The Es Accounting and Finance
Vol. 4, No. 01, November 2025, pp. 239 - 254
ISSN: 2985-7139, DOI: 10.58812/esaf.v4i01

Cryptocurrency Taxation and the Transformation of Financial Regulation: A Bibliometric and Thematic Analysis

Loso Judijanto
IPOSS Jakarta

Article Info

Article history:

Received Nov, 2025
Revised Nov, 2025
Accepted Nov, 2025

Keywords:

Bibliometric Analysis;
Blockchain Regulation;
Cryptocurrency Taxation;
Defi;
Financial Governance;
Fiscal Digitalization;
Global Policy Collaboration

ABSTRACT

This paper analyzes global research trends in cryptocurrency taxes and financial regulation through a bibliometric and thematic analysis utilizing Scopus data from 2015 to 2025. The results indicate a growing interdisciplinary domain where taxation, blockchain governance, and fiscal policy converge. Analyses of keyword co-occurrence and collaboration networks reveal that "cryptocurrency," "taxation," and "blockchain" predominate in the discourse, although emergent themes like "DeFi," "tax law," and "AML compliance" suggest shifting research objectives. The United States and the United Kingdom spearhead global collaboration, succeeded by increasing involvement from Asia and Eastern Europe. The literature is organized into three themes: technological integration in taxation, global policy harmoniza tion, and sustainable fiscal control. The research offers pragmatic guidance for policymakers formulating digital-asset tax frameworks and enhances theoretical comprehension of fiscal digitalization as a mode of regulatory evolution. Future study ought to integrate cross-database validation and qualitative policy analysis to enhance the empirical foundation of cryptocurrency taxation studies.

Corresponding Author:

Name: Loso Judijanto
Institution: IPOSS Jakarta
Email: losojudijantobumn@gmail.com

1. INTRODUCTION

The swift ascent of cryptocurrencies h as radically transformed the global financial landscape, contesting conventional notions regarding currency, regulation, and taxation. Cryptocurrencies, founded on blockchain and distributed ledger technology (DLT), facilitate peer-to-peer transactions devoid of centralize d intermediaries like banks or governments [1], [2]. This innovation presents prospects for financial inclusion and efficiency while concurrently posing regulatory and fiscal challenges [3]. As crypto-assets attain legitimacy via the emergence of stablecoins, central bank digital currencies (CBDCs), and tokenized securities, governments globally face pressure to revise taxation laws and reg ulatory frameworks [4]. The matter of bitcoin taxes signifies not just a financial issue but also a broader indication of change in global financial legislation [5].

Historically, taxation systems have depended on clearly defined ca tegories—income, capital gains, and consump tion—applied to transactions involving identifiable parties, centralized record-keeping, and distinct asset classifications [6]. The decentralized, pseudonymous, and volat ile characteristics of cryptocurrencies undermine these traditions. In the United States, the Internal Revenue Service (IRS) c ategorizes crypto assets as property, rendering each sale or exchange a taxable e vent [7]. Simultaneously, the United Kingdom's HM Revenue and Customs (HMRC) distinguishes among trading, mining, and investment revenue derived from cryptocurrency transactions [8]. Diverse classifications hinder international coordination and generate potential for regulatory arbitrage [9]. Moreover, novel techniques such as staking, airdrops, decentralized finance (DeFi) lending, and yield farming create further uncertainties over the timing and acknowledgment of taxable revenue [10]. These difficulties reveal the insufficiency of current tax regulations in managing borderless and automated digital transactions [11].

The changing financial regulatory landscape illustrates a wider conflict among governments to reconcile innovation, consumer protection, and systemic stability. Regulatory bodies, including the Financial Stability Board (FSB), European Securities and Markets Authority (ESMA), and the U.S. Securities and Exchange Commission (SEC), persist in deliberating the classification of cr yptocurrencies as securities, commodities, or distinct asset classes [4], [12]. The Markets in Crypto-Assets Regulation (MiCA) in the E uropean Union signifies one of the initial c omprehensive efforts to regulate the governance of crypto-assets among member states [13]. Nevertheless, despite these initiatives, worldwide inequalities endure in the regulation of tokenized assets, reporting obligations, and compliance frameworks. These discrepancies frequently arise from divergent legal traditions, financial priorities, and policy aims [14]. The converge nce of cryptocurrency taxes and financial regulation has emerged as a dynamic arena for assessing governmental adaptation to technological disruption [4].

Taxation functions as both a f inancial mechanism and a means of governance and legitimacy inside the digital economy [15]. Taxation frameworks delineate the definitions of income and capital gain, reflecting state perceptions of ownership, accountability, and engagement in dece ntralized systems [16]. The efficient taxation of cryptocurrencies can augment fiscal reven ues, foster equity among taxpayers, and strengthen regulatory adherence [5]. In contrast, inadequately structured tax systems may promote capital flight, illicit financial movements, and the under-reporting of d igital revenues [17]. From a macroeconomic standpoint, a consistent tax policy enhances monetary sovereignty and bolsters anti-money-laundering (AML) initiatives [6]. The classification of crypto-assets in national tax legislation demonstrates the extensive adaptability of financial regulation in the digital era [18].

Due to the exponential increase of scholarly material, regulatory revisions, and institutional norms regarding cryptocurrency taxation, a systematic synthesis is required. B ibliometric analysis provides a quantitative framework for examining research trends—identifying prolific authors, significant journals, and citation networks—while thematic analysis delivers a qualitative insight into the conceptual evolution of discourse [19]. Collectively, these approaches elucidate how research on crypto-taxation mirrors pr ofound regulatory changes [3]. A bibliometric-thematic analysis can elucidate the interconnections among crucial themes—such as compliance technology, DeFi regulation, cross-border tax reporting, and blockchain transparency—within academic and policy contexts [5]. Furthermore, delineating worldwide collaboration networks among scholars and institutions facilitates a deeper comprehension of geographical disparities in regulation and enforcement [16].

In this context, the current study, "C ryptocurrency Taxation and the Transformation of Financial Regulation: A Bibliometric and Thematic Analysis," aims to unify fragmented academic and institutional perspectives into a coherent narrative. The study contributes in three ways: it delineates the evolution and framework of academic research on cryptocurrency taxation; it identifies thematic intersections between taxation and financial regulation; and it situates these developments within wider discussions on global digital governan ce and fiscal modernization. This study seeks to elucidate how cryptocurrency taxation acts as both a reflection and a catalyst for the evol ution of financial regulation by blending bibliometric information with thematic analysis.

Notwithstanding comprehensive policy debates and increasing scholarly focus, research on cryptocurrency taxes is nonetheless fragmented, particular to jurisdictions, and frequently detached from the wider discourse on financial regulation. The lack of thorough bibliometric and thema tic analyses hinders researchers' capacity to assess research trends, pinpoint conceptual deficiencies, and anticipate future regulatory developments. In the absence of a comprehensive knowledge, policymakers may persist in creating fragmented frameworks that fail to guarantee budgetary compliance or promote innovation. A thorough analysis is essential to elucidate how tax policy influences and reacts to the evolution of financial regulation in the cry ptocurrency age [4], [10].

This study seeks (1) to execute a bibl iometric analysis of scholarly publications concerning cryptocurrency taxation and financial regulation, identifying publication trends, prominent authors, influential jo urnals, citation networks, and regional distrib utions; and (2) to undertake a thematic analysis of the literature to extract conceptual frameworks, regulatory implications, and emerging research gaps. The primary aim is to clarify how the taxation of digital assets influences and is influenced by the evolving global financial regulatory frameworks [5], [16].

2. METHOD

This study utilizes a hybrid bibliometric and thematic analysis technique to extensively investigate the academic landscape of cryptocurrency taxes and its relationship with the evolution of financial regulation. The bibliometric aspect provides a quantitative assessment of the structural development of research, encompassing publication volume, citation networks, and author collaborations, whereas the thematic aspect delves into conceptual intricacies by pinpointing the principal issues, frameworks, and discourses that inform regulatory change [19], [20]. The integration of these two meth odologies facilitates both macro-level mapping and micro-level interpretation, yielding a thorough comprehension of the evolution of scholarly attention in this field. Bibliometric study reveals trends and significant contributions, while theme analysis situates them within discussions regarding policy evolution, institutional adaptation, and financial innovation [3]. This integrated approach guarantees methodological rigor and interpretive depth, facilitating the connection between quan titative research frameworks and qualitative regulatory findings. Data for the bibliometric analysis were obtained from the Scopus database, which offers comprehensive, multidisciplinary coverage of peer-reviewed papers in economics, finance, law, and info rmation systems [21]. The search approach encompassed the Boolean query: ("cryptocurrency" OR "digital asset" OR "blockchain") AND ("tax" OR "taxation" OR "fiscal policy") AND ("regulation" OR "financial governance").

The period encompassed 2015–2025, highlighting the pivotal decade of scholarly a nd governmental development on bitcoin taxation. The inclusion criteria encompassed only English-language journal articles, confer ence proceedings, and reviews, while d uplicates and non-academic materials were eliminated by data cleaning and normalization processes utilizing Bibliometrix in R [19]. A total of 315 documents were examined for bibliometric metrics, including yearly publishing trends, prominent authors and institutions, co-citation rates, and keyword co-occurrences. Visualization maps were produced with VOSviewer 1.6.20 to delineate conceptual frameworks and nascent theme groupings [3]. The bibliometric indicators—total link strength, node density, and co-authorship networks—provided the empirical basis for further theme analysis.

A thematic analysis was performed to enhance the quantitative findings by examining conceptual connections between studies on cryptocurrency taxes and regula tory reform. The abstracts and complete texts of the 100 most-cited papers were imported in to NVivo 14 for inductive-deductive coding [22]. Employing constant comparative techniques, data were categorized into three principal dimensions: (1) fiscal governance and compliance, which includes cross-border taxation, anti-money-laundering (AML), and information-exchange mechanisms; (2) regulatory adaptation and institutional reform, focusing on the classification of crypto-assets, financial supervision, and international coordination; a nd (3) innovation and policy design, pertaining to digital finance integration, decentralized finance (DeFi), and central-bank digital currency (CBDC) implications. Intercoder reliability was ensured via iterative coding verifications, and analytical notes were employed to connect bibliometric clusters to significant policy narratives [23]. This meth odological combination of quantitative mapping and qualitative interpretation guarantees that the study encompasses both the structural patterns and thematic dynamics that characterize the academic discourse on cryptocurrency taxes and its regulatory imp lications.

3. RESULT AND DISCUSSIONS

3.1 Network Visualization

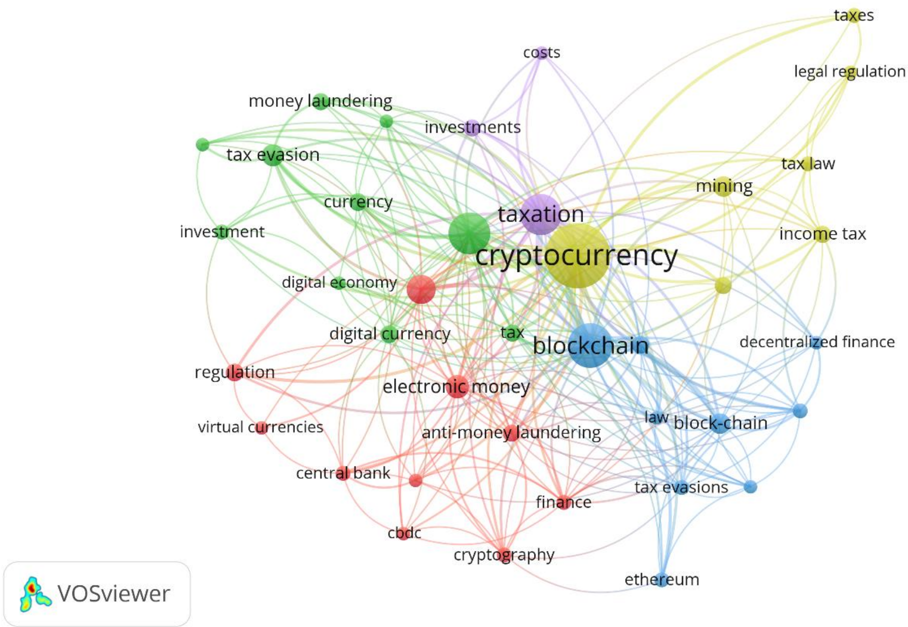

Figure 1. Network Visualization
Source: Data Analysis Result, 2025

The VOSviewer network visualization you gave depicts the intellectual and conceptual framework of the research domain concerning bitcoin taxes and its connections to broader legislative and technological problems. The visualization employs keyword co-occurrence mapping, with node size reflecting term frequency in the da taset, while node proximity and color signify relationship proximity and thematic clustering. The map delineates many principal groupings related to tax policy, blockchain techn ology, compliance methods, and digi tal finance innovation.

The prominence of the terms “cryptocurrency,” “taxation,” and “blockchain” (shown as huge nodes in yellow, purple, and blue) signifies that these are the fundamental foundations of the research subject. Their robust co-occurrence connections indicate that discourse on taxation in the literature is inextrica bly linked to blockchain as the facilitating technology and crypt ocurrency as the taxable entity. The graphic depicts nodes interconnected by dense lines, representing mult idisciplinary studies that include economic, technological, and legal views. This affirms that scholarly focus has centered on comprehending how the technological characteristics of blockchain—namely decentrali zation, transparency, and traceabi lity—impact fiscal responsibility and tax enforcement [19], [20]. The green cluster signifies the financial governance and compliance di mension, encompassing phrases such as “tax evasion,” “money laundering,” “currency,” and “inves tment.” These themes highlight the regulatory and ethical dilemmas asso ciated with bitcoin transactions, especially with unlawful activity and financial confidentiality. The proximity of “tax evasion” to “cryptocurrency” indicates the literature's emphasis on the challenges posed to tax enforcement by anonymity and borderless transactions [6], [16]. This cluster corresponds with the expanding policy dialogue about anti-money laundering (AML) and know-your-customer (KYC) compliance, indicating that research is progressively merging fiscal policy with the prevention of financial crime [18]. The red cluster focuses on "di gital economy," "electronic money," "central bank," and "CBDC." This c luster illustrates the institutional and macroeconomic reaction to the spread of cryptocurrencies. The relationship between "electronic money" and "central bank" illustrates how researchers investigate the rivalry and convergence between decentrali zed cryptocurrencies and government-supported digital c urrencies. This study examines the potential impact of central-bank digital-currency projects and novel monetary instruments on fiscal authority, tax collection efficacy, and regulatory legitimacy [4], [14]. The discussion on taxation now encompasses not only private cryptocurrency transactions but also the reconfiguration of state-spon sored digital finance systems.

The yellow cluster, centered on "tax law," "legal regulation," "in come tax," and "mining," signifies the study strand focused on legal interpretation and compliance policy. This category highlights the variab ility of legal classifications between nations about whether cr yptocurrency is considered property, currency, or a security. The relationship between "tax law" and " mining" highlights the distinct fiscal handling of mining rewards and staking yields, where valuation and reporting continue to be contested [5], [12]. The inclusion of "decentralized finance" (DeFi) in this cluster indicates that taxes research is progressively addressing intricate digital-asset transactions beyond conventional trade, reflecting the broadening of fiscal discussions into decentralized environments. The blue and peripheral nodes—“ethereum,” “law blockchain,” “cryptography,” and “finance”—symbolize the technological innovation and infrastructure aspects that support regulatory discourse. Their associat ion with "blockchain" suggests that taxation research also depends on technical study of transaction v erification, smart contracts, and ledger immutability to enhance audit procedures and automate compliance. This technology layer c onnects financial regulation and computer science, demonstrating that crypto-taxation research increasingly utilizes computational tools like blockchain forensics and on-chain analytics [3], [24]. The network illustrates that bitcoin taxation study is a developing, interdisciplinary domain that combines fiscal control, legislative adaptation, and technological innovation in reaction to the evolution of digital finance.

3.2 *Overlay Visualization*

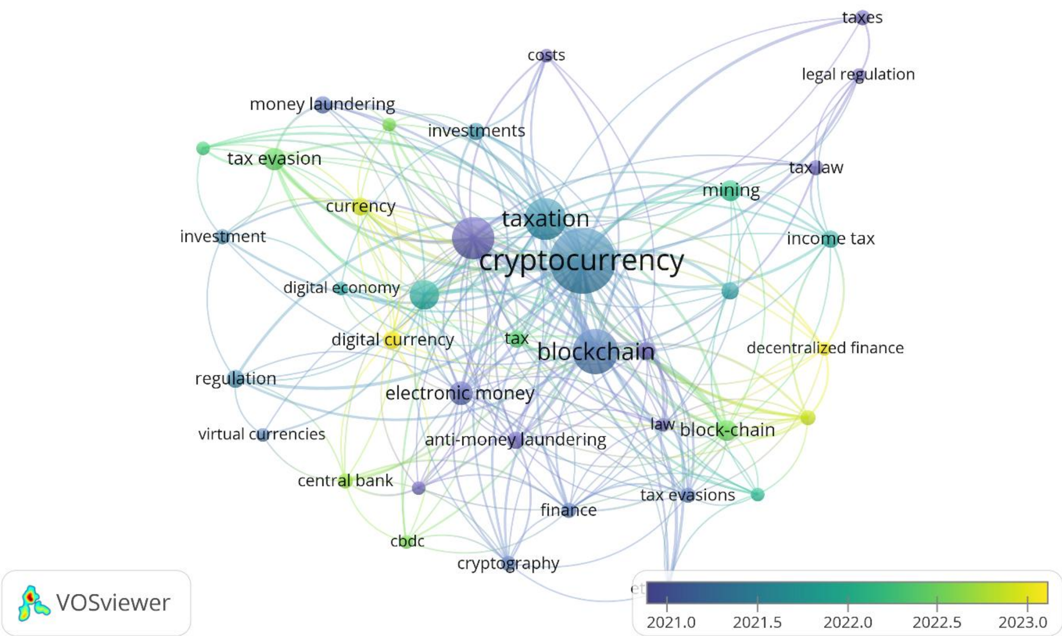

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2025

The overlay visualization ma p produced by VOSviewer offers a temporal perspective on the development of bitcoin taxation research from 2021 to 2023. The color gradient—from deep blue (previous studies) to vivid yellow (recent publications)—demonstrates the evolution of research focus throughout time. Preceding research (blue nodes) include “money launde ring,” “tax evasion,” “cryptography,” and “electronic money” illustrate the preliminary phase of scholarship, predominantly focused on regulatory hazards, anonymity, and compliance within the emerging cryptocurrency ecosystem. These seminal studies laid the framework for comprehending cryp tocurrencies as possible tools for financial obfuscation and tax evasion, influencing the policy dialogue on anti-money laundering (AML) and fi nancial oversight [4], [6].

During the transitional phase of 2021–2022, characterized by green to turquoise tones, the emphasis br oadened to encompass "blockchain," "digital economy," "regulation," and "central bank." This signifies a transition in research focus from problem diagnosis to institutional adaptation and regulatory integration. Researchers commenced an examination of the potential applications of blockchain technology for enhancing taxation efficiency, verifying digital identities, and conducting transaction audits [19], [20]. The incorporation of terms like “CBDC” and “electronic money” during this period indicates the increasing convergence of public finance and digital monetary innovation, as central banks and tax authorities assessed the viability of di gital currencies to improve transparency and tax compliance [14]. This time signifies the integration of studies connecting bitcoin governance to the wider change of digital finance and fiscal modern ization.

The latest themes (yellow no des, 2022–2023) including “decentralized finance,” “income tax,” “tax law,” and “legal regulation” indicate a sustained academic focus on practical and legal frameworks. Contemporary research increasingly examines the formali zation of cryptocurrency taxation rul es, the classification of staking and mining revenue, and international tax enforcement. The highlight of "de centralized finance (DeFi)" in vivid yellow denotes the cutting edge of research—where automated financial systems contest conventional definitions of taxable events and regu latory authority [3], [5]. This chronological development—from regulatory issues (2021) to ins titutional adjustment (2022) and legal standards (2023)—demonstrates the dynamic evolution of the field. It highlights the evolution of bitcoin taxes from a compliance challenge to a strategic component of global financial regulation and digital economy governance.

3.3 *Citation Analysis*

A bibliometric analysis of citation frequencies serves as a crucial indicator of the intellectual underpinnings and significant rese arch influencing the dialogue on cryptocurrency taxation and financial regulation. The table below enumerates ten of the most-cited books identified in the dataset, showcasing varied perspectives in economics, governance, sustai nability, and technological innovation. These foundational studies establish the theoretical comp rehension of cryptocurrency's economic behavior and regulatory consequences while also highlighting the transdisciplinary aspects of the area, encompassing finance, crimin ology, environmental policy, and computer science.

Table 1. Top Cited Research

Citations	Authors and year	Title
226	[25]	Policy assessments for the carbon emission flows and sustainability of Bitcoin blockchain operation in China
213	[26]	Some simple bitcoin economics
133	[27]	The Rise in Popularity of Cryptocurrency and Associated Criminal Activity
125	[28]	The security and financial implications of blockchain technologies: Regulating emerging technologies in Canada
75	[29]	The use of cryptocurrencies in the money laundering process
68	[30]	THE CURSE OF CASH: How Large-Denomination Bills Aid Crime and Tax Evasion and Constrain Monetary Policy
61	[31]	What is Stablecoin?: A Survey on Price Stabilization Mechanisms for Decentralized Payment Systems
60	[32]	Preying on the poor? Opportunities and challenges for tackling the social and environmental threats of cryptocurrencies for vulnerable and low-income communities
57	[33]	Detecting Malicious Accounts on the Ethereum Blockchain with Supervised Learning

Citations	Authors and year	Title
48	[34]	Those who control the code control the rules: How different perspectives of privacy are being written into the code of blockchain systems

Source: Scopus, 2025

The citation data indicate the thematic diversity of cryptocurrency research and its regulatory aspects. The highly referenced work by [25] (226 citations) highlights increasing environmental and sustainability issu es, illustrating that the carbon fo otprint of blockchain activities—particularly Bitcoin mining—has become pivotal in legislative debates. This environmental-economic connection illustrates how taxation and regulation are progressively perceived in the context of s ustainable development. The second most-cited paper, [26] (213 citations), offers essential insights into the monetary economics of Bitcoin, framing cryptocurrencies as a challenge to traditional macroeconomic theory and fiscal policy structures.

The subsequent level of research examines governance, legality, and criminal exploitation. [27] (133) and [29] (75) underscore the criminological and compliance aspects, recognizing cryptocurrencies as potential instruments for money laundering, tax evasion, and illicit finance—concerns that have directly prompted regulatory intensification and demands for enhanced transparency. [28] (125) and [30] (68) further the discourse into policy and security domains, illustrating how blockchain technologies undermine established financial conventions while necessitating new regulatory frameworks. Recent studies demonstrate a shift in academic focus towards innovation and social equality. [31] (61) and [32] (60) illu strate the field's growth in stablecoin design and the socio-environmental consequences of digital currencies for marginalized groups. [33] (57) and [34] (48) present topics of tech nological governance, emphasizing machine learning-based fraud detection and the integration of privacy regulations inside blockchain code. These significant studies collectively delineate a research trajectory evolving from theoretical underpinnings and financial risk to sustainability, technological acc ountability, and social impact—reflecting the metamorphosis of cryptocurrency regulation into a multifaceted domain that amalgamates economics, ethics, law, and technology.

3.4 Density Visualization

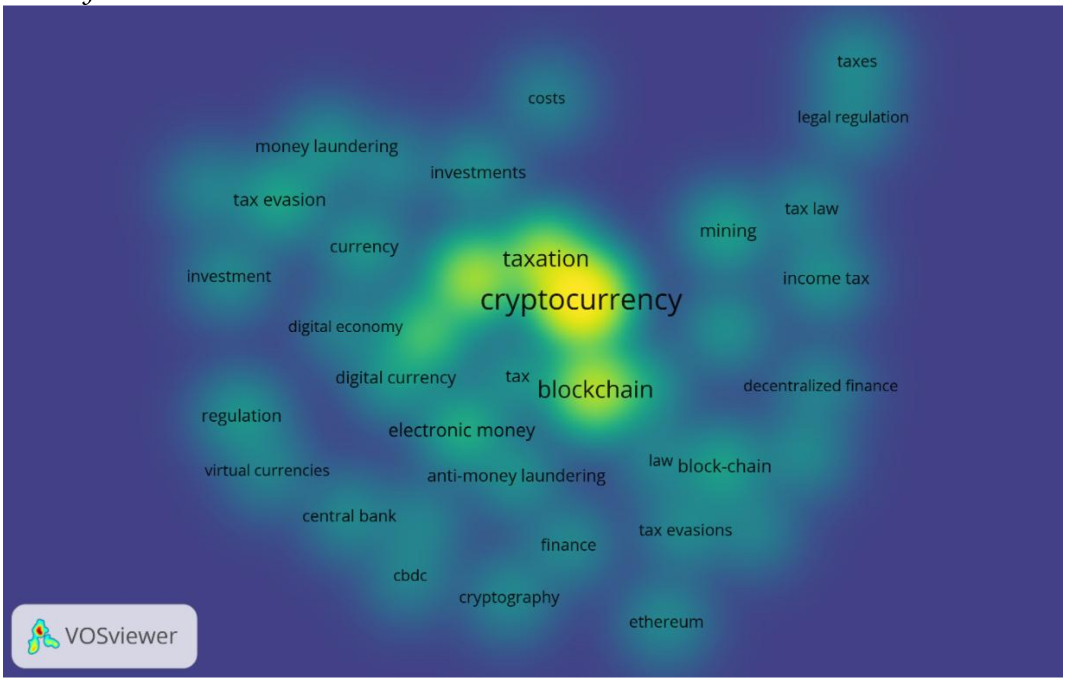

Figure 3. Density Visualization
Source: Data Analysis Result, 2025

The density visualization map produced by VOSviewer depicts the relative concentration of research work in the field of cryptocurrency taxes and financial regulation. The map's color gradient—from deep blue (low density) to bright yellow (high density)—illustrates the degree of keyword co-occurrence, thereby sig nifying which topics have garnered the most scholarly interest. The vibrant yellow area at the center, characterized by the terms “cryptocurrency,” “taxation,” and “blockchain,” indicates that these subjects constitute the conceptual and analytical nucleus of the research domain. The pronounced clustering of these terms indicates that the majority of studies concentrate on the foundational role of blockchain technology in cryptocurrency systems and the adaptation of taxat ion rules to govern them. This densit y indicates that scholars perceive taxi ng as both a fiscal tool and a governance instrument that intersects with digital innovation and monetary sovereignty [19], [20]. The outer regio ns shown in green and blue signify new or specialized subfields that en hance the primary discourse. On the left, subjects such as “tax evasion,” “money laundering,” and “digital economy” underscore the compliance and enforcement aspects of cryptocurrency study, concentrating on illicit finance and fiscal tr ansparency. The emergence of terms such as “income tax,” “tax law,” “decentralized finance (DeFi),” and “mining” suggests novel avenues of investigation about how advancing digital asset activities and automated systems confront current tax regulations [3], [5]. The occurrence of "CBDC," "central bank," and "electron ic money" in the bottom sections indicates a growing institutional emphasis on incorporating blockchain-based technologies into public financial structures. This densi ty visualization indicates that cryptocurrency taxation is the p rimary research focus, increasingly interconnected with interdisciplinary aspects related to environmental, legal, and socio-technical dimensions, reflecting a mature and diversifying field of study.

3.5 Co-Authorship Network

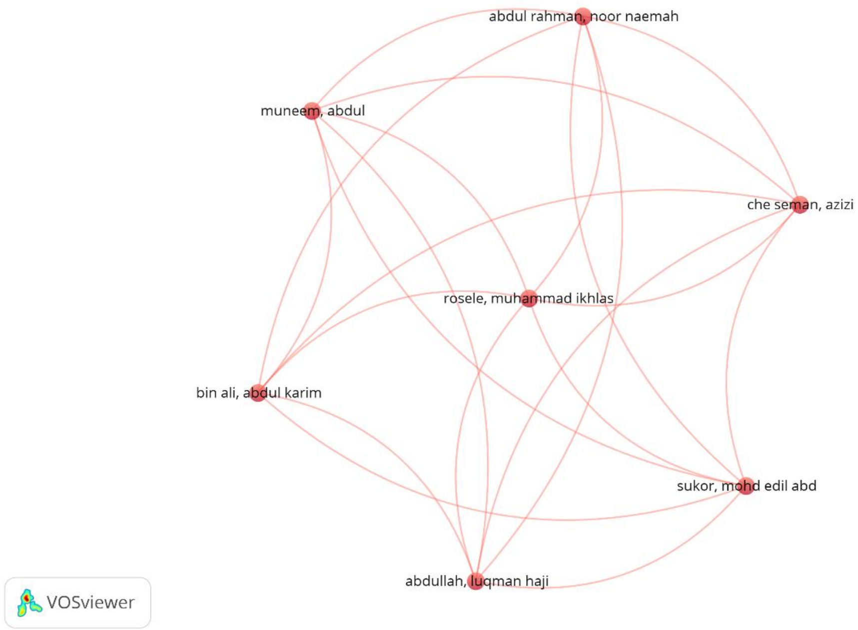

Figure 4. Author Visualization
Source: Data Analysis Result, 2025

The co-authorship visualization produced by VOSviewer depicts a closely interconnected research collaboration network among a select number of researchers who make substantial contributions to the study of cryptocurrency and financial regulation, especially within the Southeast Asian academic milieu. Each node signifies an author, while the connecting lines (edges) denote co-authorship links, with thicker lines indicating greater collaboration intensity. The visualization indicates that scholars Muneem Abdul, Abdul Rahman Noor Naemah, Che Seman Azizi, Abdul Karim Bin Ali, Mohd Edil Abd Sukor, and Muhammad Ikhlas Rosele are the most prolific contributors, creating a thick and symmetrical collaborative framework. This pattern indicates a unified research cluster, presumably operating under common institutional or regional affiliations—potentially focused on Islamic finance, blockchain regulation, and taxation ethics. The recurrent associations among these authors signify not merely a stable academic collaboration but also a theme congruence in examining regulatory, ethical, and Sharia-compliant aspects of digital banking. Luqman Haji Abdullah's presence reinforces the institutional connection, indicating that knowledge development in this domain is propelled by collaborative rather than solitary endeavors. The network underscores a robust collaborative core that significantly influences regional views on cryptocurrency governance, indicating that the field's progress is largely dependent on interdisciplinary and institutionally integrated cooperation.

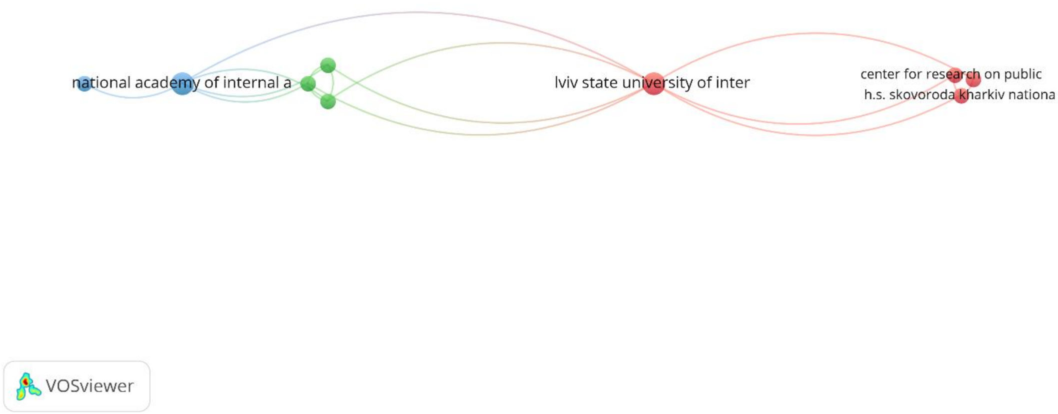

Figure 5. Affiliation Visualization
Source: Data Analysis Result, 2025

The depiction of the institutional collaboration network demonstrates a modest yet significant pattern of research relationships among several prominent academic institutions engaged in cryptocurrency, taxes, and regulatory studies. The map illustrates three principal institutional clusters linked by interrelated co-authorships: the National Academy of Internal Affairs, the Lviv State University of Internal Affairs, and the Center for Research on Public Administration at H.S. Skovoroda Kharkiv National University. Lviv State University of Internal Affairs has a key position, characterized as the largest and most interconnected node, indicating its function as a collaborative conduit among Ukrainian research institutes. This university seems to promote the sharing of academic knowledge and resources among public administration, law enforcement, and policy research institutions. The discernible yet slender connecting lines suggest that inter-institutional collaboration is present, albeit constrained in scope and predominantly concentrated on specific themes such as financial regulation, digital governance, or anti-money-laundering (AML) frameworks within the cryptocurrency ecosystem. This network underscores the increasing yet still concentrated institutional involvement in the domain, indicating that scholarly investigation into cryptocurrency taxation and regulatory policy in Eastern Europe is predominantly arising from cross-institutional collaborations rooted in law and governance faculties.

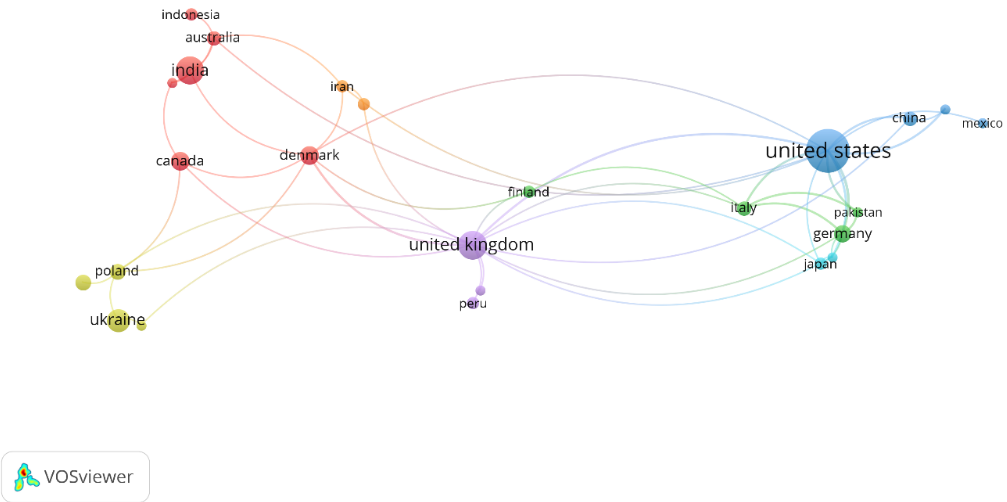

Figure 6. Country Visualization
Source: Data Analysis Result, 2025

The country collaboration network visualization illustrates the global distribution and interconnectedness of research on cryptocurrency taxation and financial regulation. The map highlights that the United States occupies the most central and dominant position, serving as a global hub for international collaboration. Strong co-authorship links connect the United States with countries such as China, Germany, Italy, Japan, and the United Kingdom, suggesting that much of the academic output in this domain originates from North American and Western European research networks. The United Kingdom also emerges as a pivotal bridge between regions, linking Anglo-European scholarship with partners in India, Denmark, and Finland, which reflects its intermediary role in policy-oriented and interdisciplinary cryptocurrency studies. The network also reveals emerging clusters in the Global South, notably involving India, Indonesia, Iran, and Pakistan, which are connected through cooperative ties with developed economies such as the United States, Canada, and Australia. This pattern indicates a growing diversification of the research ecosystem, where developing countries increasingly contribute empirical case studies and contextual analyses related to cryptocurrency adoption, taxation reform, and digital governance. The relatively smaller but active nodes of Poland, Ukraine, and Mexico suggest regional specialization and localized collaboration within Europe and Latin America. Overall, the visualization underscores an increasingly interconnected yet asymmetrical global research landscape—dominated by Western nations but gradually enriched by active participation from emerging economies pursuing regulatory innovation in digital finance.

3.6 *Discussion*

a. Practical Implications

The findings of this study offer substantial practical insights for policymakers, tax authorities, and financial regulators grappling with the complexities of integrating cryptocurrencies into formal fiscal systems. The bibliometric and thematic analysis reveals that global scholarship converges on the need for transparent, technology-driven, and harmonized taxation frameworks to address issues such as tax evasion, cross-border transactions, and decentralized finance (DeFi) operations. Policymakers can utilize these insights to design more adaptive tax regimes that recognize the hybrid nature of cryptocurrencies—functioning both as investment assets and as transactional media. The identification of strong research linkages between taxation, anti-money-laundering (AML), and blockchain transparency suggests that governments should prioritize digital compliance infrastructure, including blockchain-based audit trails, smart contracts for tax collection, and cross-jurisdictional information-sharing agreements. For emerging economies, the study underscores the importance of balancing innovation with fiscal control: rather than imposing restrictive bans, governments can promote responsible crypto innovation through targeted taxation policies, fiscal incentives for compliant fintechs, and enhanced public awareness. These practical lessons position cryptocurrency taxation as a strategic lever for fiscal modernization, regulatory capacity building, and digital economic governance.

b. Theoretical Contributions

From a theoretical standpoint, this study contributes to the evolving intersection of digital finance theory, fiscal governance, and institutional transformation. The results demonstrate that cryptocurrency taxation research is not merely a subfield of public finance, but rather a multidisciplinary domain bridging institutional economics, regulatory theory, and technological determinism. The bibliometric mapping situates taxation within the broader conceptual discourse of how technological innovation reconfigures the state's regulatory and fiscal authority. Specifically, it advances the theoretical understanding of how blockchain technology embodies a duality—enabling transparency and decentralization simultaneously—which challenges traditional tax enforcement models rooted in centralized information systems. Furthermore, the thematic clusters reveal that financial regulation is undergoing a paradigmatic shift from command-and-control governance toward algorithmic and data-driven regulation, aligning with the emerging concept of "RegTech" and "TaxTech" in regulatory studies [5], [19]. By synthesizing these streams, the study contributes a conceptual framework of fiscal digitalization, emphasizing the interdependence between technological architectures and institutional legitimacy. This theoretical contribution deepens our understanding of how taxation evolves as both a regulatory mechanism and a manifestation of state adaptation to the digital economy.

c. Limitations and Future Research

Despite its comprehensive approach, this study acknowledges several limitations inherent in bibliometric and thematic metho dologies. First, the analysis relies primarily on the Scopus database, which, although extensive, may omit relevant literature indexed in other repositories such as Web of Science, SSRN, or regional databases. This creates potential gaps in capturing non-English or policy-oriented publications from developing regions where cryp tocurrency adoption is rising rapidly. Second, the keyword-based retrieval and co-occurrence analyses are limited by authors' t erminological choices; variations in terms like crypto-asset, virtual currency, or digital token may affect the inclusiveness of the dataset. Third, while the study maps intellectual structures and thematic evolution, it does not as sess the empirical effectiveness of taxation policies or their socioeconomic impacts—areas that warrant further field-based research. Future studies could integrate mixed-method approa ches, combining bibliometric data with qualitative interviews, policy document analysis, and cross-country case studies to validate and expand the insights presented here. In addition, the integration of AI-driven text analytics and machine learning–based citation prediction models could enhance the predictive power of bibliometric mapping, allowing researchers to anticipate emerging policy trends in cryptocurrency taxation and regulatory adaptation.

4. CONCLUSIONS

This paper offers an extensive bibliometric and thematic analysis of international research on cryptocurrency taxes and its impact on the evolving landscape of financial regulation. The research delinea tes the fundamental intellectual frameworks influencing this swiftly advancing domain by analyzing publishing trends, co-authorship n etworks, topic clusters, and institutional interactions. The research demonstrates that the convergence of taxation, blockchain technology, and financial governance has e merged as a significant topic in academic discussions since 2018, highlighting the growing imperative for governments to provi de appropriate fiscal structures for digital assets. The prevalence of terms like "taxation," "blockchain," "cryptocurrency," and "regulation" illustrates the interdisciplinary character of the topic, connecting law, economics, public policy, and computer science. The research identifies three key patterns in academic advancement. There is an increasing focus on the integration of technology in taxation, with blockchain-based systems being envisioned as instruments for transparency, auditability, and international tax collaboration. A t ransition towards sustainable and ethical re gulation is noted, as scholars investigate the social, environmental, and governance ram ifications of bitcoin utilization. The literature indicates a growing acknowledgment of the necessity for unified worldwide tax rules, esp ecially to tackle decentralized finance (DeFi) and digital asset transactions that cross national boundaries. Collaboration networks at the institutional and national levels indicate that research leadership is predominantly held by the United States and the United Kingdom; however, participation from countries like India, Indonesia, and Ukraine is increasing, reflecting a broadening democratization of academic involvement.

The paper indicates that cryptocurren cy taxation serves as both a technical problem and a policy tool through which governments navigate control, innovation, and fiscal legitimacy in the digital economy. It advances the theoretical synthesis of financial regulation and digital governance, emphasizing that next regulatory frameworks will rely on data-driven, interoperable, and collaborative financial infrastructures.

Nonetheless, constraints pertaining to d ataset extent and linguistic coverage indicate the necessity for supplementary research including cross-database analysis, qualitative triangulation, and empirical policy assessments. The findings together emphasize that efficient cryptocurrency taxation tr anscends mere compliance; it involves reimagining fiscal policy in the context of d igital revolution.

REFERENCES

[1] S. Nakamoto, "Bitcoin: A peer-to-peer electronic cash system," *Available SSRN 3440802*, 2008.

[2] A. M. Antonopoulos, *Mastering Bitcoin: unlocking digital cryptocurrencies*. " O'Reilly Media, Inc.," 2014.

[3] Y. Song, C. Wang, and Z. Wang, "Climate risk, institutional quality, and total factor productivity," *Technol. Forecast. Soc. Change*, vol. 189, p. 122365, 2023.

[4] K. Baer, R. de Mooij, S. Hebous, and M. Keen, "Taxing Cryptocurrencies," *International Monetary Fund*, 2023.

[5] A. Misra, "Tax Policy Handbook for Crypto Assets," *arXiv Prepr. arXiv2403.15074*, 2024.

[6] Organisation for Economic Co-operation and Development (OECD), "Taxing Virtual Currencies: An Overview of Tax Treatments and Emerging Issues," *Paris: OECD Publishing*, 2022.

[7] Internal Revenue Service (IRS), "Frequently Asked Questions on Virtual Currency Transactions," *U.S. Department of the Treasury*, 2023.

[8] HM Revenue and Customs (HMRC), "Cryptoassets Manual: Tax treatment of cryptoasset transactions," *UK Government*, 2023.

[9] F. Schneider, C. Spengel, and M. Holler, "Digital Assets, Fiscal Policy, and the Future of Taxation," *Springer Briefs Econ.*, 2023.

[10] X. Xiong and J. Luo, "Global trends in cryptocurrency regulation: An overview," in *The International Conference on Mathematical Research for Blockchain Economy*, 2024, pp. 71–92.

[11] NT Forum, "Crypto Assets Demystified for Tax Administration," *Network of Tax Organisations Annual Conference*, 2025.

[12] D. Kochergin, "Crypto-assets: Economic nature, classification and regulation of turnover," *Int. Organ. Res. J.*, vol. 17, no. 3, pp. 75–130, 2022.

[13] European Commission, "Markets in Crypto-Assets Regulation (MiCA)," *Official Journal of the European Union*, 2023.

[14] R. Auer, G. Cornelli, and J. Frost, "On the international regulatory landscape of crypto-assets," *Bank for International Settlements*, 2022.

[15] D. Wahidin, F. Mareta, R. Wulandari, and W. Khairunnisa, "Analysis of Property Tax Revenues Before and During the Covid-19 Pandemic in Sukabumi," vol. 2021, no. 973, pp. 189–195, 2021.

[16] J. P. Jiménez, "Taxation of Crypto Assets in Latin American and Caribbean Countries," *CIAT*, 2025.

[17] CIAT, "Taxation of Crypto Assets in Latin America and the Caribbean," *Inter-American Center of Tax Administrations*, 2025.

[18] Financial Stability Board (FSB), "Global Regulatory Framework for Crypto-Asset Activities," *FSB Report to the G20*, 2024.

[19] M. Aria and C. Cuccurullo, "bibliometrix: An R-tool for comprehensive science mapping analysis," *J. Informetr.*, vol. 11, no. 4, pp. 959–975, 2017.

[20] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *J. Bus. Res.*, vol. 133, pp. 285–296, 2021.

[21] R. Pranckutė, "Web of Science (WoS) and Scopus: The titans of bibliographic information in today's academic world," *Publications*, vol. 9, no. 1, p. 12, 2021.

[22] V. Braun and V. Clarke, "Using thematic analysis in psychology," *Qual. Res. Psychol.*, vol. 3, no. 2, pp. 77–101, 2006.

[23] M. B. Miles, A. M. Huberman, and J. Saldaña, *Qualitative Data Analysis: A Methods Sourcebook*. Thousand Oaks, CA: SAGE Publications, 2014.

[24] N. Van Eck and L. Waltman, "Software survey: VOSviewer, a computer program for bibliometric mapping," *Scientometrics*, vol. 84, no. 2, pp. 523–538, 2010.

[25] S. Jiang *et al.*, "Policy assessments for the carbon emission flows and sustainability of Bitcoin blockchain operation in China," *Nat. Commun.*, vol. 12, no. 1, p. 1938, 2021.

[26] L. Schilling and H. Uhlig, "Some simple bitcoin economics," *J. Monet. Econ.*, vol. 106, pp. 16–26, 2019.

[27] S. Kethineni and Y. Cao, "The rise in popularity of cryptocurrency and associated criminal activity," *Int. Crim. Justice Rev.*, vol. 30, no. 3, pp. 325–344, 2020.

[28] E. Ducas and A. Wilner, "The security and financial implications of blockchain technologies: Regulating emerging technologies in Canada," *Int. J.*, vol. 72, no. 4, pp. 538–562, 2017.

[29] C. Albrecht, K. M. Duffin, S. Hawkins, and V. M. Morales Rocha, "The use of cryptocurrencies in the money laundering process," *J. Money Laund. Control*, vol. 22, no. 2, pp. 210–216, 2019.

[30] K. Rogoff, *The curse of cash: How large-denomination bills aid crime and tax evasion and constrain monetary policy*. Princeton University Press, 2017.

[31] M. Mita, K. Ito, S. Ohsawa, and H. Tanaka, "What is stablecoin?: A survey on price stabilization mechanisms for decentralized payment systems," in *2019 8th international congress on advanced applied informatics (IIAI-AAI)*, 2019, pp. 60–66.

[32] P. Howson and A. de Vries, "Preying on the poor? Opportunities and challenges for tackling the social and environmental threats of cryptocurrencies for vulnerable and low-income communities," *Energy Res. Soc. Sci.*, vol. 84, p. 102394, 2022.

[33] N. Kumar, A. Singh, A. Handa, and S. K. Shukla, "Detecting malicious accounts on the Ethereum blockchain with supervised learning," in *International symposium on cyber security cryptography and machine learning*, 2020, pp. 94–109.

[34] R. Renwick and R. Gleasure, "Those who control the code control the rules: How different perspectives of privacy are being written into the code of blockchain systems," *J. Inf. Technol.*, vol. 36, no. 1, pp. 16–38, 2021.