



CRYPTOCURRENCY ADOPTION IN ACCOUNTING: CHALLENGES IN FAIR VALUE MEASUREMENT, FINANCIAL REPORTING, AND ACCOUNTING INFORMATION SYSTEMS

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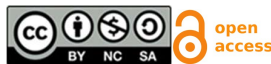
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**Abstract**

*The rapid growth of cryptocurrencies has created significant challenges for financial reporting systems that were not designed for decentralized and highly volatile digital assets. This study examines how publicly listed companies recognize, measure, and disclose cryptocurrencies in their financial statements under IFRS and U.S. GAAP, while also exploring the role of Accounting Information Systems (AIS) in supporting cryptocurrency accounting practices. Using a qualitative, interpretivist approach, the study conducts content analysis of audited annual financial statements from six cryptocurrency-exposed companies: Tesla, MicroStrategy, CleanSpark, Riot Platforms, Galaxy Digital, and PayPal. The analysis focuses on accounting policies, asset classification, measurement methods, impairment treatment, disclosure practices, risk reporting, and AIS capabilities. The findings reveal a strong tendency to classify cryptocurrencies as intangible assets, while excluding them from cash and financial instrument categories. However, differences remain in measurement and disclosure practices. Overall, the study contributes to the growing literature on cryptocurrency accounting by providing evidence from actual corporate reporting practices and highlighting ongoing challenges related to comparability, transparency, and system readiness.*

**Keywords:** Cryptocurrency Accounting; Fair Value Measurement; Financial Reporting; Accounting Information Systems (AIS); Digital Assets.

**1. Introduction**

The growing popularity of cryptocurrencies has made them more available on the balance sheets of many organizations and this has led to new accounting problems. Unlike traditional financial instruments, cryptocurrencies are decentralised, highly volatile and dependent on the market price so that accounting disclosure is difficult (Tan & Low, 2017). Neither IFRS nor US GAAP provides detailed guidance on accounting for cryptocurrencies. Therefore, they are classified as intangible assets in accordance with IAS 38 or ASC 350, not cash or financial instruments (IFRS Interpretations Committee, 2019). Although this approach is reasonable, it has been criticized for not being appropriate enough for accounting crypto assets. Another issue associated with the accounting for cryptocurrencies is the measurement. Applying cost-based accounting and impairment models to them can lead to a misleading portrayal of their value in the financial statements (Procházka, 2018). However, recent updates to accounting standards, such as ASU 2023-08 which allows measuring them at fair value under US GAAP. Finally, the accounting information systems (AIS) of



organizations can also impact the way cryptocurrencies are accounted for and reported. Conventional AIS's are designed to account for centrally controlled assets and follow standardized accounting policies, which poses a challenge to the accounting for decentralized digital assets (Schmitz & Leoni, 2019).

### **1.1 Problem Statement**

The main argument of the paper is that accounting regulation of cryptocurrencies is currently underdeveloped, leading to the practice of recognizing, measuring, and disclosing digital assets inconsistently. Companies dealing with the matter tend to rely on their understanding of intangible assets, impairment, or the use of cryptocurrencies-specific accounting models which do not always reflect their true economic nature, thus resulting in a lack of transparency and reliability of such information and creating information asymmetry (Procházka, 2018).

### **1.2 Purpose of Research**

This study aims to understand how publicly listed companies recognize and measure cryptocurrencies and assess the adequacy of accounting standards. This paper evaluates and finds the differences in financial reporting between IFRS and US GAAP and studies the differences between accounting standards (Coyne & McMickle, 2017).

### **1.3 Research Questions**

**RQ1:** How do current accounting regulatory frameworks guide the recognition, fair value measurement, and financial reporting of cryptocurrencies by publicly listed companies in practice?

**RQ2:** How do publicly listed companies recognise and classify cryptocurrencies in their financial statements under existing accounting standards?

**RQ3:** To what extent do existing accounting regulatory frameworks allow transparent, consistent, and comparable disclosure of cryptocurrencies in corporate financial statements?

**RQ4:** How do Accounting Information Systems (AIS) support or constrain the accurate measurement and reporting of cryptocurrencies?

## **2. Literature Review**

Cryptocurrencies represent digitally stored assets which facilitate the exchange of value between entities via peer-to-peer payments, using decentralized data storage and cryptographic verification (Nakamoto, 2008; Reserve Bank of Australia, 2025). The literature contains a series of arguments concerning the categorisations of cryptocurrency as currency, commodities, or investments. Although some scholars note their initial design as decentralised payment instruments (Telcoin, 2015). Research findings suggest that their current economic utility is largely speculative, limiting their role as means of payment (Baur et al., 2017; Copeland, 2021). In terms of accounting, this poses a challenge, as both IFRS and US GAAP require considering the substance of transactions rather than their form. In practice, this means that cryptocurrency's economic nature is not aligned with that of financial instruments due to the absence of an obligor or contractual claims, resulting in their classification as intangible assets (Procházka, 2018). Such a viewpoint is challenged as based on regulatory convenience rather than economic rationale (ACCA, 2026).

### **2.1 Economic Functions of Cryptocurrencies**

Classical monetary theory considers money to be a medium of exchange, store of value, and unit of account. The literature discussed the role of cryptocurrencies in these aspects and has mixed reactions (Vaz et al., 2020). While cryptocurrencies do allow for exchange using blockchain technology, they are limited in scalability, volatility, and acceptance issues (Yermack, 2017). These aspects make them not cash and cash equivalents under IAS 7 and ASC 305 (Copeland, 2021). There are various views on how crypto can be treated as store of value while some scholars contend that Bitcoin is really digital gold, as it has limited supply and decentralisation (Albrecht et al., 2020), others argue that price volatility is a risk that cryptocurrency owners must accept (Shanmugam et al., 2025).

### **2.2 Key Characteristics of Cryptocurrencies**

A fundamental characteristic of cryptocurrencies is decentralisation, implying that transactions are verified and initiated outside the control of central banks or governments (Vaz et al., 2020). The paper identifies the key features that make it difficult to account for digital currencies. First, due to the nature of



decentralisations, there are no issuing authorities, thus challenging the accountability and stewardship of responsibilities (Vaz et al., 2020). Second, the blockchain immutability feature enhances verifiability but reduces the ability to make corrections, which raises concerns about the timing of recognition and audit adjustments (Anwar et al., 2022). Ownership is determined by possessing private keys to the blockchain wallet, which can create unique risks related to theft, loss of access, or damage. According to Weichbroth et al. (2023), these factors undermine the control and safety of assets and question the ability to recognize cryptocurrency impairment. Moreover, concerning the supply of cryptocurrencies, their limited or fixed supply may exacerbate market speculation and price volatility (Farroukh et al., 2024).

### **2.3 Valuation Uncertainty and Market Price Volatility**

Valuation uncertainty is one of the most controversial topics in the cryptocurrency space. Unlike traditional financial assets, cryptocurrencies do not have intrinsic value and do not have stable cash flows. Discounted cash flow and cost-based valuation of cryptocurrencies are therefore not applicable (Aimable, 2026). The focus here is on expectation driven, adoption based and regulatory driven value drivers (Zhang et al., 2025). Fair value measurement is even more challenging because of asset fragmentation and the price of a particular cryptocurrency can differ significantly depending on the exchange platform and many other factors. Benedetti et al. (2026) states that when determining the 'most representative' market, prepares of financial statement often have to make decisions which affect comparability between entities. The literature offers a lot of discussion in the field about the challenges of measuring fair value and the impact of fair value on the quality of financial reporting. Fair value does not improve the quality of financial reporting and creates the risk of noise and instability in financial statements according to some, while others have shown that fair value strengthens relevance by adding the latest market information (PwC, 2023). Nevertheless, volatility often diminishes the value of fair value, particularly in illiquid and speculative markets, and relevance and reliability conflict (Luo & Yu, 2022).

### **2.4 Accounting Classification Implications**

The classification of cryptocurrency is one of the most interesting questions in accounting literature. The accounting frameworks that are currently in place allow us to exclude cryptocurrency from cash, cash equivalents, and financial instruments because cryptocurrency is non-tangible (IFRS IC, 2019). This leaves the remaining category as intangible assets supported by IAS 38 and ASC 350 (Luo & Yu, 2022; Ciferi, 2026). However, critics of this approach argue that cryptocurrencies should be classified as cash and equivalents because of their liquidity and tradability (Ciferi, 2026). On the other hand, there are scholars that support the view of cryptocurrencies as intangible assets, stating that they do not possess any cash-generating power and do not create any obligation for their issuers (KPMG, 2024). Thus, it is clear that there is a debate between researchers about cryptocurrency accounting, with some in favor of cash classification and others supporting the intangible asset hypothesis.

### **2.5 Accounting Treatment of Cryptocurrencies Under Existing Standards**

**2.5.1 IFRS Perspective.** The accounting treatment of cryptocurrencies under IFRS is primarily guided by the IFRS Interpretations Committee (2019) agenda decision. Under IAS 38, cryptocurrencies should be measured at cost or fair value using the revaluation model. It's measured by cost when they are acquired for sure while those for resale for regular basis can be measured at fair value less cost to sell under IAS 2 Inventory (Klopper & Brink, 2023). However, when the price drops, only an impairment loss is recorded, and no reversal impairment is allowed. This IFRS approach has been criticised for misaligning with the economic substance of cryptocurrencies. The absence of fair value through profit or loss measurement for most entities may reduce reporting relevance and comparability (ACCA, 2026).

**2.5.2 US GAAP Perspective.** As per IFRS, cryptocurrencies have been traditionally regarded as indefinite-lived intangible assets in accordance with ASC 350 (Luo & Yu, 2022; KPMG, 2022). US GAAP applies an impairment-only model, where cryptocurrencies are evaluated for impairment upon triggering events and loss is recognized if fair value falls below carrying amounts. The value recovers are prohibited and so the value results are asymmetric and could understate the value of assets and distort the profit in volatile markets (EY, 2025).



While in many aspects, IFRS and US GAAP have different approaches for fair-value accounting of cryptocurrencies. Both of them regard cryptocurrencies as intangible assets, but IFRS allows for revaluation of cryptocurrencies in the presence of active markets and thus does not converge in accounting for the assets (PwC, 2023; PwC, 2025).

### ***2.6 Measurement and Valuation Challenges of Cryptocurrencies***

The literature on cryptocurrency accounting is still facing a lot of challenges as cryptocurrencies are different from traditional accounting standards. Researchers have pointed out measurement problems because cryptocurrencies are more liquid and actively traded in the financial markets (IFRS Interpretations Committee, 2019; Procházka, 2018). A major area of debate is the balance between measurement relevance and reliability. Cost-based and impairment-only approaches support conservative reporting, where one-sided analysis can understate asset values when prices recover (Luo & Yu, 2022). Fair-value measurements can also provide more relevant information to the organisation, but earnings volatility and subjective valuations are also possible (PwC, 2023). Moreover, accounting information systems (AIS) are not yet designed to deal with decentralised assets and constantly changing market prices (Li & Ma, 2021).

### ***2.7 Disclosure Practices and Transparency Issues***

A lack of clear accounting guidance leads to inconsistent cryptocurrency disclosures. Luo and Yu (2024) show that firms differ significantly in the clarity and depth of disclosures in terms of classification, measurement bases, and impairment treatment, even if they are on the same crypto-asset. This kind of inconsistency undermines comparability and increases information asymmetry for investors. One of the issues is the lack of clear information about how the cryptocurrency values are calculated. EFRAG (2020) finds that most companies do not disclose pricing currencies, exchanges, dates, and processes for choosing prices. Equally, the identification and measurement of the crypto assets are challenging since prices may depend on the exchange and companies must make a great deal of decisions in deciding the best price (EFRAG, 2020). KPMG (2024) also states that valuation assumptions of the crypto assets are often poorly disclosed and that the information is summarized.

### ***2.8 Accounting Information Systems (AIS) and Cryptocurrency Reporting***

Li and Ma (2021) highlighted the strong correlation between cryptocurrency reporting practices and accounting information systems (AIS). In this regard, Fullana and Ruiz (2019) discuss the potential role of blockchain technology in AIS through triple-entry accounting. This model supports the double-entry system with a cryptographically secure and shared ledger that independently verifies transactions and could improve transparency and audit trails (Joseph et al., 2023). The immutability of blockchain may lead to record integrity and minimize manipulation risks.

A paper by Coyne and McMickle (2017) argues that blockchain technology is not beneficial for accounting. It is not helpful in any other way for accounting; it can only assess economic substance, valuation, and classifications. The authors also claim that errors may be difficult to catch and correct, and errors might become difficult to fix as well. Issues such as cost, scalability, privacy, and regulation all point to a supporting, not transformational, role in AIS.

### ***2.9 Research Gap***

There is quite little research on the accounting of cryptocurrencies and their peculiarities, such as the difficulties of qualifying and measuring them. However, there is little work on how specific crypto-assets are treated and reported by different organizations. The existing research gives a theoretical background of how cryptocurrencies should be accounted for from a regulatory point of view but not the practical reality on the way companies recognize and disclose this kind of asset in their audited financial statements (Corbet et al., 2019). Thus, the practical implementation of regulatory guidelines is not adequately examined in the literature. Moreover, accounting information systems (AIS) are rarely mentioned in cryptocurrency reporting. There is little documentation of how information systems' capabilities and limitations affect how firms value, disclose, and report crypto assets.

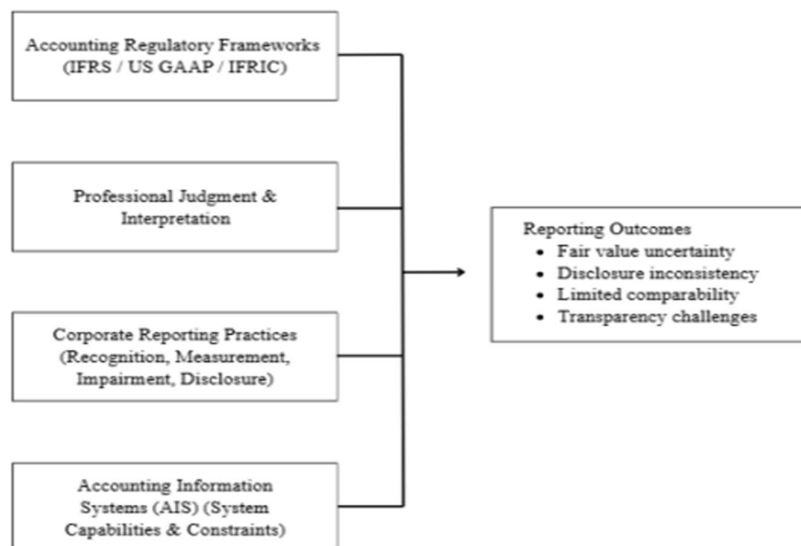


### **2.10 Conceptual Framework**

This study uses a conceptual framework to examine how cryptocurrencies are recognized, measured and disclosed in corporate financial statements. IFRS and U.S. GAAP offer the general rules of financial reporting, but cryptocurrency accounting is a more complicated topic and accountants need to exercise professional judgment and will often have to make an inappropriate decision in the process of reporting (Luo & Yu, 2022). The framework also includes the corporate reporting practices, such as valuation, impairment and disclosure decisions, which are indicative of firms' processes to deal with regulatory uncertainty and market fluctuations (Lawalata & Salle, 2024).

#### **Figure 1**

*Conceptual Framework for Analysing Cryptocurrency Accounting Practices Using Content Analysis*



*Source: Author's own conceptualisation, informed by prior literature*

### **3. Methodology**

This chapter discusses the methodology used to analyse the cryptocurrency accounting among listed companies which includes the research design, data sources, analytical framework, AIS considerations, ethical issues, and study limitations.

#### **3.1 Research Design**

This study used qualitative approach, focused on secondary data from companies' financial statements. A qualitative approach is appropriate because it studies the way companies interpret and apply cryptocurrency accounting standards in a complex and evolving manner. Since the crypto assets are not well-defined and their valuation and disclosure are not well understood in these jurisdictions, accounting decisions are often made by professional judgment as well as organizational practices and regulatory advice (Pravidiuk & Pravidiuk, 2023). The study is based on document analysis, a well-established accounting research method that analyzes financial statements and disclosures by companies to understand how they report in terms of reporting standards, regulatory requirements, and stakeholder expectations (Dumay & de Villiers, 2019).

#### **3.2 Data Collection Strategy**

The paper utilised secondary information, such as the annual audited financial statements of firms. These were considered reliable sources of information because they were audited and complied with accountancy standards (Cheong et al., 2023). The study adopted a purposive sampling strategy to identify companies that exposed their cryptocurrency risk (Bullard, 2024). Firms were selected if they published



annual financial statements, explicitly disclosed cryptocurrencies or digital assets, and reported under IFRS or US GAAP. The financial statements were collected from the companies' investor relations websites and their official websites. The data extracted from the reports were arranged and prepared for qualitative analysis by identifying information relevant to disclosure practices, including policies, valuation and impairment, and risk factors. The reliability and validity of the data were ensured by relying on audited financial statements, applying consistent coding practices, and documenting the entire procedure. Besides using information obtained from trusted sources, the validity and reliability of the findings were improved by providing sufficient details about the sampling strategy, data collection, and analytical procedures (Anjani, 2023).

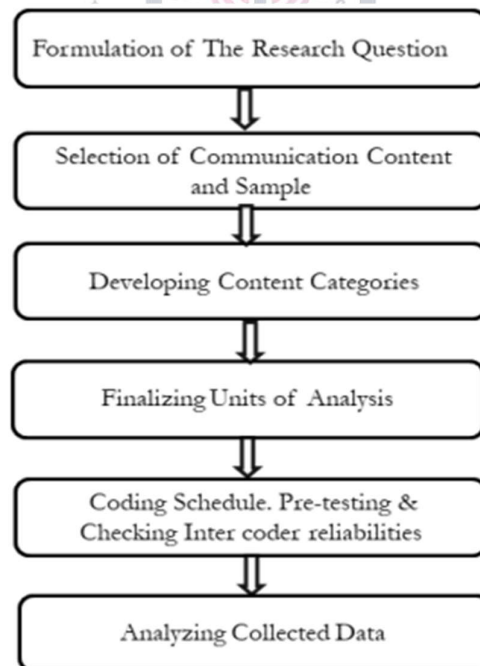
### **3.3 Data Analysis Method: Content Analysis**

The study used qualitative content analysis to analyse the disclosure of cryptocurrency-related information in the financial statement of the companies considered. The selection of this study approach is motivated by the fact that content analysis is the most appropriate way to analyse information that companies disclose and identify the patterns of reporting (Krippendorff, 2018; Sandhiya & Bhuvaneswari, 2024).

The qualitative content analysis involved three stages. One is the reading of the financial statements of the companies selected to be studied to identify the required information. The extracted information was then coded according to the themes identified based on the research questions and conceptual framework (Schreier, 2012). Next, the codes were grouped into categories to identify the patterns of disclosure at the firm level and ensure that the analysis is consistent across all companies (Krippendorff, 2018). This study has therefore utilized qualitative content analysis to compare the differences and similarities in the way firms disclose information about cryptocurrencies.

#### **Figure 2**

*Phases of Content Analysis*



*Source: Prasad, 2019*

### **3.4 Ethical Considerations**

This study uses only publicly available financial statements and other published documents. It does not involve human participants, confidential information, or direct contact with organisations. Since all data are publicly disclosed and used solely for academic purposes, ethical approval was not required. The study also follows academic integrity standards by accurately presenting information and properly citing all sources.



### 3.5 Methodological Limitations

This study is subject to limitations because it is based only on publicly available financial documents. It does not include direct access to the company's internal AIS or management decision-making processes. Therefore, the conclusions made in the study are based on information disclosed in the reports. However, the use of audited financial statements provides reliable data for achieving the study's objectives.

## 4. Results and Findings

### 4.1 Overview of Identified Themes

The thematic analysis of the selected companies allowed for identifying patterns in the way cryptocurrencies are accounted for and reported. Despite the different business models of the companies, exposure to digital currencies and more, there are certain similarities between the findings.

Below the themes are presented to organize the information for the companies involved. The themes were determined based on the research goals which include the accounting practices, reporting requirements, and other relevant issues. All the themes helped to shape the finding for readers in a clear manner.

**Table 1**

*Overview of Identified Themes*

| Theme Number | Theme Title                                                   |
|--------------|---------------------------------------------------------------|
| Theme 1      | Recognition and Classification of Cryptocurrencies            |
| Theme 2      | Measurement and Valuation Practices                           |
| Theme 3      | Disclosure Transparency and Comparability                     |
| Theme 4      | Accounting Information Systems (AIS) and Reporting Capability |

### *Theme 1: Recognition and Classification of Cryptocurrencies*

Recognition and classification emerged as a key theme across all financial statements. The analysis shows consistent recognition of cryptocurrencies as assets and common classification patterns under existing accounting standards.

**4.1.1 Classification as Intangible Assets.** The majority of companies in the sample treat cryptocurrency as intangible assets according to their accounting policy. This treatment is justified considering the absence of any valuable physical substance and rights in the blockchain technology.

Under US GAAP, companies like Tesla and MicroStrategy classify Bitcoin as intangible assets with an indefinite life in accordance with ASC 350. Their policy mentions that cryptocurrency cannot be considered as legal tender or cash. After the new start ASU 2023-08, some companies still treat it as an intangible asset, but in accordance with new requirements, they use the fair value measurement. Among both non-financial and treasury companies, the treatment of cryptocurrency as intangible assets prevails.

**4.1.2 Alternative Classifications (Inventory or Other).** Limited diversity in classification was observed among the firms where primary business involves trading, brokerage, and market making of digital assets. For such companies, cryptocurrencies are often segmented according to their use in operations and not necessarily reported as indefinite live intangible assets.

For example, Galaxy Digital highlights several categories of its cryptocurrencies, including digital financial assets and digital intangible assets, while PayPal classifies its customer cryptocurrencies as crypto asset safeguarding assets with related liabilities, not as an asset possession. Thus, it appears that the use of different categories is motivated by the primary business rather than inconsistencies in accounting. However, it should be noted that the diversity in classification is limited, and the majority of companies report their cryptocurrencies as intangible assets.

**4.1.3 Absence of Classification as Cash or Financial Instruments.** The majority of companies in the sample classify cryptocurrencies as intangible assets, according to their accounting policies. This approach is justified since they lack physical substance and do not confer contractual rights to the owner.

Under US GAAP, Tesla, MicroStrategy, and other bitcoin adopters account for their digital assets as indefinite intangible assets under ASC 350. Their accounting policies specify that cryptocurrencies are neither cash nor financial instruments. However, with the advent of ASU 2023-08, some firms opted to use the fair



value measurement while maintaining intangible asset classification. Thus, there is a confluence of views concerning the manager in which virtual currencies should be reported on the balance sheet, with the classification and measurement being independent aspects. Nevertheless, the majority of treasury-centric and non-financial firms are inclined towards considering cryptocurrencies as intangible assets.

**Table 2**

*Cryptocurrency Classification by Company*

| Company                                | Classification                                       | Accounting Framework |
|----------------------------------------|------------------------------------------------------|----------------------|
| Tesla, Inc.                            | Intangible Assets (Indefinite-lived)                 | US GAAP (ASC 350)    |
| Strategy Inc. (formerly MicroStrategy) | Intangible Assets (Indefinite-lived)                 | US GAAP (ASC 350)    |
| Riot Platforms, Inc.                   | Intangible Assets                                    | US GAAP (ASC 350)    |
| CleanSpark, Inc.                       | Intangible Assets                                    | US GAAP (ASC 350)    |
| Galaxy Digital Inc.                    | Digital Financial Assets / Digital Intangible Assets | US GAAP              |
| PayPal Holdings, Inc.                  | Crypto Asset Safeguarding Assets (Customer Assets)   | US GAAP              |

#### 4.2 Theme 2: Measurement and Valuation Practices

This theme examines cryptocurrency measurement and valuation practices, including initial and subsequent measurement, impairment treatment, and the disclosure of valuation information within financial statements.

**4.2.1 Predominant Use of Cost-Based Measurement.** In the sample reviewed, cryptocurrencies were initially measured at cost which included the price of the assets spent in addition to other costs that came with the purchase. For companies like Tesla and MicroStrategy, we measured their cryptocurrency holdings at cost. On the other hand, mining companies like Riot Platforms and CleanSpark were measured at fair value for the cryptocurrencies that they bought.

But before the recent accounting changes, firms operated impairment only models in measuring their cryptocurrency holdings. The impairment model was applicable for assets that have an indefinite useful life. Thus, firms recorded cryptocurrency related impairment losses once the market value of their assets fell below the carrying value. These losses were calculated on the regular basis and were not reversed in subsequent periods, which resulted in an inconsistent measurement.

**4.2.2 Limited Use of Fair Value Measurement.** The use of fair value measurement was observed primarily following the adoption of ASU 2023-08 by US GAAP reporters. Companies including Tesla, Riot Platforms, MicroStrategy, and CleanSpark subsequently measured cryptocurrencies at fair value at each reporting date, with changes recognised in earnings. Under this method, the fair value of cryptocurrencies was disclosed in the Balance Sheet and related notes, while other narrative disclosures were found in the Management Discussion and Analysis segment.

Fair value measurement was also observed in firms whose business model involved trading or custody. Galaxy Digital uses fair value measurement for several categories of digital assets, while PayPal uses fair value measurement for crypto assets safeguarding and related liabilities, with the disclosure found in the notes rather than the Balance Sheet and as separate line items.

**Table 3**

*Measurement Approaches by Company*

| Company     | Initial Measurement | Subsequent Measurement   | Impairment Treatment           |
|-------------|---------------------|--------------------------|--------------------------------|
| Tesla, Inc. | Cost                | Fair Value (ASU 2023-08) | Fair value changes in earnings |



|                       |                   |                          |                                |
|-----------------------|-------------------|--------------------------|--------------------------------|
| Strategy Inc.         | Cost              | Fair Value (ASU 2023-08) | Fair value changes in earnings |
| Riot Platforms, Inc.  | Fair Value / Cost | Fair Value               | Fair value changes in earnings |
| CleanSpark, Inc.      | Fair Value / Cost | Fair Value               | Fair value changes in earnings |
| Galaxy Digital Inc.   | Fair Value        | Fair Value               | Fair value changes in earnings |
| PayPal Holdings, Inc. | Fair Value        | Fair Value               | Fair value changes in earnings |

**4.2.3 Treatment of Price Volatility and Impairment.** All companies accounted for the volatility of cryptocurrency price in their accounting policies, and generally in their risk factors. The historical impairment only model resulted in losses during price decreases and no recognition of gains during price increases after a change in value. The changes in value are now presented in the income statement.

Impairment costs are either disclosed as past losses or explicitly stated as no longer applicable once the fair-value model is adopted. No company admitted to the benefits of the fair-value model since changes in value are captured in profit or loss equally when prices go up and down.

#### **4.3 Theme 3: Disclosure Transparency and Comparability**

The theme disclosure transparency and comparability focused on how clearly and consistently companies reported cryptocurrency accounting policies, valuations, and related risks.

**4.3.1 Disclosure of Accounting Policies.** The disclosure of the companies reveals their cryptocurrency accounting policies mostly in the Summary of Significant Accounting Policies or related notes. Nevertheless, there is a noticeable difference since several companies are engaged in active crypto activities while others merely hold the crypto assets. With this information, it is vital that companies are more specific about the nature of their activities. Companies with direct cryptocurrency holdings such as Tesla, MicroStrategy, Riot Platforms, CleanSpark, and Galaxy Digital are directly involved in crypto-mining, offering tailored disclosures in which the assets are recognized, classified, and measured. In contrast, companies that invest in cryptocurrencies but are not directly involved only provide general information about the subject matter. At the same time, PayPal only discloses policies because it serves as a custodian for users' crypto assets. Unlike the other companies that hold digital assets for investment purposes, PayPal is primarily focused on ensuring the safety of these assets.

**4.3.2 Disclosure of Valuation Assumptions and Pricing Sources.** All the sampled firms reported how they valued their cryptocurrency holdings, but the detail in their disclosures varied. Firms that used the fair value method mainly relied on prices from active markets and therefore used level 1 inputs.

Tesla, Riot, MicroStrategy, CleanSpark, and PayPal used observed prices in active markets when valuing their digital assets and therefore fair values. Some of the respondents identified the exchanges where the prices were recorded, for example, Coinbase, while others only mentioned active markets.

PayPal and Galaxy Digital provided valuation disclosures that indicated the custody and trading activities that took place within their firms. All the respondents provided information on the fair value method, but some gave more detail on the exchanges and methods than others.

**Table 4**

*Disclosure of Valuation Sources by Company*

| <b>Company</b>       | <b>Valuation Method</b> | <b>Pricing Sources Specified</b> | <b>Exchange Identified</b> |
|----------------------|-------------------------|----------------------------------|----------------------------|
| Tesla, Inc.          | Fair Value (Level 1)    | Yes                              | Not specified              |
| Strategy Inc.        | Fair Value (Level 1)    | Yes                              | Coinbase                   |
| Riot Platforms, Inc. | Fair Value (Level 1)    | Yes                              | Not specified              |
| CleanSpark, Inc.     | Fair Value (Level 1)    | Yes                              | Not specified              |
| Galaxy Digital Inc.  | Fair Value              | Yes                              | Multiple exchanges         |



|                       |            |     |               |
|-----------------------|------------|-----|---------------|
| PayPal Holdings, Inc. | Fair Value | Yes | Not specified |
|-----------------------|------------|-----|---------------|

**4.3.3 Disclosure of Cryptocurrency-Specific Risks.** All companies provide information about risks related to cryptocurrencies, most of which are grouped in the risk factor or market risk sections. The greatest risk is the volatility of the price of digital assets, which is connected to the risks of income and value. Other risks include liquidity, custodianship, cybersecurity, and regulatory issues. But sometimes the description is too general, and the specifics of the crypto are not highlighted enough. Riot Platforms, Galaxy Digital, CleanSpark, and others with mining/trading operations note infrastructure risks in a bit more detail. On the other hand, PayPal also cites the risks of custodians and their responsibility for safeguarding customers' assets.

Some of the companies gave detailed descriptions of the risks while the rest briefly mentioned. In general, the researcher found that all firms mentioned some risks associated with digital assets.

**Table 5**

*Cryptocurrency Risk Disclosure by Company*

| Company               | Price Volatility | Liquidity Risk | Custodial Risk | Cybersecurity Risk | Regulatory Risk |
|-----------------------|------------------|----------------|----------------|--------------------|-----------------|
| Tesla, Inc.           | ✓                |                |                | ✓                  | ✓               |
| Strategy Inc.         | ✓                | ✓              | ✓              | ✓                  | ✓               |
| Riot Platforms, Inc.  | ✓                | ✓              | ✓              | ✓                  | ✓               |
| CleanSpark, Inc.      | ✓                | ✓              | ✓              | ✓                  | ✓               |
| Galaxy Digital Inc.   | ✓                | ✓              | ✓              | ✓                  | ✓               |
| PayPal Holdings, Inc. | ✓                | ✓              | ✓              | ✓                  | ✓               |

#### **4.4 Theme 4: Accounting Information Systems (AIS) and Reporting Capability**

This theme examines the role of Accounting Information Systems (AIS) in cryptocurrency reporting which focuses on system limitations, external tool reliance, and the effects on reporting reliability, timeliness, and control.

**4.4.1 Evidence of AIS Constraints in Financial Disclosures.** There were no accounting information systems failures that were directly related to cryptocurrency accounting in the reviewed companies. However, some companies showed indirect evidence of such shortcomings by saying that they were operating with manual processes, external organizations or third-party data sources for cryptocurrency processing.

The companies with the most exposure to cryptocurrency, such as Riot Platforms, MicroStrategy, Galaxy Digital and CleanSpark, said they use external pricing services, blockchain explorers, custody providers or other resources for storing, valuing, or verifying cryptocurrency data. For instance, Riot Platforms said it uses third-party custodians and tools to check and verify wallet balances. Galaxy Digital's disclosures imply the company's operations are complicated because it needs to constantly assess fair value using external market data.

The researcher found that Tesla and PayPal do not seem to have any major shortcomings in cryptocurrency accounting. Both companies add that several custodians and external software are used to hold or secure assets in their disclosures. Therefore, it is evident that Tesla and PayPal do not use their accounting information systems for cryptocurrency transactions.

**Table 6**

*AIS Support and External Resource Reliance by Company*

| Company     | Use of Internal AIS for Crypto | External Resources Used | Evidence of AIS Constraints |
|-------------|--------------------------------|-------------------------|-----------------------------|
| Tesla, Inc. | Limited                        | Custodial services      | Not explicitly disclosed    |



|                       |         |                                              |                          |
|-----------------------|---------|----------------------------------------------|--------------------------|
| Strategy Inc.         | Limited | External pricing, custodians                 | Indirect evidence        |
| Riot Platforms, Inc.  | Limited | Third-party custodians, blockchain explorers | Indirect evidence        |
| CleanSpark, Inc.      | Limited | External pricing, custodians                 | Indirect evidence        |
| Galaxy Digital Inc.   | Limited | External market data, custodians             | Indirect evidence        |
| PayPal Holdings, Inc. | Limited | Custodial services, external software        | Not explicitly disclosed |

**4.4.2 Timeliness and Reliability of Reported Information.** The results indicate that cryptocurrency balances and valuations are measured at reporting dates, rather than on a real-time basis. None of the companies analysed actually report real-time valuation or continuous presentation of cryptocurrency assets and based on observations at the end of the reporting period, the data appears to be generated periodically.

For companies involved in cryptocurrency trading or mining, such as Riot Platforms, Galaxy Digital, and CleanSpark, reporting requires frequent valuation updates and reconciliation of data from exchanges, custodians, and internal systems. Nonetheless, no company reported significant delays in the reporting process or material discrepancies between the time of book entry and transaction settlement.

#### **4.5 Summary of Key Findings**

This chapter presented the results from the thematic analysis of audited financial statements and solved the research questions of cryptocurrency accounting and disclosure practices and the role of Accounting Information Systems (AIS). Based on the conceptual framework and accounting standards, the findings highlighted the common approach towards the recognition and classification of cryptocurrencies. Also, the researcher observed changes in measurement and valuation processes and the common exclusion of cryptocurrencies from cash and financial instrument categories.

Differences were also found in the level of disclosure, valuation information, and cryptocurrency related risk reporting among the companies. The results also indicated that companies rely on external pricing methods and real-time internal systems.

### **5. Discussion**

#### **5.1 Recognition and Classification Practices**

The study found that cryptocurrencies are mostly classified as intangible assets, yet classification often depends on the company's business model. Without cryptocurrency-specific standards in place, most organizations still utilize IAS 38 and ASC 350 based on regulatory acceptance and auditability. This is consistent with Procházka (2018) who argues that cryptocurrencies are already incorporated in current accounting frameworks rather than as a separate asset class. This is however concerning as the question whether financial statements accurately capture the economic side of highly liquid and traded digital assets.

The study also found that cryptocurrency-oriented businesses have more detailed accounting and classification of trading inventories, company-owned assets and customer assets in line with IFRS. While this is a boost in relevance, it can also cause comparability issues if similar assets are reported differently across firms. These differences appear to stem from principles-based accounting rather than non-compliance and the clarity of guidance is needed to ensure consistency and reporting relevance.

#### **5.2 Discussion of Measurement and Valuation Practices**

Most firms measure cryptocurrencies using a cost-based model with impairment testing when the assets are indefinite-lived intangible assets. This approach results in asymmetric accounting outcomes since losses are recorded when market prices decline and once market prices rise, they cannot be recognized in the earnings. As Luo and Yu (2022) noted, it can lead to a balance sheet that is underestimating the value of cryptocurrencies, particularly during the period of market recovery. As a concept, the cost and impairment model does not fully capture the market-driven nature of digital assets and may not be relevant for investors and others.



The researcher found that the recognition of gains and losses is a more balanced and transparent view of cryptocurrency holdings and that the impairment-only model fails to address many of these problems. Fair value accounting allows financial statements to reflect the market reality and also makes information reported relevant for decision making. However, the same fair value measurement also means that earnings are much more volatile when it comes to cryptocurrencies because they change so wildly (Elitzure & Rotenburg, 2025).

The findings suggest that transparency should be prioritized over stability in cryptocurrency reporting. Fair value accounting may cause more volatility to be reported but is still a better reflection of economic conditions when transparent reporting and risk disclosure are done. This underscores the challenge of relevance, reliability, and understanding in cryptocurrency accounting as it is still evolving.

### ***5.3 Discussion of Disclosure Transparency and Comparability***

Compared to previous studies, the findings show that disclosure depth and specificity of crypto-exposed firms is higher, with the increased regulatory scrutiny and investor interest. Companies write accounting policy descriptions, measurement bases, and explain policy changes more clearly, highlighting a maturing disclosure climate. However, there is variation in disclosure of valuation sources, pricing timing, and exchange selection, consistent with EFRAG (2020) and KPMG (2024). This suggests that better disclosure volume does not automatically translate into better comparability.

Comparability remains to be limited due to the different valuation imports, classification, and risk presentation methods despite the greater disclosure. The results support the research that regulatory ambiguity with professional judgment will result in diverse reports. The study shows that disclosure-based regulation alone is not enough to achieve comparability when preparers have considerable discretion. With this case, more narrative disclosure might be more information than clarity.

The findings suggest that enhanced risk disclosure requirements may be necessary to convert awareness into actionable insight. Price volatility, custody, and cybersecurity concerns have all been acknowledged by the firms which supports the earlier findings that risk narratives often lack quantification, limiting their decision-usefulness for investors (EY, 2025).

### ***5.4 Discussion of Accounting Information Systems (AIS)***

The findings of the study reveal that there is no concrete evidence of AIS driving innovation in cryptocurrency accounting. The firms rely on external pricing feeds, custodians, and blockchain verification tools. This supports Coyne and McMickle's (2017) argument that technology enhances recordkeeping but is not responsible for accounting quality.

The lack of real-time valuation confirms the structural limitations of existing AIS architectures that are periodic and batch-oriented. This is consistent with Schmitz and Leoni's (2019) finding that digital assets reveal time gaps between economic activity and financial reporting that are difficult to manage in traditional reporting cycles.

The findings confirm that AIS cannot substitute professional judgment in classification, valuation, and disclosure decisions. Instead, systems guide how judgment is operationalised and reinforce interpretivist views of accounting as a judgment-laden practice rather than purely technical.

### ***5.5 Integration with the Conceptual Framework***

Overall, the study supports the conceptual framework formulated in Chapter III. In particular, the results demonstrate that cryptocurrency reporting practices are determined by the interplay between ambiguities in regulatory guidance, the role of professional judgement in the field, and the level of sophistication of accounting information systems. The factors contribute to the identified patterns of disclosure, response to changes, and the degree of comparability within the analysed group of firms. Thus, the results emphasize the typical characteristics of principles-based accounting and reporting frameworks, applied to novel and highly volatile assets.

### ***5.6 Policy Implications***

There is no specific guidance on accounting for cryptocurrencies. This has led to a lack of uniformity in measuring and disclosing these activities. Since this leads to risks of professional judgement and inconsistency in practice in the accounting profession, standard setters should provide more detailed guidance



on the classification, measurement, impairment, and disclosure to enhance the decision-making ability of the financial statements users (ACCA, 2026; PwC, 2025). In particular, the development of crypto-specific accounting guidance on measurement on a fair value basis with related impairment, principal market considerations, and disclosure would improve transparency and uniformity of practice, reduce uncertainties, and increase confidence in the reliability of financial reporting by preparers and auditors.

### **5.7 Practical Implications**

From a practical perspective, the findings are informative in terms of emphasizing the need for enhanced disclosure practices to offset the impact of valuation uncertainty and price volatility associated with cryptocurrencies. In this regard, disclosing information on pricing sources, timing valuations, and risks peculiar to digital assets will enhance the ability of users to make informed judgement about the impacts of cryptocurrencies on the firm's financial performance (EFRAG, 2020; KPMG, 2024). Also, the findings of the study creates a contribution as a suggestion to firms to evaluate if their current AIS assets support their cryptocurrency accounting needs (Schmitz & Leoni, 2019; Coyne & McMickle, 2017).

### **5.8 Recommendations for Future Research**

This work was conducted using a qualitative research approach. This qualitative approach has its limitations. In the future, we would recommend taking a quantitative or mixed-methods approach to understand how different cryptocurrency accounting treatments affect earnings volatility and investor perceptions and the importance of financial information in decision making. A quantitative analysis of various measurement and disclosure strategies might also provide more tangible evidence of the impact. We also ask for the researchers to consider sample selection, because accounting treatments and disclosure practices vary by the nature of the company's business model, the industry, or the level of cryptocurrency investment. Such a clarification will help make the findings more comparable and, in turn, will shed light on how cryptocurrency accounting is different in different organizational contexts.

## **6. Conclusion and Recommendations**

The researchers have studied how publicly listed companies present, measure, and disclose cryptocurrencies in their financial statements and how they have been accounting. This was motivated by the growing adoption of digital assets and the lack of cryptocurrency-specific accounting standards for IFRS and U.S. GAAP. Using a qualitative research methodology and content analysis of audited financial statements, the researcher examined corporate reporting practices, valuation methods, disclosure quality and the role of accounting information systems (AIS) in cryptocurrency reporting. The researcher also developed the framework to draw on accounting regulations, professional judgement, corporate reporting practices and system capabilities.

### **6.1 Key Findings**

This research aimed to see if companies that are publicly traded accounted for, measured and disclosed cryptocurrencies in accordance with accounting standards and accounting information systems. The results showed the firms that were identified accounted for cryptocurrencies as assets. In most cases they were treated as intangible assets under IFRS and US GAAP. The differences were found in measurement and disclosure. At the same time, fair value was becoming more common, and accounting information became more relevant as well. However, there were varying approaches, assumptions and risk disclosure, and the majority of firms used custodial services and external platforms to value their crypto assets instead of end-to-end accounting information systems. In cryptocurrency there were indeed challenges in comparability, transparency and technology.

### **6.2 Achievement of Research Objectives**

The research was successful in meeting the research objectives. First, it looked at how publicly listed companies know, measure and disclose cryptocurrencies, and the most common reporting strategy is intangible asset classification. Second, it looked at the consistency and transparency of cryptocurrency disclosures and found that while a lot is improved in disclosure practices, there remain some challenges to comparability due to regulatory uncertainty and professional judgment. Third, the study also addressed how better cryptocurrencies can be incorporated into the AIS and financial reporting process, such as greater



transparency in disclosures, better guidance for valuation and accounting systems that are more adapted to digital asset transactions and valuation processes.

### **6.3 Overall Contribution**

This study contributes to cryptocurrency accounting literature by examining actual corporate reporting practices rather than theoretical treatments. It highlights the challenges of applying established standards to a rapidly evolving asset class and shows that accounting outcomes are shaped by regulatory requirements, organizational judgment, and technological capabilities. As cryptocurrencies become increasingly important in global financial markets, further regulatory development and technological adaptation are needed to ensure consistent, transparent reporting that reflects their economic reality and supports standard setters, regulators, accountants, organizations, and investors.

### **Contribution of Authors**

All the authors participated in the ideation, development, and final approval of the manuscript, making significant contributions to the work reported.

### **Conflict of Interest Statement**

The authors declare no conflicts of interest.

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### **Data Availability**

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

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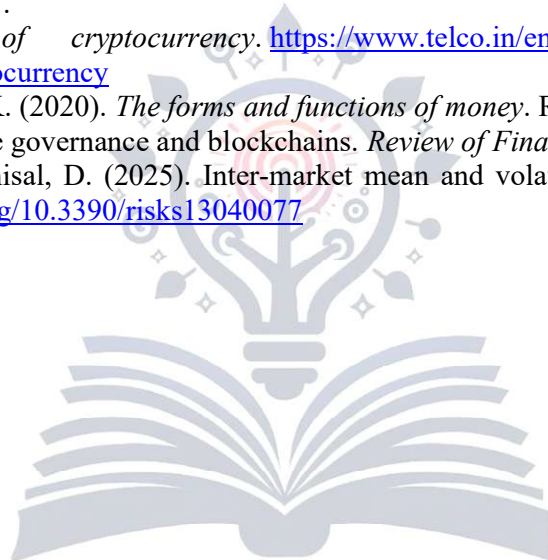
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## Appendices

### Appendix A: Sampled Companies

This appendix presents the list of publicly listed companies whose audited financial statements were analysed in this study. The sample was selected using purposive sampling to ensure relevance to the research objectives and comparability across accounting frameworks.

**Table A1**

*Sampled Companies and Company Characteristics*

| Company                                             | Country       | Industry                                  | Accounting Framework | Financial Year Analysed |
|-----------------------------------------------------|---------------|-------------------------------------------|----------------------|-------------------------|
| Tesla, Inc.                                         | United States | Automotive and Energy                     | US GAAP              | 2025                    |
| Strategy Inc. (formerly MicroStrategy Incorporated) | United States | Enterprise Software and Bitcoin Treasury  | US GAAP              | 2025                    |
| Riot Platforms, Inc.                                | United States | Bitcoin Mining and Digital Infrastructure | US GAAP              | 2025                    |
| CleanSpark, Inc.                                    | United States | Bitcoin Mining and Digital Infrastructure | US GAAP              | 2025                    |
| Galaxy Digital Inc.                                 | United States | Digital Asset Financial Services          | US GAAP              | 2025                    |
| PayPal Holdings, Inc.                               | United States | Financial Technology and Digital Payments | US GAAP              | 2025                    |

