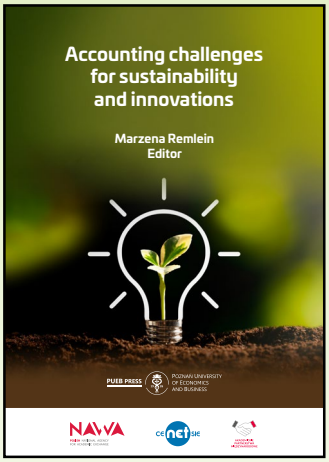

Accounting challenges for sustainability and innovations

Marzena Remlein
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10.

CRYPTOASSETS—NATURE, VALUATION AND DISCLOSURES IN ACCOUNTING

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Abstract: Within cryptoassets we can find cryptocurrencies (e.g. Bitcoin, Ethereum) and digital tokens which are specific right or value representatives. One of areas that there are a lot of doubts regarding these new technological solutions is accounting. It is not clear how we can classify particular groups of cryptoassets and how to value them in financial statement. The aim of the chapter is to present the essence, use and valuation issues of cryptoassets and also to review the definitions of selected asset groups in the currently applicable accounting regulations to identify those asset groups to which cryptocurrencies can be classified. The chapter also discusses available accounting models under IFRS, with a major focus being put on the recognition and presentation in balance sheet. The assessment of models is based on distinguishing different types of tokens (payment, security, utility) as well as on differentiating between holders' and issuers' perspective.

Keywords: accounting, Bitcoin, blockchain, cryptoassets, cryptocurrency, IFRS, tokens, valuation.

10.1. Introduction

Scientific considerations according to the indications of Meredyk (2003, p. 51) should refer to the so-called cognitive problems, what essentially comes down to no solutions or imperfect solutions to these problems. One of the reasons for the lack of knowledge in the field of economic sciences is the dynamic development of the financial market and the creation of new products, services, systems and other solutions used in the areas of finance, investments and payment systems. This is the result of technological progress, but primarily of the modern, creative financial architecture. Currently, an area of lack of knowledge that is significant for the field of accounting is the functioning of one of such modern electronic payment systems, created thanks to the possibilities offered by new technologies. This product is cryptocurrencies, part of broader group of modern assets called cryptoassets. As indicated by Remlein (2015, p. 150), a significant source of financial information necessary to assess the activity of an economic entity, as well as determining investment decisions, is the financial statement, which is the final product of accounting. Cryptoassets, which, like all other components, can be treated as part of the company's assets, should therefore be properly measured and then presented in the above-mentioned final product of accounting. To be able to measure an asset, you should first determine what type of asset it is, because different valuation methods are indicated for each groups of assets. In the international regulatory zone, there are no solutions clearly indicating how to treat cryptoassets. The authors therefore present the essence and usage of cryptoassets and then undertake the analysis of the definitions of selected groups of assets in order to identify whether the IFRS can be applied to cryptoassets. The aim of the chapter is to review the definitions of selected groups of assets to identify where cryptoassets may be classified in financial statement and to present applicable accounting models.

10.2. The essence and usage of cryptoassets

As was mentioned in the introduction, technological revolution allowed us to face the birth of digital assets commonly known and described as cryptocurrencies, or more broadly, cryptoassets. Indeed, cryptoassets is a broader term than cryptocurrencies. We may describe cryptoassets as digital assets that may depend on cryptography and are based on a distributed ledger technology. Within this definition there are several separate types of assets, considering their features, purposes of use and other details. There are various approaches to classify cryptoassets. In this paper, as presented in Figure 10.1, we divide cryptoassets into two separate groups of assets—cryptocurrencies and digital tokens. There are four types of tokens: payment tokens, utility tokens, security (asset, investment) tokens and hybrid tokens.

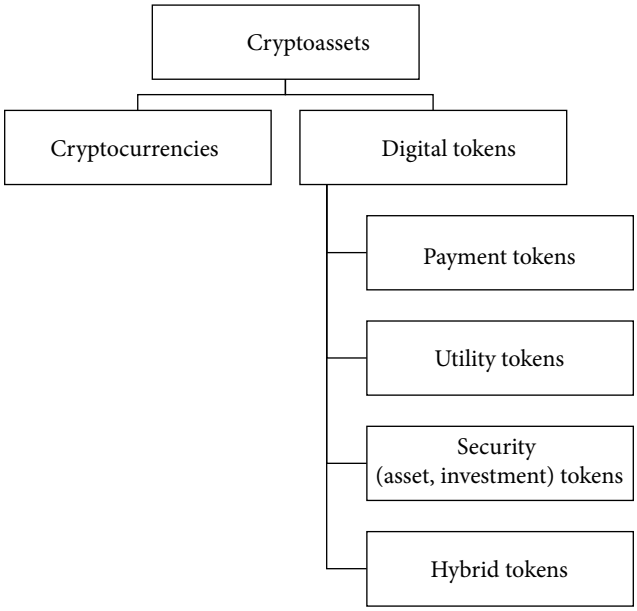


Figure 10.1. Classification of cryptoassets

Source: Own elaboration based on (Dinenzon, Josyula, Moreno-Ramirez, Dippelsman, & Razin, 2018, pp. 4, 6–7).

Cryptocurrencies are presented as a separate group because, unlike tokens, they do not give the holder any rights. Of course, they may be held by one company as an investment or be a product of mining for another one, but their functional role goes down to a medium of exchange.

10.2.1. Cryptocurrencies—definitions and characteristics

The explanation of the essence of cryptocurrencies should be preceded by an explanation of what the author is really going to describe. The ambiguity of virtual currencies begins at the very basis of this innovation. Generally, it is even difficult to put it into a uniform terminological framework. Virtual money has the same name neither from the point of view of accounting, nor in relation to other disciplines. To describe this phenomenon, a lot of terms have been used up to now—internet currencies or cyber currencies (Przyłuska-Schmitt, 2016), cryptocurrencies (Sobiecki, 2015), virtual currencies (Wiszniowski, 2015a, 2015b) and digital currencies (Bradbury, 2014). Although they are all used interchangeably, the author believes that the term cryptocurrency is not synonymous with the others. To illustrate the author's doubts, examples of definitions are presented in Table 10.1.

Table 10.1. Chosen definitions of virtual money

Term	Definition	Source
Virtual currencies	They are a means of payment not issued by any banking institution, a unit of exchange between the issuer (publisher) and the user or between a group of users, playing the role of a universal equivalent in a given network, within strictly defined limits, **and is mainly used to purchase virtual items**.	(Chen, Wu, 2009, p. 5)
	Type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community	(ECB, 2012, p. 5)
	They are a digital representation of value that can be digitally traded and functions as (1) **a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value** but does not have legal tender status in any jurisdiction. It is not issued nor guaranteed by any jurisdiction and fulfils the above functions only by agreement within the community of users of the virtual currency.	(FATF, 2014, p. 4)
Cryptocurrencies	A type of digital token based on cryptography used to digitally sign transactions and to control token supply growth. (…) Cryptocurrencies are value carriers. Some of them fulfil all or some of the functions of money, such as divisibility, preserving value (…), convertibility.	(Piech, 2016, p. 9)

Source: Own elaboration based on indicated publications.

Each description in the table above, according to the dictionary, defines the same concept, but the differences in the understanding of virtual money by individual authors are clearly visible. It can be observed that with the passage of time the interpretation of the term departs from the virtual world to the real world. This is related to the development and use of broadly understood virtual currencies, which can be divided into three categories indicated in Figure 10.2. In author's opinion, the presence of these three forms of virtual currencies is one of the causes of the terminological hype in this regard. The different types of virtual money are defined by the same concepts. Meanwhile, the term 'cryptocurrencies' refers only to one of these three categories of virtual money, so it should be used in a narrower sense than the term 'virtual' or 'digital' currencies.

According to the scheme presented, the European Central Bank distinguished three types of virtual currencies:

1) inconvertible, functioning only in the virtual world—these are virtual currencies that are not cryptocurrencies;
2) unidirectionally convertible—these are virtual currencies that are not cryptocurrencies;
3) bidirectionally exchangeable—these are virtual currencies based on cryptography, so they can be called cryptocurrencies.

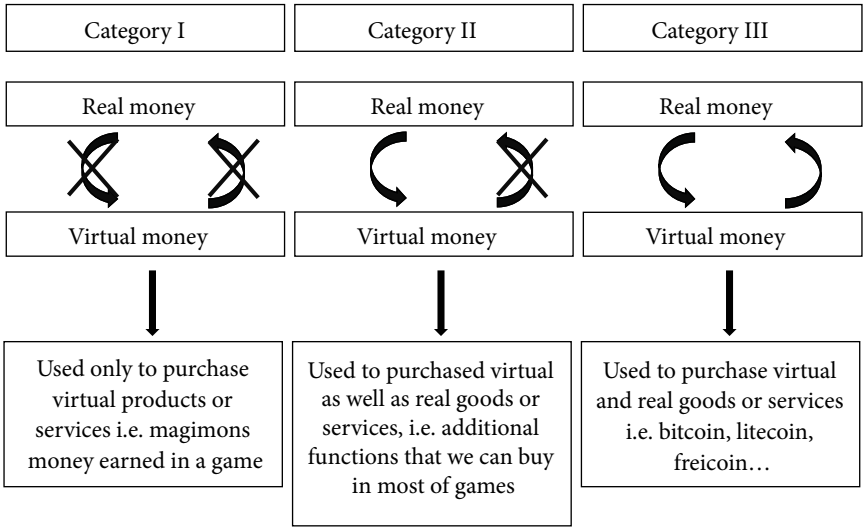


Figure 10.2. Categories of virtual money

Source: (ECB, 2012, p. 15).

The first type of currency, the oldest one, began to be used along with the development of the world of digital games, as early as in the 1990s. The game participant received remuneration in the form of virtual money for specific activities and tasks performed in the game. However, they could not buy this currency for real money or exchange it into real money after obtaining it for tasks in the game. An example of this type of money are magimons, i.e. coins used in game The Sims: Abrakadabra. The player could gain them in three ways—by selling magic items to vendors, by wizards' fights in the arena or by performing on stage or on special objects.

The second type of currency, which is currently used in most games, is one-way convertible. This means that the player can buy virtual coins with real money but cannot resell them or buy real goods using them. This type is mainly used to increase player satisfaction, which is achieved by purchasing extra lives, special powers for their characters etc.

The third category of virtual currencies are cryptocurrencies—the part of virtual money that covers also cryptoassets definition. This type of virtual money is convertible in both ways, which means that cryptocurrencies can be purchased for real money and then exchanged again to fiat money.

Summarizing, it should be emphasized that due to analysis presented above we may clearly say that virtual currency is a broader term than cryptocurrency. Not every virtual currency (category I and II) is a cryptocurrency, but on the other hand, there is no doubt that every cryptocurrency is a digital currency. From now on, the author, using the three terms indicated above, will only refer to category III of virtual money.

A cryptocurrency defined above is based on trust in a private issuer and its functioning is based on a decentralized database (*peer-to-peer*). This means that, unlike traditional, cryptocurrency transactions take place directly between users, by passing the central server (Lis-Markiewicz & Nowak, 2015, p. 11), as shown in Figure 10.3. The risk associated with the lack of participation of the controlling parent institution is limited by the use of the encryption functions, which generally function as digital signatures that can only be made by the owner of a currency unit who has specific data describing these units. On their basis, so-called private key that allows to approve the transaction and guarantees its uniqueness are created. The virtual currency unit is the only and unique sequence of alphanumeric characters encrypted in the form of a file saved on the disk, which can be sent to any user of the Internet network (Wiszniowski, 2015b, p. 277).

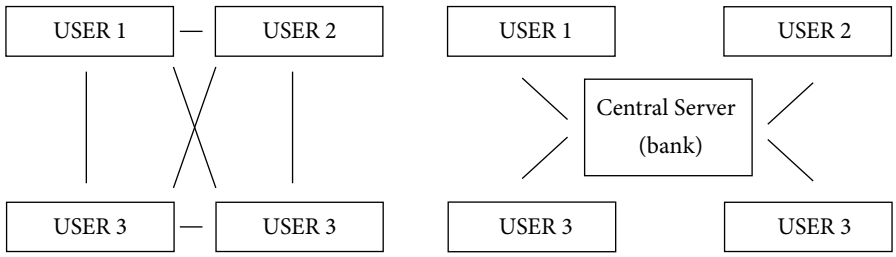


Figure 10.3. *Peer-to peer* network versus traditional architecture

Source: Own elaboration based on (Szymankiewicz, 2014, pp. 38–39; Oluwatosin, 2014, pp. 67–68).

As shown in the above diagram, in a traditional client-server network architecture, each information sent between users is mediated by a central server, which in the case of financial transactions is usually a bank's server. This is the reason for the lack of anonymity of users making transactions in traditional financial systems, because the superior institution collects information from whom to whom the flow takes place, in what amount and for what. A specific element of cryptocurrencies is the ability to remain anonymous. This is thanks to the storing of digital currency in a wallet created by the user himself, and there is no limit to the number of opened wallets. Public keys, which are somewhat equivalent to a bank account number, are a random string of characters and are not determined in a centralized manner. Moreover, no specific personal data is attached to transactions between wallets (Bubiel, 2015, p. 3). Details of the inability to discover the data of the transaction participant are described by Wiszniowski (2015a, pp. 51–52).

Another unique aspect of cryptocurrencies is the speed of the transactions. Thanks to their functioning in the above-mentioned *peer-to-peer* system, the transferred funds are not stopped anywhere, which means that the flows occur within a few minutes. Moreover, transactions in virtual currencies do not bear the same

intermediation costs as traditional money transfers. These and other features make people attracted to cryptocurrencies. The following charts present how cryptocurrency market develops and confirm large and constantly growing interest in cryptocurrencies.

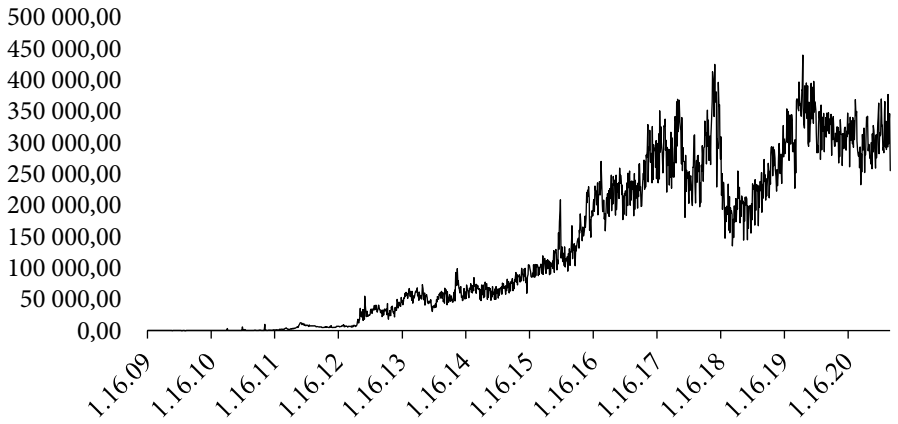


Figure 10.4. Daily number of transactions in Bitcoin blockchain (2009–2020)

Source: Own elaboration based on (blockchain.info data).

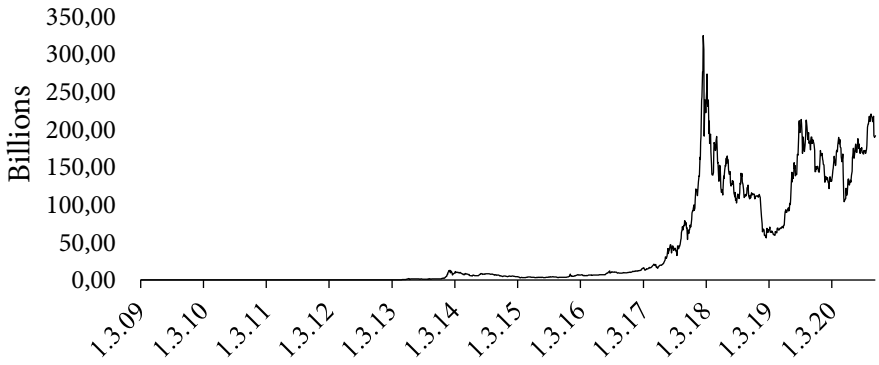


Figure 10.5. Market capitalization in Bitcoin blockchain in USD billions (2009–2020)

Source: Own elaboration based on(blockchain.info data).

Above presented figures undoubtedly confirm strong development of cryptocurrency market. Within eleven years the average number of transactions increased from 90 transactions daily in 2009 to almost 307,000 transactions per day in 2020 and capitalization raised from value close to 0 in 2009 to more than 190 billion USD. Percentage growth seems to be tremendous and irrefutable.

10.2.2. Digital tokens—definitions and characteristics

Another group of cryptoassets we may observe are digital tokens, which as it was mentioned, offer its holders some kind of rights, depending on the type of token. According to European Securities and Market Authority (ESMA) they can represent economic (profit), governance, utility or consumption rights and many have hybrid features or may evolve over time (ESMA, 2019, p. 8). Generally speaking, they are digital representations of interests, or rights to (access) certain assets, products or services (Houben & Snyers, 2020, p. 18). Tokens are typically issued on an existing platform or blockchain to raise funds for projects, or to fund start-ups or the development of innovative services (Annunziata, 2019, pp. 4–8). Tokens became widely popular by the end of 2017. This became a trend that persists until this day. They are, what could be called, the second generation of cryptoassets.

As was presented in Figure 10.1 we may highlight four most common groups of digital tokens—payment tokens, utility tokens, security (asset, investment) tokens and hybrid tokens. Payment tokens are intended to become cryptocurrency and to be used universally as unit of account, store of value or mean of payment, e.g. Bitcoin (Dinenzon et al., 2018, p. 8). It is worth to say that in some publications and policy documentation, the term 'payment token' is used synonymously with 'cryptocurrency', 'exchange token' or 'currency token' (see EBA, 2019, p. 7). In author's opinion this terminology is mistaken and may cause misunderstanding. According to Houben and Snyers where tokens typically represent an entitlement to some right or asset, cryptocurrencies—or at least traditional, non-backed, cryptocurrencies—generally do not embody intrinsic rights and entitlements (Houben & Snyers, 2020, p. 18).

Another type, utility token, is a type of cryptoasset that allows users to purchase goods or services that are offered or will be offered in the future by a token issuer or entitle to a discount for such goods or services. Utility tokens in their function may be compared by analogy to discount coupons, gift cards, or vouchers, issued by entrepreneurs and entitling to the purchase or discount for the purchase of predetermined goods or services (UKNF, 2020, p. 14).

Third group of digital tokens is referred to by various expressions—security, asset or investment tokens. All of these terms mean the same as these are tied to an underlying physical asset and represent a fractional ownership of the overall value, although not the asset itself (e.g. earnings streams, or an entitlement to dividends or interest payments). Investment tokens offer rights to future profits and, under securities law, would generally be considered as financial instruments, financial products, securities etc. (Annunziata, 2019, p. 23).

Market offers also hybrid tokens, which are designed to have several elements allowing to classify them as investment-type, utility-type and payment-type cryptoassets at once (Maas, 2019, p. 24).

10.2.3. Cryptoassets origination

The genesis of cryptoassets is related to Satoshi Nakamoto, the author of the so-called Satoshi Nakamoto's Manifesto, a document explaining the essence of the first cryptocurrency Bitcoin entitled *Bitcoin: A Peer-to-Peer Electronic Cash System*. It can be clearly concluded from the publication that the main reason for Bitcoin creation was the loss of confidence in the financial institutions that mediate all payment transactions. The innovative currency was introduced in 2009, so the above-mentioned loss of faith in the traditional financial system can be directly attributed to the outbreak of the financial crisis in 2007, as a result of which financial market participants lost a significant part of their capital (Nakamoto, 2008, p. 1). Nakamoto designed a decentralized and distributed open source database in a peer-to-peer network without central computers and no centralized data storage place, used for transactions, payments or other records encrypted with cryptographic algorithms, what is commonly called blockchain. After Bitcoin blockchain there were thousands of other blockchains created. Some of them were a mirror of Bitcoin, but a lot of them started to offer new possibilities e.g. issuing tokens. They are created using smart contracts in a specific blockchain network, and such smart contracts can be created without limitations, so different tokens may be available in the same network.

There are several ways of creating cryptoassets. Regarding to cryptocurrencies this process is called *mining* and for digital tokens there is public offering that can be divided into three separate types, depending on its specific features—ICO (*Initial Coin Offering*), IEO (*Initial Exchange Offering*) and STO (*Security Token Offering*).

Mining is the integral process of generation, transmission and validation of transactions of cryptocurrencies. It ensures stable, secure and safe propagation of the currency from one side to another. Cryptocurrencies overcome traditional payment architecture by implementing a mining system where people in the network, called 'miners' or 'nodes', monitor and validate transactions which generates currency (Krishnan, Saketh, & Vaibhav, 2015, p. 115). In fact, it happens in some reproducible way. First of all, blockchain hast to have users that will transfer specific cryptocurrency. The transaction made by the initiating user is properly encrypted using both information the identifier of the previous transaction—hash and the recipient's address, and then sent to all system participants (nodes). The transaction becomes an entry in the block, which is the subject of miners' work, and is visible to all other participants of the system. After the block is full (its capacity varies depending on the network), the miners work on a proof of work (PoW) solution, and the miner who finds a solution first adds the block to an existing blockchain in such a way that the previous block hash is part of the current block identifier. This ensures the continuity of the system and protects it from making changes to past records (changing one of the earlier blocks requires changing all previous blocks and

thus solving all previous PoWs). All system participants are immediately informed about the added block, and their copies are automatically updated, showing the current status, consistent with the record on all copies owned by other participants. When more than 51% of participants confirm the compliance of entries made in a block, it becomes part of the network and the basis for building another block. Then, the miner who first solved the problem is rewarded by the system accordingly to its rules (Ciupa, 2019, pp. 307–308). The reward paid to the miner is at the same time the issue of new currency units in the specific network and this is the way of creating cryptocurrency coins. Apart from mining we can of course purchase cryptocurrency from other users via cryptocurrency exchanges or we can accept payments for goods and services in cryptocurrency to get it from other people.

The situation looks different relating to digital tokens as they are not generated via mining. The first process to be implemented in 2013 was ICO, a term describing a limited period, in which a company sells a predefined number of digital tokens directly to the public, in exchange for cryptocurrencies or fiat currencies (PWC, 2020, p. 2). This is a method of raising capital (crowdfunding) in the form to finance a venture as the main idea of this concept was to provide start-ups with the necessary funding to build their services. The issued tokens can serve multiple purposes and mainly act as incentives that gives investors as well as developers access to the company's future services (Lipusch, 2018, pp. 3–4). ICO is often compared to Initial Public Offering, what is a process in which companies raise funds through issuing shares for the first time via a public offering. Regarding Lahajnar and Rozanec, companies use the ICO to overreach a rigorous and precisely regulated process of raising funds demanded by institutional investors in the classical procedures of the public offering of shares. Moreover, thanks to the innovations provided by the blockchain technology, the cost of this process using cryptocurrency exchange platforms is up to ten times cheaper than the costs of traditional IPO on the stock market (Lahajnar & Rozanec, 2018, p. 169).

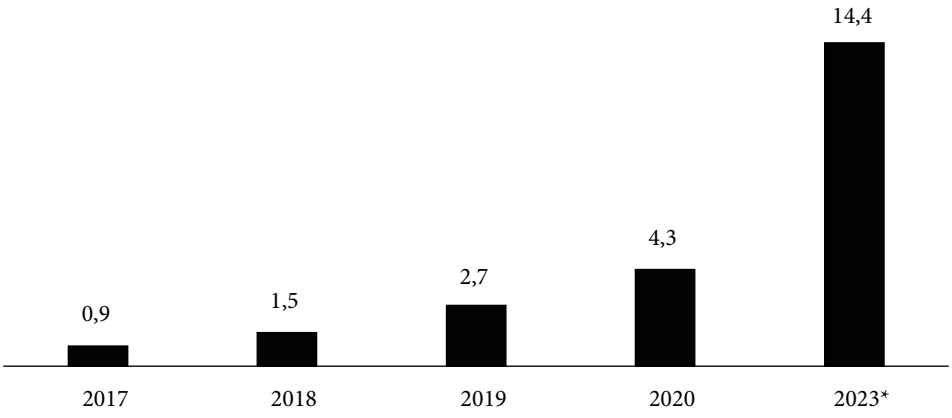
The idea of the ICO process as we know it today, was first invented by Willett, who posted on the Bitcoin open forum in 2012 a White Paper entitled "The Second Bitcoin White Paper". In the paper, he presented the idea that the existing Bitcoin network could serve as the basic protocol level over which to build new protocol levels (for new cryptocurrency) with their own rules. The first ICO was launched by Willett in 2013 under the name Mastercoin and he gained USD 500,000 through this offering. Another milestone was the creation of Ethereum company by Vitalik Buterin who organized sales of Ether tokens and raised over USD 18 millions as a capital for his project. Ethereum platform has brought important innovation—programmable smart contracts, among which the most widespread today is ERC-20, as it is widely used by start-up companies to raise new capital. The ERC-20 is a smart contract that allows to create new crypto tokens and execute a transaction with them (Lahajnar & Rozanec, 2018, p. 170).

Despite the fact, that ICO is a symptom of technological genius it has a lot of disadvantages. Firstly, this process is not regulated in most of the countries. Secondly, money invested in tokens issued through ICO are transferred directly to issuers. These two defects caused a lot of frauds and among others that was the reason to develop and transform Initial Coin Offering to Initial Exchange Offering, which is an offering exclusively conducted on the platform of a cryptocurrency exchange. IEOs are administered by the crypto exchange on behalf of the issuing company, which seeks to raise funds with its newly issued tokens (PWC, 2020, p. 2). It is clear and indisputable that this form is much safer than ICO. What is more, the risk of scams for investors is lower also because of the fact that the project is launched at the crypto exchange after profound verification. The exchange rejects a dubious project to keep up its reputation. According to Myalo, the IEO is a new ICO, where the exchange platform becomes the key marketing partner of the offering company, and the listing of coins is carried out only a couple of days after the campaign ends. Actually, the cryptocurrency exchange distributes digital assets among interested investors, who are verified users of the trading platform (Myalo, 2019, p. 13).

As it turned out over time, IEO also ceased to be the perfect solution. The popular utility tokens used in the ICO have a major disadvantage: investors are not compensated in case of failure of the ICO, since utility tokens are not securities, which leads to the absence of any obligations to create favourable conditions for investors. The best solution for that was the issuance of security tokens. Due to that new process was created: Security Token Offering. STO is a sale of tokens with features comparable to normal securities, i.e., fully regulated and approved within at least one jurisdiction (PWC, 2020, p. 2). It is assumed that the security token is a cryptographic token that reflects the real capital, e.g. in the form of shares in a company, bonds, real estate ownership or works of art. As part of the STO issue, one of the parties entrusts funds, and the other issues tokens that give the investor the right to participate in the company's profits or guarantee a fixed rate of return on investment. When dealing with a security token, this contract is secured by blockchain technology. In this way, ownership is confirmed. So it may be assumed that security tokens offer the holder the same right as shares or bonds. STO is a more complicated process than classic ICOs. It requires compliance with the regulations governing trading in financial instruments, because as was mentioned before, security tokens are equivalent to traditional financial instruments. STO increases investors' sense of security as they have the right to pursue their claims. This is crucial, especially in a situation where the issuer declares its bankruptcy. While utility tokens do not entitle investor to recover money as part of repaying the company's liabilities, security tokens do because they represent real-world assets. This fundamental difference allows to conclude that STO repaired the weaknesses of the ICO.

10.2.4. Examples of use of blockchain technology and cryptoassets

Blockchain technology is a modern and innovative solution, that thanks to its features allows for an alternative approach—decentralized economy, decentralized way of management of resources. Blockchain makes it possible to automate repetitive processes, thus freeing up human resources that can be used in the processes of creating value. Blockchain make it possible to control processes, transfers etc. automatically thanks to the mechanism of smart contracts. This decentralization ability is a huge advantage of this technology. As pointed out by Ciupa, the blockchain concept, indeed, is a new technological solution, however, due to the fact that it enables the creation of decentralized structures, it can be perceived as a new stage on the path of developing business models and forms of organization (Ciupa, 2019, pp. 312–313). Blockchain is therefore not a new technology in a strict sense, but a solution that allows building new, decentralized, economic and social dependencies, creating innovative business models, and shaping an unprecedented institutional framework (Ciupa, 2019, p. 313). It makes blockchain technology more and more popular not only in private sector but also among public institutions. The confirmation of this fact is Figure 10.6 presenting global spending on blockchain technology usage.



* forecast

Figure 10.6. Worldwide spending on blockchain technology solutions from 2017 to 2023 in USD billion

Source: Own elaboration based on IDC Worldwide Semiannual Blockchain Spending Guide.

In 2017, global spending on blockchain solutions amounted to USD 950 million. In the next twelve months, this figure raised to USD 1.5 billion. The data shows

the growing trend in the global blockchain solutions spending continued in 2019, with the amount rising to USD 2.7 billion, a 185% jump in two years. Like all technology investments, spending on blockchain projects has also been affected by the impacts of the COVID-19 pandemic. According to the IDC data, the global spending on blockchain solutions is expected to reach USD 4.3 billion in 2020, a 6% drop compared to the pre-COVID-19 forecast. Nevertheless, this figure represents almost 58% increase compared to 2019 amount. The IDC report also revealed that all regions are expected to witness double-digit spending growth in the next three years, led by Europe with a combined five-year CAGR of over 63%.

Despite the increasing spending on blockchain solutions, currently the most famous example of the use of this technology are cryptocurrencies, with Bitcoin on top. However, there is much more than cryptocurrencies or even broadly—cryptoassets. Blockchain is extremely attractive, primarily from the point of view of banks, insurance institutions and public administration, as the transactions and documents stored in this way are resistant to copying and any kind of manipulation. Works on the implementation of this technology in the financial industry is carried out by the largest banks, or stock exchange platforms, which are intended to clear transactions much faster than traditional exchanges (Rot & Zygała, 2018, p. 126). The financial industry was the first to recognize the enormous potential of blockchain. For several years, there has been a lot of start-ups founded that develop blockchain-based solutions. A new industry is emerging, called the FinTech industry for finance and technology, and Insurance Tech in the insurance industry (Rutkowski, 2018). One of many examples of blockchain use in financial sector is Banco Santander with headquarters in Spain, which announced that it has issued the first end-to-end blockchain bond. The bank issued the bond directly onto the blockchain and the bond will also continue to exist only on the blockchain: a first step towards a potential secondary market for mainstream security tokens in the future. What is more, currency exchange and interbank transactions will be carried out by faster, more reliable systems. In addition, blockchain can be the basis for creating a global network of money transfers and financial loans that eliminates intermediaries.

Another promising example of use of blockchain are smart contracts, which can be used in varying industries. A smart contract is a sort of code containing a set of business rules agreed by the contracting parties. A smart contract is saved on the blockchain, so it cannot be changed or cancelled. Once the pre-established conditions are met, the contract is automatically and irrevocably executed. This mechanism involves digital assets and at least two parties to a transaction. Assets belonging to one party are automatically redistributed according to the rules of the contract, i.e. the contract initiates one or more transactions that are recorded on the blockchain and change its status (PIIT, 2018, p. 25). Smart contracts may set out the rules for the delivery of products or services for a specific price, agreed between the seller and the buyer. A smart contract allows the involvement of

many parties to the transaction in one or more settlement systems, operating under a transparent settlement model. In practice, smart contracts may be used for example (PIIT, 2018, p. 10):

1) in insurance to settle car insurance costs in real time, depending, among others, on how safely the car has been driven and on the average level of safety we obtain compared to other insured drivers;
2) in real estate for automatic notarial approval of a change of ownership as soon as all conditions agreed by the parties are met (e.g. payment of the agreed amount of money);
3) in telecommunications for subscription for services.

Another possible area of use of this technology is property law, which is particularly important today from the point of view of the protection of intellectual property or copyrights. Blockchain makes it possible to confirm that a given thing or good belongs undeniably to a specific person and stores this information in a permanent and unchanging manner. This offers great application possibilities in the field of various property rights registers, e.g. to confirm the authorship of all kinds of documents, files or media (e.g. photo or audio-video recordings). This is possible thank to the so-called Proof of Existence (Rutkowski, 2018). The authors of this project use blockchain to ensure the existence of a document and its creation date without revealing its contents.

What is also important, and we were able to find it out during pandemic is voting. For several years e-voting has been considered while COVID-19 pandemic showed that this is essential for modern countries that want to guarantee citizens their rights execution. Decentralized voting systems such as Liquid Democracy (Schiener, 2016) and BitCongress (Varshneya, Poudel, & Vyas, 2015, p. 8) propose frameworks to enforce distributed decision making. Such systems as BitCongress provide the graphical user interface for the user to commit votes, create legislations, discuss amendments and view their voting record. As pointed out by Schiener, with e-voting platforms based on blockchain community could vote not only in political elections but they can either vote directly on specific issues that are currently being proceeded by members of parliament. This solution would be revolutionary not only from a democracy point of view, but also taking into consideration the cost reductions thanks to technological progress.

Last but not least, blockchain may be used in initiatives aimed at environment protection and halting climate change. A national accounting of emissions, connected through a ledger recording international transfer of emissions reductions, enables transparency and accountability on who is doing what for the climate. Relating to UNFCCC blockchain may be helpful in several areas (UNFCCC, 2017):

1) improvement of the system of carbon asset transactions, e.g. development of a blockchain platform for trading carbon assets in China to guarantee transparency and ensure that transactions are valid and settled automatically;

2) peer to peer trade of clean energy, for certified and facilitated transactions among consumers;
3) providing more transparency regarding greenhouse gas emissions and making it easier to track and report emission reductions, blockchain could serve as a tool to monitor the progress made in implementing the Nationally Determined Contributions under the Paris Agreement, as well as in company targets.

Apart from the aforementioned, blockchain has much more to offer and it is visible both in private zone as well as in public agencies. Undoubtedly, the use of blockchain technology increases the effectiveness of enterprises and improves the quality of life of ordinary people. Enormous potential of this technology will generate more and more practical application. Thus, both regulatory institutions and the scientists should work on identifying and deepening this technology, and also create appropriate standards, frameworks and regulations which, while ensuring safety, would not limit the potential of these solutions. As was mentioned in the introduction, blockchain and cryptoassets lack of regulations or unclear standards may cause a lot of doubts, problems. One of the examples is accounting area, which after 11 years from introducing Bitcoin still works on solutions how to present and valuate cryptoassets for financial statement purposes.

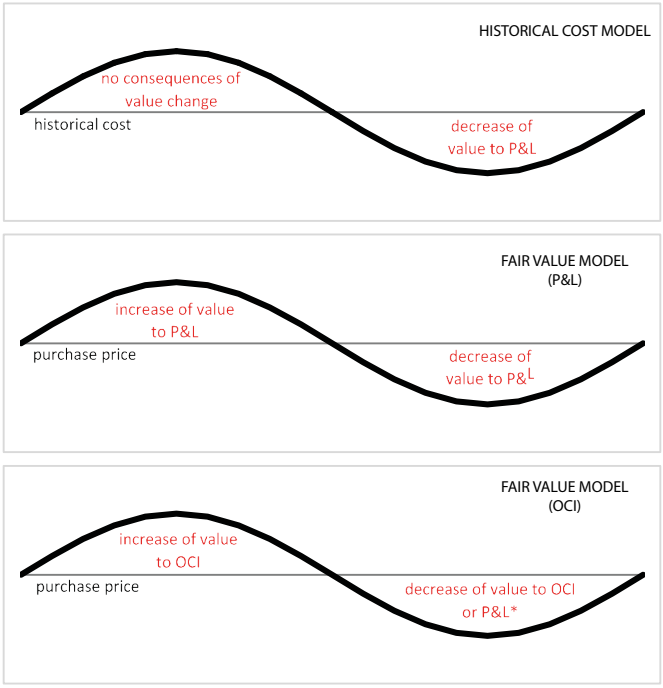
10.2.5. Valuation of cryptoassets

As Surdykowska points out, the 21st century brought a new challenge to accounting. The author claims that it is a measurement of the value of an economic entity (Surdykowska, 2001, p. 265). Gmytrasiewicz has a similar opinion, adding that such measurement is the expectation of capital owners and managers, because the new economy requires accounting based on the theory of value (Gmytrasiewicz, 2008, p. 68). Kamela-Sowińska adds that the essence of today's world is measuring, because almost everything is measured: time, distance, money, the level of competition or even social moods. The quality of measurement has always been supervised by accounting, which, according to Kamela-Sowińska, is currently no longer a tool for presenting a true and fair view of an entity. International solutions, including IAS and IFRS, provide accountants with more and more general and flexible indications for booking and valuation (Kamela-Sowińska, 2008, p. 84).

It is difficult to disagree with the opinions indicated above, especially with the last one, emphasizing imperfections of the science of accounting itself as well as the tools it develops. One of the reasons for the doubts in valuation area is the changing approach to the issue and methods of valuation in accounting. On the basis of the valuation methods in accounting, three basic models of valuation of assets and liabilities have been developed—historical cost model, fair value model and mixed models (Rówińska, 2008, pp. 223–224). The first model relates to the expenditure incurred

by an entity at the time of gaining control over an asset. On the other hand, the fair value model relates to the benefits that can be obtained from an asset by selling or exchanging it in the market. This amount does not reflect the entity's expectations about using the asset and obtaining future benefits from it, but the expectations of market participants. The perspective used in the valuation is therefore a significant differentiating factor between the historical cost and the fair value. Cost is a value specific for an individual, and the fair value reflects objective market expectations (Kabalski & Frendzel, 2011, pp. 176–177). The essence of mixed models is based on the principle of prudent valuation and consists of measuring the component at the lower value (production cost, purchase price or fair value), and therefore the value of the component will never exceed the initial value (Rówińska, 2008, p. 224).

It is a hard nut to crack which method can be applied for cryptoassets, because results of valuation of cryptoassets in each model may differ very much. It is caused by the differences in accounting treatment of market price fluctuations (Procházka, 2017, p. 176). Below you can see Figure 10.7 presenting all three possible models based on historical cost and fair value.



* The effects of impairment are referred to the Profit and Loss statement if there was no earlier increases presented on Revaluation Reserve.

Figure 10.7. Assets' valuation models in accounting and its consequences

Source: Own elaboration.

As it is presented in Figure 10.7, the valuation method applied for specific cryptoassets may have a crucial impact on company's financials. Of course, the first step to choose an appropriate model is to overview current regulations and to classify the particular cryptoassets that a company has, and this step will be broadly discussed further in this chapter. When we know specifically how we can classify our asset in balance sheet then we can choose the valuation model—and this is the easier part. The real job for accountants or auditors starts when it comes to evaluating the fair value of the cryptoassets at the year-end. How to do this when for example such cryptocurrency as Bitcoin changed its market value from USD 10,000 to USD 17,000 within a month at the end of 2017, what is presented in the chart below.

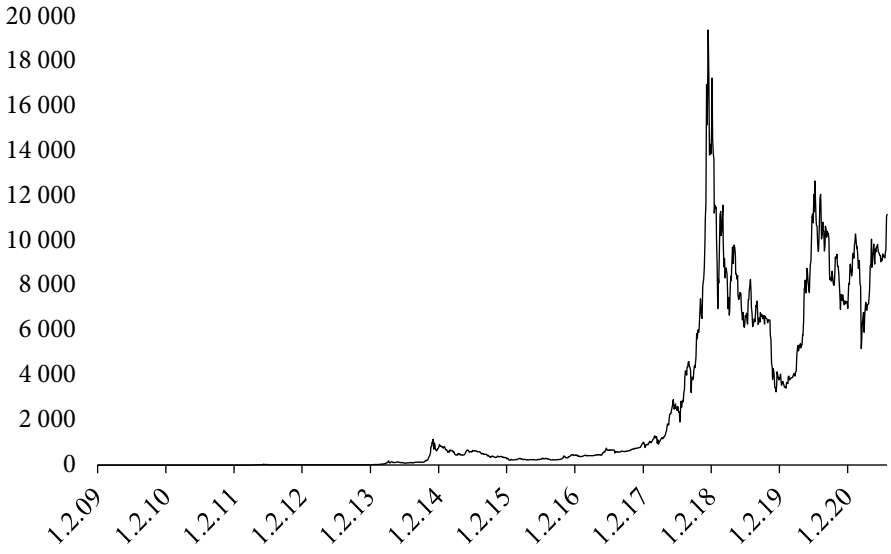


Figure 10.8. Bitcoin average price changes in USD (2009–2020)

Source: Own elaboration based on blockchain.info.

As we can see in Figure 10.8, Bitcoin value was quite stable until the end of 2017, when its price increased from USD ~10,000 on December 1st, 2017 to USD ~17,000 on January 6th, 2018. Then within a few weeks price decreased rapidly to previous value. This situation made Bitcoin's value unstable up to now.

In the research on the value of cryptocurrencies so far, various models, mainly econometric, have been used. The purpose of them was to determine the factors affecting the past value of cryptocurrencies. The analysis of scientific achievements in this area presented below shows that the authors not only used various econometric models, but also took into account different variables influencing the value

of virtual currencies. The most cited authors relating to cryptocurrency valuation are Kristoufek (2013 and 2015), Garcia, Tessone, Mavrodiev and Perony (2014), Bouoiyour and Selmi (2015), Polasik, Piotrowska, Wiśniewski, Kotkowski and Lightfoot (2015), Hayes (2015 and 2017), Ciaian, Rajcaniova and d'Artis Kancs (2016b), Peterson (2017), Li and Wang (2017) and Van Vliet (2018). As mentioned above, the authors studied various aspects affecting the value of a cryptocurrency, a synthetic summary of which is provided in Table 10.2.

Table 10.2. The models used and the variables tested in the research on the valuation of cryptocurrencies

Authors	Model used	Variables tested by model
Kristoufek (2013)	VECM	– popularity (*Google Trends and Wikipedia Views*)
Garcia, Tessone, Mavrodiev and Perony (2014)	VAR	– popularity (*Google Trends*) – number of users – *word-of-mouth* measured by number of tweets and news in media
Bouoiyour and Selmi (2015)	ARDL bounds testing	– popularity (*Google Trends*) – trade volume – velocity – computational power – gold price – Shanghai Composite Index
Kristoufek (2015)	Wavelet analysis	– number of Bitcoins generated so far – number of transactions – daily trade volume – trade volume related to transactions volume – computational power – difficulty of mining
Polasik, Piotrowska, Wiśniewski, Kotkowski and Lightfoot (2015)	VAR	– Bitcoin rate of return – number of news with „Bitcoin" word – popularity (*Google Trends*) – attitude in media and news (positive versus negative) – monthly growth of transactions number – changes in Bitcoin supply – changes of exchange USD/BTC, EUR/BTC – production growth by OECD – harmonised unemployment rate by OECD – inflation by OECD
Hayes (2015 and 2017)	VAR	– exchange USD/BTC – computational power – speed of mining – supply share in total supply of Bitcoin – type of encryption applied in the network – cryptocurrency's life length

Authors	Model used	Variables tested by model
Ciaian, Rajcaniova and d'Artis Kancs (2016b)	VAR, VECM and ARDL	– exchange USD/BTC – number of transactions – Bitcoin supply – number of users – cryptocurrencies' life length – Dow Jones Index – popularity (*Wikipedia Views*) – exchange EUR/USD – petroleum price – number of news on Bitcoin – number of transactions
Peterson (2017)	VAR based on Metcalfe's law	– number of unique Bitcoin wallets – Bitcoin supply – Bitcoin market price
Li and Wang (2017)	ARDL	– exchange USD/BTC – USD supply – U.S. GDP – U.S. reference interest – U.S. inflation rate – Bitcoin supply – Bitcoin trade volume – Bitcoin transactions number – Bitcoin rate volatility – popularity (*Google Trends*) – number of tweets – difficulty of mining
Van Vliet (2018)	VAR based on Metcalfe's law	– exchange USD/BTC – network power – Bitcoin total supply

Source: Own elaboration based on indicated publications.

As shown in the table above, the approach to the valuation of cryptocurrencies has evolved over the past few years. Initially, mainly elements determining the popularity of cryptocurrencies, such as searches in Google or Wikipedia, articles in the press, or the number of users were taken into account. In the next phase of the research, the indicators related to the cryptocurrency market were analysed, e.g. the trading volume, computational power in the cryptocurrency market, the difficulty of mining. Finally, economic parameters were also tested, including stock indexes or major currencies exchange. As for the models used for the evaluation of variables, the authors mainly used the VAR, VECM and ARDL models (including bounds testing). It is worth to emphasize that some authors based their regression models on Metcalfe's law, assuming that the utility of the network grows in proportion to the square of the number of devices connected to it (Van Vliet, 2018,

p. 70), which allowed for a significant reduction in the set of tested variables, while keeping a very high quality of results (R2 within 85%–99.8%).

Unfortunately, no model was recommended for accounting purposes by authorities so far. It makes accountants and auditors, who mostly are not experts in econometrics, responsible for valuation of cryptoassets by their own. We should ask a question to ourselves: is this true and fair view of the company when such complicated processes are unregulated?

10.3. Theoretical background of accounting for cryptoassets

The paper of Nakamoto (2008) introducing a new system cash transactions operated in a decentralized manner launched an economic revolution involving cryptocurrencies (Rosic, 2017) and other cryptoassets (called tokens) based on blockchain technology (D'Aliessi, 2016). A public verification is applicable not only in "monetary-like" exchanges and transactions, but it steadily infilters into many areas, where independent (decentralized) verification is required. As with other new technologies, cryptoassets do evolve quicker than their regulation. No agreement exists upon a commonly accepted or legally binding definition of such assets and the meaning of these assets depends on the context in which they are used. The Discussion Paper published by EFRAG (2020, p. 22) defines cryptoassets "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. In addition, 'crypto-liabilities' are defined as obligations that arise from the issuance of cryptoassets resulting in a present obligation for the issuing entity to transfer or grant access to an economic resource in digital or non-digital form".

The best-known example of a cryptoasset is Bitcoin. Together with other cryptocurrencies they can be labelled as payment tokens. The principal function of cryptocurrencies is to offer an alternative method of payments (Ciaian, Rajcaniova, d'Artis Kancs, 2016a; Cermak, 2017), but without granting any right of a holder against the issuer. Payment tokens possess some features of currency, but as they are not issued by central authorities, they do not serve as a legal tender. The second group of cryptoassets consists of security (or assets) tokens, which—as its name suggests—serve as a crypto-alternative to traditional investment instruments (granting interest in an entity or entitling to cash or other financial instruments). Assets tokens are connected with smart contracts and traded on exchanges utilizing the blockchain technology similarly as cryptocurrencies. Finally, utility tokens permit access to current or future products and services within a blockchain platform. In practice, the features of payment, asset and utility tokens can be combined to create hybrid tokens.

10.4. Accounting framework for cryptoassets under IFRS

Currently, there is no specific guidance for cryptoassets in IFRS. However, the IFRS Interpretations Committee discussed the issue of accounting of holdings of cryptocurrencies.[1] The Committee acknowledges the existence of a wide range of cryptoassets, but the final statement issued refers only to cryptocurrencies—with the following characteristics:

- a cryptocurrency is a digital or virtual currency that is recorded on a distributed ledger and uses cryptography for security;
- a cryptocurrency is not issued by a jurisdictional authority or other party;
- holding of a cryptocurrency does not give rise to a contract between the holder and another party.

Under such conditions, cryptocurrencies comply with IAS 38.8, which defines an intangible asset as an identifiable non-monetary asset without physical substance. A non-monetary asset is such an asset with the absence of a right to receive (or an obligation to deliver) a fixed or determinable number of units of currency according to IAS21.16. However, despite cryptocurrencies can meet the definition of an intangible asset, the scope exemptions included in current standards may lead to other classification in balance sheet. The Committee concluded that the application of IAS 2 Inventory is more appropriate if:

- the intention of holdings of cryptocurrencies is to sell them in the ordinary course of business;
- an entity is a broker-trader of cryptocurrencies, then the entity shall consider the IAS2.3b and to measure the holdings at fair value less cost to sell.

In other instances, IAS 38 shall be applied for cryptocurrencies held. Furthermore, the Committee observes that other classification of cryptocurrencies (e.g. cash or financial assets) does not comply with qualifying conditions of respective standards and such presentation would not be appropriate.

The above-summarized analysis of the Committee, however, omits two important activities connected with the acquisitions and holdings of cryptocurrencies. Firstly, cryptocurrencies can be acquired with a view to realize future profits, once being sold for a higher price. In case of "investment motive", the cryptocurrencies do not meet the definition of financial assets according to IAS 32, but the economic nature is the same as of other non-financial investments. Unfortunately, accounting guidance for non-financial investments is limited under IFRS as well.[2]

[1] Detailed information available on the IASB website: https://www.ifrs.org/projects/2019/holdings-of-cryptocurrencies/

[2] There is one specific standard IAS 40 for investment property. Some indirect guidance for gold is under IFRS 9, IAS 2 and IAS 21. Other non-financial investments are not covered by IFRS.

Secondly, cryptocurrencies can be originated by an entity itself through so-called mining, which is a process encompassing verification of transactions waiting in the blockchain. If an entity is engaged in verification of transaction and is successful in the race for being the first to resolve a cryptographic puzzle, it is rewarded by cryptocurrencies for this success. Mining is analogous to manufacturing of own products and the entity needs to determine the measurement of mined cryptocurrencies in a similar way to production costs of inventory.

Open issues not addressed by IASB or IFRS IC bring strong arguments that a more comprehensive approach to accounting for cryptocurrencies, but also for other cryptoassets, is necessary to capture relevant scenarios in which cryptoassets are vehicles of business transactions frequently. In the following text, we will discuss other possible models of accounting for cryptoassets, including the conditions under which their application would be plausible.[3]

In deliberating the appropriate accounting treatment, one should bear on mind that the way how cryptoassets are used as well as the commitments of issuers, the token contains, have a decisive impact on the selection of accounting policy. Until a new standard or amendments to current standards are published, judgement in developing and applying an accounting policy, in the absence of IFRS, that specifically applies to a transaction, other event or condition would be required according to IAS 8.10. Accounting policy adopted is supposed to result in information relevant to the economic decision-making needs of users which may, however, be difficult to assess due to the specific nature of cryptoassets. To avoid any misinterpretation, holders' accounting models and issuers' accounting models are to be discussed separately.

10.4.1. Accounting for cryptoassets by holders

Accounting by holders may affect both current and non-current assets.[4] In case of payment tokens (cryptocurrencies), inventory may be relevant, if:

- tokens are acquired with a view to resell them in the ordinary course of an entity's business;
- tokens are held by a broker-trader;
- cryptocurrencies are "produced" through mining.

[3] However, following exposition is not legally or otherwise binding, it is only based on the judgemental interpretation of the current wording of standards and requires caution and detailed assessment of all relevant circumstances in each particular business case. Furthermore, it may happen that by the time of publication of this book a new guidance can be drafted or even published.

[4] We agree with the prevailing reasoning that cryptoassets do meet the definition of an asset outlined by the Conceptual Framework (for a detail analysis, refer to EFRAG, 2020, pp. 42–44).

The first two cases are covered by the IFRS IC opinion, being discussed above. The third scenario leading to recognition of payment tokens as inventory relates to mining. In general, cryptocurrencies are a by-product of the verification process of electronic transactions waiting in the blockchain (public ledger). To verify the transaction, the miner shall resolve a cryptographic puzzle by "guessing" a number, which connects data in the block with a hash function to get an output being in line with the publicly known rules for the verification. As the level of encryption is not trivial, a specialized hardware and software equipment is needed. Such equipment forms a "production machinery" for mining of cryptocurrencies. In general, IAS 2 guidance dealing with the cost of conversion is relevant for accounting consequences of mining. The costs of conversion are defined as costs directly related to the units of production as well as a systematic allocation of fixed and variable production overheads (IAS 2.11). Electricity consumed during the mining is a typical example of the direct costs. Depreciation of hardware and amortization of specific mining software, wages of programmers, etc. would form the indirect overheads. If mining is successful, the cryptocurrencies measured at cost shall be recognized on balance sheet. Their subsequent measurement depends on the purpose of holding.[5]

In many cases, payment tokens are acquired to realize future capital gains, as the holder expects the market price to move up. A natural description of such a motive for acquisition would be "an investment". As payment tokens generally do not comply with the definition of cash, nor a financial asset under IAS 32, the guidance of IFRS 9 for the classification and measurement is not directly binding. On the other hand, the purpose of investments is to realize future profits and such information should be presented in financial statements, e.g., by classifying holdings of tokens for investment purposes under "non-financial investments" or "other investments". Furthermore, the time horizon determined by a holder to monitor the conditions for apt sale can be the indicator of a measurement model. As IFRS regulate accounting for non-financial investments rarely, then fair value through profit or loss (when a short-term perspective of selling is adopted) or fair value through other comprehensive income (when a long-term perspective of selling is adopted) are two reasonable options, supposing that fair value can be determined reliably.

Finally, if no previous scenario is relevant, the recognition of payment tokens as intangible assets as proposed by the IFRS IC can be an acceptable approach to presentation. However, such a classification is partially disputable, taken into account the nature of intangibles to which the nature of cryptocurrencies hardly fits. Furthermore, the classification as an intangible asset raises questions about the

[5] Other relevant accounting aspects of mining are discussed by Procházka (2018), including lease accounting in mining industry.

particularities of accounting guidance for this type of assets, e.g., how to apply the revaluation model (the condition of an active market needs to be fulfilled) or how to apply the impairment test (theoretically, it shall be done each reporting period, as payment tokens are, in general, assets with indefinite useful life). A more detailed discussion is available in Procházka (2018).

The second group of cryptoassets are asset (security) tokens, which may qualify for the recognition as a financial asset. IAS 32.11 defines a financial asset as any asset that is:

a) cash;
b) an equity instrument of another entity;
c) a contractual right to receive cash or another financial asset from another entity; or to exchange financial assets or financial liabilities with another entity under conditions that are potentially favourable to the entity;
d) a contract that will or may be settled in the entity's own equity instruments and is a nonderivative for which the entity is or may be obliged to receive a variable number of the entity's own equity instruments; or a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments.

Referring to the definition, the asset (security) tokens may grant its holders with the right to receive a stream of cash-flows or another financial asset or may contain the right to participate on voting of an entity, and may, thus, comply with the definition of a financial asset. The decision, whether a utility token meets the definition requires an appropriate assessment of issuance documentation.[6]

Finally, utility tokens usually entitle their holders to receive services or goods in future and possess similar characteristics to traditional business transactions like service prepayments, memberships, loyalty programs, etc. Then, the same accounting treatment like for traditional transactions should apply. In most instances, receivable (prepaid expenses) will be presented on the current or non-current assets. However, if a utility token confirms rights to acquire future services or goods for free or at a discount as a reward for current purchases of services or goods, such tokens held shall be considered as a discount granted, lowering, thus, the acquisition costs of products received. Finally, as the characteristics of cryptoassets are not always straightforward, the presentation of utility tokens as non-financial investment is conceivable as well.

Table 10.3 summarizes potential accounting treatment of cryptoassets by holders, depending on the way of usage of tokens in particular case.

[6] A supportive argument that a particular security token meets the definition of a financial asset is that it is a subject of regulation by the local authorities (like the Security and Exchange Commission).

Table 10.3. Accounting for cryptoassets by holders

Purpose	Accounting treatment
(1) Payment tokens	
Mining	IAS 2: mining as a production; initial measurement at cost of conversion Subsequent measurement depending on the purpose of holding
Broker / Trading	IAS 2: Fair value less costs to sell into Profit and loss
Sale in the ordinary course of business	IAS 2: accounting as for "normal" inventory, i.e. measurement at lower of cost and net realisable value with impairment losses into Profit and loss
Investment	Non-financial investment not treated under IFRS → application of Cost model or FVPL model or FVOCI model
Other	IAS 38: a solution preferred by IFRS IC (except for the cases where IAS 2 is more appropriate)
(2) Asset tokens	
Investment: financial asset	IAS 32: if definition of a financial asset met, measurement models of IFRS 9 applies
Investment: non-financial asset	Non-financial investment not treated under IFRS → application of Cost model or FVPL model or FVOCI model
(3) Utility tokens	
Prepayments of services	Presentation as prepaid expenses (distinguishing current and non-current nature).
Investment: non-financial asset	Non-financial investment not treated under IFRS → application of Cost model or FVPL model or FVOCI model

Source: Own elaboration.

10.4.2. Accounting for cryptoassets by issuers

There is no authoritative guidance for issuers under IFRS. In addition, the issuance of crypto-assets (sometimes labelled as Initial Coin Offering—ICO) is usually unregulated and takes many forms (Adhami, Giudici, & Martinazzi, 2018), including considerable differences in terms and conditions, constituting the issuer's obligations and holders' rights or claims. The general procedure of IAS 8 is, therefore, applicable in selecting appropriate accounting policy reflecting the economic nature of cryptoassets issued. In the first step, the issuer of a cryptocurrency shall assess whether it has any remaining obligation to the holder, once the exchange of issued tokens is completed. If there is no remaining holder's claim, then the issuer shall recognize revenue following the IFRS 15 revenue recognition model or other income if the transaction is not in scope of IFRS 15.[7] Such accounting treatment

[7] IFRS 15 defines revenue as income arising in the course of an entity's ordinary activities. Income, as a broader category, is defined as increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in an increase in equity, other than those relating to contributions from equity participants.

will be typical for cryptocurrencies and utility tokens possessing the characteristics of E-money.

IFRS 15 solution can also be relevant in some of those cases, when cryptoassets do contain issuer's obligations. For example utility tokens which give the right to customer to receive future services or goods, are performance obligations under IFRS 15. Revenue shall be recognized once the performance obligation is satisfied. However, utility tokens can also relate to the definition of a (constructive) obligation under IAS 37 rather than complying with the definition of a performance obligation under IFRS. In such circumstance, the liability (provision according to IAS 37)[8] shall be recognized.

Finally, assets (security) tokens meeting the definition of a financial asset by holders are likely to meet the definition of a financial liability or, less frequently, the definition of equity by the issuer. The distinction between financial liability and equity[9] should be based on the assessment of issuance documentation and rights and obligations constituting the token.

Questions / tasks

1. Describe main features of cryptoassets.
2. List the types of digital tokens.
3. What are the differences between the three categories of cryptocurrencies?
4. Who designed Bitcoin?
5. List a few examples of use of blockchain technology in practice.
6. Describe the meaning of ICO, IEO and STO.
7. What would you consider as key factors for cryptocurrency valuation? Why?

Case 1

SHARK is an IT start-up searching for and utilizing of imperfections in capital and commodity markets. The firm developed a mathematical algorithm, identifying

[8] A liability is defined by the Conceptual Framework as a present obligation of the entity to transfer an economic resource as a result of past events. According to IAS 37, a provision is a liability of uncertain timing or amount.

[9] Using definitions of IAS 32, a financial liability is any liability that is: (a) a contractual obligation to deliver cash or another financial asset to another entity; or to exchange financial assets or financial liabilities with another entity under conditions that are potentially unfavorable to the entity; or (b) a contract that will or may be settled in the entity's own equity instruments and is: a nonderivative for which the entity is or may be obliged to deliver a variable number of the entity's own equity instruments; or a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments. An equity instrument is defined, in line with the Conceptual Framework, as any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

mispriced instruments and commodities to realize gains from their speculative purchases or short sales. On June 3rd 2018, the algorithm reveals that Bitcoin is under-priced and company buys 1,000 Bitcoins on that day for €6,583.47 per unit.

Tasks:

1. Discuss how the holdings of Bitcoins would be classified and presented on balance sheet as of June 30th 2018.
2. Based on your answer to the previous question, calculate the carrying amount in which the holdings of Bitcoins will be measurement as of June 30th 2018 (if necessary, use real market data for measurement).
3. Describe and calculate all amounts impacting the balance sheet, income statement and cash flows statement since the purchase of Bitcoins on June 3rd 2018 to the balance sheet date on June 30th 2018.

Case 2

CHOCO is the best chocolate and sweets producer in the city. The customers can buy its products only for Bitcoin-cash. The holdings of cryptocurrencies received from customers are used to settle bills to the CHOCO's suppliers of accounting, tax, and IT services as well as to pay the employees' wages. The remainder is changed to fiat money. On June 3rd 2018, COLD earns 5.66 Bitcoin-cash, out of which 4 units are retained for the payment purposes and 1.66 was sold for €945.34/unit.

Tasks:

1. Discuss how the holdings of Bitcoins would be classified and presented on balance sheet as of June 30th 2018.
2. Based on your answer to the previous question, calculate the carrying amount in which the holdings of Bitcoins will be measured as of June 30th 2018 (if necessary, use real market data for measurement).
3. Describe and calculate all amounts impacting the balance sheet, income statement and cash flows statement since the purchase of Bitcoins on June 3rd 2018 to the balance sheet date on June 30th 2018.

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