Journal of Economics, Finance and Accounting Studies
ISSN: 2709-0809
DOI: 10.32996/jefas
Journal Homepage: www.al-kindipublisher.com/index.php/jefas

JEFAS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Cryptocurrency Accounting Frameworks and Tax Compliance Challenges: Toward a Unified Digital Financial Reporting Model

Mehmet Ali YUZBASIOGLU
Gaziantep University - Faculty of Economics and Administrative Sciences - Department of Business Administration, Gaziantep/Türkiye
Corresponding Author: Mehmet Ali YUZBASIOGLU, **E-mail**: coban@gantep.edu.tr

| ABSTRACT
The swift growth of cryptocurrencies has highlighted several issues with current accounting and tax compliance regimes given that there is little to no accounting guidance in the current standards like IFRS or US GAAP regarding the measurement, recognition and disclosure of crypto-assets . (Rajaram & Aboluwodi, 2024; Mpanza,). This paper analyzes the existing literature along with case practices to present the main concerns behind unreliable financial reporting and inefficient tax enforcement as being those of volatility, lack of clarity in legal categorization, problems of tax jurisdiction in cross- border transactions, and anonymity. Drawing on and comparing existing structures found in policy documents, financial statements, and guidelines, it makes the case for a theory of a singular digital financial reporting method utilizing the blockchain as a financial reporting and auditing platform through standardized measures and advanced disclosures of tax information. The suggested model attempts to harmonize accounting measurement with sound tax compliance as well as safeguard the users of financial statements from artificial liquidity, profitability and asset measurement or valuation. The results apply particularly to standard setters, regulators, and crypto-assets firms to move towards coherence in regulation and risk reduction in the digital financial ecosystem.

| KEYWORDS
field of accounting for cryptocurrencies. Financial reporting of digital assets. Blockchain accounting standards. Crypto taxation issues. Consolidated model of reporting. IFRS and cryptocurrency value

| ARTICLE INFORMATION
ACCEPTED: 01 October 2025 **PUBLISHED:** 23 October 2025 **DOI:** 10.32996/jefas.2025.7.6.10

1. Introduction

1.1 Background of Cryptocurrency Adoption and Financial Reporting Complexities

Cryptocurrencies and digital assets more broadly have transitioned from the periphery to becoming tangible assets on corporate balance sheets, investment portfolios, and payment systems. Firms have increasingly begun to adopt them over the last few years for treasury purposes, payments, trading, and investing in blockchain projects . For instance, Financial Reporting for Cryptocurrency (2022) examined 40 companies worldwide that are involved in some aspect of cryptocurrency (mining, trading, payments) according to US GAAP and IFRS, and concluded there was “significant variation and inconsistency” in the recognition, measurement, and disclosure of crypto assets. These involve the features of cryptocurrencies; in other words their high volatility, their decentralised nature, their uncertain legality, their lack of a centralized issuer, and the rapidly evolving technology. Such characteristics are contrary to the whole basis of accounting and financial record-keeping (Mpanza et al, 2024; Patel & Jose, 2022) . In particular, cryptocurrencies are generally treated under GAAP as indefinite-life intangible assets which means, “an entity recognizes an impairment loss when the carrying amount of the asset exceeds its fair value, but it does not recognize an

increase in value that may be reflected by subsequent market prices until the asset is sold" . This results in asymmetric treatment of gains versus losses. On the taxation front, the approach to crypto transactions varies greatly among jurisdictions, as some treat them as capital gains while others as income and yet others apply special reporting criteria. Inconsistencies in dates of valuation, obscurity and/or anonymity, and cross- border transactions are all part of a taxing process. Mpanza, Rajaram & Aboluwodi (2024) in their systematic review found that, particularly, the current measurement models (cost, fair value) do not reflect adequately the risks and economic essence of crypto assets.

1.2 The Gap in Existing Accounting and Taxation Frameworks

But, as these regulatory efforts have expanded, significant gaps remain in both accounting as well as tax underpinnings:

i. Absence of explicit standards: Currently, there is no an explicit, standalone, and comprehensive standard in IFRS or US GAAP for all kinds of crypto-assets and crypto-activities. As a result, categories such as intangible assets, inventory, and financial instruments are utilized by entities in manners that may not reflect the underlying economics.

ii. Valuation Inconsistencies: Unclear when the fair value versus cost models should be used, how impairment and reversals (if permitted) should be treated and measurement in tumultuous markets. Model selection can considerably influence reported profitability as well as values of assets.

iii. Misalignment of tax treatment: Various classifications such as, but not limited to, being considered property vs. income vs. capital gains, differing jurisdictions, and reporting requirements all create burdens of compliance and potential for double taxation or avoidance thereof. In addition, a lot of tax regulations are retroactive to forward-looking accounting changes or simply do not consider crypto contexts.

iv. Non-Disclosure and Audit Trail Issues: Typical audit evidence and disclosures issues are also problematic due to the decentralized and pseudo-anonymous features of a large number of cryptocurrencies. Many companies fail to give stakeholders the information needed to estimate such risks, value or exposure to volatility.

1.3 Significance of Harmonizing Digital Financial Reporting

There are a number of reasons, though for the need of a cohesive structure for cryptocurrency accounting and tax reporting:

i. Comparability: Reliable financial reporting must provide useful, comparable information to investors, regulators and other users of financial reports. Without harmonisation, prescriptive benchmarks are hard to establish and when attempted they are misleading, comparisons across firms and jurisdictions are not easy nor is it if it is misleading. For instance, two firms applying dissimilar measuring models could display completely disparate asset values.

ii. Risk management and transparency: Firms and regulators need to be better capable of evaluating the risks that citcoins bring – market, valuation, liquidity, regulatory. Transparency and uniformity in reporting allow for better risk assessment.

iii. Integrity of regulation and equity of taxation: Homogeneous reporting guidelines can minimize opportunities for loopholes, disparity in taxation, avoidance or evasion, or perverse incentives. They assist tax authorities in enforcing regulations, particularly as crypto can cross borders.

1.4 Research Objectives and Questions

In consideration of these gaps and significance, this paper seeks to propose a holistic digital financial reporting framework for cryptocurrency accounting and tax compliance. To be specific:

Objectives:

i. To assess current accounting and taxation practices of cryptocurrencies in IFRS, US GAAP and prominent international jurisdictions.

ii. To understand fundamental issues with measurement, recognition, disclosure, and enforcement with regards to accounting and tax compliance.

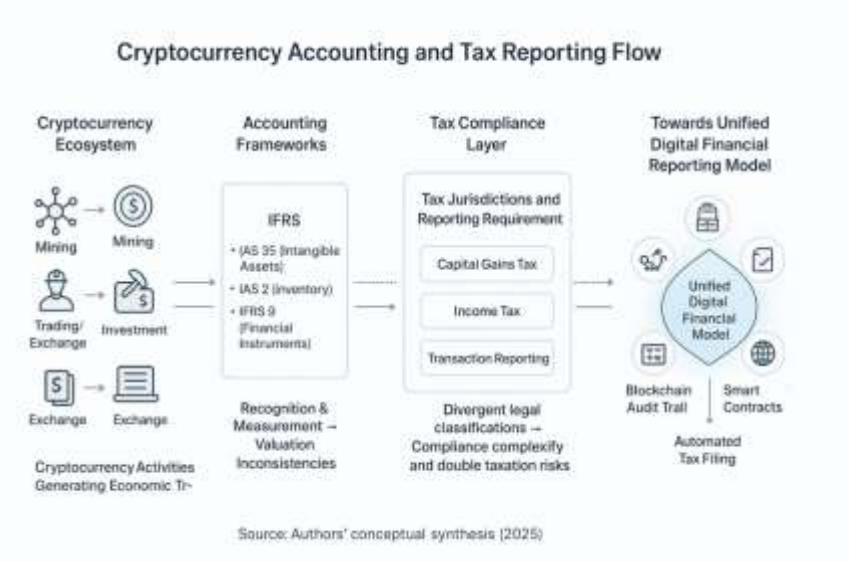
iii. To put forth a model which combines best practices and tech enablement (i.e. blockchain audit trails) to increase consistency, transparency, and compliance.

Research Questions:

RQ1: What is the current accounting treatment of cryptocurrency assets and transactions in existing accounting frameworks (IFRS, US GAAP)?

RQ2: What are the key issues of tax compliance when dealing with cryptocurrency at different jurisdictions?

RQ3: What functions would a single digital financial reporting system include to meet both accounting and tax compliance requirements?



2. Literature Review

2.1 Evolution of Cryptocurrency and Its Accounting Implications

Since Bitcoin's inception in 2009, cryptocurrency has matured significantly. What began as a peer-to-peer digital cash system (Nakamoto, 2008) has grown into an array of token and asset types as well as CBDCs (Yüksel, 2020; Liu, 2024). Though Bitcoin and other earlier cryptocurrencies were mainly for speculation or peer-to-peer transactions, later innovations like Ethereum allowed for programmable smart contracts and decentralized applications, which added complexity to transactions and their accounting treatment. Private cryptos and their challenges for financial reporting are different in nature from those presented by CBDCs, that authorized several central banks from around the world to investigate into CBDCs proposals, which vary from private cryptos in their legal backing and regulation, but still offer challenges for financial reporting (Passarinho, IFRS Foundation advisory notes, 2019) . Currently there is no specific standard for cryptocurrencies under the existing accounting frameworks. "Financial Reporting for Cryptocurrency" (2022) indicates that under US GAAP, businesses typically consider cryptocurrencies to be intangible assets that must be measured at cost, and cost can be reduced by impairment losses, whereas under IFRS, although some firms also consider cryptocurrencies as intangible assets, others consider them to be inventory, and some adopt fair value models.

In 2019, the IASB issued a provisional agenda decision stating that crypto holdings are not financial assets for IFRS purposes as they do not confer contractual rights to cash flows. Otherwise, they are subject to IAS 38 (Intangible Assets) or, if sold as part of normal business operations either IAS 2 (Inventory) if certain conditions apply.

These categories result in some drawbacks: first, valuation fluctuation is often misaligned with measurement models that do not permit the acknowledgement of upward revaluations (particularly under US GAAP and under IFRS when the cost-model is used). This creates a huge distortion where companies will acknowledge impairment losses as prices decrease in the market, but they will not acknowledge an increase when prices recover.

Second, rights or characteristics of particular cryptocurrencies are not clear – for instance, utility tokens, securities tokens, stablecoins, backed and unbacked tokens, and make classification and disclosure difficult. Third, the disclosure requirements are generally inadequate: some of the growing risks such as counter party risk, technological risk, regulatory risk, and smart contracts risks are not universally covered.

2.2 Tax Compliance Challenges in Cryptocurrency Transactions

Issues of Valuation, Anonymity, Jurisdictional Differences

The high volatility of cryptocurrencies makes it difficult to value cryptocurrency transactions for tax purposes. Different jurisdictions may have different interpretations as to what constitutes fair value on the date of transaction, or if gains are realized or unrealized. For example, the US IRS treats crypto as property; all transactions with cryptocurrency are taxable events and cost basis must be tracked. The fact that the cost basis can be defined differently (FIFO, average cost…etc) adds to the complexity.

While comprehensive examples of US practice can be found in Financial Reporting for Cryptocurrency (2022), most other jurisdictions have less supporting empirical research.

Also, since many crypto transactions can be done pseudo-anonymously, tax authorities may find it challenging to follow the ownership or flow of transactions. It is challenging to enforce reporting requirements in countries that do not have strict regulations for exchanges or wallets, or in cases where peer-to-peer exchanges are done. In a bibliometric study of "Cryptocurrencies' Impact on Accounting" (2024), anonymity and absence of a central authority or jurisdiction are identified as recurrent aspects of risk in tax evasion and non-compliance. Jurisdictional differences also pose a problem for compliance. While in some countries these gains are considered capital gains , in others they are ordinary income . Regulations regarding VAT or sales tax are different. Double taxation or tax avoidance is a risk generated by cross-border transactions. Some digital currencies are treated as property and others as currency, while there are others that may be subjected to regulations that don't specifically deal with tBinane have even seen tax companies filing charges or scaring companies with threats of execution under existing broad tax laws.

International Case Comparisons (US, EU, Nigeria)

U.S.: Cryptocurrencies are property according to the IRS. Capital gains or losses are realized at the time of the sale or exchange, and even trivial transactions can cause capital gains events. On top of that, exchanges file Form 1099-K or 1099-B for reporting. There is no clear consensus on how to perform valuations in all contexts (e.g. mining, ICO's, staking rewards), and this leads to some confusion. US companies' accounting for crypto as intangible assets and the recognition of impairment costs according to the cost less impairment model is explained in the 2022 Financial Reporting for Cryptocurrency .

European Union: Some countries of the EU have more advanced tax policies. For instance, some consider crypto earnings as capital income, others ordinary income based on the occurrence of the transaction, and others based upon the context in which such activity is performed either speculative or business activities . Crypto's legal classification (property, commodity, or virtual currency) . Most companies located in the EU adopt the IASB's IFRS instructions, and even when local applications allow the fair value options, they tend to be the most popular choice. But it is not consistent. (See Liu, 2024; Yüksel, 2020)

Table 1: Comparison of Tax Reporting Approaches in Major Economies (US, EU, Asia, Africa)

Jurisdiction	Classification of Crypto	Valuation Basis	Tax Event Triggers	Reporting Requirements / Exchange Obligations
US	Property (IRS)	Cost basis; fair value for impairment under intangible model	Disposal, trade, exchange, mining income, staking rewards	Exchanges must issue Form 1099; detailed gain/loss tracking; treat small transactions as taxable events.
EU	Varies: property / commodity / virtual currency	Fair value if permitted; cost model elsewhere	Depends on use; e.g. trading, income, capital	Some member states require exchanges to

			gains	report; variable VAT handling; cross-border issues.
Asia	Mixed: regulatory diversity (Japan, South Korea, Singapore)	Cost or fair value depending on token type and regulation	Transactions, business income, gains/losses	Many require exchanges and wallet providers to comply; government guidance published.

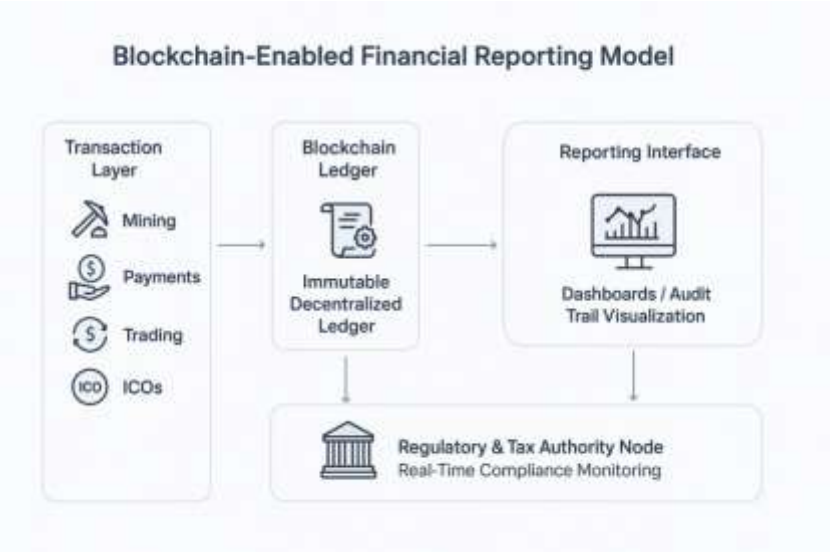
2.3 Blockchain as a Financial Reporting Enabler

Transparency and Auditability Potentials

It has been suggested that blockchain technology can greatly enhance the reliability, transparency, and auditability of financial reporting . Blockchains as a decentralized, immutable ledger represent a permanent record of transactions that auditors can use to authenticate transactions and/or ensure that they can't be falsified (Kunariyah & Dewayanto, 2023). The use of blockchain in corporate governance literature points on the potential of blockchain to decrease information asymmetry, ensure records security, and increase trust in financial disclosures.

Smart Contracts for Automated Reporting and Tax Remittance

Accounting and tax compliance can be automated through smart contracts . For instance, rules may be programmed to invoke acknowledgement, tax filing, or reporting once certain circumstances have been satisfied. This minimizes human error as well as reporting lag and opportunities for shakedown . The legal relevance of blockchain technology for tax and financial regulation compliance, for example, has been dealt with in some recent articles that tend to identify smart contracts as a potentially useful tool. In permissioned blockchains, smart contracts could help reporting data about transactions to the tax administration or regulator in real or near real time, thereby improving the timeliness and decreasing the likelihood of misreporting. But, they pose legal and technical questions of, how to ensure that the code of the contract is in keeping with legal requirements, what about ambiguous or new situations, and how privacy, data protection and regulatory oversight is maintained.



2.4 Theoretical Foundation

Institutional Theory and Digital Transformation

Institutional theory describes the process by which organizations become aligned with norms, rules, and pressures from regulatory industries, professional bodies, and stakeholder expectations (Scott, 1995; DiMaggio & Powell, 1983). Specifically, rather than accounting and tax institutions operating with regard to the realities of digital assets, such as cryptocurrencies, these institutions, such as the IASB or national tax authorities, must be 'forced' to accommodate the realities of digital assets. Firms that operate in more than one jurisdiction could be dealing with institutional isomorphism – having to adopt reporting practices more aligned to what is internationally expected or to the one that represents a more dominant economic power, which provides legitimacy. This is part of the explanation as to why many entities outside the US try to apply IFRS treatment or use fair value even in cases where local regulation doesn't require it. ("Cryptocurrencies' Impact on Accounting" 2024; Yüksel 2020).

Digital transformation theory helps as well: the adoption of blockchain, AI, and other FinTech applications is a force of transformation for accounting and audit processes as it allows for real time data, automated compliance, and new types of reporting. There are moderating factors including the technology adoption lifecycle, regulatory readiness and capacity, both technical and institutional, that affect the uptake of these innovations .

Financial Information Asymmetry and Regulatory Compliance

The problem of information asymmetry; management has more information than the outside stakeholders such as investors, tax authorities, etc., is a classical accounting theory issue (Jensen & Meckling, 1976). This asymmetry is exacerbated by cryptocurrencies as these may conceal, be decentralized, or occur in jurisdictions with weak regulatory oversight. Non-uniformity in disclosure requirements does not allow external users to evaluate risks. Allan's studies of "Financial Reporting for Cryptocurrency" (2022) Advancing technology has created inconsistencies under IFRS vs GAAP with respect to measurement and recognition that result in profit, liquidity, and asset valuations that are distorted and makes it difficult to compare different firms . Regulatory compliance therefore, is not synonymous of following tax laws or accountancy requirements, but rather represents an effort to minimize the information discrepancy, to be more faithful in representation, to be more transparent and to allow users of financial statements to make decisions under less uncertainty. Record keeping and audit trails provided by blockchain and smart contracts are theorized to assist in reducing asymmetries . Laws, peer firms, and investors' expectations then create institutional pressures that drive firms towards more compliance. But, there is still a lack of regulatory enforcement and legal clarity in many areas.

3. Methodology

3.1 Research Design

The study makes use of a qualitative content analysis design, augmented by comparative framework analysis. Recognizing that accounting and taxation standards and literature, rulings, and reports are primarily textual rather than numerical or coded (i.e., guidelines, standards, reports, and laws), qualitative inquiry is well suited to investigations of meaning, categorization, and patterns of themes. Where data is available, the analysis incorporates a quasi-mixed dimension, such as differences in regulation between jurisdictions, but is primarily qualitative. The same types of designs have been employed in accounting studies looking at disclosures practices (MdPI, "Qualitative Analysis of IAS 2 Capability…" 2023) and reviews of regulatory policy.

Data Sources will include:

Policies and standards from accounting standard setting organizations such as the IASB and FASB, tax authorities or government ministries of finance.

Financial reports for companies with cryptocurrency involvement in various regions (such as US, EU, Asia, Africa).

Tax guidelines, rulings and enforcement reports on crypto transactions .

This design works well because of the ability to provide "themes, contradictions and gaps", capable of informing of a consolidated regulatory model by bringing together information on best practices and also comparison of different regulatory approaches.

3.2 Data Collection and Analysis

Document Review and Thematic Coding

Inclusion Criteria: Published within a timeframe of the last 5-10 years (i.e., 2015-2025) for up to date context; presented in English; and pertaining to cryptocurrency accounting, taxation or digital asset reporting.

Collection Process:

i. Find relevant accounting standards, legislation, tax codes from major jurisdictions such as, but not limited to, IFRS standards, US GAAP, EU directives, Nigerian laws.

ii. Acquire annual reports or other financial documents of companies that disclose holding or transacting in cryptocurrency.

iii. Collect published research and policy documents that address accounting/tax treatment of crypto.

Coding Procedure:

Construct a codebook containing: deductive codes based on literature such as "valuation basis", "classification ambiguity", "disclosure", "tax event triggers", "anonymity", etc. , and codes that emerge.

Tag excerpts using software such as NVivo, Atlas.ti, or by hand.

Conduct thematic analysis to unify codes into a larger theme such as measurement mismatch, regulatory mismatch, technological facilitators, etc.

Comparative Framework Analysis

Compare their accounting and tax treatment by jurisdiction: for example, how the accounting standards qualify crypto assets: how the tax authority qualify triggers; disclosure obligations, etc.

Evaluate consistency between documents of regulations and statements of the actual practice in the documents.

Assess gaps (regulations exist but are not specific, there is a divergence between practice).

Table 2: Data Sources and Analytical Criteria

This table lists key types of documents used and the criteria by which they will be analyzed.

Source Type	Example Documents	Analytical Criteria
Accounting standards	IFRS IAS 38, IFRS 9, US GAAP ASC 350, ASC 820	Classification, measurement, recognition, disclosure requirements
Tax laws / regulatory guidelines	US Internal Revenue Code, EU directives, Nigerian tax rulings	Tax event triggers, valuation basis, jurisdictional differences, reporting thresholds
Financial statements	Firms with crypto holdings (disclosures in notes)	Statement of crypto exposure, volatility disclosure, auditing comments
Policy / guidance papers	Reports by IASB, IRS, tax authority guidance	Clarity, consistency, enforcement mechanisms

Comparative Framework Analysis

Compare their accounting and tax treatment by jurisdiction, for example of how the accounting standards qualify crypto assets, of how the tax authority qualifies triggers, disclosure obligations etc.

Assess how consistent documents of regulations and statements of what practice is with the realities in the documents.

Assess gaps (e.g. regulations are there but not specific, or it diverges from practice).

4. Results and Discussion

4.1 Identified Gaps in Existing Accounting Frameworks

Lack of Standard Recognition for Crypto Assets

Among the constant findings of these recent studies, it is highlighted that there is, under IFRS or US GAAP, no specific standard that deals with all types of cryptocurrencies or digital assets . While Brink et al. (2023) show how the IASB's Conceptual Framework leads to fair value recognition of cryptocurrencies, particularly when they are used for trading purposes, neither codified IFRS nor GAAP truly provide for this treatment. According to the paper Financial Reporting for Cryptocurrency (Luo & Yu, 2022), based on the analysis of 40 firms worldwide, US companies almost exclusively categorize crypto-assets as intangible assets under US GAAP which are measured at cost less impairment. While some companies apply the intangible model, others under IFRS apply fair value models or inventory standards (IAS 2) when the cryptos (or crypto inventories) are held for sale in the ordinary course of operations. Also, Passarinho (2019) and IFRS oriented guidelines remind that crypto assets, as they do not provide contractual rights to cash flows, are not considered financial assets in the context of IFRS, hence they must be classified within IAS 38 (Intangible Assets) or potentially IAS 2 (Inventory) in some specific circumstances .

Measurement Inconsistencies and Volatility Concerns

Volatility in particular comes to the fore repeatedly as a problem. As most cryptocurrencies are extremely volatile over short periods, measurement choice also has a significant impact on what is reported as fair value measurement and measurement at cost / historical cost will provide for very different reported numbers. According to US GAAP, given that intangible assets are

measured at cost less impairment under US GAAP, only downward value changes or impairments can be recognized as the asset can never be increased, thus upward revaluations are prohibited. On the other hand, certain IFRS reporters recognize fair value through profit or loss, or apply revaluation models, as suggested in discussion papers, also accommodating profits and losses in inconsistent markets. Such variables generate oblique effects. As Luo & Yu (2022) explain in their study of 40 firms, "liquidly, profitability, and asset valuation can be very different in terms of outcome, simply due to accounting treatment rather than underlying

Plus, as previously discussed, most snientific frameworks require impairment testing on all assets, in the case of intangible, while not permitting increases unless it is under an exceptional circumstance of the revaluation model under IFRS. This asymmetry (losses counted, gains ignored) can skew financials and how investors view the company.

Table 3: Summary of Accounting Treatment Inconsistencies Across IFRS and GAAP

Aspect	US GAAP Typical Treatment	IFRS Typical Treatment / Variations
Classification	Intangible assets (non-financial assets)	Intangible assets; inventory (if held for sale); fair value options in discussion or in some cases
Recognition of Gains	Only realized gains; no upward revaluations	Some entities consider fair value changes through profit or loss or revaluation (if permitted)
Impairment Treatment	Cost minus impairment; downward value changes only	Impairment + potential fair value recognition; upward fair value changes possible in revaluation model
Disclosure Requirements	Minimal specific crypto disclosures; voluntary commentary	More disclosure under IFRS; country-level variations; discussion papers from EFRAG calling for stronger disclosure
Consistency across Entities	Often low; firms apply existing standards variably	Greater variability; some firms measure at fair value, others at cost; inconsistent treatment even within IFRS reporters
Classification	Intangible assets (non-financial assets)	Intangible assets; inventory (if held for sale); fair value options in discussion or in some cases

4.2 Tax Compliance Barriers and Policy Misalignment

Cross-Border Reporting Issues and Lack of Enforcement Standards

Tax administrations face important challenges in ensuring compliance with respect to crypto transactions in all jurisdictions because of jurisdictional divides and ineffective enforcement. The OECD, for example, will issue the Crypto-Asset Reporting Framework, CARF, in 2027 to harmonize the reporting of crypto asset transactions made across borders, and, similarly, from 2026 on the EU's DAC8 law will require crypto platforms to report to tax authorities. These efforts indicate the intention of policy alignment, but the actual enforcement is still a matter of the future. On top of that many crypto transactions are anonymous or pseudonymous and therefore increases the complexity of locating ownership or defining what a taxable event is (transfer vs

trade vs donation). In non- KYC/AML strict areas tracking transactions is shown to be weak. Also, there is no consensus on the legal definition of cryptos for tax purposes, some are properties, some are capital gain assets and some ordinary income. These classifications can influence, amongst other things, the events that require a trigger, the rates, the tax basis (cost vs market value), and the burden of reporting. Given that different jurisdictions will be associated with different tax codes, multinational corporations and crypto exchanges face challenges with regards to compliance when users or assets cross borders.Implications foCross-Border Reporting Issues and Lack of Enforcement Standards

All jurisdictions' tax authorities face significant challenges in curbing non-compliance in crypto transaction owing to jurisdictional divides and ineffectiveness of enforcement. The OECD's Crypto-Asset Reporting Framework, for example, is supposed to harmonize the reporting of crypto asset transactions cross-border by 2027 while the EU DAC8 law will require crypto asset platforms to report to tax authorities from 2026. These attempts indicate an alignment in policy but the actual enforcement is still to come. The anonymity or pseudonymity associated with crypto transactions adds an additional layer to this challenge, as it is often difficult to determine who owns crypto and what the taxable event might be (transfer, trade, donation, etc). In jurisdictions where KYC/AML laws are not enforced, weak transaction tracking has been shown. On top of that, legal categorization of cryptos for taxation purposes varies widely: some are classified as property, others as capital gain assets, others as ordinary income. The categories influence triggers, rates, basis, and reporting burdens – among other things. Since each jurisdiction is governed by a different tax code, it can be extremely confusing for multinational firms and crypto exchanges to remain compliant as users or assets move across borders.

Multinational Entities and Digital Asset Exchanges

Multinational corporations operating in more than one jurisdiction face conflicting demands for accounting categorization, measurement, and tax declaration. For example a company that applies IFRS in one country but has to account using local GAAP (or local tax law) in another country, could be subject to double reporting, or revaluation. They are inconsistent and result in increased cost to audit, heightened risk of compliance, and potential discrepancy between published financial statements and taxable income.

Digital asset exchanges have their own particular challenges. They are intermediaries that need to comply to both accounting rules of their own financial statements and regulations/tax reporting of their clients' transactions. Because the classification of crypto holdings, whether they be custody or inventory or another intangible asset, also dictates when and if liabilities or revenues are recorded, exchanges therefore have conflicting incentives to favor one classification over another. Also, making users report –especially when users have cryptocurrencies outside the platform or in private wallets is hardly regulated, thus enforcement and compliance is patchy.

For instance, in Nigeria, professionals in the accounting field are of the opinion that there is a need for independent standards and regulations to avoid discretionary classifications, measurements and disclosures of crypto assets (Akanbi, 2024).

4.3 Toward a Unified Digital Financial Reporting Model

In response to the gaps and tax compliance challenges identified, a unified model combining blockchain audit trail capabilities and current accounting standards is proposed to enhance transparency, consistency and enforceability around the world.

Proposed Model Integrating Blockchain Audit Trails with Accounting Standards

The Unified Digital Financial Reporting Model (UDFRM) would consist of a few foundational elements:

Standardised Classification Schema

i. Classify crypto assets into categories, such as utility tokens, securities tokens, stablecoins, etc.

ii. Identify in which accounting standard each of these types falls (i.e. intangible vs inventory vs financial instruments) and under which circumstances.

Measurement Protocols

i. Fair value through profit or loss for crypto assets that are held with the intention to trade or sell, cost-basis impairment for long term holding if fair value cannot be measured reliably.

ii. Require to be regularly measured at fair value and to use observable inputs where markets are sufficiently active.

Blockchain-Enabled Audit Trail

i. Where possible, conduct crypto transactions on permissioned / audited blockchains.

ii. Smart contracts which register events timestamps of transfer, trade, or payment of funds as well as of the staking rewards .

iii. Permanent verification from ledger for auditors or tax authorities.

Harmonised Tax Event and Reporting Trigger Definitions

i. Tax events are triggerred at what point (disposal, income, exchange, reward).

ii. Harmonize tax basis with accounting treatment so they do not become out of sync.

Disclosure & Transparency Requirements

More detailed note disclosures include: breakdown of the types and amounts of crypto assets; risk of volatility; classification as an asset or liability; valuation technique; counterparty risk.

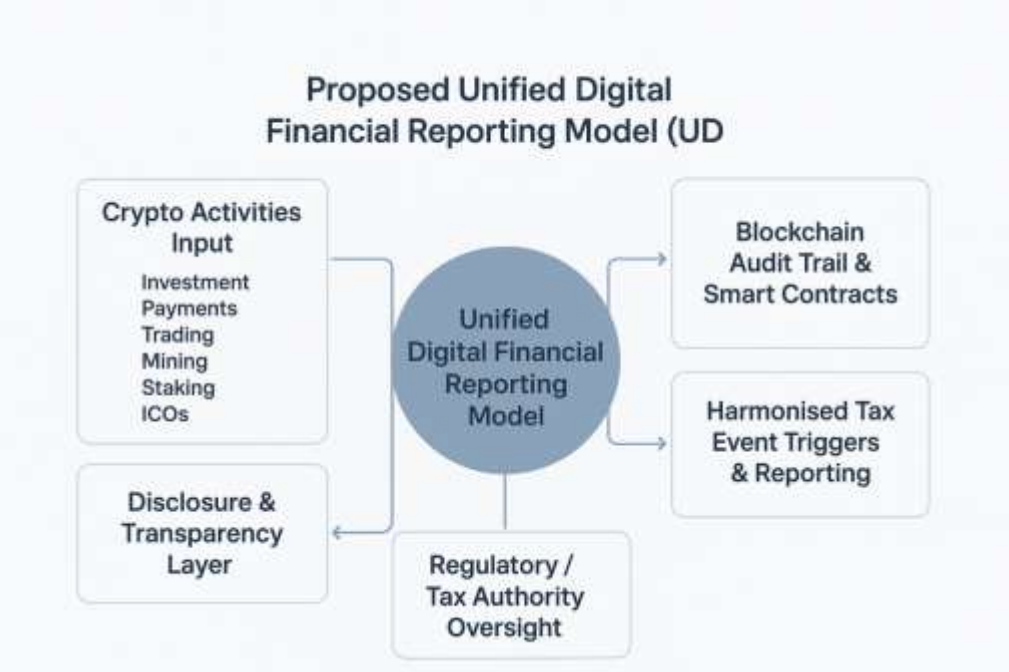
Features of any reporting smart contract / blockchain trail, if applicable.

Model Implications for Regulators, Auditors, and Businesses

Regulators will have to assimilate or modify the regulatory guidance in line with accounting, tax, and disclosure requirements. They might release amendments to standards or guidance, for example amend IAS 38 or IAS 2 to allow for fair value models and clarity on classifications.

The blockchain audit trail would be relied upon by auditors to increase audit assurance. Immutable records or smart contracts may constitute evidence of such an audit. But auditors will require new skills and tools to confirm the integrity of blockchain data, assess inputs for valuations, and evaluate legal and technological risk.

Business (firms, exchanges) can lower the risk of misstatements, eliminate ambiguity, and make financial reporting more comparable. It could also decrease the cost of compliance in the future by standardizing reporting across jurisdictions and minimizing the need for duplicative disclosures.



5. Policy Implications and Recommendations

The prior analyses support the conclusion that there are fundamental mismatches and omissions in the treatment of cryptocurrencies among accounting standards, tax codes, regulatory provisions, and technological resources. In order to transition to a UDFRM, the following are some considerations and recommendations of regulators, accounting standard-setters, tax authorities, and businesses.

5.1 Regulatory Harmonization between Tax Authorities and Accounting Boards

Joint Classification & Standardization Development: Standard- setting organizations and tax agencies such as the IASB or FASB should work jointly with tax authorities in defining clear and unified classification schema for the various kinds of crypto assets (utility tokens, security tokens, stablecoins, etc.). This would eliminate uncertainties and create a common taxonomy for accounting and tax regimes. The literature provides Mpanza, Rajaram & Aboluwodi, 2024) prove that classification ambiguity is a primary source of inconsistency.

Coordinated Rule-making: Regulators should coordinate cross-jurisdiction standards, such as those pursued by the EU with MiCA regulation, which aims at establishing a uniform treatment across the EU. Harmonization minimizes regulatory arbitrage, allows for better comparabilities and minimizes double taxation or under- taxation.

More Defined Agenda and Quicker Standard Setting – Considering the pace at which technology is changing, accounting boards should increase the pace at which they issue interpretations or amendments that deal directly with cryptocurrency. IASB's agenda decisions, for instance, have been applied but tend to be perceived as after the fact rather than forward looking.

5.2 Need for Blockchain-Integrated Audit Systems

i. Immutable Audit Trails: Encourage or mandate the use of blockchain (public or permissioned) for recording crypto-transactions to generate immutable, timestamped records. This enhances auditability and trust. Tax authorities can require firms or exchanges to maintain transaction logs on blockchain or similar distributed ledger systems.

ii. Smart Contracts for Compliance Automation: Use smart contracts to automate recognition of taxable events, measurement updates, disclosure triggers, or even tax remittance where legal frameworks and digital infrastructure allow. This reduces errors, potential evasion, and latency between events and reporting.

iii. Auditor Capacity & Standards: Accounting and auditing professional bodies must develop guidance for auditors on validating blockchain data, verifying smart contract logic, assessing oracles, and evaluating fair value estimates in volatile markets.

5.3 Capacity Building and Digital Literacy for Tax Agencies

i. Training & Human Capital Development: Tax and regulatory bodies must invest in developing technical skills (blockchain, cryptography, smart contract auditing, valuation methods) among their staff. Many developing jurisdictions lag in understanding of crypto asset features and this slows enforcement.

ii. Digital Infrastructure & Tools: Governments should ensure tax agencies and accounting standard authorities have the information systems, tools, and access (including regulatory sandbox environments, blockchain data access) to monitor, audit, and enforce crypto reporting. Digital tools for KYC/AML, transaction tracking, and real-time data analytics are essential.

iii. Public/Private Partnerships: Collaborate with universities, FinTech firms, and industry associations to share knowledge, build open standards, best practices, and capacity. This helps align academic research and regulatory practice. **Table 4: Policy Action Matrix for Implementing UDFRM**

This matrix outlines key policy actions, stakeholders responsible, timeframes, and expected challenges for implementing the unified model.

Policy Action	Key Stakeholders	Suggested Timeframe	Main Challenges
Develop unified classification schema for crypto asset types	IASB, FASB, National Accounting Boards, Tax Authorities	**Short term** (1-2 years)	Disagreements over token types; legal definitions; international coordination
Amend accounting standards or issue crypto-specific guidance	Standard setters, professional accounting bodies	**Short to medium** (2-3 years)	Slow standard setting process; pushback from entities due to cost or volatility exposure
Mandate or incentivize blockchain audit trails in reporting	Regulators, Exchanges, Auditors	**Medium term** (2-4 years)	Technological infrastructure; privacy/data protection; cost of implementation
Introduce smart contracts for tax event triggers / automated tax filing	Tax Authorities, Legislators, FinTech providers	**Medium term** (2-4 years)	Legal enforceability; digital signature/contract law; regulatory acceptance
Strengthen auditor guidance and oversight rules	Auditing firms, Professional Bodies	**Short term** (1-2 years)	Scarce expertise; training costs; standardization of auditing blockchain data
Build institutional capacity & technical literacy	Tax agencies, Accounting Boards, Universities	**Short to medium** (1-3 years)	Funding constraints; recruiting specialists; resistance to change

6. Limitations and Future Research

While this study proposes a unified digital financial reporting model (UDFRM) grounded in literature and comparative policy review, a number of limitations must be acknowledged, and areas for further empirical research identified.

6.1 Limitations

Data Availability Constraints

Many published studies examined cryptocurrency accounting and taxation are constrained by limited data. For example, Financial Reporting for Cryptocurrency (Luo & Yu, 2022) used financial statements of 40 global firms that disclosed crypto exposure, but disclosure is uneven: many companies do not report crypto holdings, or report at aggregate levels without sufficient detail (classification, fair value inputs, etc.).

Regional Regulatory Differences

The legal status, regulatory oversight, tax law, accounting standard adoption, and enforcement capacity vary widely by region. What works in the EU or the US may not be feasible in, say, countries with weaker institutional capacity or lower technological infrastructure. Implementation of blockchain audit trails or smart contracts may be limited by lack of reliable digital infrastructure, internet access, or policy ambiguity. Thus, the assumptions underpinning UDFRM may overestimate readiness in some jurisdictions.

Conceptual and Theoretical Gaps

Much of it is conceptual or normative as opposed to empirical. Many accounting treatment or revaluation model proposals are shown using example cases, rather than empirical studies that would show the long-term impact of such treatment on firms' performance, investor behaviour, or tax revenue; etc. On top of that the oracle risk, data integrity, privacy, and security risks to blockchain applications are mostly only recognized as possible issues rather than being directly tested.

6.2 Future Research Suggestions

Aside from these shortcomings, future studies may be developed in several ways:

Empirical Validation of UDFRM

Conduct multi-jurisdictional, including non-represented areas more case studies or field surveys to put the integrated model to the test. Empirically collect data on companies that transition into blockchain-based reporting or better disclosure and analyze its effect on comparability, investors' perception, auditing expenses, and tax compliance.

Longitudinal Studies

Follow firms through time and examine the impact of various accounting/ tax treatments on financial statements, market valuation, volatility, and tax liabilities. This would be useful to comprehend the actual economic implications of measurement decisions.

Regional & Institutional Context Studies

Exploring the role of local context in this local legal systems, regulations and enforcement capabilities, digital infrastructure, institutional capacities and how that makes UDFRM more or less plausible as a mechanism. For example studies in countries in Africa or in less populous Asian countries where norms around disclosure, infrastructure, or enforcement may be less robust.

Conclusion

The exponential adoption of cryptocurrency by businesses, financial institutions, and the retail sector requires now rigorous, consistent, and enforceable tax and accounting policies. This paper has pointed out the critical shortcomings of the existing standards, including a need for crypto-specific guidance regarding recognition, issues with valuation, lack of disclosure, and explained how different tax rules and poor enforcement across jurisdictions compound issues with compliance. Based on our qualitative review of the extant literature surrounding policy documents, financial statements and reporting requirements, tax guidance and requirements, and auditing standards, we developed the Unified Digital Financial Reporting Model (UDFRM) as a novel concept within the dialogue of this research that utilizes an approach to audit trails that are enabled by blockchain technology and incorporates standardized measurements and classifications, synchronized tax event triggers, and improved disclosures. The UDFRM aims to eliminate the gap between accounting and taxation by engaging regulators, firms, and auditors in the same framework. It would enable comparability between organizations and across countries, it would limit chances for misreporting or regulatory arbitrage, and it would help make crypto transactions more auditable by confirming the immutability of the ledger. Its adoption though will necessitate coordinated efforts between standard setting institutions, tax authorities and technological players as well as building capacity in terms of institutional and infrastructural aspects. The model is a sound starting place, but the application will need practical testing and adjustments based on region, as well as feedback from those in the field. While lofty, the idea of a unified and blockchain-native reporting regime has certain strengths as a concept in the pursuit of stability in the international financial system, consistency in regulations, and functionality of taxation in the digital era.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.

References

Akanbi, T. (2024). Cryptocurrency accounting practices and disclosure challenges among professional accountants in Nigeria. International Journal of Accounting and Financial Reporting Management, 9(1), 1–14. https://www.sciencepg.com/article/10.11648/j.ijafrm.20240901.11

Corvee. (2024, January 10). Blockchain applications in tax planning and reporting flows. Corvee Insights. https://corvee.com/blog/blockchain-applications-in-tax-planning-flows/

Luo, X., & Yu, T. (2022). Financial reporting for cryptocurrency: An international evidence of disclosure and valuation practices. Journal of Financial Reporting and Accounting, 20(4), 1023–1042. https://link.springer.com/article/10.1007/s11142-022-09741-w

Mpanza, N., Rajaram, S., & Aboluwodi, A. (2024). Accounting and tax treatment of cryptocurrencies: A systematic review. Academy of Accounting and Financial Studies Journal, 28(2), 1–18. https://www.abacademies.org/articles/accounting-and-tax-treatment-of-cryptocurrencies-a-systematic-review-17202.html

OECD. (2023). Taxing virtual digital assets: Challenges and policy responses. OECD Tax Policy Studies No. 32. OECD Publishing. https://doi.org/10.1787/0a3b10c2-en

Ponce, J., & Fuster, G. (2024). Regulatory harmonization of crypto-assets under the EU's Markets in Crypto Assets (MiCA) Regulation. Law and Financial Markets Review, 18(2), 145–163. https://link.springer.com/article/10.1007/s10657-024-09797-w

Rahman, M., & Dlamini, B. (2023). Blockchain technology for financial reporting transparency: An auditability perspective. Journal of Emerging Technologies in Accounting, 20(1), 67–84. https://corruptionreview.org/revista/article/view/69

Smith, K., & Zhao, L. (2023). Institutional pressures and digital transformation in financial accounting. Accounting, Auditing & Accountability Journal, 36(5), 1341–1362. https://www.emerald.com/insight/content/doi/10.1108/aaaj-10-2020-4968/full/html

World Bank. (2023). Building digital capacity for tax compliance in developing economies. World Bank Policy Research Report. https://ojs.literacyinstitute.org/index.php/iacseries/article/view/1520

Zhang, R., & Patel, S. (2024). Blockchain oracles and data integrity challenges in digital financial reporting. arXiv preprint arXiv:2412.20447. https://arxiv.org/abs/2412.20447