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Crypto-Assets – Holders - Supplemental Issues Paper

Introduction

- 1 This holders supplemental issues paper supports the analysis of issues highlighted in **Paper 11-01- crypto-assets outreach plan and holders issues paper**.
- 2 The holders supplemental issues paper is structured as follows:
 - (a) Crypto-assets overview
 - (b) Holders' accounting issues
 - (c) Appendix
 - (i) Economic features and rights of different crypto-assets
 - (ii) Regulatory requirements for different crypto-assets
 - (iii) National accounting standards setter guidance
 - (iv) Prevalence of crypto-assets related business models
 - (d) Glossary of terms

Crypto-assets- Overview

- 3 Crypto-assets are a cryptographically secured digital representation of value or contractual rights on some type of distributed ledger technology (DLT)-decentralised network (e.g. Blockchain¹). The inherent value of crypto-assets arises from a cryptographic process and the value generation occurs within a peer to peer distributed network. Crypto-assets seem to meet the IFRS conceptual framework definition² of assets as they:
 - (a) Arise from transactions on the DLT network
 - (b) Are a digital representation of value and ownership rights and confer potential economic benefits to their holders. Some crypto-assets can, to a limited extent, have economic attributes similar to currencies (e.g. be a means of

¹ There are other DLT platforms apart from Blockchain including: Directed Acyclic Graph (DAG); Radix (Tempo) is a public trustless decentralised ledger; Hashgraph, and Holochain.

<https://www.datadriveninvestor.com/2019/02/14/what-are-the-different-types-of-dlts-how-they-work/>

² The IFRS Conceptual Framework defines an asset as a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity. Crypto-assets have also been defined as an asset by the Organisation for Economic Co-Operation and Development- which defines an asset as "an entity which functions as stores of value. Ownership rights are enforced by institutional units, individually or collectively and from which economic benefits may be derived by their owners by holding them or using them, over a period of time".

exchange), others can have investment value and others can confer economic benefits related to participation in network configuration or consumption of network products or services.

- 4 The market value of different tokens can reflect their a) perceived value which in turn is a by-product of the supply and demand dynamics and/or b) intrinsic value reflecting current or future cash flow generation ability or expected economic utility from the rights of participation in or consumption of network products.
- 5 Despite the significant fluctuation and recent drop in their market value, crypto-assets have grown significantly since the launch of bitcoin in 2009. They have a market capitalisation of USD 110 billion at end of 2018 down from a high of 770 billion in January 2018 and the market capitalisation is dominated by Bitcoin which has 54% market share and Top 5 have 75% of market share. However, crypto-assets remain relatively immaterial compared to mainstream asset classes (e.g. equity, fiat currency). Notably
 - (a) The 2019 ECB report highlights that the market cap is equivalent to 1% of euro-area GDP, 4% of market capitalization of technology giants FAANG³, 1.2% of Euro-area M1 money supply and 0.8% M3 money aggregates
 - (b) Furthermore, recent ECB and FSB publications state that they do not pose systemic risk
- 6 According to market data aggregator coin market cap⁴, there are >2000 crypto coins and tokens. Crypto-assets can be distinguished based on their technical layer, purpose, underlying asset, functionality and legal status. Regulator, legal firm, accountancy firm and academic literature classifies crypto-assets into the following key categories of coins⁵ and tokens. that are further elaborated in the Appendix to this document:
 - (a) *Cryptocurrencies (coins and payment or exchange tokens)*
 - (b) *E-money tokens (proposed by the UK FCA but not yet a widely applied categorisation)*
 - (c) *Security tokens*
 - (d) *Utility tokens*
 - (e) *Other (hybrid tokens and pre-functional tokens)*
- 7 Despite the above taxonomy, many databases tend to collectively refer to all crypto-assets as cryptocurrencies and this makes it hard to assess the prevalence and aggregate amounts of different categories of crypto-assets. As further elaborated on in the Appendix, below are some noteworthy differentiating and overlapping features of the different categories of crypto-assets.
 - (a) *Differentiating features:* Cryptocurrencies, except those that meet the definition of e-money, differ from utility tokens and security tokens due to their having no claim on any counterparty. On the other hand, the distinguishing feature of utility tokens is that their value is primarily derived from the potential consumption of network product or services.

³ Facebook, Apple, Amazon, Netflix and Google

⁴ <https://coinmarketcap.com/>

⁵ The difference between a coin and token is that a coin is issued on the crypto-asset developer's platform (e.g. Bitcoin, Ethereum) whereas a token can be issued on other platform

- (b) *Overlapping features*: Notwithstanding, the particular distinguishing characteristics of the different categories of tokens, they can also have overlapping features. For example, due to the potential for significant changes in their market value, both payment tokens and utility tokens can have investment value and be similar to security tokens in that respect. Hence, it can be challenging to assess whether some tokens are in substance similar to securities with investment value that should fall under the securities regulation requirements or whether they are de facto utility tokens that tend to be less regulated in many jurisdictions.

Holders' Accounting Requirements and Issues

- 8 The following questions arise when assessing the accounting for crypto-assets holders:
- (a) What type of assets are they? Are they a unique asset type? When are they *de facto* securities or *de facto* e-money and what ought to be the implications for recognition and measurement for crypto-asset holders?
 - (b) Are there special accounting considerations for holders on behalf of others?
 - (c) Are there any unique accounting issues for holders that arise from the operational features of DLT platforms?
- 9 The analysis of accounting issues related to the above questions is broken down into the following sections:
- (a) IFRS Interpretation Committee (IFRS IC) clarification on accounting for cryptocurrencies
 - (b) Unresolved issues following IFRS IC clarification on cryptocurrencies
 - (c) High-level analysis of national standard setters (NSS) guidance for holders
 - (d) Holder on behalf of others- accounting issues
 - (e) Possible applicable accounting for crypto-assets outside the scope of the IFRS IC clarification

IASB clarification on accounting for cryptocurrencies

- 10 In November 2018, based on an analysis and conclusion by IASB staff that crypto-assets were not sufficiently prevalent amongst IFRS reporting entities, the IASB decided to monitor crypto-assets developments but not to undertake related standard setting activity.
- 11 Subsequently, in March 2019 the IFRS Interpretation Committee (IFRS IC) issued a tentative agenda decision for public comment that clarified⁶ the accounting for cryptocurrencies. The final agenda decision was issued in June 2019. In its agenda decision IFRS IC described cryptocurrencies as crypto-assets with all the following characteristics:
- (a) a digital or virtual currency recorded on a distributed ledger that uses cryptography for security.
 - (b) not issued by a jurisdictional authority or other party.
 - (c) does not give rise to a contract between the holder and another party.
- 12 The IFRS IC agenda decision clarifies that cryptocurrencies should be accounted for under IAS 2 *Inventories* when held for sale in the ordinary course of business or

⁶https://www.ifrs.org/-/media/feature/meetings/2019/june/IFRS_IC/ap12-holdings-of-cryptocurrencies.pdf

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else they should be accounted for under IAS 38 *Intangible Assets*. The Committee observed that a holding of cryptocurrency meets the definition⁷ of an intangible asset in IAS 38 on the grounds that (a) it is capable of being separated from the holder and sold or transferred individually; and (b) it does not give the holder a right to receive a fixed or determinable number of units of currency. IAS 38 defines an intangible asset as an identifiable non-monetary asset without physical substance. Monetary assets are assets to be received in fixed or determinable amounts of money. Cryptocurrencies are neither physical assets nor monetary assets based on the IAS 38 definition.

- 13 IAS 38 does not apply to intangible assets held for sale in the normal course of business and such intangible assets should be accounted for in accordance with IAS 2. The Committee observed that
- (a) IAS 2 applies if an entity holds cryptocurrencies for sale in the ordinary course of business
 - (b) If an entity is a broker-trader of cryptocurrencies then it should consider the requirements of paragraph 3 (b) of IAS 2 for commodities broker-trader who measure their inventories at fair value less costs to sell.
- 14 IFRS IC concluded that holding of a cryptocurrency is
- (a) **not cash** based on the description of cash on paragraph AG3 of IAS 32 whereby the Committee is not aware of any crypto-currency that is used as a medium of exchange and as the monetary unit in pricing of goods or services to such an extent that it would be the basis on which all transactions are measured and recognised in financial statements;
 - (b) **not a financial asset** because it is not cash nor does it meet the definition of a non-financial asset under Paragraph 11 of IAS 32 because
 - (i) It is not an equity instrument of another entity.
 - (ii) It does not give contractual right to the holder
 - (iii) It is not a contract that will or may be settled in the holder's own equity instrument
- 15 The IFRS IC clarification is consistent with the commentary in a 2016 publication by the Australian Accounting Standards Board (AASB)⁸ and a 2018 publication by Chartered Professional Accountants of Canada (CPA Canada)⁹. The AASB and CPA Canada publications also note that cryptocurrencies are **not investment property** as they are not property as defined under IAS 40 *Investment Property*.

⁷ Paragraph 8 of IAS 38 *Intangible Assets* defines an intangible asset as 'an identifiable non-monetary asset without physical substance'.

Paragraph 12 of IAS 38 states that an asset is identifiable if it is separable or arises from contractual or other legal rights. An asset is separable if it 'is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability'.

Paragraph 16 of IAS 21 *The Effects of Changes in Foreign Exchange Rates* states that 'the essential feature of a non-monetary item is the absence of a right to receive (or an obligation to deliver) a fixed or determinable number of units of currency'.

⁸ Australian Accounting Standards Board, 2016. *Digital currency- A case for standard setting activity*. A Perspective by the Australian Accounting Standards Board.

https://www.aasb.gov.au/admin/file/content102/c3/AASB_ASAB_DigitalCurrency.pdf

⁹ CPA Canada, May 2018. *An introduction to Accounting for Cryptocurrencies*.

<https://www.cpacanada.ca/en/business-and-accounting-resources/financial-and-non-financial-reporting/international-financial-reporting-standards-ifs/publications/accounting-for-cryptocurrencies-under-ifs>

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- 16 In summary, in clarifying the accounting of cryptocurrencies, IFRS IC considered the accounting requirements for intangible assets, inventory, cash and financial asset and clarified that cryptocurrencies have the characteristics of either intangible asset or inventory depending on the purpose of holding the cryptocurrency. Thereafter the measurement basis requires consideration of the intention of the holder
- (a) Cryptocurrencies held as an investment- accounted for under IAS 38 with two measurement alternatives cost model and revaluation model (using other comprehensive income rather than recognising changes through profit or loss)
 - (b) Cryptocurrencies held ordinarily in the course of business- accounted for under IAS 2 with measurement at the lower of cost or net realizable value
 - (c) Broker-trader business model where cryptocurrencies held for trading similar to commodities- accounted for under IAS 2 under paragraph (3b) with measurement at FVTPL
- 17 The IFRS IC clarification also clarified disclosures requirements including the applicable IFRS 13 *Fair Value Measurement* requirements if an entity measures cryptocurrencies at fair value and the disclosure requirements applicable to its holdings of cryptocurrencies.

Unresolved issues following IASB clarification on cryptocurrencies

- 18 Despite the IFRS IC clarification on cryptocurrencies, there are unresolved accounting issues as described below

Items outside the scope of IFRS IC clarification

- 19 The clarification only addressed cryptocurrencies but not other crypto-assets (utility tokens, security tokens and other tokens). As noted, cryptocurrencies within the scope of the clarification are a subset of crypto-assets with all the following characteristics:
- (a) a digital or virtual currency recorded on a distributed ledger that uses cryptography for security.
 - (b) not issued by a jurisdictional authority or other party.
 - (c) does not give rise to a contract between the holder and another party
- 20 Furthermore, the IASB staff paper¹⁰ notes the following are outside the scope of the IFRS IC clarification
- (a) Some stable coins
 - (b) Coins with claim on other party (e.g. JP Morgan coin)
- 21 In addition to crypto-assets that fell outside the scope of IFRS IC clarification, the Committee did not address accounting for issuance of crypto-assets (e.g. ICOs), mining and custodial services.

Cash definition within IFRS may need updating

- 22 Several respondents to the IFRS IC clarification¹¹ highlighted that the definition of cash under IFRS may be too restrictive and needs to be updated. Two respondents emphasised that the medium of exchange ought to be the defining characteristic of cash and questioned whether crypto-currencies need to be a unit of account for

¹⁰ Ibid- footnote 7

¹¹ Ibid- footnote 7

recognition financial statements akin to a functional currency. A respondent observed that the implied definition of cash in paragraph AG 3 of IAS 32 relates to the concept of functional currency and noted that cryptocurrencies are similar to foreign currency and as per paragraph 8 of IAS 21 *The Effects of Changes in Foreign Exchange Rates* foreign currency is a currency other than the functional currency of the reporting entity.

- 23 Furthermore, as discussed in the Appendix, crypto-assets including some cryptocurrencies can qualify as e-money under the jurisdictional regulatory definitions. For example, as highlighted in a 2019 EBA report¹², there have been identified cases in some jurisdictions (UK, Malta) of where some crypto-assets meet the definition of e-money due to there being a claim on an issuer. In addition, some stable coins can be defined as e-money based on the ECB definition (see Appendix for more detail). In any case, even if cryptocurrencies with claim on an issuers and some stable coins were to qualify as cash for accounting purposes, as noted in paragraph 28 they fall outside the scope of the IFRS IC clarification.
- 24 The IASB staff paper¹³ on the IFRS IC final agenda decision acknowledges the need for a future review of the definition of cash under IFRS requirements. However, the IASB staff do not agree with the view that paragraph AG 3 of IAS 32 relates to definition of functional currency under IAS 21.

Presentation of holdings

- 25 A respondent to the IFRS IC agenda decision sought clarification on
- (a) whether to present cryptocurrencies as either current or non-current assets by applying IAS 1 *Presentation of Financial Statements*
 - (b) whether a holder may present cryptocurrencies as held for sale applying IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*
- 26 The IASB staff analysis of responses argued against clarifying presentation requirements in the finalised IFRS IC agenda decision but noted that current or non-current classification depends on entity-specific factors, including how the entity intends to use the cryptocurrencies and IFRS 5 would apply if cryptocurrencies are part of a disposal group.

Support for IFRS standard setting activity

- 27 Several stakeholders have called for standard setting to address the unique characteristics of cryptocurrencies and other crypto-assets. For example, the 2016 publication by the AASB¹⁴ expressed the view that there are no IFRS standards that deal with investments in intangible assets or with commodity type investments that are neither financial instruments nor inventory. The AASB publication concluded that although digital currencies could be accounted for under IAS 2 or IAS 38, measurement under these two standards does not provide relevant information to users of financial statements and proposed the need for standard setting for digital currencies.
- 28 In similar fashion, several respondents¹⁵ to the March 2019 IFRS IC tentative agenda decision supported standard setting in addition to or instead of finalising the agenda decision. Some expressed the view that both IAS 38 and IAS 2 were not

¹² European Banking Authorities, January 2019, *Report with advice for the European Commission on Crypto-assets* <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>

¹³ Ibid- footnote 7

¹⁴ Ibid- footnote 9

¹⁵ There were 16 of 20 respondents supported standard setting in addition to or instead of finalising the agenda decision

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written with cryptocurrencies in mind, particularly when considering their price volatility and use as speculative investments. These respondent observed that the requirements of IAS 38 and IAS 2 do not provide useful information. A variety of approaches to measurement of cryptocurrencies were proposed by different respondents and these include:

- (a) FVTPL for cryptocurrencies in active markets (as required by Japan- ASBJ)
- (b) FVTPL for all cryptocurrencies
- (c) Measurement should be based on the intention of acquirer
- (d) Scope out cryptocurrencies from IAS 38 and allow an IAS 8 accounting policy choice for cryptocurrencies other than inventory (proposed by IOSCO and Canadian Standard Setter)

29 The need for IFRS standard setting can be inferred by diversity of approaches across jurisdictions as highlighted in paragraph 31. There is also evidence of diversity in practice within jurisdiction as shown by the evidence (Table 1) provided by the Canadian standard setter in its response¹⁶ to the IFRS IC tentative agenda decision

Table 1: Diversity in practice in measurement of cryptocurrency holdings by Canadian entities

<u>Standard Applied</u>	<u>Number of Entities</u>	<u>Percentage</u>
IAS 8.11 (to arrive at FVTPL)	16	39 %
IAS 2.3(b)*	11	27 %
IFRS 9 – FVTPL	4	10 %
IAS 38 – Cost Model	1	2 %
IAS 38 – Revaluation Model	4	10 %
Not determinable	5	12 %
Total	41	100%

Source: CSA comment letter to IFRS IC agenda decision

- 30 In response, IASB staff analysis of stakeholder comments on limited usefulness of information based on accounting under IAS 38 and IAS 2 highlight the following:
- (a) FVTPL can be applied when cryptocurrencies are held under the broker-trader business model under IAS 2 paragraph 3 (b)
 - (b) If an entity is not holding cryptocurrencies for sale in the ordinary course of business and there is an active market, it can elect to measure its holdings at fair value applying IAS 38.
 - (c) Any entity holding cryptocurrencies must apply the applicable disclosure requirements in IFRS standards and this could include fair value information to the extent that such information is relevant

High-level analysis of national standard setters (NSS) guidance for holders

31 The Appendix has a breakdown of a selection of NSS guidance related to holders. The list is not exhaustive and during the outreach, the EFRAG project team will be updating the crypto-assets holders requirements of different NSS. At this stage, some high-level observations are

¹⁶https://www.securities-administrators.ca/uploadedFiles/General/pdfs/LECAC_Cryptocurrency_HoldingsTADResponse.pdf

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- (a) Unlike the IFRS IC clarification, the scope of holders accounting issues by NSS is broader than just cryptocurrencies where there is no claim on the issuer.
- (b) There is varied categorisation of crypto-assets across the NSS guidance and in many cases it depends on the business purpose of the holder. The categorisation of crypto-assets include:
 - (i) Unique or independent asset category (Japan ASBJ recognises crypto-assets as a unique asset)
 - (ii) Intangible asset
 - (iii) Inventory
 - (iv) Financial asset (including long-term and short term investment)
 - (v) Prepayments
- (c) Across the NSS guidance, there are varied approaches towards the measurement of crypto-assets
 - (i) FVTPL if there is active market (e.g. Japan)
 - (ii) Measurement based on intention of acquirer (e.g. France guidance where measurement depends on if held for own use or held for investment)
 - (iii) Lower of cost or net realisable value when crypto-assets are recognised as inventories
 - (iv) Cost or revaluation approach for subsequent measurement of crypto-assets recognised as intangible assets.
 - (v) Own accounting policy choice (IAS 8 *Accounting Policies and Accounting Estimates*) (Canada)

Holders on behalf of others- accounting issues

- 32 At face value, custodial or brokerage related holding of crypto-assets seems analogous to financial institutions holding digitally represented financial assets on behalf of its clients. However, several accounting firm publications¹⁷ hint at possible accounting issues that should be considered in respect of entities that hold crypto-assets on behalf of others (e.g. custodial service and wallet providers, exchanges and brokers).
- 33 During the outreach to crypto-asset experts, the EFRAG project will be seeking to further understand the possible technological, economic and accounting issues that arise when crypto-assets are held on behalf of others. These accounting issues will be addressed in both the holders discussion paper and the follow-up discussion paper focused on custodial services.

Asset recognition by holders on behalf of others

- 34 Implications of principal versus agent role: The appropriate asset recognition for the holder on behalf of clients versus that of the clients possibly needs an evaluation of who fulfils the respective principal versus agent roles. A 2018 KPMG publication¹⁸

¹⁷ Ernst and Young, August 2018, Applying IFRS, Accounting for Holders of Crypto-Assets

[https://www.ey.com/Publication/vwLUAssets/EY-applying-ifs-accounting-by-holders-of-crypto-assets/\\$File/EY-applying-ifs-accounting-by-holders-of-crypto-assets.pdf](https://www.ey.com/Publication/vwLUAssets/EY-applying-ifs-accounting-by-holders-of-crypto-assets/$File/EY-applying-ifs-accounting-by-holders-of-crypto-assets.pdf)

¹⁸KPMG, 2018. Institutionalization of cryptoassets: Cryptoassets have arrived. Are you ready for institutionalization?

notes that intermediaries with custody of crypto-assets could either have arrangements

- (a) where the client has a direct ownership of the crypto-asset held; or
- (b) that only represent the clients contractual right to the crypto-assets and therefore the client only recognises a loan receivable tied to the value of the crypto-asset.

35 Hence, during the outreach, the EFRAG project will aim to obtain information and further assess the nature of contractual/enforceable arrangements between crypto-asset intermediaries and their clients/counterparties. And thereafter assess the implications for whether the intermediary is effectively a principal or agent based on contractual/enforceable arrangements and the respective asset recognition implications for the holder on behalf of clients and clients.

36 Economic control on DLT platforms: As highlighted in the 2018 E&Y publication¹⁹, questions of legal ownership, possibly economic control²⁰ and thereafter asset recognition could arise if the holder on behalf of others has the private key access to the wallet or commingles crypto-assets into one or more shared wallets.

37 The E&Y publication notes that some exchanges may restrict the holder's ability to transfer the crypto-assets to another exchange or the holder's own crypto-asset wallet. These limitations could alter the rights of the holder as they could effectively limit the holder's control over the underlying crypto-assets and the crypto-assets' potential to produce economic benefits and thus raise the question as to whether the holder can recognise an asset. The issues of economic control for digitally represented assets requires further analysis by the EFRAG project and will be one of the questions during the outreach to crypto-asset experts.

Possible accounting implications from DLT forks

38 Another issue that will require further investigation during the outreach is whether there are any economic and accounting implications when forks (hard or soft) occur on the DLT platform.

What are forks?

39 DLT-blockchain represents a record of all transactions (i.e. ledger) and this record is kept by all the permission-less network participants. The cryptographic rules (i.e. software protocol) for recording transactions gets updated as new transactions occur. The updated software protocol for recording transactions requires consensus from a majority of network participants

40 A hard fork occurs when, at a point in time, there is a disagreement amongst network participants about the required DLT software protocol updates and thereafter one or more alternative software protocols²¹ is enacted for purposes recording subsequent transactions.

<https://assets.kpmg/content/dam/kpmg/us/pdf/2018/11/institutionalization-cryptoassets.pdf>

¹⁹ Ibid.

²⁰ IFRS standards consider control- ability to direct or restrict the consumption of economic benefits- whilst determining on whether an entity should recognise an asset.

²¹ Examples of forks in the Bitcoin DLT are the creation of Bitcoin ALL, Bitcoin Cash Plus, Bitcoin Smart, Bitcoin Interest, Quantum Bitcoin, Bitcoin Lite, Bitcoin Ore, Bitcoin Private, Bitcoin Atom, Bitcoin Pizza and Bitcoin Gold

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- 41 A soft fork is also an update to the blockchain protocol; however, one version (assumed to be the updated or new version) is supposed to be adopted by the majority and will become the dominant one.

Economic and accounting implications of forks

- 42 Consequently, the holder of a cryptocurrency coin prior to the fork's occurrence, retains the original cryptocurrency coin after the fork but also has one or more additional alternative cryptocurrency coins. In effect, the holder is left with an existing asset (which is likely to be less worth than before) and a new asset. Another E&Y publication²² notes that it is probable that existing and new created assets will be the same type and classified identically on their holder's statement of financial position. However, possible future forks may not adhere to the same principle.
- 43 The E&Y publication²³ hints at possible accounting implications for short sellers of crypto-assets and the possible of an additional liability in the event of a hard fork. The EFRAG project outreach will aim to further understand the accounting implications of existing and possible future forks.

²²Ernst and Young. IFRS (#) Accounting for crypto-assets

[https://www.ey.com/Publication/vwLUAssets/EY-IFRS-Accounting-for-crypto-assets/\\$File/EY-IFRS-Accounting-for-crypto-assets.pdf](https://www.ey.com/Publication/vwLUAssets/EY-IFRS-Accounting-for-crypto-assets/$File/EY-IFRS-Accounting-for-crypto-assets.pdf)

²³ Ibid

Possible applicable accounting for crypto-assets outside scope of IFRS IC clarification on cryptocurrencies

44 Table 2 below outlines the assumptions of potentially applicable accounting for different crypto-assets. The possible applicable accounting does not represent the conclusions of the EFRAG project research nor does it reflect EFRAG positions on the accounting for crypto-assets. It simply reflects EFRAG Secretariat initial assumptions and views on the possible applicable accounting for crypto-assets which were outside the scope of the IFRS IC clarification on cryptocurrencies.

Table 2: Characteristics, examples and possible applicable accounting for crypto-assets that are outside the scope of the IFRS IC clarification on cryptocurrencies.

TYPE OF TOKEN	ECONOMIC CHARACTERISTICS AND ASSOCIATED RIGHTS	CRYPTO-ASSET EXAMPLES AND ANALAGOUS TRANSACTIONS	POSSIBLE APPLICABLE ACCOUNTING
E-money tokens- Cryptocurrencies and utility tokens that qualify as e-money	<ul style="list-style-type: none"> • Fungibility, tradability and transferability • Claim on issuer 	Facebook Libra ²⁴ if/when launched, JP Morgan coin ²⁵ , Central bank issued cryptocurrencies, EBA highlights cryptocurrencies in EU jurisdictions (UK, Malta) that could qualify as e-money Analogous transactions: fiat currency e-money, digital money with claim on issuer	<ul style="list-style-type: none"> • Asset-type and measurement: Financial asset- as may still not meet accounting definition of cash; FVTPL
Security tokens	<ul style="list-style-type: none"> • Fungibility, tradability and transferability • Contractual entitlement to ownership interest or control of the token issuer • Revenue rights- rights to financial benefits from revenue streams of the issuer/operator 	IOU tokens, Simple Agreements for Functional Tokens (SAFTs), some stable coins, Royal Mint Gold (RMG coin) and Maecenas	<ul style="list-style-type: none"> • Asset type and measurement: Financial asset; FVTPL

²⁴ <https://economia.icaew.com/opinion/july-2019/how-facebooks-libra-cryptocurrency-changes-financial-markets>

²⁵ <https://www.jpmorgan.com/global/news/digital-coin-payments>

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	<ul style="list-style-type: none"> • Debt- right to set cash flows from the economic activities of the issuer/operator • Profit sharing-right to financial profit from the economic activities of the issuer/operator • Claims in bankruptcy as equity interest holder or creditor • Rights similar to derivatives instruments (e.g. Reference to other crypto-assets as underlying, granting the holder an option to purchase one or more investment interests) • Rights to future tokens (e.g. Simple Agreement for Future Tokens) • Convertibility of a non-security token into a token or instrument with one or more investment interests • Property ownership rights, Usufruct-Right to fruit from property 	<p>Analogous transactions- shares, bonds, loans, derivatives, futures contracts, securitisation, co-ownership arrangements</p>	
Utility tokens	<ul style="list-style-type: none"> • Fungibility, tradability and transferability in some cases • Claim on issuer • Rights to access products or services of Token Platform • Rights to purchase or sell existing or future products or services 	<p>Ether, Filecoins, Golem, Basic Advertising Tokens (BAT)</p> <p>Analogous transactions- Club memberships, loyalty cards, airline point cards, gift vouchers and subscriptions, timeshare rentals</p>	<ul style="list-style-type: none"> • Asset type and measurement- depends on purpose <ul style="list-style-type: none"> ○ Prepayment: cost with impairment test ○ Intangible assets: cost or revaluation model ○ Inventory: Lower of cost or net realizable value or FVTPL ○ Financial assets: FVTPL

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	<ul style="list-style-type: none"> • Right to partial ownership of a product • Rights to mining activities (Proof of status mining) • Rights to contribute labour, effort or resource to a system • Right to contribute, programme or create features of a system • Right to decide on products, services, functionalities to be offered or deleted within the Token Platform • Rights to vote on matters of governance, management and operation of Token Platform 		
Hybrid tokens	Combination of either security, utility, e-money or payment tokens	Ether, NEO	To be further evaluated
Pre-functional tokens		Pre-functional token are related to different types of utility tokens Analogous transactions: Reservation crowdfunding	<ul style="list-style-type: none"> • Asset type and measurement depends on purpose <ul style="list-style-type: none"> ○ Prepayments: cost subject to impairment test ○ Intangible assets: cost or revaluation model ○ Financial asset: FVTPL

APPENDIX

Economic features and rights of different crypto-assets

- 1 A comprehensive understanding of the rights and obligations arising from crypto-asset transactions, followed by an assessment of the applicable existing IFRS and other accounting standard literature, can help to identify potential accounting gaps and areas where clarification on applicable IFRS is required.
- 2 The assessment of gaps or areas where clarification is required for accounting of crypto-assets transactions can pinpoint as to where there could be gaps or inconsistencies in the accounting for analogous transactions. In other words, help to identify other areas of IFRS that may need clarification or an update.
- 3 Therefore, the below section has an initial analysis of the key features, rights and regulation of crypto-assets notwithstanding that due to their variety (i.e. >2000 different types) and sometimes hybrid economic characteristics, it is challenging to readily identify all the unique rights, obligations and economic characteristics associated with crypto-assets. The EFRAG project outreach to crypto-assets experts will be used to update this initial analysis of the economic features and rights of crypto-assets.

Crypto-currencies (coins and payment tokens)

- 4 The most well-known are Bitcoin, Litecoin, Monero and Z-cash. Examples of Payment infrastructure tokens include Ripple, Partici and Utility Settlement coins.

Limitations of cryptocurrencies in fulfilling money functions

- 5 Cryptocurrencies are a type of virtual currency that can fulfil the three functions of money (means of exchange, store of value and unit of account) in the blockchain economy and only to a very limited extent fulfil the functions of fiat currency outside of the blockchain economy.
- 6 The limitations of cryptocurrencies as a means of exchange arise due their lack of legal tender status and due to technological limitations on the trading and validation process that result in a much lower volume of transactions for cryptocurrencies than is the case for the platforms for processing traditional fiat currencies. For example, Bitcoin and Ethereum can add a maximum of seven and 20 transactions per second to their respective ledgers. In contrast, the credit card company visa can process 56,000 transactions per second.
- 7 Furthermore, their high volatility and low liquidity limits their capacity to serve as either a store of value or unit of account. Indicative statistics show how insignificant cryptocurrencies are as a means of exchange outside the blockchain economy
 - (a) Only 942 cryptocurrency ATMs across 28 EU states (see Table 3 below)
 - (b) According to UK FCA publication, less than 600 merchants in UK accept exchange tokens as a payment means

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- 8 The website www.coinatmradar.com²⁶ provides information about the existence of ATMs that allow the withdrawal of cryptocurrencies. For Europe the following countries use such ATMs:

Table 3: Cryptocurrency ATMs across EU states

EU Member State	Number of ATMs	EU Member State	Number of ATMs
Austria	272	Ireland	2
Belgium	12	Italy	42
Bulgaria	4	Latvia	1
Croatia	6	Malta	5
Czech Republic	65	Netherlands	26
Denmark	2	Poland	36
Estonia	2	Portugal	5
Finland	20	Romania	30
France	1	Slovakia	42
Germany	6	Slovenia	15
Greece	23	Spain	85
Hungary	14	United Kingdom	225
Iceland	1	Total	942

Cryptocurrencies do not qualify as e-money in most cases

- 9 They share characteristics of money- Fungibility, tradability, divisibility, countable and transferability but unlike fiat currency, are not backed by any central authority and have no claim on any counterparty.
- 10 Despite being a digital representation of value on DLT platforms, a May 2019 ECB definition²⁷ considers that crypto-assets do not qualify as “electronic money²⁸” under the Second Electronic Money Directive (EMD2)- as they are not and do not represent a claim on the issuer. The ECB definition also does not consider crypto-assets to be “scriptural money²⁹”. However, an EBA report³⁰ issued in 2019

²⁶ Website <https://coinatmradar.com> , data retrieve on 11 March 2019

²⁷ European Central Bank, May 2019, *Crypto-Assets: Implications for financial stability, monetary policy, and payments and market infrastructures*: Occasional Paper Series
<https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op223~3ce14e986c.en.pdf>

²⁸ ECB defines e-money as electronically stored monetary value as represented by a claim on the e-money issuer, which is issued on receipt of funds, for the purposes of making payment transactions, and which is accepted by a natural or legal person other than the electronic money issuer.

²⁹ Scriptural money means deposit balances held on account at a credit institution or a central bank, or electronic money.

³⁰ European Banking Authorities, January 2019, *Report with advice for the European Commission on Crypto-assets* <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>

highlights that there are cases where some crypto-assets could qualify as electronic money- as has been identified by five national competent authorities including Malta and the UK.

Special case of stable coin

- 11 A stable coin is a crypto-asset backed by real world assets, fiat currencies and in some special cases other cryptocurrencies. Stable coins attempt to solve the problem of high volatility. Linkage of the cryptocurrency to a stable asset hedges against the impact of price volatility and is intended to incentivize trust in payment tokens as a means of payment. Analogies can be drawn to the role that the gold standard had in inculcating trust in currencies during the 19th century and parts of the 20th century. There are different types of Stable coins characteristics
- (a) Fiat currency backed stable coins (USDC)
 - (b) Other crypto-currency backed stable coins
 - (c) Asset backed stable coins
 - (d) Algorithmically stabilised coins (i.e. algorithm that either increases or decreases supply of coins to influence volatility of value)
 - (e) Not every stable coin fits into a single classification category as they can be a derivative, a unit in a collective investment scheme, a debt security, e-money, or another type of specified investment

E-money tokens

- 12 E-money tokens is a classification category that is proposed in the guidance of the UK FCA following its consultative feedback³¹. These encompass tokens that meet the definition of e-money including there being a claim on the issuer. Some stable coins, payment, utility and security tokens can qualify as e-money based on jurisdictional authorities definition.
- 13 That said, unlike the other types of tokens, the categorisation of crypto-assets as e-tokens is yet to be widely applied in crypto-assets literature.

Security tokens

- 14 Tokens with specific rights and obligations similar to specified investments (equity, debt, unit investment). Examples include Royal Mint Gold (RMG coin) and Maecenas.
- 15 Security tokens rights and economic characteristics
- (a) Fungibility, tradability and transferability
 - (b) Contractual entitlement to ownership interest or control of the token issuer
 - (c) Revenue rights- rights to financial benefits from revenue streams of the issuer/operator
 - (d) Debt- right to set cash flows from the economic activities of the issuer/operator
 - (e) Profit sharing-right to financial profit from the economic activities of the issuer/operator
 - (f) Claims in bankruptcy as equity interest holder or creditor

³¹ UK Financial Conduct Authority, July 2019, Guidance on crypto-assets, Feedback and Final Guidance to CP 19/3 <https://www.fca.org.uk/publication/policy/ps19-22.pdf>

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- (g) Rights similar to derivatives instruments (e.g. Reference to other crypto-assets as underlying, granting the holder an option to purchase one or more investment interests)
- (h) Rights to future tokens (e.g. Simple Agreement for Future Tokens)
- (i) Convertibility of a non-security token into a token or instrument with one or more investment interests
- (j) Property ownership rights, Usufruct- Right to fruit from property

Utility tokens

- 16 Tokens that can confer a variety of network-associated rights including granting holders access to a current or prospective product or service.
- 17 Some examples of utility coins include: Filecoin, Golem, BAT, Ox and Gamecredits-MGO universal gaming tokens³²
- 18 Below is an illustrative description of value proposition of Basic Attention Tokens(BAT), a utility token, excerpted from the related white paper³³ (Table 4).

Table 4: Business model excerpt BAT

Present ecosystem	BAT token ad payments
User frustration over loading time	Fast loads
Walled gardens	Free software, open source infrastructure
Bandwidth wasted	Low bandwidth overhead
Screen clutter	Uncluttered screen
Irrelevant ads	Ads tuned to user interests
Security issues	No malware
Viewability problems/attribution	Secure attribution/attention score
Advertiser uncertainty about delivery	Perfect delivery certainty
CPM/click based	Attention-based
Reader attention not valued	Reader is paid for attention
Publisher revenues lowering	Larger publisher revenues
Expensive ad buys due to middlemen	Efficient ad buys
Complex/expensive viewability metrics	Simple/free viewability metric
User's privacy violated	Perfect user privacy

- 19 Utility tokens rights
 - (a) Rights to access products or services of Token Platform
 - (b) Rights to purchase or sell existing or future products or services
 - (c) Right to partial ownership of a product
 - (d) Rights to mining activities
 - (e) Rights to contribute labour, effort or resource to a system
 - (f) Right to contribute, programme or create features of a system
 - (g) Right to decide on products, services, functionalities to be offered or deleted within the Token Platform
 - (h) Rights to vote on matters of governance, management and operation of Token Platform

³² <https://www.mobilego.io/>

³³ <https://basicattentiontoken.org/wp-content/uploads/2017/05/BasicAttentionTokenWhitePaper-4.pdf>

Hybrid tokens

- 20 Tokens with multiple characteristics during their holding lifecycle (e.g. having utility token, payment token and security token features at the same time).
- 21 An example is Ether that has features of an asset token is also accepted as a means of exchange of goods external to the Ethereum blockchain and as a utility in granting holders access to the computation power of the Ethereum virtual machine. Another example is NEO

Pre-functional tokens

- 22 Direct-token pre-sales' or pre-functional tokens are tokens that are transferable via a protocol on the DLT network, but cannot yet offer utility on the network. Effectively, these are tokens issued before the network is launched and will typically convert to utility tokens once the network is active.
- 23 Security or product sales? pre-functional tokens that convert to utility tokens at a future date with accompanying Simple Agreements for Future Tokens (SAFTs) that are open only for accredited investors seem to be considered to be securities in some jurisdictions (e.g. US). But these tokens could also be considered as being simply pre-network launch product sales that should be available for any consumer.

Regulatory requirements for different crypto-assets

- 24 There has been heightened attention by different types of regulators on crypto-assets market developments and related risks. These includes from regulators whose purview is consumer protection, financial stability, market integrity and investor protection.
- 25 The economic characteristics of different crypto assets (e.g. whether or not they are either economically equivalent to securities or fiat e-money) has an influence on the type of regulation that is applied to them in different jurisdictions- and influences the requirements related to the issuance, secondary trading and holding of crypto-assets. Consequently, the prevailing regulatory requirements can be indicative of the economic characteristics of different crypto-assets and can serve as an input to assessing the appropriate accounting guidance for both issuers and holders of crypto-assets.
- 26 Many regulators have adopted the taxonomy where they differentiate payment tokens, e-money tokens (UK FCA), security tokens and utility tokens. A review of legal and regulatory literature³⁴ shows that apart from consumer protection and market integrity oriented requirements (e.g. know your customer and anti-money laundering requirements), the following categories of regulation exist.

³⁴ Allen & Overy LLP, 2019, Anti-Money Laundering Regulation of Cryptocurrency: US and Global Approaches

<http://www.allenoverly.com/SiteCollectionDocuments/Anti-Money%20Laundering%20Regulation%20of%20Cryptocurrency.pdf>

American Bar Association, March 2019. Digital and Digitized Assets: Federal and State Jurisdictional Issues
https://www.americanbar.org/content/dam/aba/administrative/business_law/buslaw/committees/CL62000pub/digital_assets.pdf

European Banking Authorities, January 2019, *Report with advice for the European Commission on Crypto-assets* <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>

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- (a) E-money regulation: There is varied regulation related to E-money tokens and payment services as shown by the below examples;
- (i) The ECB publication³⁵ implies that crypto-assets would fall outside scope of application of the payments services regulation. However, the EBA pointed to the existence of fact patterns in jurisdictions (UK and Malta) that would result in certain crypto-assets falling under e-money related regulation. The EBA highlighted feedback from five competent authorities of cases³⁶ that would qualify as e-money.
 - (ii) The Bank of France does not consider cryptocurrencies to constitute money or legal tender but they may qualify as “intangible movable property” under French civil law.
 - (iii) Despite a 2018 court of appeal ruling to the effect that bitcoin was not a financial instrument, the German Federal Financial Supervisory Authority (BaFin) considers cryptocurrencies that have the character of cash to be a financial instrument. In contrast, in 2013, the Dutch Ministry of Finance concluded that cryptocurrencies are neither e-money nor financial products within the meaning of the Dutch Financial Supervision Act (DFSA).
 - (iv) Japan regulates most crypto-assets under the Payment Services Act (i.e. crypto-assets with no issuer such as bitcoin, those where the issuer exists but has no obligation (“rightless tokens”) and those where the issuer exists and has obligations such as providing goods or services in the future (utility tokens)).
- (b) Regulation related to security tokens: In an EU context this will include MIFID 2, Transparency directive, Prospectus directive. Below are a few examples of countries’ regulation
- (i) In March 2018, BaFin issued an advisory letter stating that it will assess on a case-by-case basis whether an ICO token constitutes a) a financial instrument as per MIFID II b) a security within the meaning of the German Prospectus Act or c) a capital investment within the meaning of the German Capital Investment Act.
 - (ii) France’s Autorite Des Marches Financiers (AMF) makes a distinction between utility tokens and security tokens. The AMF conclude that because certain crypto-assets derivatives can qualify as financial contracts, they are subject to regulations application to financial instruments.
 - (iii) The Dutch Central Bank (DNB) and Dutch Authority for the Financial Markets (AFM) has provided guidance for qualification as a financial instrument.
 - (iv) The UK FCA guidance stated that security tokens should be regulated under securities regulation.

³⁵ Ibid 23

³⁶ Ibid 26- EBA describes two example including a Company A that wishes to create a blockchain-based payment network and issues a token in exchange for fiat currency and is pegged to the given currency. The token can be redeemed at any time, The actual payment on this network is the underlying claim against Company A or the right to get the claim redeemed.

- (v) In Japan, security tokens are treated as securities and regulated under the Electronic Record Transfer Rights (Financial Instruments and Exchange Act).
 - (c) Regulation related to utility tokens: Even though utility tokens may escape the net of securities regulation due to their failure to be classified as security tokens, the Financial Stability Board acknowledges the need for supervision and regulatory surveillance of utility tokens. In some jurisdictions (e.g. US, Japan) utility tokens are regulated under payment services or securities regulation. There is also rather rare bespoke regulation related to utility tokens (Antigua).
 - (d) Pre-functional tokens related regulation: Pre-functional tokens that convert to utility tokens at a future date with accompanying Simple Agreements for Future Tokens (SAFTs) that are open only for accredited investors seem to be considered to be securities in some jurisdictions (e.g. US). But these tokens could also be considered as being simply pre-network launch product sales that should be available for any consumer. It is not clear whether there is a common view on the appropriate categorisation and regulation of pre-functional tokens.
 - (e) Unregulated tokens in several jurisdictions (e.g. UK, Netherlands) typically include utility tokens, most cryptocurrencies as they do not meet the definition of e-money.
- 27 The above only represents an initial and non-exhaustive analysis of regulation across some jurisdictions. The EFRAG project outreach to crypto-assets experts will be used to update this initial analysis of regulatory requirements related to crypto-assets.
- 28 In summary, the initial analysis in this paper shows that there is varied application of regulation across jurisdictions. For example, in the US there is a fairly broad definition of securities through the application of the Howey test³⁷, whereby utility tokens are likely to be considered³⁸ securities. In addition, regulators tend to adopt a substance over form approach and therefore it does not mean that if an issuer describes a token as a utility token, the regulator will concur with such a classification.

³⁷ The 1946 case- *SEC v Howey* considered the case of a hotel operator in Florida that sold interests in a citrus grove to its guests. The operator claimed that it was selling *real estate* rather than *securities*. However, these sales also included service contracts for Howey-in-the-Hills Service, Inc., to manage the grove property on the new owner's behalf — and these "optional" service contracts were heavily advertised as being a lucrative investment. In ruling that this did, in fact, constitute the sale of a security, the Supreme Court created the aptly named "**Howey Test**": **a set of jointly sufficient conditions required for a given asset to be considered a security**. <https://blog.sfox.com/what-are-utility-tokens-and-how-will-they-be-regulated-89cfb6bb2a45>

The Howey test applied to determine whether a) was money invested b) Is a profit expected and c) does expected profit depend on the efforts of others

³⁸ Current SEC Chairman Jay Clayton in testimony to the Senate in 2018 claimed that there is no token issuance that he did not consider to be a security

Selection of NSS Holders Requirements

29 Table 5 below has a selection of NSS holders requirements. It is not an exhaustive representation of all the NSS guidance that may be available.

Table 5: Selection of NSS holders requirements

Jurisdiction	Nature	Measurement
Canada	Assessment to qualify as an asset necessary for each individual cryptocurrency. Intangible assets	IAS 8 Accounting Policy Choice IAS 38 <i>Intangible assets</i> Subsequent measurement: either at cost (cost method) or at fair value (revaluation method) IAS 2 <i>Inventories</i> Lower of cost and net realisable value
France	The following categories depending on business purpose of holder <ul style="list-style-type: none"> • Tokens held for own use (recorded as an intangible fixed asset) • Tokens held as investment (specific investment category) 	<i>Intangible fixed assets</i> Amortised over useful life (period of expected services) <i>Tokens held as investments</i> Fair value measurement Fair value gains or losses deferred until realisation In case of deferred loss position, provision to P&L for the amount Full disclosures on conditions of fair value determination due to current characteristics of markets
Japan	Uncertain whether legal property rights can be attached to virtual currencies. Nevertheless they are seen as assets for accounting purposes. Seen as an independent category of assets.	Active market: FVTPL
Lithuania	Financial asset with categorisation depending on business purpose of holder <ul style="list-style-type: none"> • Investment: Other investments • Held for payment- financial asset recorded as current assets 	FVTPL
Slovakia	ST financial asset other than cash	Fair value
Switzerland	The following categories depending on business purpose of holder <ul style="list-style-type: none"> • Financial asset (current assets or non-current assets) • Inventory • Intangible assets 	Financial asset- Fair value Inventory- lower of cost or fair value

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Jurisdiction	Nature	Measurement
Netherlands	<p>The following categories depending on business purpose of holder</p> <ul style="list-style-type: none"> • Intangible fixed asset • Inventory • Other investment 	<p>Intangible fixed asset: acquisition cost or at fair value</p> <p>Inventory: acquisition price</p> <p>Other investments: initial cost or fair value (through profit or loss or through OCI with recycling)</p>

Prevalence of crypto-assets holder business models

- 30 The EFRAG project aims to analyse the prevalence with focus on entities whose business models include holding crypto-assets on own behalf or own behalf of others. However, the EBA, ECB and FSB publications all highlight the elusive nature of quantitative data related to crypto-assets holdings within reporting entities.
- 31 The 2019 EBA report³⁹ highlights that seven national competent authorities are aware of the following activities conducted by credit institutions, investment firms, electronic money institutions and payment service firms within their jurisdiction:
- (a) Owning crypto-assets;
 - (b) Lending against crypto-asset collateral;
 - (c) Clearing or trading with derivatives with crypto-asset underlying;
 - (d) Investing in products with crypto-assets' underlyings;
 - (e) Lending to entities dealing directly or indirectly with crypto-assets;
 - (f) Providing exchanges services for crypto-assets to fiat currencies or for other crypto-assets.
- 32 ESMA publication highlights that estimates 200 trading platforms globally- the largest platforms are outside the EU and are in US and Asia.
- 33 Besides financial services entities, non-financial entities including blockchain token economy companies could be holders of crypto-assets.
- 34 The EFRAG project outreach to expert stakeholders will also seek to establish the significance of business models that are likely to be holders of crypto-assets within the EU and other key markets.

³⁹ European Banking Authorities, January 2019, *Report with advice for the European Commission on Crypto-assets* <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>

GLOSSARY OF TERMS

- 1 The glossary of terms in the table below is related to a selection of commonly used technology oriented terms related to crypto-assets. Other common crypto-assets related terms (e.g. types of tokens, stable coins) are defined in earlier sections of this paper and hence are not included in the below glossary.

TERM	DESCRIPTION
Blockchain	One type of distributed ledge in which details of transactions and smart contracts are recorded on the ledger in the form of blocks of information. Transactions result in new blocks being added to the block chain via a computerised process (i.e. cryptographic process).
Blockchain token economy companies	Companies business models that entail participation or blockchain-based decentralised ecosystems A blockchain-based token economy has emerged, driven by the explosive growth in the value and variety of those crypto-assets
Crypto-asset platform developer	Coin developers on own platform (e.g. Bitcoin, Ethereum)
Cryptography/Cryptographic	The conversion of data into private code using encryption algorithms, typically for transmission over a public network.
Distributed ledger technology (DLT)	Technology that allowed a repeated digital copy of the ledger of transactions. DLT is built upon public-key cryptography (publicly known and essential for identification) and confidential private-keys, which are used for authentication and encryption during transactions (i.e. transfer of funds). Block chain is one type of DLT but there are others (DAG, Tempo).
Distributed consensus mechanism	The process of network participants within a DLT environment of agreeing on one state or result in the distributed ledger.
Crypto-asset coin versus token	The difference between a coin and token is that a coin is issued on the crypto-asset developer's platform (e.g. Bitcoin, Ethereum) whereas a token can be issued on other platform
Fork	A fork is a change to the DLT protocol that can arise for several reasons (e.g. security, or if part of the community wants to take the project in a

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	different direction). Hard fork creates two versions of the protocol and an additional alternative crypto-asset
Initial coins offerings (ICOs)	An operation through which companies, developers raise capital for their projects in exchange for crypto-assets. It is one of the key mechanisms for the supply or issuance of crypto-assets.
Mining-Proof of work	Mining-is a process of establishing consensus to verify and confirm transactions within a DLT environment. Proof of work requires a cryptographic process.
Proof of stake (PoS)	PoS is a form of consensus mechanism within a DLT environment that requests network participants to demonstrate ownership of a pre-defined crypto-asset. Participants can mine or validate block transactions according to their ownership of crypto-assets.
Permissioned DLT	A DLT network in which only those parties that meet certain requirements are entitled to participate to the validation and consensus process.
Permissionless DLT	A DLT network in which virtually anyone can become a participant in the validation and consensus process. Common for cryptocurrencies (e.g. Bitcoin)
Private key	Required to send crypto-assets. Anyone with the key has sole access to the funds.
Public key	Public key is the identifier that allows receipt of transferred crypto-assets.
Smart contracts	In addition to crypto-assets, some blockchain platforms also support smart contracts. The most prominent smart contract is Ethereum.
Wallet provider (Hot wallet and cold wallet)	A firm that offers storage services to holders of crypto-assets and these could be online (hot wallet) or offline (cold storage).