VAT treatment of cryptocurrencies. *EC Tax Review*, 28(3), 164–170. [CrossRef]
- Kowalski, P. (2015). Taxing bitcoin transactions under polish tax law. *Comparative Economic Research-Central and Eastern Europe*, 18(3), 139–152. [CrossRef]
- Kreklewetz, R. G., & Burlock, L. J. (2023). Policy forum: Canada's proposed cryptoasset legislation. *Canadian Tax Journal*, 71(1), 73–81. [CrossRef]
- Kreminskyi, O., Kuzmenko, O., Antoniuk, A., & Smahlo, O. (2021). International cooperation in the investigation of economic crimes related to cryptocurrency circulation. *Estudios de Economía Aplicada*, 39(6). [CrossRef]
- Kshetri, N. (2023). The nature and sources of international variation in formal institutions related to initial coin offerings: Preliminary findings and a research agenda. *Financial Innovation*, 9(1), 9. [CrossRef] [PubMed]
- Kucherov, I. I., & Khavanova, I. A. (2017). Tax consequences of using alternative means of payment (theoretical and legal aspects). In *Vestnik permskogo universiteta-juridicheskie nauki* (pp. 66–72). Perm State National Research University. [CrossRef]
- Kucheryavenko, M. P., Dmytryk, O. O., & Golovashevych, O. O. (2019). Cryptocurrencies: Development, features and classification. In *Financial and credit activity-problems of theory and practice* (Vol. 3, pp. 371–378). University of Banking of the National Bank of Ukraine, Kharkiv Institute of Banking. [CrossRef]
- Kwon, O., Lee, S., & Park, J. (2022). Central bank digital currency, tax evasion, and inflation tax. *Economic Inquiry*, 60(4), 1497–1519. [CrossRef]
- Lazea, G.-I., Bunget, O.-C., & Lungu, C. (2024). Cryptocurrencies' impact on accounting: Bibliometric review. *Risks*, 12(6), 94. [CrossRef]
- Lee, D. K. C., Shih, C. M., & Zheng, J. (2023). Asian CBDCs on the rise: An in-depth analysis of developments and implications. *Quantitative Finance and Economics*, 7(4), 665–696. [CrossRef]
- Legge, M. (2022). *Ghid despre impozitarea veniturilor din criptomonede în România 2023*. Koinly. Available online: <https://koinly.io/guides/taxe-crypto-romania/> (accessed on 14 December 2024).
- Lim, W. (2021). Taxation of non-fungible Tokens. *Australian Tax Review*, 50(4), 270–279.
- Liu, E., Cowling, B., & Cartoon, S. (2021). Donating digital money to deductible gift recipients: Decrypting the australian tax implications. *Australian Tax Review*, 50(4), 249–259.
- Loginov, M., Tatyannikov, V., & Sobina, N. (2019). Concept of the cryptoruble market formation in Russia. In Y. Silin, Y. Animitsa, E. Dvoryadkina, & V. Blaginin (Eds.), *Proceedings of the 2nd international scientific conference on new industrialization: Global, national, regional dimension (SICNI 2018), Ekaterinburg, Russia, 4–5 December 2018* (Vol. 240, pp. 124–128). Atlantis press.
- Longo, A., & Tomassini, A. (2023, August 11). *Voluntary disclosure for crypto-assets and related income is now available*. DLA PIPER. Available online: <https://www.dlapiper.com/en-pr/insights/publications/2023/08/voluntary-disclosure-for-cryptoassets-and-related-income-is-now-available> (accessed on 14 December 2024).
- Makarov, I., & Schoar, A. (2022). Cryptocurrencies and decentralized finance (DeFi). In *Brookings papers on economic activity* (pp. 141–196). Johns Hopkins University Press.
- Makurin, A. (2023). Technological aspects and environmental consequences of mining encryption. *Economics Ecology Socium*, 7(1), 61–70. [CrossRef]
- Makurin, A., Maliienko, A., Tryfonova, O., & Masina, L. (2023). Management of cryptocurrency transactions from accounting aspects. *Economics Ecology Socium*, 7(3), 26–35. [CrossRef]

- Maniatis, A. (2019). Blockchain with emphasis on tax law. In D. Vrontis, Y. Weber, & E. Tsoukatos (Eds.), *Business management theories and practices in a dynamic competitive environment* (pp. 679–684). Euromed Press.
- Marchiori, L. (2021). Monetary theory reversed: Virtual currency issuance and the inflation tax. *Journal of International Money and Finance*, 117, 102441. [CrossRef]
- Matkovskyy, R., Jalan, A., & Dowling, M. (2020). Effects of economic policy uncertainty shocks on the interdependence between Bitcoin and traditional financial markets. *Quarterly Review of Economics and Finance*, 77, 150–155. [CrossRef]
- McKeon, S., & Schloss, D. E. (2021). Law and Blockchains. In *The palgrave handbook of technological finance*. Springer International Publishing. [CrossRef]
- Mgadmi, N., Bejaoui, A., Moussa, W., & Sadraoui, T. (2022). The impact of the COVID-19 pandemic on the cryptocurrency market. *Scientific Annals of Economics And Business*, 69(3), 343–359. [CrossRef]
- Miglietti, C. (2014). Bitcoin: Speculative bubble or future world currency? In D. Stavarek, & P. Vodova (Eds.), *Proceedings of the 14th international conference on finance and banking* (pp. 277–281). Silesian University in Opava, School Business Administration Karvina.
- Mohsin, M., Naseem, S., Zia-ur-Rehman, M., Baig, S. A., & Salamat, S. (2023). The crypto-trade volume, GDP, energy use, and environmental degradation sustainability: An analysis of the top 20 crypto-trader countries. *International Journal of Finance & Economics*, 28(1), 651–667. [CrossRef]
- Morgan, P. J. (2022). Assessing the risks associated with green digital finance and policies for coping with them. In *Economics, law, and institutions in Asia pacific* (pp. 51–68). Springer. [CrossRef]
- Morozova, T., Akhmadeev, R., Lehoux, L., Yumashev, A., Meshkova, G., & Lukyanova, M. (2020). Crypto asset assessment models in financial reporting content typologies. *Entrepreneurship and Sustainability Issues*, 7(3), 2196–2212. [CrossRef]
- Morse, E. A. (2018). From rai stones to blockchains: The transformation of payments. *Computer Law and Security Review*, 34(4), 946–953. [CrossRef]
- Morton, E., & Curran, M. (2023). Exemplifying the opportunities and limitations of blockchain technology through corporate tax losses. In *Handbook of big data and analytics in accounting and auditing*. Springer Nature. [CrossRef]
- Morton, E., Devos, K., Vesty, G., & Nguyen, L. (2023). The crypto-economy and tax practitioner competencies: An Australian exploratory study. *eJournal of Tax Research*, 21(2), 203–252.
- Nazarov, M. A., Mikhaleva, O. L., & Fomin, E. P. (2019). Digital economy: Russian taxation issues. In V. Mantulenko (Ed.), *Proceedings of the GCPMED 2018—International scientific conference global challenges and prospects of the modern economic development* (Vol. 57, pp. 1269–1276). Future Academy. [CrossRef]
- Niftaliyev, S. G. (2023). Problems arising in the accounting of cryptocurrencies. *Financial and Credit Activity: Problems of Theory and Practice*, 3(50), 76–86. [CrossRef]
- Novak, M. (2020). Crypto-friendliness: Understanding blockchain public policy. *Journal of Entrepreneurship and Public Policy*, 9(2), 165–184. [CrossRef]
- Novak, M., & Pochesneva, A. (2019). Toward a crypto-friendly index for the APEC Region. *Journal of the British Blockchain Association*, 2(1), 39–45. [CrossRef] [PubMed]
- Nylen, P. C., & Huels, B. W. (2022). Using unrelated IRS guidance as a framework for taxing crypto transactions: Revenue procedure 2019-18. *ATA Journal of Legal Tax Research*, 20(1), 30–46. [CrossRef]
- Obrist, T., & Pfister, R. A. (2019). Tax treatment of cryptocurrency holders and miners in the era of virtual currencies from a multijurisdictional and Swiss perspective. In D. Kraus, T. Obrist, & O. Hari (Eds.), *Blockchains, smart contracts, decentralised autonomous organisations and the law* (pp. 299–347). Edward Elgar Publishing Ltd.
- Obu, O. C., & Ukpere, W. I. (2022). The Implications of the Incursion of Cryptocurrency on the Effectiveness of Fiscal Policy. *Review of Applied Socio-Economic Research*, 23(1), 134–150. [CrossRef]
- OECD. (2023). International standards on automatic exchange of information in tax matters: Crypto-asset reporting framework and 2023 update to the common reporting standard. *OECD*. [CrossRef]
- Oh, E. Y., & Zhang, S. (2022). Informal economy and central bank digital currency. *Economic Inquiry*, 60(4), 1520–1539. [CrossRef]
- Pandey, D., & Gilmour, P. (2024). Accounting meets metaverse: Navigating the intersection between the real and virtual worlds. *Journal of Financial Reporting and Accounting*, 22(2), 211–226. [CrossRef]
- Parlaktuna, I., & Gungul, M. (2019). Taxation problem of bitcoin: Regulations in Turkey and other countries. In *Cryptocurrency in all aspects*. Peter Lang AG. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112617650&partnerID=40&md5=73e8e4694116e09d1daa13ca45152e29> (accessed on 14 December 2024).
- Parrondo, L. (2023). Cryptoassets: Definitions and accounting treatment under the current international financial reporting standards framework. *Intelligent Systems in Accounting, Finance and Management*, 30(4), 208–227. [CrossRef]
- Parsons, S. (2022). What's in a name?: The classification of 'interest' on crypto-assets in South Africa and beyond. *Intertax*, 50(6–7), 499–511. [CrossRef]
- Păunescu, M. (2018, June 13–14). *The accountant's headache: Accounting for virtual currencies transactions*. Proceedings of the 13th International Conference Accounting and Management Information Systems (AMIS 2018), Bucharest, Romania.

- Peláez-Repiso, A., Sánchez-Núñez, P., & García Calvente, Y. (2021). Tax regulation on blockchain and cryptocurrency: The implications for open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 98. [CrossRef]
- Pelucio-Grecco, M. C., dos Santos Neto, J. P., & Constancio, D. (2020). Accounting for bitcoins in light of IFRS and tax aspects. *Revista Contabilidade e Finanças*, 31(83), 275–282. [CrossRef]
- Perkins, A. J. (2022). Regulating virtual asset service providers in the offshore world: The cayman islands example. *Law and Financial Markets Review*, 16(3), 266–283. [CrossRef]
- Pimentel, E., & Boulianne, E. (2020). Blockchain in accounting research and practice: Current trends and future opportunities*. *Accounting Perspectives*, 19(4), 325–361. [CrossRef]
- Podhorsky, A. (2023). Taxing bitcoin: Incentivizing the difficulty adjustment mechanism to reduce electricity usage. *International Review of Financial Analysis*, 86, 102493. [CrossRef]
- Porter, R. D., & Rousse, W. (2016). Reinventing money and lending for the digital age. In P. Tasca, T. Aste, L. Pelizzon, & N. Perony (Eds.), *Banking beyond banks and money: A guide to banking services in the twenty-first century* (pp. 145–180). Springer. [CrossRef]
- Powell, K., & Hope, M. (2019). Shifting digital currency definitions: Current considerations in Australian and US tax law. *eJournal of Tax Research*, 16(3), 594–619.
- Protos Staff. (2024). *How bitcoin and crypto are taxed in the EU*. Protos. Available online: <https://protos.com/chart-how-bitcoin-and-crypto-are-taxed-in-the-eu/> (accessed on 14 December 2024).
- Ram, A. J. (2018). Taxation of the bitcoin: Initial insights through a correspondence analysis. *Meditari Accountancy Research*, 26(2), 214–240. [CrossRef]
- Rehman, M. H. U., Salah, K., Damiani, E., & Svetinovic, D. (2020). Trust in blockchain cryptocurrency ecosystem. *IEEE Transactions on Engineering Management*, 67(4), 1196–1212. [CrossRef]
- Ren, D., Guo, H., & Jiang, T. (2023). Managed anonymity of CBDC, social welfare and taxation: A new monetarist perspective. *Applied Economics*, 55(42), 4990–5011. [CrossRef]
- Riley, J. (2021). The Current Status of Cryptocurrency Regulation in China and Its Effect around the World. *China and WTO Review*, 7(1), 135–152. [CrossRef]
- Robertson, D. D., & Ing, S. (2023). Policy forum: Digital asset mining and GST—Tax policy versus public policy. *Canadian Tax Journal*, 71(1), 59–71. [CrossRef]
- Rosa, M. P. D. O., & Caminha, L. (2023). Finance reflected by funhouse mirrors: A proposal of indirect regulation (GATEKEEPERS) to crypto centralized exchanges (CEX). *Revista Estudos Institucionais-Journal of Institutional Studies*, 9(2), 369–397. [CrossRef]
- Ryabova, T., & Henderson, S. A. (2019). Integrating cryptocurrency into intermediate financial accounting curriculum: A case study. *Journal of Accounting and Finance*, 19(6). [CrossRef]
- Ryznar, M. (2019). Regulating bitcoin: A tax case study. In *Contributions to Management Science* (pp. 69–75). Springer. [CrossRef]
- Salawu, M. K., & Moloi, T. (2018). Benefits of legislating cryptocurrencies: Perception of Nigerian professional accountants. *Academy of Accounting and Financial Studies Journal*, 22(6), 1–17. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061856468&partnerID=40&md5=c82546d028992b4ce7a1f44284df2182> (accessed on 14 December 2024).
- Scarcella, L. (2021a). “Catch Me If I Chain”: Latest Developments on Extending Reporting Obligations and Automatic Exchange of Information to Cryptocurrency and Crypto-Asset Transactions. *Australian Tax Review-Blockchain Special Issue*, 50(4), 234–241. [CrossRef]
- Scarcella, L. (2021b). The Implications of Adopting a European Central Bank Digital Currency: A Tax Policy Perspective. *EC Tax Review*, 30(4), 177–188. [CrossRef]
- Schilling, L., & Uhlig, H. (2019). Some simple bitcoin economics. *Journal of Monetary Economics*, 106(SI), 16–26. [CrossRef]
- Senarathne, C. W., & Jianguo, W. (2020, March 12–14). *Volatility spillovers between US banking industry and bitcoin market: Risk implications for banking industry*. 2020 2nd International Conference on Blockchain Technology (ICBCT 2020) (pp. 75–79), Hilo, HI, USA. [CrossRef]
- Shahid, M. N., Sattar, A., Aftab, F., Saeed, A., & Abbas, A. (2019). Month of Ramadan Effect Swings and Market Becomes Adaptive a Firm Level Evidence through Islamic Calendar. *Journal of Islamic Marketing*, 11(3), 661–685. [CrossRef]
- Shovkhalov, S., & Idrisov, H. (2021). Economic and legal analysis of cryptocurrency: Scientific views from Russia and the Muslim world. *Laws*, 10(2), 32. [CrossRef]
- Shvayko, M. L., & Grebeniuk, N. O. (2020). Current crediting instruments influencing investment climate in Ukraine. *Financial and Credit Activity-Problems of Theory and Practice*, 1(32), 414–423.
- Smith, S. S., Petkov, R., & Lahijani, R. (2019). Blockchain and cryptocurrencies—Considerations for treatment and reporting for financial services professionals. *International Journal of Digital Accounting Research*, 19, 59–78. [CrossRef] [PubMed]
- Sokolenko, L., Ostapenko, T., Kubetska, O., Portna, O., & Tran, T. (2019). Cryptocurrency: Economic essence and features of accounting. *Academy of Accounting and Financial Studies Journal*, 23(2), 1–6. Available online: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071699405&partnerID=40&md5=aae414a62836e6bbf8b4416444e8d6be> (accessed on 14 December 2024).

- Sotiri, E. (2024). *Analysis of crypto-taxation: France, Belgium, and Luxembourg*. Jurisconsul Publications. Available online: <https://www.lexology.com/library/detail.aspx?g=b70e8017-6c1b-4157-9e03-6d2ef1e2f58f> (accessed on 14 December 2024).
- Stiegler, T., Singer, K., & Wiesener, A. U. (2018). Investment trend in digital currencies—The current state of fiscal treatment of bitcoin investments in Germany. In R. Pamfilie, V. Dinu, L. Tachiciu, D. Plesea, & C. Vasiliu (Eds.), *Proceedings of the Basiq international conference: New trends in sustainable business and consumption 2018* (pp. 90–96). Editura ASE.
- Strauss, H., Fawcett, T., & Schutte, D. (2020). Tax risk assessment and assurance reform in response to the digitalised economy. *Journal of Telecommunications and the Digital Economy*, 8(4), 96–126. [CrossRef]
- Strauss, H., Schutte, D., & Fawcett, T. (2021). An evaluation of the legislative and policy response of tax authorities to the digitalisation of the economy. *South African Journal of Accounting Research*, 35(3), 239–262. [CrossRef]
- Tan, B. S., & Low, K. Y. (2017). Bitcoin—Its economics for financial reporting. *Australian Accounting Review*, 27(2), 220–227. [CrossRef]
- Terando, W. D., Cataldi, B., & Mennecke, B. E. (2017). Impact of the IRC section 475 mark-to-market election on bitcoin taxation. *ATA Journal of Legal Tax Research*, 15(1), 66–76. [CrossRef]
- Tipanov, V., Drachov, A., Tkalenko, S., Mirzodaieva, T., & Syerova, L. (2021). Financial and legal regulation of blockchain technology: Status and prospects of cryptovolute use. *Financial and Credit Activity-Problems of Theory and Practice*, 2(37), 72–83.
- Tut, D. (2022). 'Bitcoin: Future or fad?' *Big data in finance: Opportunities and challenges of financial digitalization*. Springer International Publishing. [CrossRef]
- Tyc, A., & Siucinski, R. (2020). Cryptocurrencies: Some remarks from the perspective of polish employment and tax law. *TalTech Journal of European Studies*, 10(1), 22–39. [CrossRef]
- van Eck, N. J., & Waltman, L. (2023). *VOSviewer manual*. Available online: https://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.20.pdf (accessed on 26 September 2024).
- Veuger, J. (2021). Digitization and blockchain in finance, The Netherlands in 2020 and 2021. *International Journal of Applied Economics, Finance and Accounting*, 11(1), 1–22. [CrossRef]
- Vishnevsky, V. P., & Chekina, V. D. (2018). Robot vs. Tax inspector or how the fourth industrial revolution will change the tax system: A review of problems and solutions. *Journal of Tax Reform*, 4(1), 6–26. [CrossRef]
- Volosovych, S., & Baraniuk, Y. (2018). Tax control of cryptocurrency transactions in Ukraine. *Banks and Bank Systems*, 13(2), 89–106. [CrossRef] [PubMed]
- Vumazonke, N., & Parsons, S. (2023). An analysis of South Africa's guidance on the income tax consequences of crypto assets. *South African Journal of Economic and Management Sciences*, 26(1), 4832. [CrossRef]
- Wang, G., & Hausken, K. (2021). Governmental Taxation of Households Choosing between a National Currency and a Cryptocurrency. *Games*, 12(2), 34. [CrossRef]
- Wang, Q., Huang, Q., Wu, X., Tan, J., & Sun, P. (2023). Categorical uncertainty in policy and bitcoin volatility. *Finance Research Letters*, 58(C), 104664. [CrossRef]
- Yayman, D. (2023). Taxation in virtual worlds: Analysis under United States of America and Turkish tax regulations. *Sosyoekonomi*, 31(55), 211–231. [CrossRef]
- Ylonen, M., Raudla, R., & Babic, M. (2024). From tax havens to cryptocurrencies: Secrecy-seeking capital in the global economy. *Review of International Political Economy*, 31(2), 563–588. [CrossRef]
- Zatsepin, A. M., Filippova, O. V., & Permyakov, M. V. (2020). Mining is a Legal Category. In N. Anton (Ed.), *Proceedings of the XVII international research-to-practice conference dedicated to the memory of M.I. Kovalyov* (ICK 2020) (Vol. 420, pp. 192–196). Atlantis Press.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.