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How to account for technological assets such as crypto-currencies?

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Abstract

On February 15th, 2023, the European Central Bank (ECB), in its periodic supervision newsletter wrote: "Crypto-assets are subject to significant risk and boom-and-bust cycles, as the current 'crypto winter' shows." The staggering growth of crypto-assets raises questions for companies on how to report for them in their financial statements, for auditors on how to audit them, and for investors on how to read and interpret the crypto-asset-related information in companies' financial statements. The current lack of specific financial reporting guidance for crypto-assets allows different classifications and measurement methods to be adopted in the world. This leaves a lot of interpretation room for companies and can result in misleading and/or non-comparable information for investors. Within this context, this paper aims at describing the different approaches currently used by companies related to the accounting, representation, and valuation of crypto-assets (with a specific focus on crypto-currencies) in their financial statements.

Keywords: crypto-asset, crypto-currency, financial reporting, IFRS

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Introduction

The release of the first open-source Bitcoin software in 2009 is traditionally considered as the genesis of the crypto-currencies, even if the concept and idea of crypto-currency is dated back to the 1980s with several failed attempts. Since then, and especially in the last decade, the numbers and values of crypto-assets (not only crypto-currencies) have boomed. As a consequence, several governments and regulators are trying to implement rules to regulate this new innovative field. For example, in April 2023, the European Parliament endorsed the Markets in Crypto Act (MiCA)[1], the first EU rules to standardize the legal framework for crypto-assets markets in the EU, to trace crypto-asset transfers, prevent money laundering; it also includes common rules on supervision and customer protection.

In this dynamic and quickly evolving context, several companies around the world own significant amounts of crypto-assets (and, specifically, crypto-currencies), either mined (issued) directly by themselves or purchased. Consequently, this raises the question of how to account for, classify, disclose, and measure crypto-assets in companies' financial reports.

Despite the quite unique characteristics of crypto-assets, their digital/intangible nature, and their fast-growing use, there is currently no official and dedicated accounting standard that would provide clear and detailed guidance or requirements for the treatment of crypto-assets in corporate financial reporting.

Given this lack, differing interpretations and applications of the current IFRS framework currently lead to crypto-assets being accounted for differently by different entities, even if some common practices and shared interpretations of the IFRS framework are already emerging and consolidating.

In this paper, we present the current (non-specific) IFRS rules and how they are used by companies. This is of interest in particular for investors as they have to be aware of the reporting differences when comparing companies before making their investment decisions. Companies that engage in investing in crypto-assets can learn about the reporting possibilities the current (lack of) IFRS regulation offers.

In the next section, we present different definitions and classifications of crypto-assets (from an accounting perspective), followed by a discussion of the current IFRS accounting regulation for crypto-assets from the holder's perspective. We then focus specifically on crypto-currencies before concluding the paper.

Crypto-assets: definition and classification

The term "crypto-asset" encompasses a vast array of products, which may exhibit significant differences in their characteristics, functions, and - consequently - risk profiles. Some studies by the European Central Bank (ECB)[2] suggest that there are more than 2,000 crypto-assets currently available on the market, while the European Financial Reporting Advisory Group's

[1] https://www.europarl.europa.eu/doceo/document/TA-9-2023-0118_EN.html - last accessed May 2023
[2] ECB, Crypto-assets – trends and implications https://www.ecb.europa.eu/paym/intro/mip-online/2019/html/1906_crypto_assets.en.html - last accessed April 2023.

(EFRAG)[3] estimates this number to be as high as 5,000. But according to other estimations, considering cryptocurrencies only, the number of different products could even reach 20,000[4]. Bitcoin constitutes nearly 50% of the total market capitalization of crypto-assets.

The term "crypto-asset" lacks a universal and widely accepted definition, and there is often ambiguity and confusion around the distinctions between related terms and products, such as “crypto-token”, “digital asset”, “DLT asset”, “virtual asset”, “utility token”, “security token”, and “ crypto-currency”.

The ECB Crypto-Assets Task Force defines a crypto-asset as *“a new type of asset recorded in digital form and enabled by the use of cryptography that is not and does not represent a financial claim on, or a liability of, any identifiable entity”*[5]. EFRAG defines crypto-assets as “a digital representation of value or contractual rights created, transferred and stored on some type of distributed ledger technology (DLT) network (e.g. Blockchain) and authenticated through cryptography”. (EFRAG, 2020).

Both definitions emphasise the digital nature of crypto-assets and the critical role of cryptography. EFRAG's definition is more comprehensive and includes both private crypto-assets and central bank digital currencies. However, other definitions of crypto-assets may exclude central bank digital currencies or view the cryptographic process as a less important factor.

Crypto assets can therefore be classified in several different ways based on different criteria. From an academic perspective, crypto-assets could be classified based on their technical characteristics (underlying technology), functionalities, and regulatory treatment.

Based on their underlying technology, crypto-assets can be broadly classified into two categories: blockchain-based and non-blockchain-based. Blockchain-based crypto-assets, such as cryptocurrencies like Bitcoin and Ethereum, use blockchain technology to secure their transactions, whereas non-blockchain-based crypto-assets, such as IOTA, Nano, and Byteball, use other technologies to serve a specific purpose within a platform or an ecosystem.

Another way to classify crypto-assets could be based on their economic function. Some crypto-assets, such as stablecoins, are designed to maintain a stable value and serve as a means of exchange. Other crypto assets, such as security tokens, are backed by real-world assets and represent ownership rights. Crypto-currencies serve mainly as a medium of exchange, while other crypto-assets, such as utility and security tokens, have different economic functions, for example, to provide access to a specific product or service within a platform or ecosystem.

The regulatory treatment can also be a distinguishing feature as regulatory authorities categorise crypto-assets and crypto-currencies differently. Some countries consider them as commodities, while others treat them as securities or currencies. These differences in classification obviously impact the regulatory, accounting, and tax treatment of these assets.

[3] EFRAG Discussion Paper "Accounting for Crypto-Assets" 2020

[4] According to the Schwab Center for Financial Research (SCFR), “as of June 2022 there were more than 19,000 digital currencies in the marketplace, of which more than 40 had a market capitalization exceeding $1 billion”, https://www.schwab.com/learn/story/cryptocurrencies-what-are-they - last accessed April 2023

[5] https://www.ecb.europa.eu/paym/intro/mip-online/2019/html/1906_crypto_assets.en.html

In conclusion, the classification of crypto-assets and crypto-currencies in particular involves considering their technological characteristics, functionalities, and regulatory treatment. In this paper, the IFRS classification will be adopted, considering crypto-assets as the broad category of digital assets that include assets recorded on a blockchain. A crypto-asset could be intended for use as a medium of exchange (eg. crypto-currencies) or maybe an asset that provides the holder with particular rights (eg crypto-tokens)[6]. After presenting the current situation of IFRS accounting regulation for crypto-assets in the following section we will focus on crypto-currencies, as a subset of crypto-assets.

The current situation of IFRS regarding the accounting for crypto-assets

As mentioned, there are currently no IFRS-specific accounting standards covering in a systematic and comprehensive way the accounting for crypto-assets. In the absence of clear and detailed guidance or requirements, different interpretations and applications of the current regulatory framework have obviously resulted in different accounting treatments. To fill this lack of clear and defined accounting rules (Anderson et al. 2022), in 2019 the "Big 4" audit firms as well as the American Institute of Certified Public Accountants (AICPA) issued non-authoritative opinions and "recommendations" for crypto-assets holdings as intangible assets (AICPA 2019; EY 2019; PwC 2019;). Anderson et al (2022) in their studies on a large sample of US-listed companies clearly demonstrated "significant managerial discretion in accounting for crypto holdings", and "observing a switch from fair value accounting to intangible asset accounting beginning in 2018." In addition, even among the firms classifying crypto-assets as intangible assets, significant variations in the assumptions used in their valuation have been observed.

As for IFRS, in July 2018 the IASB asked the IFRS Interpretations Committee (IFRIC) to consider guidance for the accounting and reporting of transactions involving crypto-currencies, within the existing IFRS requirements. A few months later, in the first semester of 2019, the IFRIC published its agenda decision on 'Holdings of Cryptocurrencies', providing some guidelines and interpretations, as well as a definition of crypto-currency (see below).

Defining a specific category for crypto-assets and crypto-currencies is relevant mainly to applying proper measurement criteria. According to the different classifications, for example, several alternative measurement methods are possible: from fair value through profit&loss (FVTPL) to measurement based on the intention of the acquirer, from the lower cost and net realizable value when considered inventories to the historical cost or revalation approach when recognised as intangible assets.

In the following paragraphs, we will discuss in detail the classification (and evaluations) of crypto-currencies according to IFRS.

What types of assets are crypto-currencies according to IFRS?

The IFRIC interpretation[7], within the IFRS framework, specifically confirms crypto-currencies as a subcategory of crypto-asset with three major defining characteristics:

[6] IFRS Staff Paper, IFRICS, Holdings of cryptocurrencies, September 2018, https://www.ifrs.org/content/dam/ifrs/meetings/2018/september/ifric/ap04a.pdf, last accessed April 2023.
[7] IFRIC Update June 2019, https://www.ifrs.org/news-and-events/updates/ifric/2019/ifric-update-june-2019/

1. a digital or virtual currency recorded on a distributed ledger that employs cryptography for security;
2. not issued by a jurisdictional authority or another party; and
3. which does not give rise to a contract between the holder and another party.

Regarding the specific accounting classification, there could be several options within the IFRS framework: cash, cash equivalents, financial assets (other than cash), intangible assets (IAS 38), or inventories.

According to the IFRIC definition of crypto-currencies, it is quite clear that, based on their nature and characteristics, they could not be classified as cash, cash equivalents, or other financial assets.

IFRS does not provide a clear definition either of cash or currency. IAS 7 ("Statement of cash flow") states that "cash comprises cash on hand and demand deposits" which does not cover crypto-currencies, while cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and subject to an insignificant risk of changes in value. Since they are not easily convertible into known amounts of cash and, more specifically, they are subject to significant volatility, they cannot be considered as "cash equivalent."

According to IAS 32, a financial asset (other than cash) should give the holder a contractual right to receive cash or another financial asset or to exchange financial assets (or financial liabilities) with another entity. This seems not to be the case for crypto-currencies since they do not provide a contractual claim to the holder. Therefore, they cannot be classified as financial assets.

Consequently, crypto-currencies can only be accounted for as inventories or intangible assets.

Crypto-currencies as inventories or intangible assets?

Under certain conditions, crypto-currencies may meet the definition of inventory. According to IAS 2, inventories are assets held by the entity for the purpose of sale in the ordinary course of business, or in the process of production for sale; or materials or supplies to be consumed in the production process (for products or service).

Therefore, if a company holds crypto-currencies for sale purposes in the ordinary course of business, it could meet the conditions required for inventories. For example, consider the case of a broker-trader of crypto-currencies who acquires Bitcoins with the only purpose of generating a short-term profit by reselling them. In this case, crypto-currencies could be classified as inventory.

In the case of crypto-currencies classified as inventories, the initial asset recognition in the balance sheet will be at acquisition cost. The subsequent evaluations are at the lower of cost and net realisable value (same as for "regular" inventories) or at fair value with fewer costs to selling (applicable only to commodity broker-traders).

In its 2021 financial statements[8], ARGO BLOCKCHAIN PLC, a UK crypto-currency mining company, classified the crypto-currencies mined by the Group as "Digital Assets" among inventories, while the crypto-currencies not mined by the Group are recorded as Intangible Assets. Argo assessed that it acts in a capacity as a commodity broker-trader as defined in IAS 2 in characterizing its holding of digital assets as inventory. Argo declares also that its digital assets are initially measured at acquisition cost (= fair value at acquisition date) and, subsequently, at fair value fewer costs to sell with gains and losses recognised directly in the income statement.

> Extract from Argo Blockchain PLC 2021 annual report:
> *"During the year the directors assessed the treatment of both the Bitcoin it mines and the other cryptocurrency held for investment purposes (as part of the broader diversification into non-mining activities), deciding that the only digital assets it would carry and treat as inventories would be the cryptocurrency mined or held in the mined currency (Bitcoin). As such any other cryptocurrency is treated as an intangible assets"*[9].

If the crypto-currencies are not held for trade, but rather for longer investment purposes, IAS 2 cannot be applied, and the only alternative (residual) option would be to classify them as intangible assets. According to IAS 38, 'Intangible Assets', an intangible asset is an identifiable (i.e., separable or arising from contractual or legal rights) non-monetary asset without physical substance, that can be sold, transferred, licensed, etc.

Crypto-currencies lack physical form, are specifically identifiable, and are not otherwise excluded from the scope of IAS 38. Hence, IAS 38 can be applied and, therefore, crypto-currencies should be initially recognized at acquisition cost. As for the subsequent evaluations, the company can choose the "revaluation model" (only if an "active market" exists, which can be assumed for the most known crypto-currencies such as Bitcoin or Ethereum) and measure the crypto-currencies at their fair value less any accumulated impairment (if any). Subsequent fair value gains are then recognised in other comprehensive income whereas fair value losses are recognised in the income statement. Alternatively, crypto-currencies can be measured with the "cost model", i.e. at cost less any accumulated impairment (if any).

MEITU Inc, a Chinese technology company, primarily focused on making smartphones and selfie apps, is one of the world's largest holders of crypto-currencies. In its consolidated financial statements for 2021[10], Meitu explained its accounting policies as follows:

> Extract from Meitu 2021 annual report:
> *"Cryptocurrencies purchased and held by the Group through third-party custodian service providers, which are accounted for as intangible assets under the cost model. The cryptocurrencies held by the Group are considered to have an indefinite life. Accordingly, they are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. [...]*

[8] Argo Blockchain PLC, Financial Report 2021, https://assets.website-files.com/6192808c25837d3716982433/627c167861bac23077f63a75_Argo-Blockchain-Plc-2021-Report-Accounts.pdf - last accessed April 2023

[9] Argo Blockchain PLC, Financial Report 2021, https://assets.website-files.com/6192808c25837d3716982433/627c167861bac23077f63a75_Argo-Blockchain-Plc-2021-Report-Accounts.pdf - last accessed April 2023

[10] Meitu Financial Report 2021 https://corp-static.meitu.com/corp-new/20220428/Annual%20Report%20(E).pdf - last access ed April 2023

Cryptocurrencies purchased and held by the Group have been assessed based on each type of cryptocurrencies for impairment testing. The Group carries out their impairment testing by comparing the recoverable amounts of cryptocurrencies to their carrying amounts [and] an impairment loss will [eventually] be recognized. A gain will only be recognized if the cryptocurrency is disposed of, assuming the proceeds from disposal at that time is higher than its carrying amount".

A study (Luo et al., 2022) on 2020 financial statements of 40 firms that operate in typical cryptocurrency businesses (such as purchase/investments, mining, trading, and asset management in the secondary markets, etc…) highlighted that, among 25 companies adopting IFRS, 15 classified crypto-currencies as intangible assets, while the others categorised them as inventories.

In the same paper, the authors also showed that even if "most firms following IFRS recognize cryptocurrencies as intangibles and inventories using a fair value approach, still, a few IFRS firms holding cryptocurrencies for long-term purposes recognize cryptocurrencies as intangible assets at cost" (Luo et al., 2022).

Cathedra Bitcoin Inc., a Canadian Bitcoin mining company, reported in its 2021 financial statements a change in the accounting policy for digital currencies. Prior to this change, Cathedra accounted for all its digital currencies as inventory as the Company has assessed that it acts in a capacity as a commodity broker trader as defined in IAS 2. Now they classify certain digital currencies as intangible assets and use the revaluation model.

Extract from Cathedra Bitcoin Inc. 2021 annual report:
"The Company now accounts for its digital currencies on hand at the end of a reporting period as an intangible asset with an indefinite useful life initially measured at cost, deemed to be the fair value upon receipt, and subsequently measured under the revaluation model. Under the revaluation model, increases in the digital currencies' carrying amount is recognized in other comprehensive income and under accumulated other comprehensive income in equity.
The Company has continued to classify digital currencies on hand at the end of a period as current [intangible] asset as management has determined that cryptocurrency markets have sufficient liquidity to allow conversion within the Company's normal operating cycle"[11].

The fact that crypto-assets or -currencies are accounted for as current intangible assets is new since, so far, the term intangible assets implicitly indicated only non-current assets.

Conclusion

Given that there are no specific accounting standards (either IFRS or GAAP) for crypto-assets (and not even for the sub-category of crypto-currencies), the accounting practice is currently relying on general frameworks, existing standards, non-authoritative guidance and opinions, and discretionary judgments. According to IFRS for example, crypto-currencies (considered as a sub-category of crypto-assets), should be accounted for either as inventories (if held for sale in the ordinary course of business), or as intangible assets.

[11] Cathedra Financial Report 2021, https://www.cathedra.com/_resources/financials/FS_20211231.pdf, last accessed April 2023

Consequently, in this context, the accounting practice for crypto-currency shows quite a significant level of inconsistency and distortions in presenting companies' financial position and performance, not only between companies using different regulations but even among those adopting the same framework. These inconsistencies lead to accounting choice difficulties for companies and auditors as well as non-comparable financial statements with negative consequences for investors.

Regulation seems necessary for the accounting of crypto-assets to assure comparability and avoid manipulations by companies. Companies still benefit from a large freedom of accounting choice in this area but those who want to be very transparent face difficulties of finding the "right" accounting treatment in their industry compared to their peers. Financial statement users need to be cautious when comparing the numbers of companies strongly engaged in crypto-assets.

Another point that will probably need more clarification in the future is related to mining activities. From the issuer perspective (which we did not present in this paper), the mining activity could potentially raise accounting issues in terms of measuring its carrying value and/or quantifying the "cost of production" (for example regarding the allocation of the overheads and of unsuccessful mining efforts).

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