

GLOBAL DIGITAL FINANCE

Tax Treatment of Cryptoassets

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1. Introduction

a. Global Digital Finance

Global Digital Finance (“**GDF**”) is a not-for-profit industry body that promotes the adoption of best practices for cryptoassets and digital finance technologies through the development of conduct standards in a shared engagement forum with market participants, policymakers, and regulators.

Established in March 2018, GDF has convened a broad range of industry participants, with 300+ global community members including some of the most influential digital asset and token companies, academics, and professional services firms who support the industry.

We engage with more than 35 global regulators who observe our activities, including the U.S. Securities and Exchange Commission (“**SEC**”), U.S. Commodity Futures Trading Commission (“**CFTC**”), the U.K. Financial Conduct Authority (“**FCA**”), European Securities and Markets Authority (“**ESMA**”), the Monetary Authority of Singapore (“**MAS**”). We also work with intergovernmental organisations, including the Financial Stability Board (“**FSB**”), Bank of International Settlements (“**BIS**”) and the Financial Action Task Force (“**FATF**”). As a result of these engagements, we have recently formed a Joint Working Group on InterVASP Messaging Standards in conjunction with the Chamber of Digital Commerce and International Digital Asset Exchange Association (“**IDAXA**”) in order to develop a uniform standard for virtual asset service providers (VASPs) to align with FATF recommendations.

At the same time, GDF recognises that capturing these opportunities requires the nascent cryptoasset industry to adhere to the requisite level of self-discipline and maturity. Incidents of fraud, embezzlement, deception, and other forms of violation of existing laws, rules, and regulations or bad behaviours threaten the reputation and sustainability of the industry.

b. Global Digital Finance Tax Working Group

The GDF Tax Working Group is a group of industry community members and practitioners, specialising in taxation. It has come together to achieve the following outcomes:

1. *To provide information regarding the global taxation of cryptocurrency and other blockchain tokens to consumers, investors, businesses, and issuers.*
2. *To provide information/recommendations to regulators regarding where guidance is needed and, in implementing taxation regimes, further suggestions to minimise both compliance burden and conflict with other jurisdictions.*

As there is no universal approach to the taxation of cryptoassets, the Working Group has analysed common themes in various regulatory authority statements and from members' experience, and have thus drafted key principles in order to provide a useful working document for the community.

Legal recognition of cryptoassets is varied across jurisdictions, ranging from proactively adopting new regulation (e.g., Gibraltar, Jersey) to fitting them into existing legal frameworks (e.g., France, Hong Kong, United States) to barring cryptoasset markets altogether (e.g., China, Iran).¹ Of the jurisdictions that permit cryptoasset activity, many impose tax.²

This paper endeavors to provide general information regarding global taxation issues impacting cryptoassets pertaining to industry stakeholders and regulators. *The laws of*

¹ U.S. Law Library of Congress ("LOC"), Regulatory Approaches to Cryptoassets in Selected Jurisdictions (Apr. 2019), <http://loc.gov/law/help/cryptoassets/cryptoasset-regulation.pdf> (hereinafter "LOC 2019 Cryptoasset Report"). See also LOC, Regulation of Cryptocurrency Around the World (Aug. 16, 2019), <http://loc.gov/law/help/cryptocurrency/world-survey.php> (hereinafter "LOC World Survey"); LOC, Regulation of Cryptocurrency Around the World (Jun. 2018), <http://loc.gov/law/help/cryptocurrency/world-survey.pdf> (hereinafter "LOC 2018 World Report"); LOC, Regulation of Cryptocurrency in Selected Jurisdictions, at 1 (Jun. 2018), <http://loc.gov/law/help/cryptocurrency/regulation-of-cryptocurrency.pdf> (hereinafter "LOC 2018 Selected Report"); International Organization of Securities Commissions ("IOSCO"), Consultation Report: Issues, Risks and Regulatory Considerations Relating to Crypto-Asset Trading Platforms, at 8 (May 2019), <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD627.pdf>.

² Some jurisdictions do not levy any tax on cryptoassets. For example, Belarus will not levy an income or value added tax on cryptoassets, including mining and sales of tokens, until 2023. LOC 2019 Cryptoasset Report, *supra* note 1, at 33.

most jurisdictions have not addressed many of the issues discussed herein, and readers who are facing any of these issues are advised to seek professional tax advice.

The rest of the paper is organised as follows: Section 2 introduces cryptoassets and its prevailing three-category taxonomy of (1) cryptocurrency or payment tokens, (2) security tokens, and (3) utility tokens or consumption tokens. Section 3 explores the legal nature and use of each type of cryptoasset, whereas Section 4 examines their tax consequences. Section 5 reviews anticipated approaches to new financial contracts that combine elements from more than one category of cryptoasset, and Section 6 examines the unique tax issues emerging from cryptoassets and blockchain technology. Section 7 discusses the issue of the appropriate taxing jurisdiction in cross-border cryptoasset activity and international tax liability therefrom. Section 8 looks at tax information reporting, whereas section 9 surveys tax enforcement thus far. Finally, Section 10 offers concluding remarks, and proposes recommendations for regulators, in particular, identifying issues most in need of tax guidance and calling for a uniform approach to understanding how regulators assess cryptoassets.

2. Taxonomy

a. Introduction to Cryptoassets

This paper references a common definitional vocabulary that is preferred by global standard-setting bodies³ and articulated in the GDF Taxonomy for Cryptographic Assets published on August 31, 2018 and revised July 26, 2019,⁴ clarifying the definition of **cryptoassets**⁵ and its three main forms (as described below) based on emerging regulatory guidance worldwide.⁶

³ The term “cryptoasset” aligns with the preferred term of the Basel Committee on Banking Supervision (“BCBS”) and the Financial Stability Board (“FSB”). See European Banking Authority (“EBA”), EBA Report with Advice for the European Commission on Crypto-assets, at 11 (Jan. 9, 2019), <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>; FSB, Crypto-assets: Work Underway, Regulatory Approaches and Gaps, at 8 (May 31, 2019), <https://www.fsb.org/wp-content/uploads/P310519.pdf>.

⁴ GDF, Taxonomy for Cryptographic Assets, at 4 (Jul. 2019), https://www.gdf.io/wp-content/uploads/2019/02/0010_GDF_Taxonomy-for-Cryptographic-Assets_Proof-V2-260719.pdf (hereinafter “GDF Taxonomy”).

⁵ There is no universally standardised definition of “cryptoasset,” although it is commonly used as the umbrella term for digitally native tokens utilising distributed ledger technology (“DLT”) infrastructure. Cambridge Centre for Alternative Finance (“CCAF”), The Global Cryptoasset Regulatory Landscape Study, at 21 (2018), https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf. See also U.K. Her Majesty’s Revenue & Customs (“HMRC”), Policy Paper: Cryptoassets: Tax for Individuals, (Dec. 2019), <https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-for-individuals>. Some commonly used terms include “crypto asset,” “crypto token,” “crypto currency,” “virtual currency,” “digital asset,” and “virtual asset.” European Central Bank (“ECB”), Directorate General Market Infrastructure and Payments (“DG/MIP”), Crypto-assets -- Trends and Implications, MIP Online, (Jun. 2019), https://www.ecb.europa.eu/paym/intro/mip-online/2019/html/1906_crypto_assets.en.html.

⁶ We refer to a number of tax authorities and international bodies who are using a similar tripartite taxonomy. See, e.g., HMRC, *supra* note 5; Hong Kong Inland Revenue Department (“IRD”), Departmental Interpretation and Practice Note: Digital Profits Tax – Digital Economy, Electronic Commerce and Digital Assets (Mar. 2020), at 27, <https://www.ird.gov.hk/eng/pdf/dipn39.pdf> (hereinafter “HK IRD Practice Note”); EBA, *supra* note 3, at 7; International Monetary Fund (“IMF”), Treatment of Crypto Assets in Macroeconomic Statistics, 5, BOPCOM 18/11 (2018), <https://www.imf.org/external/pubs/ft/bop/2018/pdf/18-11.pdf>. Other tax authorities have not adopted a specific taxonomy yet (e.g., United States), but the taxonomy discussed herein is not inconsistent with existing authority.

Cryptoassets are cryptographically secured digital representations of value⁷ not issued or guaranteed by a central bank,⁸ a set of claims, or a set of permissions that are enjoyed by the holder and can be used as a means of exchange, for investment purposes, or to access a good or service.⁹ Cryptoassets can be transferred, stored, or traded electronically.¹⁰ Cryptoassets are created and exist using DLT in the form of digitally native tokens.¹¹ DLT is a database technology characterised by being replicated, shared, and synchronised in a decentralised user network across multiple sites, institutions, or geographies.¹² Thus, cryptoassets function without institutional backing and are intrinsically borderless.¹³

Generally speaking, a token itself might take a physical form (e.g., a lottery ticket) or it might be a digital representation of something physical. Of the latter category, a digital token can represent a store of value or medium of exchange (e.g., virtual currency like bitcoin),¹⁴ a set of claims (e.g., the electronic representation of a debt contract), or a set of permissions (e.g., the right of a one-off or perpetual discount for goods/services on an online platform)¹⁵ Digital tokens have existed within a variety of network forms well before the creation of bitcoin, including the traditional “hub and

⁷ See e.g., HMRC, *supra* note 5.

⁸ ECB, Crypto-Assets Task Force, Crypto-Assets: Implications for Financial Stability, Monetary Policy, and Payments and Market Infrastructures, Occasional Paper Series No. 229, at 7 (May 2019), <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op223~3ce14e986c.en.pdf> (hereinafter “**ECB Cryptoassets Paper**”). See also European Union, Directive (“**EU**”) 2018/843, 5th Anti-Money Laundering Directive (May 30, 2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018L0843> (hereinafter “**AMLD5**”); cf. Committee on Payments and Markets Infrastructure (“**CPMI**”) and Bank of International Settlements (“**BIS**”), Central Bank Digital Currencies, at 3 (Mar. 2018), <https://www.bis.org/cpmi/publ/d174.pdf> (cryptocurrencies are deemed “so-called private digital tokens” in contrast to central bank liabilities known as “Central Bank Digital Currencies” or CBDCs).

⁹ See EBA, *supra* note 3, at 10-11.

¹⁰ HMRC, *supra* note 5. See also Inland Revenue Authority of Singapore (“**SG IRAS**”), IRAS e-Tax Guide (Draft) -- GST: Digital Payment Tokens, at 8 (Jul. 5, 2019), https://www.iras.gov.sg/irashome/uploadedFiles/IRASHome/GST/Draft%20e-Tax%20Guide%20_GST_Digital%20Payment%20Tokens.pdf (hereinafter “**SG IRAS Payment Tokens**”).

¹¹ A digital token is “simply a string of characters that constitutes a cryptographically-secure representation of a set of rights that can be used within a specific context.” CCAF, *supra* note 5, at 14.

¹² GDF Taxonomy, *supra* note 4, at 29.

¹³ BIS, Regulating Cryptocurrency: Assessing Market Reactions, at 52 (Sept. 2018), https://www.bis.org/publ/qtrpdf/r_qt1809f.pdf.

¹⁴ “Bitcoin” with an uppercase “B” refers to the protocol or software, whereas “bitcoin” with a lowercase “b” refers to the unit of currency.

¹⁵ GDF Taxonomy, *supra* note 4, at 4.

spoke” architecture in which a central entity maintains token network activity; however, the primary interest of this document is the particular subset of digital tokens that exist within distributed, decentralised networks referred to as cryptoassets.

Appreciating that jurisdictional definitions of cryptoassets may differ, this document, to the extent it explores the tax issues arising therefrom, proposes the following three categories based on global regulatory frameworks.¹⁶

i. Cryptocurrency or Payment Tokens

Tokens whose intrinsic features are designed to serve as a general purpose store of value, medium of exchange, and/or unit of account.¹⁷ The value exists on its use as a means of payment or investment¹⁸ for peer-to-peer payments, which utilise a framework of internal protocols instead of a central party to verify and perform the transactions.¹⁹ These tokens are also typically referred to as cryptocurrency²⁰ or virtual currency,²¹ as well as payment tokens or exchange tokens.²²

¹⁶ See CCAF, *supra* note 5, at 21; EBA, *supra* note 3, at 4, 7 at Box 1.

¹⁷ Some jurisdictions, such as Singapore, further narrow the definition of payment tokens by excluding any association or pegging to fiat currency. SG IRAS Payment Tokens, *supra* note 10. Singapore defines this category of the “digital payment token” as follows: (1) expressed as a unit; (2) fungible; (3) denominated in any currency, and not pegged by its issuer to any currency; (4) capacity to be transferred, stored or traded electronically; and (5) presently or intended to be a medium of exchange accepted by the public, or a section of the public, without any substantial restrictions on its use as consideration.

¹⁸ HMRC, *supra* note 5.

¹⁹ IMF, *supra* note 6.

²⁰ The U.S. Internal Revenue Service (“IRS”) has defined “cryptocurrency” as a type of virtual currency that uses cryptography to secure transactions that are digitally recorded on a distributed ledger, such as a blockchain. IRS, Frequently Asked Questions on Virtual Currency Transactions, Q&A 3, <https://www.irs.gov/individuals/international-taxpayers/frequently-asked-questions-on-virtual-currency-transactions> (hereinafter “IRS FAQ”). Note that the IRS FAQs apply only to investors holding virtual currency as a capital asset.

²¹ The IRS has defined “virtual currency” as “a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value.” IRS Notice 2014-21, 2014-16 I.R.B. 938, (Mar. 25, 2014), <https://www.irs.gov/pub/irs-drop/n-14-21.pdf> (hereinafter “IRS Notice 2014-21”); IRS FAQ, *supra* note 20, at Q&A 1. Similarly, the EBA has defined virtual currency as “a digital representation of value that is neither issued by a central bank or public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically.” EBA Opinion on ‘Virtual Currencies,’ EBA/Op/2014/08, at 5 (Jul. 4, 2014). See also Financial Action Task Force, Virtual Currencies: Key Definitions and Potential AML/CFT Risks, at 4 (Jun. 2014).

²² See, e.g., EBA, *supra* note 3, at 7; HMRC, *supra* note 5.

ii. Security Tokens

Tokens whose intrinsic features are designed to serve as or represent financial assets such as “securities” and other financial instruments. These tokens represent debt or equity claims on the issuer or some derivative thereof, generating interest to the holder or promising a share in future earnings of the corporate issuer.²³ Security tokens are also referred to as asset tokens or investment tokens.²⁴

iii. Utility Tokens or Consumption Tokens

Tokens that are inherently consumptive in nature, because their intrinsic features are designed to provide immediate or future access to: (1) a platform or technology typically DLT-based;²⁵ or (2) a particular set of goods, services, or content (e.g., games, music, file storage).²⁶

These categories are designed in reference to a token’s “intrinsic” features – i.e., the actual functions that are coded into the tokens and the networks and platforms on which they operate. Other tokens exhibiting features of two or more of the three categories are referred to as “hybrid tokens.” They are briefly explored in Section 3.d 3.e., *Combination/Hybrid Token*, below.

3. Legal Nature and Use of Cryptoassets

a. Introduction

Many might use “cryptocurrency” and “token” interchangeably; however, the exact regulatory and tax treatment of “token” is determined by its nature and its use, not its definition.²⁷ The tax treatment of a token depends on its use within the ecosystem that is created. Most taxing authorities have not provided guidance on the specific tax treatment of tokens, requiring taxpayers to draw analogies.

²³ IMF, *supra* note 6, at 8.

²⁴ The IMF and the EBA use “asset tokens” and “investment tokens,” respectively, to refer to this second category of cryptoassets. IMF, *supra* note 6, at 8; EBA, *supra* note 3, at 7.

²⁵ CCAF, *supra* note 5, at 18.

²⁶ BIS, *supra* note 8, at 54 n. 6.

²⁷ See, e.g., HMRC, *supra* note 5, at 3.

Many jurisdictions treat cryptocurrency as a form of property for tax purposes. For example, the United States has issued guidance that “convertible virtual currency”²⁸ is treated as property for federal income tax purposes and, thus, gain or loss is recognised upon an exchange of convertible virtual currency for other property.²⁹ In the United Kingdom, corporations pay corporate tax, unincorporated businesses pay income tax, and individuals pay capital gains tax on transactions involving cryptocurrencies.³⁰ On the other hand, in Hong Kong and Singapore, corporations and individuals may be generally taxed on profits derived from cryptocurrency trading, but where gains are considered as capital in nature (i.e., from long-term investment), they are not taxable, because capital gains are not taxable.³¹ Israel taxes cryptocurrency as an asset, Bulgaria and Slovakia tax it as a financial asset, Norway taxes it as capital property, and Canada taxes it as a commodity.³² The French tax authorities have not issued comprehensive guidance dedicated to tokens, rather they only include comments on this topic in their official published guidelines on French tax rules.³³ These rules only deal with the tax treatment of tokens for individuals. Likewise, the Belgian tax administration has not issued any guidance on the specific tax treatment of tokens, though the Belgian Federal Ruling Commission issues publicly available rulings on the tax treatment of tokens that are based on analogies with existing assets (such as currency, securities, or even commodities).

²⁸ See IRS Notice 2014-21, *supra* note 21.

²⁹ IRS FAQ, *supra* note 20, at Q&A 1-2. Note that this represents a broadening of the rule announced in IRS Notice 2014-21, which only applies to “convertible virtual currency.” “Convertible” virtual currency is defined as “virtual currency that has an equivalent value in real currency, or that acts as a substitute for real currency.” Bitcoin is cited as one example of a convertible virtual currency. IRS Notice 2014-21, *supra* note 21.

³⁰ HMRC, Revenue and Customs Brief, at 9 (2014): Bitcoin and Other Cryptocurrencies (Mar. 3, 2014), <https://www.gov.uk/government/publications/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies>, archived at <https://perma.cc/MP2E-GQKV>. See also LOC 2018 World Report, *supra* note 1, at 3, 59.

³¹ LOC 2019 Cryptoasset Report, *supra* note 1, at 110; Henry Yu, *Hong Kong*, in Global Legal Insights (“GLI”), BLOCKCHAIN LAWS AND REGULATIONS 2019 (Sept. 17, 2018), <https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/hong-kong>, archived at <https://perma.cc/W7PG-4SD5>; Consilium Law, *Singapore*, in GLI, *id.*, at <https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/singapore#chaptercontent4>. Capital gains tax does not exist in Hong Kong and Singapore.

³² See LOC 2018 World Report, *supra* note 1, at 10-11, 33, 54, 74, 85.

³³ France Bulletin Officiel des Finances Publiques – Impôts, BIC - Champ d'application - Précisions doctrinales ou jurisprudentielles relatives à certaines professions - Autres professions [France Official Bulletin of Public Finance - Taxes, BIC - Scope - Doctrinal or Jurisprudential Details Relating to Certain Professions - Other Professions] (Sept. 2, 2019), BOI-BIC-CHAMP-60-50-20190902, <https://bofip.impots.gouv.fr/bofip/4755-PGP.html/identifiant=BOI-BIC-CHAMP-60-50-20190902> (hereinafter “BOI-BIC-CHAMP-60-50-20190902”).

The challenge now emerging from the very limited guidance released by tax authorities can be illustrated by the United States. Although the IRS in the United States indicated that “convertible virtual currency” is property in both Notice 2014-21 and the subsequent FAQs, it did not define what kind of property.³⁴ Therefore, existing IRS guidance does not directly address the classification of tokens. The classification is further complicated by the fact that the regulatory agencies in the United States have taken differing positions on how cryptocurrency and tokens are classified. For example, bitcoin is treated as property by the IRS, as a commodity by the CFTC,³⁵ and as money by the U.S. Treasury Department’s Financial Crimes Enforcement Network (“FinCEN”).³⁶ The SEC has said that bitcoin and ether do not constitute securities, but other tokens could.³⁷

On the other hand, Hong Kong has recently published guidance that the Inland Revenue Department (“IRD”) will look at the nature and obligations of the cryptoasset, not the form of the tokens that are issued to determine tax treatment.³⁸

b. Cryptocurrency or Payment Tokens

Although cryptocurrency and other payment tokens are intended to be used as a medium of exchange, a unit of account, and/or a store of value -- in other words, like a currency -- very few tax authorities have indicated that cryptocurrency will be treated as a currency for tax purposes. At the time of this writing, we are only aware that

³⁴ See IRS Notice 2014-21, *supra* note 21; IRS FAQ, *supra* note 20.

³⁵ See Testimony of CFTC Chairman Timothy Massad before the U.S. Senate Committee on Agriculture, Nutrition and Forestry (Dec. 10, 2014), <http://www.cftc.gov/PressRoom/SpeechesTestimony/opamassad-6> (hereinafter “CFTC Testimony”). This position has been upheld by U.S. federal courts. See *Commodity Futures Trading Commission v. My Big Coin Pay, Inc.*, No. 18-10077-RWZ (D. Mass. Sept. 26, 2018); *Commodity Futures Trading Comm’n v. McDonnell*, No. 1:18-cv-00361 (E.D.N.Y. Mar. 6, 2018).

³⁶ FinCEN has taken the position that convertible virtual currency substitutes for currency and, thus, can make someone a “money transmitter.” 31 C.F.R. § 1010.100(ff)(5)(i)(A). See also FinCEN Guidance, Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies, FIN-2013-G001 (Mar. 18, 2013); FinCEN Guidance, Application of FinCEN’s Regulations to Certain Business Models Involving Convertible Virtual Currencies, FIN-2019-G001 (May 9, 2019).

³⁷ Specifically, the SEC has said that bitcoin and ether, in their present decentralised state, are not securities, but that certain tokens issued in initial coin offerings may be securities. See William Hinman, *Digital Asset Transactions: When Howey Met Gary (Plastics)*, Remarks at the Yahoo Finance All Markets Summit: Crypto (Jun. 14, 2018), <https://www.sec.gov/news/speech/speech-hinman-061418>; see also SEC, *Framework for “Investment Contract” Analysis of Digital Assets*, <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets>.

³⁸ HK IRD Practice Note, *supra* note 6, at 27.

Switzerland and Italy have ruled that cryptocurrency is treated as a foreign currency for tax purposes.³⁹

Since the birth of Bitcoin⁴⁰ over ten years ago, we have seen a proliferation of cryptoasset use cases. Although today we think of bitcoin as the father of digital money, the idea of trustless digital currencies not issued or backed by any central bank has been around much longer, such as DigiCash⁴¹ for example. In this section we will highlight the most common forms of use cases for cryptocurrency or payment tokens at the time of publishing, though this is by no means an exhaustive list.

i. Investment

Investment is generally defined as: “the action or process of investing; A thing worth buying because it may be profitable in the future,”⁴² whereas the action of investing, as defined by the U.S. SEC is “to engage in any activity in which money is put at risk for the purpose of making a profit.”⁴³ The expectation of an investment is to generate a profit. The profit may consist of a gain (or loss) realised from the sale of property or an investment, unrealised capital appreciation (or depreciation), or investment income, such as dividends, interest, rental income, or a combination of capital gain and income.⁴⁴

³⁹ LOC 2019 Cryptoasset Report, *supra* note 1, at 80; Giorgio Vaselli, Italy’s Tax Treatment of Cryptocurrencies: The Risks and Opportunities, The Block, <https://blockchaintechology-news.com/2019/04/italys-tax-treatment-of-cryptocurrencies-the-risks-and-opportunities/>.

⁴⁰ Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2009), <https://bitcoin.org/bitcoin.pdf>.

⁴¹ David Chaum, Blind Signatures for “Untraceable Payments,” *Advances in Cryptology Proceedings of Crypt 82*, Plenum, at 199-203, <http://www.hit.bme.hu/~buttyan/courses/BMEVIHIM219/2009/Chaum.BlindSigForPayment.1982.PDF>; Julie Pitta, “Requiem for a Bright Idea,” *Forbes* (Nov. 1, 1999), <https://www.forbes.com/forbes/1999/1101/6411390a.html#29b7e4e4715f>.

⁴² Concise Oxford English Dictionary, Investment, at 748 (11th ed. 2008); Michael Hwang & Jennifer Lee Chung Fong, *Definition of “Investment”—A Voice from the Eye of the Storm*, *Asian J. Int’l L.* 1(1), 99-129 (2011), doi:10.1017/S2044251310000378, <https://www.cambridge.org/core/journals/asian-journal-of-international-law/article/definition-of-investment-a-voice-from-the-eye-of-the-storm/7308610FFDDFCC1A9A7F1ED8EA26223D/core-reader>.

⁴³ SEC, Glossary -- Invest, <https://www.investor.gov/additional-resources/general-resources/glossary/invest>.

⁴⁴ See Elvis Picardo, Investing, Investopedia (Apr. 18, 2020), <https://www.investopedia.com/terms/i/investing.asp>.

The investor will acquire an asset⁴⁵ (usually through a medium of exchange, such as cash), with an expectation that the underlying asset will over time provide a return greater than the initial investment. Payment/exchange token cryptoassets, such as bitcoin, can be considered assets much like that of cash instruments held for investment.⁴⁶

The fundamental difference with cryptoassets, as compared to traditional investments, is that the investment here is natively digital — that is, it is born within a computer network never having existed previously as a physical asset. Investing, although similar in some respects to trading (see Section 3.b.ii., *Financial Trading or Dealing*, below), is usually conducted over a medium- to long-term time horizon with an expectation of capital appreciation or income, such as a dividend (stock) or interest payment (bond). However, with bitcoin for example, much of the activity is concerned with buying and holding the asset, with a belief that the network value represented by the price, will increase over time (see Section 6.e.i, *Valuation*, below).⁴⁷

In terms of the investor's tax responsibilities, this will be dictated by the nature and the use of the cryptoasset (as further discussed in this Section 3, *Legal Nature and Use of Cryptoassets*). However, as a general rule, the disposal or sale of a cryptoasset held for investment will generate a taxable event (whether gain or loss is realised), much like the sale of a share or a bond, most likely falling under capital gains tax. See below subsections on *Conversion into Cash* (Section 3.b.vi.), *Conversion into Other Cryptocurrency* (Section 3.b.vii.), and *Conversion into Other Property, Goods, or Services* (Section 3.b.viii.) for further explanation.

Investors may be able to deduct losses in certain limited circumstances without converting the cryptoasset. For example, if the exchange or blockchain company is hacked, the investor's private key and the associated cryptoassets could be stolen. In such a case, the investor may claim a loss for theft in the

⁴⁵ "Units of a crypto-asset may be used as a means of exchange and are de-facto considered by their users as assets, in the sense of 'something of value', although they do not correspond to the liability of, and claim on, any party." ECB Cryptoassets Paper, *supra* note 8, at 8.

⁴⁶ See IRS Notice 2014-21, *supra* note 21, at Q&A 1; IRS FAQ, *supra* note 20, at Q&A 2.

⁴⁷ The buy-and-hold strategy of bitcoin and other cryptocurrency long-term holders is commonly and colloquially referred to as "HODL," derived from a misspelling of "hold" in a post to the bitcoin talk forum. Investopedia, HODL (Jun. 25, 2019), <https://www.investopedia.com/terms/h/hodl.asp>. See Steven Hopkins, HODL On: In Defense of Bitcoin's Best Strategy, Coindesk (Apr. 16, 2018), <https://www.coindesk.com/bitcoin-in-defense-of-hodlers>.

year the theft was discovered.⁴⁸ However, if the cryptoassets simply become worthless, the investor may claim a deduction only if the cryptoassets constitute securities for U.S. tax purposes.⁴⁹ See Section 4.a.v., *Recognition of Losses*, below.

ii. Financial Trading or Dealing

Trading, much like investing, is the buying and selling of a financial asset or any asset, with a motivation to increase profit, but unlike an investor, a trader is engaged in a trade or business.⁵⁰ In fact, the terms professional trader and professional investor are used interchangeably in some jurisdictions. A trader can be an individual at home trading on his or her own account (i.e., a retail trader) or a professional trader employed by an institution.

One difference between a trader and investor is that a trader, unlike an investor, will more likely buy and sell the asset across shorter time horizons and with greater frequency.⁵¹ A trader will look for opportunities to maximise profits such as engaging in arbitrage by exploiting price differentials across different markets -- e.g., buying bitcoin on a U.S. exchange and selling on a Korean exchange at a higher price in a short space of time. This new type of “digital arbitrage” or “automated arbitrage” will have to be audited with new global standards as trading bots can execute in different jurisdictions.

Traders will also use tools such as hedging, which is used to offset potential gains or losses. Traditional securities markets offer many tools for hedging, such as futures, forwards, options, and swaps (also known as derivatives, see Section 3.c.i(D), *Derivatives*, below). Other options available to traders include

⁴⁸ See, e.g., Internal Revenue Code Section 165(e), 26 U.S. Code § 165(e) (hereinafter “IRC”).

⁴⁹ IRC Section 165(g).

⁵⁰ The question as to whether the activity amounts to a financial trade for tax purposes depends on a factual analysis by the tax authority, according to HMRC guidance. If the activity is deemed to be trading, then income tax will take priority over capital gains tax. HMRC, *supra* note 5, at 4. Similarly, in the United States, common law provides that, to be engaged in a trade or business, the taxpayer must be involved in the activity with continuity and regularity and that the taxpayer's primary purpose for engaging in the activity must be for income or profit. See, e.g., *Comm’r v. Groetzinger*, 480 U.S. 23 (1987); *Whipple v. Comm’r*, 373 U.S. 193 (1963).

⁵¹ For example, in the United States, see, e.g., *Moller v. United States*, 721 F.2d 810 (Fed. Cir. 1983); *Mayer v. United States*, 32 Fed. Cl. 149 (1994).

investment funds or trusts,⁵² exchange traded funds (“ETFs”),⁵³ and exchange traded notes (“ETNs”).⁵⁴ As of the date of this paper, there are only a handful of these products available for cryptoassets, but there are many more in the pipeline.⁵⁵

A further difference between the investor and the trader is volatility. An investor is more likely to aspire to a low volatile investment, whereas the trader may wish to trade in higher volatility. As of the date of this paper, the aggregate cryptoasset market can be considered highly volatile. To illustrate, the aggregate network value of cryptoassets between October 2016 and August 2019 has grown from \$10 billion to \$270 billion with a peak of \$830 billion in January 2018.⁵⁶ A further illustration is the price of bitcoin (currently the largest cryptoasset), which in December 2017 fell over 45% from its peak of over \$19,000 to \$11,000, within a few days.⁵⁷

High volatility offers the trader the opportunity to make large profits and conversely large losses. The actual utility value of these cryptoassets, that is “what does it enable the user to do,” is somewhat harder to determine and is something we go into further detail below in Section 6.e.i., *Valuation*.

In terms of the trader’s tax responsibilities, similar to the investor, they will be dictated by the nature and use of the cryptoasset (further discussed in this Section 3, *Legal Nature and Use of Cryptoassets*). However, as a general rule,

⁵² For example, Grayscale offers a number of cryptocurrency trusts, and Galaxy Digital Assets, Polychain Capital, and Pantera Capital all offer various cryptocurrency funds.

⁵³ See ETF.com, <https://www.etf.com> (providing news, analysis, and education about ETFs); Nasdaq ETF/ETP, <http://www.nasdaqomxnordic.com/etp> (providing trading, clearing, exchange technology, listing, information, and public company services, including offering exchange-traded products, such as ETFs); Fidelity, What are ETFs (2011), <https://www.fidelity.com/learning-center/investment-products/etf/what-are-etfs>. As of the time of this writing, there are no cryptocurrency ETFs in the United States.

⁵⁴ See Yogita Khatri, Exchange-Traded Notes for XRP, Litecoin Launch on Boerse Stuttgart, Coindesk (May 13, 2019), <https://www.coindesk.com/exchange-traded-notes-for-xrp-litecoin-launch-on-boerse-stuttgart>; Xena Exchange, What is Bitcoin & Crypto ETN? (Oct. 11, 2019), <https://xena.exchange/blog/understanding-etns-and-their-prospects-on-the-cryptocurrency-market/>; Jimmy Aki, U.S. Investors Can Now Buy A Bitcoin Exchange-Traded Note, Bitcoin Magazine (Aug. 16, 2018).

⁵⁵ Cointelegraph, ETF News, <https://cointelegraph.com/tags/etf>.

⁵⁶ CoinMarketCap, *Cryptocurrency Market Capitalization* (Aug. 2019), <https://coinmarketcap.com/>.

⁵⁷ See CoinMarketCap, Bitcoin (BTC) Historical Data (2017), <https://coinmarketcap.com/currencies/bitcoin/historical-data/?start=20171201&end=20171231>.

the disposal/sale of a cryptoasset by a retail trader whose activities do not rise to the level of being dealers (discussed immediately below) will generate a taxable event (whether gain or loss realised) and fall under capital gains tax.⁵⁸ Traders in cryptoassets may be able to make an election to mark to market open positions at the end of each year under U.S. law, if the cryptoassets are properly characterised as securities⁵⁹ or commodities.⁶⁰ This mark-to-market gain or loss is treated as ordinary, so it may be netted against other income.⁶¹ Business expenses would also be deductible.⁶²

Under U.K. law, it is possible that a trader (not employed by a company to trade), in certain circumstances where they may buy and sell cryptoassets with such frequency and displays a level of organisation and sophistication that the activity amounts to a financial trade in itself. If it is considered to be a financial trade then income tax will take priority over capital gains tax and will apply to profits (or losses) as it would be considered as a business.⁶³ The same distinction exists under French tax law, it being noted that the criteria to distinguish a professional trading activity from a mere private asset management activity remain unclear so that the qualification depends on each factual situation.⁶⁴ A UK institutional trader or professional trader employed specifically to trade cryptoassets will find the profits taxable as income under relevant corporation tax.⁶⁵

⁵⁸ Where the disposal of the cryptoasset can be characterised as regular or repetitive in nature, the activity will be subject to corporate income tax. See e.g., Canada Revenue Agency, Guide for Cryptocurrency Users and Tax Professionals (Jun. 27, 2019), <https://www.canada.ca/en/revenue-agency/programs/about-canada-revenue-agency-cra/compliance/digital-currency/cryptocurrency-guide.html>.

⁵⁹ IRC Section 475(f)(1), (c)(2).

⁶⁰ IRC Section 475(f)(2), (e)(2).

⁶¹ IRC Section 475(f)(1)(D), (d)(3).

⁶² IRC Section 162. However, commissions and fees to acquire cryptoassets are added to the cost basis. IRS FAQ, *supra* note 20, at Q&A 7. In contrast, investors may only deduct expenses as a miscellaneous itemised deduction (that is, only to the extent the aggregate of such deductions exceeds two percent of adjusted gross income). IRC Section 67(a). However, the Internal Revenue Code was amended to disallow a miscellaneous itemised deduction for taxable years beginning after December 31, 2017 and before January 1, 2026. IRC Section 67(h), added by Pub. L. No. 115-97 (Dec. 22, 2017).

⁶³ HMRC, *supra* note 5.

⁶⁴ BOI-BIC-CHAMP-60-50-20190902, *supra* note 33.

⁶⁵ HMRC, *supra* note 5.

Generally, dealers are engaged in the trade or business of making a market in an asset class, by being willing to buy or sell such asset at certain prices, seeking to profit from bid-ask spreads. Dealers generally do not seek to profit from appreciation on investments or short-term market swings, but rather may hold their cryptoassets as inventory. Dealers in cryptoassets characterised as securities are required to mark their open positions to market at year end under U.S. law (or if the securities are held as inventory, they are required to be included at fair market value).⁶⁶ If the cryptoassets are characterised as commodities, dealers, like traders, may elect to mark their open positions to market at year-end under U.S. law.⁶⁷ Thus, their gains and losses will generally be ordinary, and they will be entitled to deduct business expenses. See Section 3.c., *Security Tokens*, below, for a discussion of security and commodity tokens.

iii. Loan and Other Leverage Offerings

The application of an interest rate to payment/exchange tokens is relatively new development within the industry. The following section will highlight a few of the current products and services and the tax issues that arise from lending cryptoassets.

(A) Lending of Cryptoassets

Cryptoasset lending enables borrowers to use their cryptoassets as collateral to obtain a loan in fiat or stablecoin, or vice versa (that is, to use fiat or stablecoins as collateral to borrow cryptoassets), and allows lenders to earn an agreed-upon interest rate for making such assets available. This increases the productive use of cryptoassets, which previously have only been held or traded. However, cryptoasset loans currently tend to be overcollateralised.⁶⁸

Cryptoasset loans are often modeled after securities loans, in order to minimise the tax consequences.⁶⁹ For example, terms of cryptoasset loans typically require the borrower to return identical cryptoassets to the lender

⁶⁶ IRC Section 475(a)(1), (a)(2). Securities held as investment or identified as a hedge are excluded from this rule. IRC Section 475(b).

⁶⁷ IRC Section 475(e).

⁶⁸ See generally Benjamin Crowell, *Crypto Lending, Explained*, Cointelegraph (Mar. 11, 2020), <https://cointelegraph.com/explained/crypto-lending-explained> (hereinafter, "Crypto Lending, Explained").

⁶⁹ See Section 3.b.iii(F), *Tax Issues* Tax Issues, below

and require payments to be made in kind in the event a hard fork or airdrop results in the receipt of additional cryptoassets. In addition, such loans generally contain provisions intended to ensure the risk of loss or opportunity for gain is not transferred to the cryptoasset borrower, such as requiring the ability to terminate the loan within a short notice period.⁷⁰

Tools have developed to allow borrowers and lenders to compare interest rates across platforms, such as CoinMarketCap's interest rate tool⁷¹ or DeFi rate.⁷² Similar to values of cryptoassets, interest rates on loans backed by and earned in cryptoassets tend to fluctuate frequently.⁷³ In addition, interest rates tend to vary among platforms, thus presenting opportunities for interest rate arbitrage.⁷⁴

(B) Margin Trading

Many trading platforms have started to develop new advanced offerings, such as lending through margin trading.⁷⁵ Margin trading allows for the placing of a deposit and the borrowing (depending on the investor's market view) of a cryptoasset. Clients are thus able to borrow funds from a third party with interest, allowing greater access to capital or to "leverage" their positions. The borrower is required to post collateral against the loan. The amounts of leverage (and required collateral posted) allowed varies across

⁷⁰ See, e.g., Joshua Tompkins and Hubert Raglan, Cryptocurrency Loans, Taxable or Not?, *Journal of Taxation of Financial Products* (Apr. 6, 2020).

⁷¹ CoinMarketCap, Interest, <https://interest.coinmarketcap.com/currencies/bitcoin>.

⁷² DeFi Rate, <https://defirate.com/lend/>.

⁷³ See, e.g., Christine Kim, Here's Why Interest Rates on Cryptocurrencies Could Be a Game-Changer, *Coindesk* (Feb. 22, 2020), <https://www.coindesk.com/heres-why-interest-rates-on-cryptocurrencies-could-be-a-game-changer>.

⁷⁴ See *Crypto Lending, Explained*, *supra* note 72; Haseeb Qureshi, The DeFi 'Flash Loan' Attack That Changed Everything, *Coindesk* (Feb. 27, 2020), <https://www.coindesk.com/the-defi-flash-loan-attack-that-changed-everything>.

⁷⁵ See, e.g., Yuval Gov, Bitcoin and Crypto Margin Trading Exchanges (Jun. 3, 2020), <https://cryptopotato.com/bitcoin-and-crypto-margin-trading-exchanges-and-guide-for-beginners/>; Connor Blenkinsop, Margin Trading, Explained, *Cointelegraph* (Sept. 26, 2018); Cryptocurrency Facts, The Basics of Margin Trading With Cryptocurrency, <https://cryptocurrencyfacts.com/basics-margin-trading-cryptocurrency/>, <https://cointelegraph.com/explained/margin-trading-explained>.

exchanges.⁷⁶ Clients can also lend their cryptocurrency as margin funding on which they will receive interest.

(C) Flash Loans

Flash loans have gained significant attention after their usage to hack the bZx margin trading protocol.⁷⁷ With a flash loan, the user can borrow up to the full amount of liquidity on a lending protocol, at no cost (because there is no risk), use that loan to execute other operations, and then pay back the loan at the end of the full transaction.⁷⁸ If the borrower is unable to repay the full amount, the transactions will simply unwind, since it is all executed via smart contract. Flash loans can be used for arbitrage opportunities or to shift collateral on a platform like Maker or Compound.

(D) GDALA Master Loan Agreement

Another example of the evolution of lending is Lendingblock's⁷⁹ master loan agreement known as the Global Digital Asset Lending Agreement ("GDALA"). It is similar to standard agreements in the securities markets, such as ISLA's Global Master Securities Lending Agreements, ICMA/SIFMA's Global Master Repurchase Agreements, and ISDA's Master Agreements. The GDALA serves as a bilateral legally enforceable contract between borrower and lender minimising risk and thus protecting both parties. There is an acting security trustee to manage the risk on behalf of the counterparties. The collateral is provided under separate wallet security terms.

⁷⁶ See, e.g., Binance Academy, Binance Margin Trading Guide, <https://academy.binance.com/tutorials/binance-margin-trading-guide>; Kraken, Margin Trading Cryptocurrency: Supercharge Your Trades Up To 5x, <https://www.kraken.com/en-us/features/margin-trading>; OKEx, Margin Trading Guide, <https://support.okex.com/hc/en-us/articles/360000043492-OKEx-Token-Trading-Quick-Start-Guide>.

⁷⁷ See, e.g., Crypto Lending, Explained, *supra* note 74; Will Heasman, Are the BZx Flash Loan Attacks Signaling the End of DeFi?, Cointelegraph (Feb. 22, 2020), <https://cointelegraph.com/news/are-the-bzx-flash-loan-attacks-signaling-the-end-of-defi>.

⁷⁸ For example, flash loans are available on the Aave protocol. See Aave – Open Source Defi Protocol, <https://aave.com/>.

⁷⁹ LendingBlock, Lendingblock Pioneers First Global Digital Asset Lending Agreement (GDALA) to Protect Institutional Market and Set a New Industry Standard (Jul. 30, 2019), <https://lendingblock.com/news/lendingblock-pioneers-gdala/>.

(E) Decentralised Lending

Centralised exchanges are the leaders in this area—they act like traditional financial institutions but with crypto assets. In addition, they tend to set the interest rates. However, over the last couple of years a number of decentralised platforms have been built on existing blockchains — for example, Dhama,⁸⁰ Maker Dao’s Oasis dApp, dYdX, and Compound, which are all built on the Ethereum blockchain. These platforms can be accessed by anyone at any time and the lending platform does not take custody of the crypto assets. They generally have variable interest rates determined by supply and demand, which can cause large swings in interest rates.

(F) Tax Issues

In terms of the lender’s tax responsibilities, most of the major jurisdictions treat interest received on fiat cash as a taxable benefit in the year it is earned. However, we have seen no guidance as to interest on cryptoassets, likely because the interest-bearing aspect of cryptoassets is a very recent development. It is our belief that the same tax rules would apply to cryptoasset interest earned.

It may be the case where a loan product is non-interest bearing and that instead of receiving a constant fixed stream of interest income (e.g., monthly, quarterly, or semi-annually), an interest hypothetical element is rolled up, throughout the life of the loan, and paid on top of the notional at maturity. In this case a taxable event, similar to that described above, would also occur.⁸¹

Further, if the interest is paid in cryptoassets, it would be a taxable exchange of the cryptoasset in those jurisdictions that do not treat cryptoassets as currency for tax purposes, and gain or loss would be realised equal to the difference between the fair market value and basis of the cryptoasset used to pay the interest.

⁸⁰ LongHash, Explaining Dharma, a Crypto Lending Platform That Holds Over \$5.9 Million (Apr. 18, 2019), <https://www.longhash.com/news/explaining-dharma-a-crypto-lending-platform-that-holds-over-59-million-usd>.

⁸¹ See, e.g., IRC Section 1272 (requiring current inclusion of original issue discount).

Finally, if the cryptoasset is not treated as currency for tax purposes, the loan itself could be a taxable exchange. In some jurisdictions, loans of securities are exempted from tax,⁸² but if the cryptoasset is not treated as a security, these laws would not apply. However, because the same type of cryptoasset is fungible, it may be argued that the agreement to return substantially the same asset is not a taxable exchange.⁸³ If crypto asset loans constituted taxable exchanges upon the initial loan and repayment of crypto assets, it would, of course, significantly undermine the economics of a crypto asset loan.

iv. Stablecoins

Stablecoins are intended to combine the best of blockchain technology (security and privacy of payments along with speed of transactions and low transaction fees) with volatility-free valuations of a fiat currency. Given the volatility that has surrounded traditional cryptocurrency such as bitcoin in the past years, investors have an interest in removing some of that volatility through pegging its value to an external reference with an established valuation, such as gold, the U.S. dollar, etc. Although the main purpose of stablecoins is to reduce volatility, it is very difficult to maintain a perfect 1:1 ratio to the underlying asset.

The three main types of stablecoins are:

- Fiat/commodity-collateralised stablecoins: These rely on a currency reserve, such as the U.S. dollar or the Euro, or a commodity reserve, such as gold or oil, as collateral for a certain number of stablecoins. Currently the U.S. dollar appears to be most popular, e.g., Tether, USDC, GUSD.
- Crypto-collateralised stablecoins: These are backed by other cryptocurrencies, e.g., Dai.
- Non-collateralised stablecoins: These do not use a reserve, but include a mechanism for retaining a stable price. For instance, Basis uses a

⁸² See, e.g., IRC Section 1058.

⁸³ In general, the realisation of gain or loss requires (1) a sale or exchange, see *Provost v. United States*, 269 U.S. 443 (1926) (holding that a securities lender should not be treated as the tax owner of the loaned securities), and (2) the property received in the sale or exchange must differ materially either in kind or in extent from the property sold or exchanged. see, e.g., *Cottage Savings Assn. v. Comm'r*, 499 U.S. 554 (1991) (holding that exchange of participation interests in residential mortgages was a realisation event, because the interests that were exchanged embodied legally distinct entitlements and, therefore, were materially different).

consensus mechanism within its protocol to increase or decrease the supply of tokens as needed to reduce volatility.

Other types of stablecoins include hybrids (combinations of fiat and crypto-collateral), asset-backed stablecoins (e.g., real estate), security- or derivative-backed stablecoins, or sovereign stablecoins (also known as central bank digital currency (“CBDC”)).

Stablecoins can be centralised or decentralised. For example, there can be a centralised operator/issuer or the stablecoin can operate through smart contracts without any material reliance on an operator. The collateral can also be custodied in a centralised (e.g., physical vault) or decentralised (e.g., smart contract escrow) manner.

The treatment of stablecoins continues to evolve. For example, some countries such as Japan, have determined that stablecoins are not cryptocurrencies. For U.S. tax purposes, they do still have similarities to the broad definition of virtual currencies in IRS Notice 2014-21 and the subsequent FAQs and as such would likely be considered property, not currency.⁸⁴ However, as the types of backing evolve, there may be different ways to treat stablecoins under the tax law. For example, traders may use stablecoins to hedge against other cryptocurrencies such as bitcoin, so consideration as a hedge may be appropriate in that situation, along with relevant tax considerations.

There are a number of questions to consider related to taxability of stablecoins. How should they be treated for tax purposes? Should they be treated as property the same as other cryptoassets? If so, what kind of property? A financial instrument, and if so, what kind? A deposit? A notional principal contract? An option? One could argue that such a low volatility cryptoasset should be treated as a currency equivalent.

If stablecoins are treated as property, then as they become more popular and used with greater frequency as a currency substitute, the burden of tracking basis and measuring fair market value could become significant. In this regard, stablecoins are similar to money market funds, which after the financial crisis in

⁸⁴ See, e.g., Shehan Chandrasekera, Stablecoins Are Booming, But What Are The Tax Consequences? (Apr. 23, 2020), <https://www.forbes.com/sites/shehanchandrasekera/2020/04/23/stablecoins-are-booming-but-what-are-the-tax-consequences/#784c4091b04d>.

2008-2009, were no longer permitted to be pegged to the dollar but rather were required to have a floating net asset value.⁸⁵ The IRS, recognising the burden on taxpayers to compute gains and losses, adopted a simplified method of accounting for and reporting such gains and losses.⁸⁶

How should the underlying basket of assets be taxed? For example, if there are foreign currency gains or losses generated by the underlying basket of fiat currencies, should they be taxed annually, or only upon exchange or redemption of the stablecoin? The same question arises where stablecoins that are backed by a commodity such as oil or spot gold prices.

For further definitional discussion on stablecoins, please refer to the GDF Code of Conduct for Stablecoins⁸⁷ and Stablecoin Taxonomy and Key Considerations.⁸⁸

v. Central Bank Digital Currency (CBDC)

Several sovereign cryptoassets have been or are under development, which could be regarded as fiat currencies. It is not clear whether such a development would result in a change in the position that cryptoassets are property and not currency. For example, IRS Notice 2014-21 notes that virtual currency operates like “real” currency – i.e., money that is designated as legal tender, circulates, and is customarily used and accepted as a medium of exchange -- but it does not have legal tender status in any jurisdiction.⁸⁹ Since the issuance of IRS Notice 2014-21, however, some countries (e.g., Marshall Islands, Senegal, Venezuela) have issued virtual currencies that are recognised as legal tender. Other countries, such as China, Sweden, and Switzerland, have started to

⁸⁵ Money Market Fund Reform; Amendments to Form PF, 79 Fed. Reg. 49,736 (Aug. 14, 2014).

⁸⁶ Method of Accounting for Gains and Losses on Shares in Certain Money Market Funds; Broker Returns With Respect to Sales of Shares in Money Market Funds, 81 Fed. Reg. 44,508 (Jul. 8, 2016).

⁸⁷ GDF, Part VI – Code of Conduct – Principles for Stablecoin Issuers (Oct. 2, 2019), https://www.gdf.io/wp-content/uploads/2019/10/0010_GDF_VI-Principles-for-Stablecoin-Issuers_Digital_161019.pdf.

⁸⁸ GDF, Stablecoin Taxonomy and Key Considerations (Oct. 2, 2019), <https://www.gdf.io/wp-content/uploads/2019/10/GDF-Stablecoin-Key-Considerations.pdf>.

⁸⁹ IRS Notice 2014-21, *supra* note 21, at section 2.

explore the possibility of developing their own CDBC's.⁹⁰ Should these virtual currencies be treated as foreign currency rather than property?⁹¹

vi. Conversion into Cash

In many cases, a person wishing to buy cryptocurrency will use a fiat currency (e.g., U.S. dollar, Euro, Japanese yen) to purchase the cryptocurrency on a trading exchange/platform, much like a foreign currency exchange ("FX") spot transaction. Thus, they would sell U.S. dollars and buy a fixed equivalent (depending on market rates) of bitcoin, for example. In the future, this transaction could be reversed with the selling of bitcoin to buy U.S. dollars. If that bitcoin has risen in value, the taxpayer will have realised a gain, which would be taxable in many jurisdictions.

As a general point, the buying and selling of cryptoassets is not seen as gambling, which is not taxable in certain jurisdictions and therefore would most likely fall under a taxable event.⁹²

Before considering the taxation of cryptoasset conversions, it is helpful to look at the treatment of foreign currency.

(A) Foreign Currency

Foreign currency can be defined as the "currency of any foreign country which is the authorised medium of circulation and the basis for record keeping in that country. Foreign currency is traded by banks either by the

⁹⁰ OECD, *Cryptoassets in Asia: Consumer Attitudes, Behaviours and Experiences*, at 12 (Dec. 2019), <https://www.oecd.org/countries/philippines/2019-cryptoassets-in-asia.pdf> (hereinafter "OECD *Cryptoassets in Asia*").

⁹¹ See Ted R. Stotzer, "Are Central Bank Cryptocurrencies Currency for U.S. Tax Purposes?," 165 *Tax Notes Federal* 223 (Oct. 14, 2019).

⁹² Gambling is tax-free in the United Kingdom, whereas it is subject to tax in the United States, France, and Macau. Casino.co.uk, *Gambling and Taxation in the United Kingdom*, <https://www.casino.co.uk/guides/gambling-and-taxation/>; Finance Monthly Magazine Today, *How Are Gambling Winnings Taxed?* (Mar. 26, 2019), <https://www.finance-monthly.com/2019/03/how-are-gambling-winnings-taxed/>.

actual handling of currency or checks, or by establishing balances in foreign currency with banks in those countries.”⁹³

The FX market is the largest financial market in the world by trading volume, averaging more than \$5 trillion dollars per day and 27 times larger than the equities market.⁹⁴ The FX market determines FX rates for every currency not subject to exchange controls, but several currency pairs dominate the market.⁹⁵ Unlike the stock exchanges, which are organised and have a clearing house, the FX market is decentralised.⁹⁶

The FX market can be split based on participants and on the type of transaction. With respect to participants, there is the interbank market, in which banks and financial institutions trade currencies, and the retail (over-the-counter) market, in which individuals and businesses trade through online platforms and brokers.⁹⁷ With respect to the type of transaction, there is the spot market and the derivatives.⁹⁸

(1) Spot Market

This unregulated market involves a one-time transaction where two parties transact to sell and buy two different currencies -- for

⁹³ Global Negotiator, Foreign Currency, <https://www.globalnegotiator.com/international-trade/dictionary/foreign-currency/>.

⁹⁴ Neil Record, *Currency Overlay* (2003) ; see, e.g., Broker Notes, 50+ Forex & Trading Industry Statistics & Trends, <https://brokernotes.co/forex-trading-industry-statistics/>; BIS, Triennial Central Bank Survey of Foreign Exchange and Over-the-counter (OTC) Derivatives Markets in 2019 (Dec. 8, 2019), <https://www.bis.org/statistics/rpfx19.htm?m=6%7C381%7C677>; Frances Coppola, What is the Foreign Exchange (Forex) Market?, American Express FX International Payments, <https://www.americanexpress.com/us/foreign-exchange/articles/what-is-foreign-exchange-market/> (hereinafter “Coppola”);

Francisco Javier Fernández, The Foreign Currency Market: What It Is and How It Works, BBVA (May 26, 2017), <https://www.bbva.com/en/foreign-currency-market-work/>.

⁹⁵ Coppola, *supra* note 94. These currency pairs include USD/EUR (dollar/euro) USD/JPY (dollar/yen), USD/GBP (dollar/British pound), and USD/CHF (dollar/Swiss franc),

⁹⁶ See Coppola, *supra* note 94.

⁹⁷ Coppola, *supra* note 94.

⁹⁸ See generally James Chen, Forex Trading: A Beginner's Guide, Investopedia (Mar. 16, 2020), <https://www.investopedia.com/articles/forex/11/why-trade-forex.asp> (hereinafter “Forex Trading”).

example, selling British pound sterling to buy U.S. dollars today at a prevailing market price.⁹⁹

Many jurisdictions generally do not tax spot transactions.¹⁰⁰ In terms of the retail market, tax authorities look upon these transactions as mere transactions to facilitate overseas travel. Tax considerations become relevant if the retail customer starts to transact FX spot in high enough volumes to be considered a professional investor or trader, that is, they are buying and selling FX with the expectation of profit.¹⁰¹ For example, in the United States, gain or loss on nonfunctional currency is treated as ordinary income or loss.¹⁰² However, personal transactions of individuals not exceeding \$200 are exempted.¹⁰³

(2) Derivatives Market

A derivative is a financial contract that derives its value from the performance of some underlying asset, including currencies.¹⁰⁴ This may include such common types of derivatives as forward contracts, futures, swaps, and options.

Much like many other financial markets, the FX market allows for investors to transact in a number of derivatives. In the context of currency derivatives, the payoff depends on the foreign exchange rates of two or more currencies. These can be used for managing risk (e.g., hedging) or speculating (e.g., trading).¹⁰⁵ Libra is an

⁹⁹ Forex Trading, *supra* note 98.

¹⁰⁰ See, e.g., European Parliament, The Feasibility of an International "Tobin Tax," at Section III, Working Papers: Economic Affairs Series, ECON 107 EN (PE 168.215) (March 1999), https://www.europarl.europa.eu/workingpapers/econ/107_en.htm (discussing the challenges of implementing a tax on spot transactions).

¹⁰¹ Barclay Palmer, How Forex Trades Are Taxed: Find Out the Basics Before You Make Your First Foreign Exchange Trade, Investopedia (Mar. 13, 2020), <https://www.investopedia.com/articles/forex/09/forex-taxation-basics.asp>.

¹⁰² IRC Section 988(a).

¹⁰³ IRC Section 988(e).

¹⁰⁴ See James Chen, Derivative, Investopedia (Jan. 27, 2020), <https://www.investopedia.com/terms/d/derivative.asp> (hereinafter "Derivative").

¹⁰⁵ Forex Trading, *supra* note 98.

example of a blockchain product that is an FX derivative. Generally, the FX derivative is a form of property and the sale or satisfaction of an FX derivative is a taxable event. In the United States, tax rules related to foreign currency generally trigger increased tax rates, as gain with respect to foreign currency is generally ordinary in nature. The same is true of FX derivatives.

(B) Treatment of Cryptoassets

In terms of cryptoassets, “payment tokens” such as bitcoin, Litecoin, and Zcash can be considered similar to FX spot transactions, where a person is buying or selling bitcoin against U.S. dollars. If the cryptoasset were classified as a currency, the exchange of a cryptoasset to facilitate the purchase of goods or services for personal use would, under U.S. tax principles, not generally be a taxable event (provided it is less than \$200), while such a transaction would be taxable if a business transaction.

Even though the conversion of cryptoassets into cash resembles an FX transaction, in most jurisdictions, it is not taxed as such. As discussed above in Section 3.a., *Legal Nature*, most jurisdictions treat cryptoassets as some sort of property (Switzerland and Italy are the exceptions that treat cryptoassets as currency), which means that the conversion into cash is a taxable exchange.¹⁰⁶ In the United Kingdom, for example, this would fall under capital gains tax for an individual. In the United States, the character of the gain or loss would depend on the character of the underlying asset, which in the case of most investors would be capital.¹⁰⁷

vii. Conversion into Other Cryptocurrency

Similar to Section 3.a.vi., *Conversion into Cash*, above, here we are concerned with the selling of one cryptoasset to facilitate the purchase of another cryptoasset. For example, if a client enters into a spot transaction selling bitcoin to buy a fixed equivalent (depending on market rates) of ether, a taxable gain or loss will be realised on the exchange of the bitcoin.¹⁰⁸ It may be possible to argue that such gain is excluded under local law; for example, in the United

¹⁰⁶ See, e.g., IRS FAQ, *supra* note 20, at Q&A 4.

¹⁰⁷ See IRS Notice 2014-21, *supra* note 21, at Q&A 7; IRS FAQ, *supra* note 20, at Q&A 4.

¹⁰⁸ See, e.g., IRS Notice 2014-21, *supra* note 21, at Q&A 6; IRS FAQ, *supra* note 20, at Q&A 15.

States, some investors took the position that an exchange of one cryptoasset for another cryptoasset was a tax-deferred like-kind exchange under pre-2018 law.¹⁰⁹ Conversely, the tax-deferral system is expressly provided under French law for exchange of cryptoassets made by individuals without any cash payment (so-called "*soulte*")¹¹⁰ but remains unaddressed for entities subject to French corporate income tax.

In addition, a taxable gain or loss will occur at the point where the purchased ETH ether is disposed of to the extent of any future appreciation or depreciation.

See Sections 6.e.i., *Valuation*, and 6.e.ii., *Computation of Basis*, for a discussion of the challenges on computing gain or loss on cryptoasset-to-cryptoasset exchanges.

viii. Conversion into Other Property, Goods, or Services

Payment tokens can operate like fiat currency (e.g., coin and paper money of any country that is designated as legal tender),¹¹¹ and can be circulated, "used and accepted as a medium of exchange in the country of issuance -- but it does not have legal tender status in any jurisdiction."¹¹² Bitcoin is one example of this as it can be digitally traded between users and can be purchased for, or exchanged into, U.S. dollars, British pound sterling, Euro, Japanese yen, etc.

A payment/exchange token such as bitcoin can be used to acquire goods and services, much like cash. Because most jurisdictions treat cryptoassets as property (see discussion above in Section 3.a., *Introduction*), this is generally treated as a barter transaction, giving rise to gain or loss equal to the difference between the fair market value and adjusted basis of the payment token.¹¹³ Also note that sales tax should be paid on certain goods and services, as if the buyer uses fiat to make the purchase (see discussion below in Section 4.a.vii., *Sales and Use Taxes*).

¹⁰⁹ See IRC Section 1031, prior to amendment by Pub. L. No. 115-97 (Dec. 22, 2017).

¹¹⁰ Article 150 VH *bis* II, A of the French tax code.

¹¹¹ See IRS Notice 2014-21, *supra* note 21, at section 2 (describing convertible virtual currency); IRS FAQ, *supra* note 20, at Q&A 1.

¹¹² IRS Notice 2014-21, *supra* note 21.

¹¹³ See, e.g., IRS FAQ, *supra* note 20, at Q&A 13, 15, 18.

ix. Compensation/Remuneration

Payment for services in cryptoassets is common place for people employed in the cryptoasset sector.¹¹⁴ Most guidance from major jurisdictions in this area suggests that payment in a cryptoasset is the same as any other benefit in kind and should be taxed accordingly. This means that such compensation payments generally will be subject to income tax.¹¹⁵ In addition, the use of the cryptoasset to pay for services would be treated as a taxable exchange of the cryptoasset.¹¹⁶

Her Majesty's Revenue & Customs ("HMRC") in the United Kingdom, for example, states that "tax is paid on the taxable value of the benefit. HMRC defines this as the cash equivalent value. This is usually the amount it costs your employer to provide you with the benefit." The employee additionally would be expected to declare the payment for services rendered under the Pay as You Earn ("PAYE") system, as the HMRC views cryptoassets as equivalent to any other "readily convertible asset" ("RCA").¹¹⁷

Similarly, the IRS in the United States requires that the service provider include "the fair market value of the virtual currency, in U.S. dollars, when received. In an on-chain transaction you receive the virtual currency on the date and at the time the transaction is recorded on the distributed ledger."¹¹⁸ In addition, the payment in cryptoassets would be subject to payroll or self-employment tax depending on the nature of the employment, and reportable in on information

¹¹⁴ See e.g., U.S. Treasury Inspector General for Tax Administration ("TIGTA"), Report: As the Use of Virtual Currencies in Taxable Transactions Becomes More Common, Additional Actions Are Needed to Ensure Taxpayer Compliance, Ref. No. 2016-30-083, at 9 (Sept. 21, 2016), <https://www.treasury.gov/tigta/auditreports/2016reports/201630083fr.pdf>. Organisations like The Bitcoin Foundation, Coinbase, and The Internet Archive provide their employees the option to have their salaries paid in bitcoins.

¹¹⁵ See IRS Notice 2014-21, *supra* note 21, at Q&A 3; IRS FAQ, *supra* note 20, at Q&A 8.

¹¹⁶ See IRS FAQ, *supra* note 20, at Q&A 13.

¹¹⁷ HMRC, [HMRC Internal Manual: Employment Related Securities Manual -- PAYE & NICs - Readily convertible \(Dec. 9, 2019\)](https://www.gov.uk/hmrc-internal-manuals/employment-related-securities/ersm170030), <https://www.gov.uk/hmrc-internal-manuals/employment-related-securities/ersm170030>. See Section 6.e.i., *Valuation*, below, for further discussion.

¹¹⁸ IRS FAQ, *supra* note 20, at Q&A 11. This appears to have narrowed the rule set forth in IRS Notice 2014-21, *supra* note 21, at Q&A 3, which refers only to the date of the transaction, not the specific time. See Section 6.e.i., *Valuation*, below, for further discussion.

returns (e.g., IRS Forms W-2, *Wage and Tax Statement*, or 1099-MISC, *Miscellaneous Income*).¹¹⁹

See Section 6.e.i., *Valuation*, below, for further discussion on valuing cryptoassets.

c. Security Tokens

As laid out in the roadmap in Section 1, *Introduction*, above, this section explores security tokens. A security token (also known as an asset token or investment token) is a representation of a contract or asset, the value of which does not depend solely on mining, or any other dynamic market criteria. Instead, the token value is often defined by reference to an extrinsic asset, such as goods or service obligations.¹²⁰

This section will look at security tokens by exploring (1) the underlying asset; (2) the use of the token; and (3) the tax considerations when transacting in them, as well as receipt of tokens – e.g., initial coin offerings (“ICOs”), security token offerings (“STOs”), and initial exchange offerings (“IEOs”). The tax treatment of a token depends on its use within the ecosystem that is created. Most taxing authorities have not provided guidance on the specific tax treatment of tokens, so taxpayers are left to draw analogies.

i. Classification by Asset Type

(A) Security

The definition of a “security” for tax purposes differs from the nontax definition of security, and can be an important definitional determination when speaking about cryptoassets and more specifically asset tokens or other tokens. Whether or not an asset is considered a security can change by country, based on the regulatory framework and requirements. In the United States, for example, a security for securities law purposes is a

¹¹⁹ IRS FAQ, *supra* note 20, at Q&A 9, 10; IRS Notice 2014-21, *supra* note 21, at Q&A 10, 11, 13; see also TIGTA, *supra* note 114, at 2.

¹²⁰ See generally The Tokenist, *The Complete Guide to Security Tokens: How They Work Explained Simply*, <https://thetokenist.io/security-tokens-explained/>.

tradable asset of any kind, such as debt, equity, or derivatives.¹²¹ The courts and the SEC have looked to tests established under case law such as *Securities and Exchange Commission v. W.J. Howey Co.*¹²² in considering whether an asset meets the definition of a security. The four prongs include: (1) there is an investment of money; (2) the investment is in a common enterprise; (3) the investment is done with an expectation of profits; and (4) those profits will be derived solely from the efforts of others.

For tax purposes, however, a security, as defined under IRC Section 475(c)(2), includes stock in a corporation; interest in a widely held or publicly traded partnership or trust; notes, bonds, debentures, or other evidences of indebtedness; interest rate, currency, or equity notional principal contracts; evidences of an interest in, or a derivative financial instrument in any of the above or in any currency, including options, forward contracts, short positions, and any similar financial instrument in that security or currency; and hedges on such a security.

Even though the IRS and other taxing authorities generally view virtual currency as property,¹²³ the IRS has not specified what type of property. Tokens may nonetheless fall under the security definition for tax if the underlying use of the token is more akin to a security than a virtual currency. Securities may be required to be marked to market at the end of each year if a taxpayer is determined to be a dealer in securities, or a trader may elect to mark to market, resulting in recognition of ordinary gain or loss by the holder of the instrument.¹²⁴ The recognition of losses may be limited, such as under the wash sale rules, which may disallow losses when the taxpayer sells securities and immediately repurchases the securities.¹²⁵ However, the deduction for worthless securities may be available.¹²⁶

¹²¹ See U.S. Securities Exchange Act, 15 U.S.C. § 78c(a)(10). See also Financial Conduct Authority, FCA Handbook, Security, <https://www.handbook.fca.org.uk/handbook/glossary/G1061.html>; Wikipedia, Security (finance), [https://en.wikipedia.org/wiki/Security_\(finance\)](https://en.wikipedia.org/wiki/Security_(finance)).

¹²² 328 U.S. 293 (1946). See also SEC, *Framework for "Investment Contract" Analysis of Digital Assets*, https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets#_ednref5.

¹²³ See, e.g., IRS Notice 2014-21, *supra* note 21, at Q&A 1; IRS FAQ, *supra* note 20, at Q&A 2.

¹²⁴ See IRC Section 475(d)(3), (f)(1), (f)(2).

¹²⁵ See IRC Section 1091. See also James Chen, Wash-Sale Rule, Investopedia (Aug. 4, 2019), <https://www.investopedia.com/terms/w/washsalerule.asp>.

¹²⁶ IRC Section 165(g).

(B) Debt

A number of major financial institutions have issued debt using blockchain technology. Commerzbank for example issued a EUR100,000 five-day commercial paper debt instrument in 2017.¹²⁷

New forms of lending models are developing in the cryptoasset community. Many trading platforms offer cryptoasset borrowing and lending and margin trading to their customers (as discussed in Section 3.b.iii., *Loans and Other Leverage Offerings*, above).

The development of an interest rate element being applied to cryptoassets is extremely new. However, we believe this area will grow rapidly with many new debt products offered. As such, no clear guidance exists for security debt tokens. However, these tokens will most likely be taxed in a similar way to a traditional debt security.

(C) Commodity

The definition of a “commodity” for tax purposes differs from the nontax definition of commodity. For nontax purposes, “commodity” is defined broadly to include “all other goods and articles” and “and all services, rights, and interests . . . in which contracts for future delivery are presently or in the future dealt in.”¹²⁸ As discussed above, the CFTC has taken the position that bitcoin is a commodity under this definition.¹²⁹

¹²⁷ Commerzbank, Press Release: Commerzbank, KfW and MEAG Simulate Security Transaction Via Blockchain (Sept. 25, 2017), https://www.commerzbank.de/en/hauptnavigation/presse/pressemitteilungen/archiv1/2017/quartal_17_03/presse_archiv_detail_17_03_68938.html. See e.g., Nuntawun Polkuamdee, Toyota Leasing First to Issue Debt Using Blockchain, Bangkok Post (Jan. 16, 2020), <https://www.bangkokpost.com/business/1837199/toyota-leasing-first-to-issue-debt-using-blockchain>; David Pan, Bank of China Issues \$2.8B in Bonds for Small Businesses Using Blockchain Tech, Coindesk (Dec. 6, 2019), <https://www.coindesk.com/bank-of-china-issues-2-8b-in-bonds-for-small-businesses-using-blockchain-tech>; Jamie Redman, The World Bank’s Blockchain Bond Is Just a Fancy Way of Selling Debt, Bitcoin.com (Aug. 21, 2019), <https://news.bitcoin.com/the-world-banks-blockchain-bond-is-just-a-fancy-way-of-selling-debt/>. See generally Capgemini, Blockchain Disruption in Security Issuance (2016), https://www.capgemini.com/wp-content/uploads/2017/07/blockchain_securities_issuance_v6_web.pdf.

¹²⁸ Commodity Exchange Act, 7 U.S.C. § 1a(9).

¹²⁹ See CFTC Testimony, *supra* note 35.

For tax purposes, a commodity includes any commodity that is actively traded (within the meaning of section 1092(d)(1), which generally looks to whether there is an established market),¹³⁰ as well as an interest in, a derivative instrument in, or a hedge with respect to any commodity.¹³¹ Although the IRS and other taxing authorities generally view virtual currency as property,¹³² the IRS has not specified what type of property. It is possible that cryptoassets may be considered a commodity for tax purposes.

Commodities, such as oil and gold, lend themselves well to tokenisation, as by definition they generally can only be differentiated by price. We have seen a number of cryptoassets referencing commodities. For example, CoinShares, a cryptoasset investment fund, recently launched DGLD, a digital asset (token) representing allocated physical gold stored in a vault and tokenised with a side-chain built on the Bitcoin network.¹³³ The investor holds a digital proof of ownership of allocated gold in the form of a token.

In addition, Currency.com launched a tokenised assets platform. Specifically, Currency.com will issue more than 10,000 different tokens pegged to the underlying market price of traditional asset classes, including gold, silver, and crude oil in addition to debt and equity securities.¹³⁴

Although we have seen no clear guidance here, as mentioned earlier most commodity tokens would most likely be taxed in a similar way to a traditional commodity. Similar to securities, dealers and traders in

¹³⁰ See Treas. Reg. § 1.1092(d)-1. Actively traded personal property includes any personal property traded on an established financial market, such as an interdealer market. Treas. Reg. § 1.1092(d)-1(a). Assuming that cryptoasset exchanges are interdealer quotation systems, cryptoassets may be treated as commodities under this definition.

¹³¹ IRC Section 475(e)(2).

¹³² See, e.g., IRS Notice 2014-21, *supra* note 21, at Q&A 1; IRS FAQ, *supra* note 20, at Q&A 2.

¹³³ Coinshares, Europe's Most Trusted Crypto and Precious Metal Companies Partner To Create Gold Token Secured by Bitcoin Network (Oct. 15, 2019), <https://coinsharesgroup.com/news/introducing-dgld-gold-token-secured-by-the-bitcoin-network>

¹³⁴ Currency.com, Tokenised Commodities, <https://currency.com/tokenized-commodities>. See also Neurored, Blockchain for Commodities Tokenization, <https://www.neurored.com/blockchain-for-commodities-tokenization/>; Coinspeaker, Blockchain to Spearhead Tokenization of Commodities? (Nov. 26, 2019) (regarding Emirex).

cryptoassets may be able to make an election to mark to market open positions at the end of each year, if the cryptoassets are properly characterised as commodities.¹³⁵

(D) Derivatives

A derivative is a financial contract that derives its value from the performance of some underlying asset, such as stocks, bonds, currencies, or commodities. This may include such common types of derivatives as forward contracts, futures, swaps, and options. A “forward” transaction is a contract to buy or sell a quantity of currency at an agreed price at some date in the future. “Futures” are standardised forward contracts traded on an exchange. Swaps are derivative contracts that are often used between two parties to exchange one type of cash flow for another, such as a fixed for a floating interest rate. Options grant the buyer the right, but not the obligation, to purchase or sell the underlying asset at a certain price.¹³⁶

Derivatives can trade over-the-counter (“OTC”) or on an exchange. OTC-traded derivatives trade between two private parties and are unregulated. Conversely, derivatives that are exchange-traded are standardised and more heavily regulated.¹³⁷

In the context of tokens, the token may be the underlying asset. For example, many practitioners take the position that a pre-sale simple agreement for future tokens (“SAFT”) is treated as a forward contract, as the delivery of the underlying asset (the tokens) will occur in the future. See Section 5.a., *Contracts for the Pre-sale of Tokens*, below, for further discussion of SAFTs.

Bitcoin futures trading was launched by the Chicago Board Options Exchange (“CBOE”) and the Chicago Mercantile Exchange (“CME”) during the peak of the cryptocurrency bull market in December 2017. There is a continued rise of cryptoasset derivatives products, including futures, swaps,

¹³⁵ IRC Section 475(f)(1), (2), (e)(2)(a).

¹³⁶ See Derivative, *supra* note 103; Corporate Finance Institute, Derivatives Market, <https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/derivatives/>.

¹³⁷ See Derivative, *supra* note 104.

and options on bitcoin and other cryptocurrencies.¹³⁸ These products are being offered by a number of trading platforms, including CME, Bakkt, Deribit, Ledgerx, and Okex. In addition, as discussed above in Section 3.b.ii., *Financial Trading or Dealing*, investors can indirectly take positions in cryptocurrencies through ETNs and ETFs.

In the event a token is a derivative based on the performance of some other asset, taxpayers will have to draw analogies in determining appropriate tax treatment. For example, in the United States, forward contracts and options generally are subject to open transaction treatment and are not taxed until the transaction closes (or in the case of an option, the option lapses unexercised).¹³⁹

Special mark-to-market rules apply to so-called section 1256 contracts, which include regulated futures contracts and nonequity options traded on U.S. exchanges, for example, CBOE and CME bitcoin futures contracts.¹⁴⁰ The mark-to-market gain or loss recognised is treated as 60% long-term and 40% short-term capital gain or loss.¹⁴¹

(E) Governance/Equity

In certain cases, designers of blockchain protocols may be interested in providing equity-like characteristics to tokens, allowing for token holders to receive some rights in the entity. In the United States, for example, equity rights include (1) right to vote and thereby exercise control over the corporation; (2) right to participate in current net earnings of the corporation; and (3) the right to share in the assets of the corporation upon liquidation.¹⁴² Note that as discussed above in Section 3.c.i.(A), *Security*, this analysis is different for tax purposes than for securities law purposes.

¹³⁸ See Elijah Bradley, *Derivatives in Crypto, Explained*, Cointelegraph (Jul. 10, 2019), <https://cointelegraph.com/explained/derivatives-in-crypto-explained>.

¹³⁹ See, e.g., IRC Section 1234; *Burnet v. Logan*, 283 U.S. 404 (1931); *Rich Lumber Co. v. U.S.*, 237 F.2d 424 (1st Cir. 1956); Rev. Rul. 2003-7, 2003-1 C.B. 363; Rev. Rul. 78-182, 1978-1 C.B. 265.

¹⁴⁰ See IRC Section 1256(b)(1)(C), (g).

¹⁴¹ IRC Section 1256(a)(3).

¹⁴² *Himmel v. United States*, 338 F.2d 815 (2d Cir. 1964).

Tax considerations include whether the issuance of the token is taxable to the issuer and whether the transfer of any cryptocurrency (or other property) in exchange for the token by the investor is taxable. If the token is viewed as equity for tax purposes, the issuance by the issuer should not be taxable.¹⁴³ Similarly, the investors may qualify for tax-deferred treatment on the transfer of any cryptocurrency or other property in exchange for the security token.¹⁴⁴

In addition, if the token is treated as equity upon issuance, it should be treated as equity for other tax purposes as well. For example, the exchange of equity for equity could be treated as a tax-free reorganisation,¹⁴⁵ or a loss corporation could be subject to limitations on the use of its losses if it undergoes an ownership change.¹⁴⁶

(F) Property

Tokens that have characteristics more similar to a virtual currency (which would fall under the IRS guidance) or other types of property, may be considered as a general property asset, like a piece of equipment, or an intangible asset. Transacting in tokens that have such characteristics may result in capital or ordinary gain or loss upon use of the token measured by the difference between (1) the sale price or fair market value of what is received and (2) basis in the token. The character of the gain or loss will typically depend on the character of the token in the hands of the taxpayer.

ii. Security Tokens - Classification by Use

As discussed above in Section 3.b., *Cryptocurrency or Payment Tokens*, the use of the token may drive the appropriate tax treatment, so analysis of the facts and terms of the token agreement are important to making any determination. The categories above are also relevant to securities tokens. For example, if the token is viewed as a security or commodity, one may become a dealer or a trader in tokens, with related tax considerations of character and recognition of

¹⁴³ See, e.g., IRC Section 1032.

¹⁴⁴ See, e.g., IRC Section 351.

¹⁴⁵ See IRC Section 368.

¹⁴⁶ See IRC Section 382.

gain/loss. Gains and losses would be recognised regardless of whether the investor is a trader or a dealer upon sale or trade – character of the gain or loss depends on a number of factors, similar to investing in other assets. A loan of a security token may, however, be exempt from tax.¹⁴⁷

d. Utility Tokens or Consumption Tokens

Utility tokens provide the holder with access to particular goods or services on a platform using DLT. A business or group of businesses will normally issue the tokens and commit to accepting the tokens as a form of payment for the particular goods or services in question, such as in a gaming network. Utility tokens are non-security cryptoassets, and ICOs offering such tokens are generally unregulated by jurisdictions, including Brazil, Gibraltar, Isle of Man, Jersey, Spain, and the UAE.¹⁴⁸

One current example is Filecoin, which is the native cryptoasset of a decentralised network and market for digital file storage that takes advantage of unused computer hard drive space.¹⁴⁹ A user seeking to store files will pay for this service in Filecoin and the provider of storage receives payment in Filecoin. This utility token can be exchanged into other cryptoassets and fiat. In this example the provider of the digital storage service is being remunerated in a cryptocurrency and would therefore be liable for income tax. Other utility tokens operate similarly, such as Golem, which provides a peer-to-peer supercomputer and allows users to lease CPU power in exchange for a reward from customers who create products that require large sources of energy,¹⁵⁰ or StormX, which enables users to be rewarded for paying games on their mobile devices, performing microtasks, or shopping.¹⁵¹

Thus, a utility token functions as a medium of exchange. The sale and purchase of such a token could be treated as a prepayment for a good or service to be received on the decentralised network, which is generally taxable to the service provider as ordinary

¹⁴⁷ See, e.g., IRC Section 1058.

¹⁴⁸ LOC 2018 World Report, *supra* note 1, at 4.

¹⁴⁹ Protocol Labs, [Filecoin: A Decentralized Storage Network](https://filecoin.io/filecoin.pdf) (Jul. 19, 2017), <https://filecoin.io/filecoin.pdf>; see also IMF, *supra* note 6, at 8 n. 12.

¹⁵⁰ The Golem Project, [Golem](https://golem.network/crowdfunding/Golemwhitepaper.pdf) (Nov. 2016), <https://golem.network/crowdfunding/Golemwhitepaper.pdf>.

¹⁵¹ StormX™, Inc., [Storm Token](https://assets.stormx.io/storm-token-whitepaper.pdf) (Oct. 16, 2017), <https://assets.stormx.io/storm-token-whitepaper.pdf>.

income.¹⁵² If it is exchangeable into fiat currency, it could fit the definition of “convertible virtual currency” in the IRS guidance and, thus, be treated as property for tax purposes.¹⁵³

Some tokens may provide holders with a license to use the issuer’s platform, rather than representing a transferable asset. Consideration of the specific terms and capabilities of the token could lend towards one view or the other. In the event a token appears more akin to a license of the platform technology, the income earned by transacting in the token could be considered royalty income, which is ordinary, and subject to different sourcing rules to determine taxing jurisdictions.¹⁵⁴ Sourcing determinations may be difficult because of the need for a facts and circumstances-based analysis depending on the location and use of the intellectual property (“IP”).

e. Combination/Hybrid Tokens

Some tokens may have multiple uses, such as attributes of equity, but also utility within the ecosystem to transact.¹⁵⁵ As discussed above in Section 3.c., *Security Tokens*, a security token¹⁵⁶ is designed to represent assets typically of an underlying financial type, such as participation in companies or earnings streams, or an entitlement to dividends or interest payments. In terms of the economic function, these tokens are analogous to equities, bonds, or derivatives (listed market instruments). This same token can also exhibit a utility aspect such as membership rights to engage within company ecosystem, thereby qualifying as a hybrid token.¹⁵⁷

A token could also change classifications during its life cycle. Therefore, a cryptocurrency may be sold as a security when it is first launched if it meets the

¹⁵² In the United States, for example, advanced payments for goods or services are generally taxable upon receipt of the payments. See Treas. Reg. § 1.451-5; *Schlude v. Comm’r*, 372 U.S. 128 (1963); *American Automobile Ass’n v. US*, 367 U.S. 687 (1961); *Automobile Club of Michigan v. Comm’r*, 353 U.S. 180 (1957). However, in certain circumstances, a taxpayer may elect to defer inclusion of advanced payments to the next taxable year if such payments are deferred for financial accounting purposes. See IRC Section 451(c) (effectively codifying Rev. Proc. 2004-34, 2004-1 C.B. 991).

¹⁵³ See IRS Notice 2014-21, *supra* note 21, at section 2; IRS FAQ, *supra* note 20, at Q&A 1.

¹⁵⁴ In the United States, for example, where intellectual property is used generally determines sourcing. IRC Section 861(a)(4).

¹⁵⁵ IMF, *supra* note 6, at 8.

¹⁵⁶ [GDF Taxonomy](#), *supra* note 4, at 7.

¹⁵⁷ See, e.g., IMF, *supra* note 6, at 13.

definition of an investment contract, but the cryptoasset may later be sold or offered to consumers without being investments, therefore, a utility token.

It is unclear whether the attributes of the tokens should be bifurcated into separate instruments or treated as a single instrument based on the predominant characteristic.¹⁵⁸ There is currently no guidance related to treatment of these sort of hybrid tokens for tax purposes.

4. Tax Consequences of Cryptoassets

Several jurisdictions have published guidance on the application of income or capital gains tax on cryptocurrency/payment token activity.¹⁵⁹ Other jurisdictions such as France, South Africa, and Ukraine have enacted or are in the process of enacting special tax provisions specific to cryptocurrencies/payment tokens, whereas Belarus, Gibraltar, and Uzbekistan regard them as tax-exempt subject to qualifications.¹⁶⁰ A number of jurisdictions have recently exempted cryptoasset activity from consumption taxes like VAT/GST or other sales tax, including Singapore, Australia (excepting business entities), and some EU Member States.¹⁶¹

As for tax treatment of security and utility tokens, there is no express guidance from tax authorities on specific application of tax liability as of the date of publication of this paper; however, these topics are explored as to considerations that may trigger a taxable event.

¹⁵⁸ As an example, compare IRC Section 1273(c)(2) (requiring allocation of issue price between debt and option elements in an investment unit) with *Chock Full O’Nuts v. United States*, 453 F.2d 300 (2d Cir. 1971) (explaining that a convertible debenture is an indivisible unit; the issuer has but one obligation to meet, either redemption or conversion).

¹⁵⁹ Australia, Brazil, Canada, Denmark, Ireland, Israel, Italy, Japan, Jersey, Lithuania, Luxembourg, New Zealand, Norway, and Switzerland have issued tax guidance pertaining to cryptocurrency/payment tokens. LOC 2019 Cryptoasset Report, *supra* note 1, at 5. The United States, the United Kingdom, and Hong Kong have issued updated guidance on cryptoassets during the drafting of this paper.

¹⁶⁰ Tax exemptions are subject to certain qualifications, e.g., (1) in Belarus, establishing residence in a government-established technology park, or (2) in Gibraltar, exchanges are not eligible for tax exemption. LOC 2019 Cryptoasset Report, *supra* note 1, at 5.

¹⁶¹ A 2015 European Court of Justice (“ECJ”) ruling found that cryptoassets do not trigger VAT. *Skatteverket v. David Hedqvist*, Case C-264/14, ECLI:EU:C:2015:718 (Oct. 22, 2015), <http://curia.europa.eu/juris/celex.jsf?%20celex=62014CJ0264&lang1=en&type=TXT&ancre> .

a. Types of Tax – Cryptocurrency/Payment Tokens

i. Summary

In this section, we discuss the treatment of cryptocurrency under various taxing regimes. In some jurisdictions, taxable events generally include:

- the sale of cryptocurrency for fiat currency
- the exchange of one cryptocurrency for another
- the purchase of a good or service with cryptocurrency
- the receipt of cryptocurrency via mining, staking, fork, or airdrop
- the payment or receipt of cryptocurrency as compensation
- the receipt of cryptocurrency as trade or business income
- the gifting of cryptocurrency (subject to gift tax).

In some jurisdictions, non-taxable events generally include:

- the purchase of cryptocurrency with fiat currency
- the donation of cryptocurrency to a charity
- transferring cryptocurrency between one's own accounts or wallets
- a soft fork.

ii. Corporate Income Tax

In the United States, if cryptocurrency is held for sale to customers in a trade or business, then the sale of that cryptocurrency would generate ordinary income; however where cryptocurrency is held for investment or is otherwise a capital asset, the sale of that cryptocurrency would generate capital gain or loss.¹⁶² Most corporations do not care whether the gain is ordinary or capital,¹⁶³ but

¹⁶² See IRS Notice 2014-21, *supra* note 21, at Q&A 7.

¹⁶³ In the United States, corporations are limited in their use of capital losses to offset only capital gains. IRC Section 1211(a). Net capital losses generally can be carried back for three taxable years and carried forward for ten taxable years. IRC Section 1212(a).

individual holders generally prefer capital gains.¹⁶⁴ Cryptocurrency will be taxed as ordinary business income if received as compensation for goods or services provided in a trade or business (which may include, for example, the trade or business of being a miner).¹⁶⁵ Deductions should be allowed for business expenses, including those incurred in mining of cryptocurrency.¹⁶⁶

If a business transacts in cryptocurrency as an investment, it should be subject to capital gain or loss on the transaction just like an individual investor.

In Hong Kong, the IRD has issued some guidance regarding taxation of cryptoassets, indicating that profits tax would be applicable to cryptoassets depending on their nature and use.¹⁶⁷ Based on current tax law, any person carrying on a trade, profession, or business in Hong Kong and deriving Hong Kong sourced profits from that trade, profession, or business would be subject to Hong Kong profits tax. Capital gains are, however, not taxable.¹⁶⁸

The U.K.'s HMRC released guidance for companies stating that they must take into account all of the exchange token (payment token) transactions they have carried out (as they would with any other type of asset).¹⁶⁹ The guidance does not propose any specific regime for cryptocurrencies; instead, their taxation will fall within the existing tax law and depend on the type and characteristics of the token and the end user (i.e., trading or investment activities). Accordingly, the

¹⁶⁴ See IRC Section 1221. Only individuals benefit from a reduced capital gains rate in the United States. See IRC Section 1(h). However, capital losses are limited deductible to the extent of capital gains; plus individuals may deduct up to \$3,000 of net capital losses. IRC Section 1211(b).

¹⁶⁵ See generally IRS Notice 2014-21, *supra* note 21 at Q&A 9; IRS FAQ, *supra* note 20 at Q&A 9. See also TIGTA, *supra* note 114, at 2.

¹⁶⁶ IRC Section 162.

¹⁶⁷ HK IRD Practice Note, *supra* note 6, at 27. Legislative Council deliberations discussed that the profits tax may be applicable to any profits earned from cryptocurrency transactions. See IRD, Press Release: LCQ20: Regulation of Virtual Asset Investment Activities (Apr. 3, 2019), <https://www.ird.gov.hk/eng/ppr/archives/19040301.htm> (hereinafter "HK IRD Press Release"); LOC 2019 Cryptoasset Report, *supra* note 1, at 110; GLI, *supra* note 31.

¹⁶⁸ HK IRD Practice Note, *supra* note 6, at 28. The question as to whether cryptoassets are capital assets or trading stock will be determined by the facts and circumstances. Well-established tax analysis principles will be relevant, such as "badges of trade" as well as the intention at the time of the acquisition of the cryptoasset. *Id.*

¹⁶⁹ HMRC, Policy Paper, Cryptoassets: Tax for Businesses (Dec. 20, 2019), <https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-tax-for-businesses> (hereinafter "HMRC Business Paper").

accounting and legal treatment will play a key role in determining the corporation tax treatment for U.K. companies.

In France, the corporate income tax regime remains currently unclear but based on the accounting guidance, the sale of cryptoassets by a French tax resident company (subject to corporate income tax) should in principle be taxable as ordinary income at the standard corporate income rate (i.e., 28% to be decreased to 25% beginning in 2022). Please note that a social contribution may also apply at a rate of 3.3% on the amount of corporate income tax, reduced by an allowance of €763k per 12-month period.

In Belgium, the sale of cryptocurrency (including payment tokens) by a Belgian resident company subject to corporate income tax should generate professional income for the amount of the realised capital gain.¹⁷⁰ Capital losses are in principle deductible.

iii. Individual Income Tax

Because cryptocurrency is treated as property in most jurisdictions, the individual must track any realised gain or loss when cryptocurrency is used in any transaction to calculate tax liability -- even seemingly small transactions.¹⁷¹ For a discussion on the challenges arising from compensation using payment tokens, see Section 3.b.ix., *Compensation/Remuneration*, above, and on reporting requirements, see Section 8, *Information Reporting*, below.

In the United States, an individual taxpayer receiving cryptocurrency as income must include in gross income the fair market value equivalent in U.S. dollars of the cryptocurrency on the date it is received.¹⁷² In addition, selling crypto assets for fiat currency will be a realisation event giving rise to taxable gain or loss.¹⁷³ A taxpayer generally realises capital gain or loss on the sale or exchange of virtual currency that is a capital asset in the hands of the taxpayer.¹⁷⁴ Property held for

¹⁷⁰ See Belgium Ruling 2018.0310 (Sept. 5, 2018), <https://eservices.minfin.fgov.be/>.

¹⁷¹ See TIGTA, *supra* note 114, at 11.

¹⁷² IRS Notice 2014-21, *supra* note 21, at Q&A 3; IRS FAQ, *supra* note 20, at Q&A 8. If the cryptocurrency does not have a published value, the fair market value is equal to the fair market value of the property or services exchanged for the cryptocurrency when the transaction occurs. IRS FAQ, *supra* note 20, at Q&A 27.

¹⁷³ IRC Section 1001. See IRS FAQ, at Q&A 4.

¹⁷⁴ See IRC Section 1222; Notice 2014-21, *supra* note 21, at Q&A 7.

investment is generally treated as a capital asset; property used in a trade or business is generally not a capital asset.¹⁷⁵

In Hong Kong, to the extent that an individual is regarded as carrying on a trade, profession, or business in Hong Kong, any Hong Kong-sourced profits derived from cryptocurrency transactions from that trade, profession, or business may be subject to profits tax, except for gains of a capital nature.¹⁷⁶

On the other hand, the Australian Taxation Office (“ATO”) has differentiated tax treatment according to specific use of the cryptoasset. In general, it is taxed like an asset (like the United States, capital gains tax); however, when it is used pay for personal goods and services under 10,000 AUD, it is exempt from income tax if the individual taxpayer is not in business or carrying on an enterprise.¹⁷⁷ Therefore, de minimis transactions such as buying a cup of coffee in cryptocurrency typically will not need to be reported for tax purposes.

The U.K.’s HMRC has released guidance on the taxation of cryptoassets held by individuals.¹⁷⁸ The guidance does not set out a specific regime for cryptoassets, as existing U.K. tax laws apply. Instead, it presumes that most dispositions will be treated as investment gains and subject to capital gains tax. Where cryptoassets are likely to be considered fungible assets, rules around the pooling of tranches, blockchain forks, and airdrops are likely to be applicable. See Section 6.e.ii., *Computation of Basis*, below. Where profits from selling cryptoassets or mining constitutes a trade, income tax will be charged and where a trade does not exist, potentially as miscellaneous income.¹⁷⁹

For non-domicile U.K. resident individuals, the situs of cryptocurrencies may be relevant where the remittance basis is being claimed. While no guidance has been released, it is anticipated that a cryptocurrency will be sited where the investor is tax resident (i.e., a U.K. asset).

¹⁷⁵ IRC Sections 1222, 1221(a).

¹⁷⁶ See, e.g., HK IRD Press Release, *supra* note 167; LOC 2019 Cryptoasset Report, *supra* note 1, at 110. See also GLI, *supra* note 31.

¹⁷⁷ TIGTA, *supra* note 114, at 11. See also Australian Taxation Office (“ATO”), Transacting with Cryptocurrency (Jun. 18, 2019), <https://www.ato.gov.au/General/Gen/Tax-treatment-of-crypto-currencies-in-Australia---specifically-bitcoin/?anchor=Transactingwithcryptocurrency#Transactingwithcryptocurrency>.

¹⁷⁸ HMRC, *supra* note 5.

¹⁷⁹ HMRC, *supra* note 5, at #mining.

Being in principle treated as a capital gain, the sale of cryptoassets by French tax resident individuals should be subject to the 30% flat tax. However, capital gains realised by an individual taxpayer acting on a "habitual" basis should be considered as commercial and industrial profits (so-called "*bénéfices industriels et commerciaux*") subject to income tax at the progressive tax rate. Likewise, gains derived from a mining activity are treated as noncommercial profits (so-called "*bénéfices non commerciaux*"), subject to income tax at the progressive tax rate. Please note that the marginal individual tax rate in France is 45%, it being noted that social contributions at a 17.2% rate apply on top of that. If the overall taxable income exceeds certain thresholds, the contribution on high income of 3% or 4% could also apply.

iv. Capital Gains Tax

Even if the cryptocurrency is used more like cash, gain or loss must be computed on each exchange of cryptocurrency or use of cryptocurrency to purchase a good or service in most jurisdictions. This means that the cost basis must be tracked, even if only a fractional unit of cryptocurrency is transferred. See Section 6.e.ii., *Computation of Basis*, below, for a discussion of cost basis.

In the United States, investors must pay capital gains tax on their cryptocurrency investments held as capital assets.¹⁸⁰ In general, gain or loss on the sale or exchange of a capital asset is treated as long-term capital gain or loss when the capital asset has been held for longer than one year, or short-term capital gain or loss when the capital asset has been held for less than one year.¹⁸¹ For individual taxpayers, a long-term capital gain is taxed at preferential rates (generally a maximum rate of 20%).¹⁸² A short-term capital gain is taxed at ordinary income rates (up to a maximum rate of 39.6%, or 37% for taxable years beginning after December 31, 2017 and before January 1, 2026).¹⁸³ Capital losses are deductible to the extent of capital gains; plus individuals may deduct

¹⁸⁰ IRS Notice IRS Notice 2014-21, *supra* note 21, at Q&A 7; IRS FAQ, *supra* note 20, at Q&A 4.

¹⁸¹ IRC Sections 1(h), 1222. See IRS FAQ, *supra* note 20, at Q&A 5.

¹⁸² For individuals with incomes above \$250,000 for married couples filing jointly and \$200,000 for single people, there is an additional 3.8% tax on net investment income, including capital gains. IRC Section 1411.

¹⁸³ IRC Section 1(a), (j), added by Pub. L. No. 115-97 (Dec. 22, 2017).

up to \$3,000 of net capital losses.¹⁸⁴ Individuals may carry forward unused capital loss indefinitely.

Corporations pay the same marginal rate of tax on ordinary or capital gains (i.e., 21%). Net capital losses incurred by corporations cannot be currently deducted.¹⁸⁵ Instead, net capital losses generally can be carried back for three taxable years and carried forward for ten taxable years.¹⁸⁶

There has been considerable debate in the United States about whether trading one cryptocurrency for another should be considered a non-taxable like kind exchange; however, this treatment is prohibited after the 2017 Tax Cuts and Jobs Act (which limited like-kind exchange treatment to real estate).¹⁸⁷

In the United Kingdom, it is expected that gains on cryptocurrencies will be subject to existing capital gains provisions. Where the buying and selling of cryptocurrencies constitute a trade or venture in the nature of a trade, then the profits would be subject to income tax.¹⁸⁸ Anti-avoidance rules apply to same-day transactions and sales that take place 30 days after tokens are acquired.¹⁸⁹ See Section 6.e.ii., *Computation of Basis*, below, for a discussion of pooling of basis.

In Hong Kong as well as in Singapore, there is no capital gains tax levied on the sale of cryptocurrency.¹⁹⁰

Under French tax law, beginning January 1, 2019, gains upon disposal of cryptoassets by French tax resident individuals are in principle considered as capital gains that give rise to the domestic 30% flat tax (including 12.8% income tax and 17.2% social surtaxes), provided that the taxpayer acts on an occasional basis.¹⁹¹ If the overall taxable income exceeds certain thresholds, the

¹⁸⁴ IRC Section 1211(b).

¹⁸⁵ IRC Section 1211(a).

¹⁸⁶ IRC Section 1212(a).

¹⁸⁷ See IRC Section 1031, prior to amendment by Pub. L. No. 115-97 (Dec. 22, 2017).

¹⁸⁸ HMRC, *supra* note 5, at #incometax.

¹⁸⁹ HMRC, *supra* note 5.

¹⁹⁰ GLI, *supra* note 39, at § 4.

¹⁹¹ Article 150 VH *bis* of the French tax code.

contribution on high income of 3% or 4% could also apply. No option for taxation at the progressive tax rate is available regarding such gains. Capital gains realised by corporate investors should in principle be subject to French corporate income tax as ordinary income (see Section 4.a.ii., *Corporate Income Tax*, above).

In Belgium, capital gains realised on the sale (or conversion) of cryptocurrency are in principle tax-exempt, unless the capital gains are realised outside the scope of the normal management of one's private estate.¹⁹² Capital losses are non-deductible. Capital gains realised outside the scope of the normal management of one's private estate are treated either as diverse income or as professional income, depending of the factual elements at stake.¹⁹³

v. Recognition of Losses

Many token issuers may fail, and their tokens will become worthless. Similarly, cryptocurrencies may lose value or become worthless. In addition, many people may lose their private keys, thus becoming unable to access their wallets. Or cryptocurrency owners or wallet providers may be the victim of hacking and currency owners may lose some or all of their cryptocurrency. It is possible that taxpayers may be entitled to claim deductions for such unfortunate occurrences.

In the United States, if a cryptocurrency or token loses value, an investor may recognise a capital loss upon the sale or exchange of such cryptocurrency or token at a loss.¹⁹⁴ In addition, if a person's cryptocurrency or tokens are stolen through a hacking or otherwise, the victim may claim a loss for theft in the year the theft was discovered.¹⁹⁵

However, unlike deductions for theft, the loss of a private key is likely not deductible, because the holder may find it and so there is no closed transaction. It may be possible to claim a deductible loss if the taxpayer abandons his or her private key, but proving abandonment generally requires a clear intent to

¹⁹² Belgium Ruling 2018.0688 (Sept. 25, 2018), <https://eservices.minfin.fgov.be/>.

¹⁹³ The Belgian Federal Ruling Administration has issued a guidance to assess whether the sale/conversion falls within one category or the other. Belgium Service Public Federal Finances, Liste de Questions Crypto-Monnaies, https://www.ruling.be/sites/default/files/content/download/files/liste_de_questions_crypto-monnaies_1.pdf.

¹⁹⁴ See IRC Section 1211.

¹⁹⁵ IRC Section 165(e).

abandon the property and an overt act of abandonment, such as writing to the custodian of the private key (e.g., the exchange or wallet provider) that the taxpayer intends to abandon the private key.¹⁹⁶

In addition, holders of cryptocurrency may not be able to claim a deduction for worthlessness. For U.S. tax purposes, holders may be able to claim a loss for securities that are capital assets and that become worthless during the taxable year.¹⁹⁷ For this purpose, security means stock, rights to acquire stock, or a debt instrument with interest coupons or that is in registered form, so this deduction is may only be possible for securities tokens.¹⁹⁸

For U.K. tax purposes, where a cryptocurrency is subject to capital gains tax and becomes negligible in value (typically 5% of its original value), a negligible value claim may be made to crystallise the loss without physically disposing of the asset. However, for tax purposes, the asset is treated as being disposed of and required for the negligible value.¹⁹⁹

The loss of a private key would not usually be seen as a disposal but where the loss is irretrievable or there is no alternative method of accessing the wallet then a negligible value claim may be eligible.²⁰⁰

In France, a capital loss upon the sale or exchange of such cryptocurrency may be, under certain conditions, tax deductible.²⁰¹ Latent losses on cryptocurrency may also give rise to a tax-deductible provision for depreciation.²⁰² For individuals, capital losses realised during a tax year can only be offset against gross capital gains of the same nature realised in the same tax year.²⁰³

¹⁹⁶ See, e.g., *Beus v. Comm’r*, 261 F.2d 176 (9th Cir. 1958); Rev. Rul. 2004-58, 2004-1 C.B. 1043.

¹⁹⁷ IRC Section 165(g)(1).

¹⁹⁸ IRC Section 165(g)(2).

¹⁹⁹ HMRC, *supra* note 5.

²⁰⁰ HMRC, *supra* note 5.

²⁰¹ Article 150 VH bis, IV and V of the French tax code.

²⁰² Report of Paris Europlace workgroup on the taxation of cryptoassets (Apr. 2019).

²⁰³ Article 150 VH bis, V-A of the French tax code; BOI-RPPM-PVBMC-30-30-20190902 n° 30.

In Belgium, capital losses are recognised only to the extent that the cryptocurrency are allocated to the exercise of a professional activity in Belgium²⁰⁴

vi. State/Municipal Treatment

Classification of cryptoassets for state and municipal income taxes will vary and may conflict with national and international laws. Although many states in the United States have not determined the classification of cryptoassets for tax purposes, some have considered their classification for other purposes. The Uniform Law Commission introduced a model Regulation of Virtual Currency Businesses Act;²⁰⁵ however, few states have even considered adopting it.²⁰⁶ In addition, a few states have adopted comprehensive regulatory regimes, ranging from restrictive, such as New York's "BitLicense" regime and Washington, to crypto-friendly, such as Wyoming.

U.S. states have generally treated cryptoassets as either property or money. For example, Alabama, Connecticut, Georgia, Idaho, Louisiana, New Mexico, New York, North Carolina, Oregon, Vermont, Virginia, and Washington define cryptoassets as money and some have passed legislation or other guidance for it to be covered under money transmission laws.²⁰⁷

Other states such as Illinois, Kansas, New Hampshire, North Dakota, Pennsylvania, Tennessee, Texas, and Utah have either exempted cryptoassets from money transmission laws or defined it as property.²⁰⁸ For example the

²⁰⁴ Belgium Ruling 2018.0688 (Sept. 25, 2018), <https://eservices.minfin.fgov.be/>.

²⁰⁵ Uniform Law Commission, Regulation of Virtual Currency Business Act (2017), <https://www.uniformlaws.org/committees/community-home?CommunityKey=e104aaa8-c10f-45a7-a34a-0423c2106778#:~:text=The%20Uniform%20Regulation%20of%20Virtual,or%20certificates%20of%20electronic%20precious>. See also Matthew E. Kohen and Justin S. Wales, State Regulations on Virtual Currency and Blockchain Technologies, Carlton Fields Blockchain and Digital Currency (Aug. 29, 2019), <https://www.carltonfields.com/insights/publications/2018/state-regulations-on-virtual-currency-and-blockchain-technologies> (hereinafter, "**State Regulations**").

²⁰⁶ A few states have introduced or adopted provisions of the uniform act, including California, Hawaii, Nevada, and Ohio. See State Regulations, *supra* note 205.

²⁰⁷ See State Regulations, *supra* note 205.

²⁰⁸ See State Regulations, *supra* note 205.

Wyoming Money Transmitter Act exempts virtual currency from the money transmission laws.²⁰⁹

Some states have enacted laws governing the treatment of token issuances for securities law purposes. For example, the Wyoming Utility Token Act²¹⁰ classifies open blockchain tokens as intangible personal property, and not securities, for Wyoming state law purposes, thus exempting them from the state securities laws. In addition, the Colorado Digital Token Act²¹¹ exempts certain consumptive tokens from its securities registration rules.

Turning to income taxes, a threshold consideration is whether a “nexus” has been established between the taxpayer and a particular taxing jurisdiction. In *South Dakota v. Wayfair, Inc.*,²¹² the Supreme Court overruled Court precedent dating back to the 1990s,²¹³ and held that physical presence was not necessary to create nexus. Although at issue in *Wayfair* was the state’s ability to impose a sales and use tax collection responsibility, the Court’s rationale applies to income taxes as well and effectively affirms the economic nexus standards that have been widely adopted for state income taxes.²¹⁴

When a business operates in multiple states, the U.S. Constitution limits how much of the business’s income each state may tax to an apportioned share of the business’s total income, but the apportionment formulas vary from state to state. At one time, a majority of states adopted a three-factor apportionment formula which averaged the ratios of property, payroll, and sales within the state to the totals everywhere. However, in recent years, states have increasingly moved toward using an apportionment formula that gives greater or even exclusive weight to the sales factor. This apportionment analysis can quickly become complex for a cryptoasset business. In the absence of specific guidance, states would apply their existing laws to the new technology. To

²⁰⁹ HB0019 (2018), <https://www.wyoleg.gov/Legislation/2018/HB0019>.

²¹⁰ HB0062 (2019), <https://www.wyoleg.gov/Legislation/2019/HB0062>.

²¹¹ SB19-023 (2019), https://leg.colorado.gov/sites/default/files/2019a_023_signed.pdf.

²¹² *South Dakota v. Wayfair*, 585 U.S. ___, 138 S. Ct. 2080 (2018).

²¹³ *Quill Corp. v. North Dakota*, 504 U.S. 298 (1992).

²¹⁴ See Section 4.a.vii., *Sales and Use Taxes*, below for a discussion of nexus standards.

date, the majority of states have not issued guidance on the apportionment treatment of cryptoassets.²¹⁵

Member states of the European Union will deal with similar issues. For example, Portugal treats cryptoassets trading and payments as tax-free.²¹⁶

The OECD's proposals around taxing technology companies provide a possible route for harmonisation for a global framework. It has been asserted that the OECD's proposals are similar to the progression of U.S. constitutional interpretations from *Quill Corp. v. North Dakota*²¹⁷ to *South Dakota v. Wayfair*²¹⁸ – which is to say, the replacement of a physical presence requirement with a type of economic nexus.

vii. Sales and Use Taxes

Sales and use taxes are imposed at state and local levels across the United States on retail sales of goods and enumerated services. In general, states imposing a sales tax also impose a complimentary “use tax” on goods that are purchased outside the state but used in the state. As a policy matter, use taxes are intended to prevent the existence of the state's sales tax from creating an incentive for a consumer to avoid the sales tax by purchasing goods outside the state.

A few further sales tax fundamentals are in order. For example, sales tax is generally a destination tax, meaning the place of delivery or point at which ownership or possession of the property is transferred to the purchaser is where the tax is collected.²¹⁹ Out-of-state sellers are required to collect and remit a state's sales/use tax if the seller has tax presence in the state. Recent legal developments are expanding traditional notions of sales tax jurisdiction,

²¹⁵ See Scott Schiefelbein and Tyler Greaves, *Uncharted Territory: The State Income Tax Implications of Blockchain Technology and Cryptocurrency*, Deloitte (2020), <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/Tax/us-uncharted-territory-state-income-tax.pdf>.

²¹⁶ See, e.g., Kelly Phillips Erb, *Portugal Tax Authorities Clarify That Buying Or Selling Cryptocurrency Is Tax-Free*, *Forbes* (Sept. 19, 2019), <https://www.forbes.com/sites/kellyphillipserb/2019/09/19/portugal-tax-authorities-clarify-that-buying-or-selling-cryptocurrency-is-tax-free/#54a1760f77e3>.

²¹⁷ 504 U.S. 298 (1992).

²¹⁸ 585 U.S. ___, 138 S. Ct. 2080 (2018).

²¹⁹ Business to business (“B2B”) transactions are eligible for exemptions from sales tax, and buyers can generally establish this exemption by providing resale exemption certificates to the sellers.

including: (1) the imposition of a tax collection requirement on a remote (i.e., out-of-state) vendor, despite a lack of a physical presence in the state, and (2) the expansion of state sales tax bases to include more types of services and digital “goods.”

States impose sales taxes on retail sales without regard to the medium of exchange used to purchase the taxable item. Thus, barter transactions are taxable (and might even result in two taxable transactions), as are purchases made with foreign currency. Using cryptoassets to make a retail purchase does not make the transaction nontaxable. As such, sales tax is due on the value paid for the goods or services. However, there is no indication that any state or local jurisdiction intends to impose sales tax on the acquisition of cryptoassets.²²⁰

Marketplace facilitator laws require businesses like Amazon.com Inc. and Etsy Inc. to collect and remit sales and use tax on behalf of their vendors if they cross a specific threshold in the state. At least 16 states—including Alabama, California, Idaho, Iowa,²²¹ Massachusetts, Nevada, New Jersey, North Dakota, Ohio, Kentucky, Rhode Island, Utah, Vermont, Virginia, Washington, and West Virginia—have a special provision in their marketplace facilitator laws that put

²²⁰ See e.g., Washington Department of Revenue, Interim Statement Regarding Bitcoin: Payments, Mining, and Investment Income (Aug. 20, 2019); New York State Department of Taxation TSB-M-14(17)S (Dec. 5, 2014) (hereinafter “NYS”) (“For sales tax purposes, convertible currency is intangible property. Since the purchase or use of intangible property is not subject to sales tax, any convertible currency received by a party to a barter transaction is not subject to sales tax”); Wisconsin Sales and Use Tax Report 1-14 (Mar. 2014) (“The sales price from the sale of virtual currency is not taxable because virtual currency represents an intangible right”); New Jersey Division of Taxation, TAM – 2015-1(R) (July 28, 2015) (“For Sales Tax purposes, convertible virtual currency is treated as intangible property. As such, the purchase or use of the currency in a transaction is not subject to Sales Tax. However, New Jersey sales or use tax applies when a person transfers convertible virtual currency for taxable goods or services”); Tax Policy Division of the Michigan Dept. of Treasury, Treasury Update, Vol. 1, Issue 1 (Nov. 2015), https://www.michigan.gov/documents/treasury/Tax-Policy-November2015-Newsletter_504036_7.pdf (“It should be noted, however, that virtual currency itself is not tangible personal property for purposes of the General Sales Tax Act or the Use Tax Act. Therefore, purchases of virtual currency — as contrasted with purchases made with virtual currency — are not subject to sales or use tax”). Note that if a form of currency has a value unrelated to the purchasing power that is intended to represent (e.g., a confederate dollar or an ancient coin), such that the currency is valued as a collectors’ item, its transfer could be subject to state sales and use taxes.

²²¹ Iowa has introduced a bill that would remove virtual currency from the marketplace facilitator laws. H.F. 240, 88th Gen. Assemb., 2019 Sess.

marketplaces on the hook for sales tax collection if the business provides the option to pay with virtual currency to customers.²²²

Supply chain utility tokens and other similar non-fungible extrinsic asset blockchains can simplify sales tax administration. In addition, states may accept cryptoassets in payment of taxes. For example, the State of Ohio previously accepted bitcoin for tax receipts, including sales tax. However, this was later suspended while the state studies whether that expansion of tax payment options accorded with Ohio law.²²³ Other states, such as Georgia, Missouri, New Hampshire, and New York,²²⁴ have introduced legislation permitting the payment of taxes in cryptoassets, but such legislation has not yet passed.

A possible option for tax collecting bodies is to adopt a new form of “digital nexus.” Sales tax nexus defines the level of connection between a taxing jurisdiction and an entity. Until this connection is established, the taxing jurisdiction cannot impose its sales taxes on the entity. For cryptoassets, some options the authors have considered to define nexus are with respect to wallets, exchanges, and cryptoasset transactions.

(A) Wallet (or Identity) Nexus

Wallet (or identity) nexus could be applied to where the location of the wallet is active or held in (cold) storage. A use tax could be applicable to wallets; however, there are issues of privacy that will arise and enforcement will be difficult without access to the keys. This type of nexus could also be applicable to cryptoasset exchanges.

²²² See Ryan Prete, More States Add Cryptocurrency Twist to Marketplace Sales Tax Laws, Bloomberg Tax (Aug. 8, 2019), <https://news.bloombergtax.com/daily-tax-report-state/more-states-add-cryptocurrency-twist-to-marketplace-sales-tax-laws>; State Regulations, *supra* note 205.

²²³ Ohio Treasurer, Treasurer Sprague Announces Suspension of OhioCrypto.com (Oct. 2, 2019), <http://www.ohiotreasurer.gov/News/16240>; Joeri Cant, US State of Ohio Suspends Service for Paying Taxes With Bitcoin, Cointelegraph (Oct. 3, 2019), <https://cointelegraph.com/news/us-state-of-ohio-suspends-service-for-paying-taxes-with-bitcoin>; Kevin Helms, Ohio Attorney General Finds State Crypto Program Illegal, Bitcoin.com News (Nov. 14, 2019), <https://news.bitcoin.com/ohio-crypto-program-hits-a-snap-attorney-general-finds-it-illegal/#:~:text=The%20Attorney%20General%20of%20the.cryptocurrency%20ahead%20of%20other%20states>.

²²⁴ State Regulations, *supra* note 205.

(B) Exchange (or Network) Nexus

Exchange (or network) nexus could be applied to where the exchange operates its business and provides infrastructure as a marketplace facilitator, which will be required to register and collect tax as an online service rather than individual wallets collecting taxes. A current example of this is “cookie nexus” or in-state software that is designed to broaden the definition of physical presence to include instances where remote sellers place software or web cookies on in-state computers and devices to enhance or facilitate sales.²²⁵ This would require all taxing jurisdictions to impose reporting requirements on the marketplace facilitator. A sales tax would be applicable for goods or services and regulation could be applied through creating taxable brackets.

(C) Transaction (or Economic) Nexus

Transaction (or economic) nexus could be applied where no taxing jurisdiction presence exists based on a set level of transactions whereby a threshold within a state has to be met before taxation is applied. This can be applicable for transactions made with financial instruments such as a bond or a futures contract. In addition, a transaction tax²²⁶ could be applicable to the cryptoassets being used by a clearing house.

viii. Employment/Payroll Taxes

In the United Kingdom, where an employee is paid, in full or in part, by way of a cryptoasset the tax treatment may depend on whether there is a market for the cryptocurrency.

If a cryptocurrency is considered a Readily Convertible Asset (“RCA”), then the payment to the employee should be subject to the operation of PAYE and

²²⁵ Massachusetts and Rhode Island were the first to adopt the cookie or in-state software nexus approach in 2017. Ohio has adopted it in 2018, and Iowa adopted it in 2019.

²²⁶ See generally Aaron Klein, What is a financial transaction tax?, Brookings (Mar. 27, 2020), <https://www.brookings.edu/policy2020/votervital/what-is-a-financial-transaction-tax-2/>; Colin Miller and Anna Tyger, The Impact of a Financial Transaction Tax, Tax Foundation (Jan. 30, 2020), <https://taxfoundation.org/financial-transaction-tax/>; Congressional Research Service, Financial Transactions Taxes: In Brief (Mar. 27, 2019), <https://fas.org/sgp/crs/misc/R42078.pdf>; Julia Kagan, Tobin Tax, Investopedia (Aug. 18, 2019), <https://www.investopedia.com/terms/t/tobin-tax.asp>.

national insurance contribution (“NIC”) collection processes on the value at the date of payment. HMRC has released guidance on when a cryptocurrency is likely considered an RCA. Specifically, where a “trading arrangement” such as an online exchange or a token can be exchanged to obtain money, then the token will be an RCA.²²⁷

Where cryptocurrency is not treated as an RCA, the PAYE/NIC processes are not required to be applied to the payment to the employee. Instead the employee should report any cryptocurrency received as earnings from employment on his or her income tax return and the employer should treat the payment as subject to Class 1A national insurance.

The subsequent disposal of the cryptocurrency in either case by the employee would be subject to the aforementioned rules around income or capital gains tax, as applicable. See Section 4.a.iv., *Capital Gains Tax*, above.

In the United States, if an employee or independent contractor is paid in convertible virtual currency, the fair market value of the virtual currency (in U.S. dollars) must be included in income.²²⁸ In addition, the payment of wages to an employee in convertible virtual currency would be subject to Federal income tax withholding, Federal Insurance Contributions Act (“FICA”) tax, and Federal Unemployment Tax Act (“FUTA”) tax.²²⁹ Similarly, the payment of compensation to an independent contractor in virtual currency would be subject to self-employment taxes.²³⁰ Such payments to employees or independent contractors are also reportable on information returns (e.g., IRS Forms W-2, *Wage and Tax Statement*, or 1099-MISC, *Miscellaneous Income*).²³¹ Although one could assume that similar rules apply for other cryptoassets, the IRS has not provided guidance beyond the receipt of convertible virtual currency.

²²⁷ HMRC, *supra* note 5.

²²⁸ IRS Notice 2014-21, *supra* note 21, at Q&A 3; IRS FAQ, *supra* note 20, at Q&A 8. 21

²²⁹ IRS Notice 2014-21, *supra* note 21, at Q&A 11; IRS FAQ, *supra* note 20, at Q&A 10.

²³⁰ IRS Notice 2014-21, *supra* note 21, at Q&A 10; IRS FAQ, *supra* note 20, at Q&A 9.

²³¹ IRS FAQ, *supra* note 20, at Q&A 9, 10; IRS Notice 2014-21, *supra* note 21, at Q&A 10, 11, 13; see also TIGTA, *supra* note 114, at 2.

ix. VAT/GST

Value-added tax (“VAT”) (e.g., United Kingdom, European Union), also known as Goods and Services Tax (“GST”) in some jurisdictions (e.g., Singapore, India, Canada and Australia), is a broad-based tax that is charged on the consumption of goods, services, or intangibles by private individuals.²³² Around 168 countries impose VAT/GST, relying on it as a major source of revenue, with the notable exception of the United States.²³³ VAT/GST is imposed where the purchase is ultimately for private consumption and not business purposes;²³⁴ however the business supplying such goods, services, or intangibles effectively collects the tax.²³⁵ Collected through a staged process, every business at each stage of the supply process collects and remits VAT/GST according to its margin.²³⁶ It is designed to be borne by the final consumer (that is, the end user), but the tax is charged on all goods, services or intangibles commercially provided, including those provided to businesses.²³⁷ VAT or GST is assessed incrementally and collected by the end retailer. It is usually imposed at a flat rate, and is therefore frequently compared to a sales tax.²³⁸ As discussed immediately below, VAT/GST liability is determined by the following: (1) place of supply, and (2) time of supply.²³⁹

²³² Consumption is only engaged in by individuals, as opposed to businesses. Organisation for Economic Cooperation and Development (“OECD”), International VAT/GST Guidelines, at 14 (2017), <https://www.oecd-ilibrary.org/docserver/9789264271401-en.pdf?expires=1570082070&id=id&accname=guest&checksum=48E3A955E820D7661141359A0E528EC7> (hereinafter “OECD VAT/GST Guidelines”).

²³³ Of the 36 OECD member countries, 35 impose VAT/GST. The United States is the only OECD member that does not impose federal VAT/GST on consumption, although some states impose a single-stage consumption tax at the point of sale to end users. See OECD, Consumption Tax Trends 2018: VAT/GST and Excise Rates, Trends and Policy Issues, at 16, 19 (Dec. 2018), https://read.oecd-ilibrary.org/taxation/consumption-tax-trends-2018_ctt-2018-en (hereinafter “OECD Consumption Tax Trends”).

²³⁴ OECD Consumption Tax Trends, *supra* note 233, at 18.

²³⁵ See, e.g., Singapore IRAS, e-Tax Guide – GST: General Guide for Business, at para. 2.2, (8th Ed. Jan. 3, 2019), [https://www.iras.gov.sg/irashome/uploadedFiles/IRASHome/e-Tax_Guides/etaxguide_GST_GST%20General%20Guide%20for%20Businesses\(1\).pdf](https://www.iras.gov.sg/irashome/uploadedFiles/IRASHome/e-Tax_Guides/etaxguide_GST_GST%20General%20Guide%20for%20Businesses(1).pdf) (hereinafter “235 Guide”).

²³⁶ OECD VAT/GST Guidelines, *supra* note 232, at 14. The corresponding margin of tax is “the difference between the VAT imposed on its taxed inputs and the VAT imposed on its taxed outputs. Thus, the tax is in principle collected on the “value added” at each stage of production and distribution.”

²³⁷ OECD Consumption Tax Trends, *supra* note 233, at 22-23.

²³⁸ See OECD Consumption Tax Trends, *supra* note 233, at 24-25.

²³⁹ See generally OECD VAT/GST Guidelines, *supra* note 233, at 38-41.

(A) Place of Supply

For business to business (“B2B”) services, the general rule is that the place of supply is where the customer is located, and for business to consumer (“B2C”) services, the general rule is that the place of supply is where the supplier is located.²⁴⁰ However, there are exceptions for B2C supplies of certain services²⁴¹ — e.g., consulting, legal, accounting, engineering, data processing, and information and intangible services (such as copyright and patent transfers) — which are deemed as supplied where the customer is located.

B2B transactions are eligible for a deduction for VAT paid.²⁴² The final consumer, who is unable to deduct the VAT charged, bears the cost of the VAT on the final sale price, which reflects the overall value of goods and services used in producing the final product.

(B) Time of Supply

The time at which a supply of goods or services takes place for VAT purposes is called the tax point,²⁴³ which can be applied to timestamps on a blockchain. Each trader charges VAT at the appropriate rate at each time of supply along the value chain, eventually passing to the purchaser an invoice showing the amount of tax charged.²⁴⁴ The purchaser is then able to credit that input tax against the output tax charged on its sales by paying the balance to tax authorities.²⁴⁵ Some countries, such as Singapore,²⁴⁶ have proposed to exempt cryptoassets from VAT/GST. However, some EU

²⁴⁰ See, e.g., UK HMRC, Guidance: Place of Supply of Services (VAT Notice 741A), at § 3 (Dec. 31, 2018), <https://www.gov.uk/guidance/vat-place-of-supply-of-services-notice-741a> (hereinafter “UK HMRC VAT Guide”); Value Added Tax Act, 1994, c.23, § 7A (UK), <http://www.legislation.gov.uk/ukpga/1994/23/section/7A/2009-07-21> (hereinafter “UK VAT Act”); SG IRAS GST, *supra* note 235, at paras. 3.1.6, 3.1.7.

²⁴¹ Certain qualified services of a professional, technical, financial, intellectual or other intangible nature supplied to customers outside the EU will be treated as belonging to the place of the consumer. UK HMRC VAT Guide, *supra* note 228, at § 12.

²⁴² See OECD VAT/GST Guidelines, *supra* note 232, at 20.

²⁴³ See, e.g., HMRC, Guidance: VAT guide (VAT Notice 700) (May 26, 2020), <https://www.gov.uk/guidance/vat-guide-notice-700>.

²⁴⁴ OECD VAT/GST Guidelines, *supra* note 232, at 15.

²⁴⁵ OECD VAT/GST Guidelines, *supra* note 232, at 15.

²⁴⁶ SG IRAS Payment Tokens, *supra* note 1017.

member states have exempted cryptoassets from VAT/GST (such as Portugal), but others have not, which makes application of reverse charges in the EU complicated. A type of Tobin or financial transactions tax (a tax on international currency transactions) for EU member states could mitigate the risk of fraud.²⁴⁷

Similar to sales tax, it is possible to simplify the administration of VAT using blockchain technology.²⁴⁸ As discussed in connection with sales tax, non-fungible goods with extrinsic asset value may be transferred using blockchains. This presents an opportunity to identify transactions that are subject to sales tax or VAT.

VAT can be applied to digital invoices which can exist as smart contracts affixing the time of supply. It has been reported²⁴⁹ in Shenzhen (China) that already 6 million blockchain invoices have been issued. There are a number of companies that are creating blockchain invoices to reduce invoice fraud and invoice exchanges are now going live to help provide international trade finance through invoice factoring. Point of sales systems that will allow cryptoassets to be accepted will be able to apply taxation on the purchase of goods and allow automatic tax reporting.

A number of goods and services are exempt of VAT, or are taxed at a lower rate. In the United Kingdom, the HMRC publishes a comprehensive list.²⁵⁰ Payment tokens such as bitcoin are exempt from VAT at the place they are created or mined. Recent HMRC guidance²⁵¹ states that payment or exchange tokens received by miners for their mining activities will generally be outside the scope of VAT on the basis that:

²⁴⁷ See *supra* note 214.

²⁴⁸ See, e.g., Deloitte, Blockchain Technology and its Potential in Taxes (Dec. 2017), https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl_Blockchain-technology-and-its-potential-in-taxes-2017-EN.PDF; Lachian Wolfers, VAT and Technology: The First Fully Automated Tax?, *International Tax Review* (Dec. 3, 2019); <https://www.internationaltaxreview.com/article/b1j8ydd4qghx0w/vat-and-technology-the-first-fully-automated-tax>.

²⁴⁹ SG IRAS Payment Tokens, *supra* note 10.

²⁵⁰ HMRC, Guidance: VAT Rates on Different Goods and Services (May 12, 2017), <https://www.gov.uk/guidance/rates-of-vat-on-different-goods-and-services#financial-services-and-investments-insurance>.

²⁵¹ HMRC Business Paper, *supra* note 168, at [#vat](#).

- The activity does not constitute an economic activity for VAT purposes because there is an insufficient link between any services provided and any consideration; and
- There is no customer for the mining service.

Also, when payment tokens are exchanged for goods and services, no VAT will be due on the supply of the token itself.²⁵²

Belgium²⁵³ and France have exempted of VAT the exchange of cryptocurrency into fiat currency (and *vice versa*) pursuant to the ECJ case law.²⁵⁴ However, the conversion of a utility token into services or goods is a taxable event for VAT purposes in France (see Section 4.c., *Taxable Events – Utility Tokens*, below).

x. Withholding Tax

Withholding tax is imposed on the gross amount of payments either (1) as a backup method to achieve income tax compliance, whereby such withholding taxes are credited on an income tax return, or (2) as a last-chance taxation of payments to taxpayers resident in other jurisdictions. There are several unique aspects to withholding tax. First, withholding tax is imposed on gross payments and does not generally reflect any form of deduction or credit that may otherwise be allowable under the tax laws. Second, the tax is imposed on the payor: in the modern financial system, a payment is often transferred through multiple intermediaries, each with their own independent liability for this tax. As a result of these features, withholding tax may pose a significant tax cost and can be a trap for the unwary.

The United States has some of the most stringent withholding tax laws. There are basically four different types of withholding rules in the United States: (1) withholding of income and employment taxes on remuneration for

²⁵² UK VAT Act, *supra* note 240.

²⁵³ Belgium Q. P. n° 7021 of deputy DISPA (Nov. 15, 2015), <https://eservices.minfin.fgov.be/>. This follows the ECJ ruling of *Skatteverket v David Hedqvist*, Case C-264/14, ECLI:EU:C:2015:718 (Oct. 22, 2015), <http://curia.europa.eu/juris/celex.jsf?>.

²⁵⁴ *Skatteverket v. David Hedqvist*, Case C-264/14, ECLI:EU:C:2015:718 (Oct. 22, 2015), <http://curia.europa.eu/juris/celex.jsf?>.

services;²⁵⁵ (2) backup withholding in the case where a taxpayer identification number (“TIN”) from the payee is lacking or incorrect;²⁵⁶ (3) withholding on payments of U.S. source fixed or determinable annual or periodical (“FDAP”) income to a foreign person;²⁵⁷ and (4) after 2014, Foreign Account Tax Compliance Act (“FATCA”) imposes withholding requirements for non-U.S. financial institutions acting as an enforcement mechanism.²⁵⁸ Any payor in the world may be subject to U.S. withholding tax obligations, though some payments may qualify for exemptions from U.S. withholding tax, on the basis of (1) the source of the payment, as non-U.S. payments are not subject to U.S. withholding tax, (2) an exemption specifically allowed under the U.S. domestic tax laws or particular treaties, or (3) the nature of the payment. The U.S. withholding tax, for example, often applies to U.S. source FDAP, including interest, dividends, payments for services, and similar payments. Such amounts must generally be withheld at a 30% flat rate, but treaty provisions may reduce or eliminate the withholding. To take advantage of exemptions, generally the recipient must provide the payor a Form W-9, *Request for Taxpayer Identification Number and Certification*, or one of the Forms W-8 if the recipient is a foreign person; otherwise there is a presumption that the tax applies. The U.S. withholding tax does not currently apply to gross proceeds from the sale or exchange of property, except to the extent of payments for U.S. real property interests pursuant to the Foreign Investment in Real Property Tax Act (“FIRPTA”).²⁵⁹

The IRS has provided guidance that payments in cryptoassets are subject to withholding taxes to the same extent as any other in-kind payments. For example, the fair market value of virtual currency paid as wages,²⁶⁰ paid as FDAP to non-U.S. persons,²⁶¹ or payments for which the payor does not have a correct

²⁵⁵ IRC Section 3402. See also IRS Publication 15 (Circular E), *Employer’s Tax Guide*, for information on the withholding, depositing, reporting, and paying of employment taxes.

²⁵⁶ IRC Section 3406. See also IRS Publication 1281, *Backup Withholding for Missing and Incorrect Name/TINs*, for more information on backup withholding.

²⁵⁷ See IRC Sections 1441, 1442, 1446. See also IRS Publication 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*.

²⁵⁸ See IRC Sections 1471-1474.

²⁵⁹ See IRC Section 897.

²⁶⁰ IRS Notice 2014-21, *supra* note 21, at Q&A-11.

²⁶¹ IRS Notice 2014-21, *supra* note 21, at Q&A-13.

TIN²⁶² are subject to withholding to the same extent as other payments made in property. The IRS has not provided guidance on whether cryptoasset accounts are subject to FATCA. Note that with respect to the sale or exchange of cryptoassets, generally, the payments that are transferred within the cryptoasset ecosystem are gross proceeds and therefore, have not been subject to withholding tax under U.S. withholding tax laws. Other jurisdictions do impose withholding tax on gross proceeds, such as China.²⁶³ It is possible such withholding tax may be imposed on cryptoasset gross proceeds.

In the United Kingdom, relief from withholding tax should broadly be available against the U.K. tax liability on income or gains on cryptocurrencies. Theoretically the form of payment in cryptocurrency could result in withholding tax being withheld in the United Kingdom, such as a scenario where interest on a loan denominated in a cryptocurrency is also charged in a cryptocurrency and paid to a non-U.K. resident. In this theoretical scenario, the Pounds Sterling equivalent of the interest could be subject to 20% withholding tax, subject to any double taxation treaty claims.

xi. Stamp Duties and Other Transfer Taxes

If the cryptoasset is treated as a property or security, a stamp tax could be applicable.

(A) Property

Stamp duty is a tax that is levied on documents, with the potential to also apply to smart contracts. Smart contracts may include land registries²⁶⁴ or mortgages.²⁶⁵

²⁶² IRS Notice 2014-21, *supra* note 21, at Q&A 14.

²⁶³ See generally PricewaterhouseCoopers, China, People's Republic of, Worldwide Tax Summaries (Jun. 30, 2020), <https://taxsummaries.pwc.com/peoples-republic-of-china/corporate/withholding-taxes#:~:text=Non%2DTREs%20without%20establishments%20or,reduced%20under%20a%20tax%20treaty.>

²⁶⁴ The U.K. Land Registry has been developing this concept under the name Digital Street. Lauren Tombs, Could Blockchain be the Future of the Property Market?, HM Land Registry Blog (May 24, 2019), <https://hmlandregistry.blog.gov.uk/tag/digital-street/>.

²⁶⁵ For example, the Chinese State bank, Bank of Communications and a subsidiary of the Russian Raiffeisen Bank International have issued digital mortgages on the blockchain. See Chrisjan Pauw, How Significant is Blockchain in the Mortgage Industry?, Cointelegraph (Oct. 23, 2018), <https://cointelegraph.com/news/how-significant-is-blockchain-in-the-mortgage-industry>. See also Leigh Cuen, 'We'll Tokenize the House': Mortgages

For example, a mortgage done pursuant to a smart contract could calculate mortgage payments along with interest on those repayments. If the mortgage is payable in cryptoassets, the smart contract could account for any volatility in the value of the cryptoasset. The smart contract could be subject to a stamp duty.

In addition, a cryptoasset transaction can also be subject to a transfer tax, which is levied on the passing of title to property from one person to another. Depending on how the cryptoasset is defined (either as property or currency), a transfer tax could be broad (like a Tobin tax)²⁶⁶ or limiting (like stamp duty land tax)²⁶⁷ depending on the use of the cryptoasset. The best solution would be to create internationally agreed financial brackets dependent on the volume being utilised and to allow the cryptoasset to be utilised as a clearing currency.

The U.K.'s HMRC has announced that if exchange tokens are consideration in "money or money's worth" for transfers, the stamp duty or stamp duty reserve tax could be applicable on a case-by-case basis depending on the characteristics of the token. A land transaction would be subject to stamp duty land tax if there is consideration in "money or money's worth" and any non-monetary consideration should be valued at its market value on the effective date of the transaction.²⁶⁸

(B) Security

In Switzerland, only companies that are incorporated in Switzerland are subject to the securities issuance stamp tax. The Federal Tax Administration ("FTA")²⁶⁹ levies stamp tax on shareholders' contributions to a Swiss company, regardless of whether they receive shares in exchange for

Are Coming to Ethereum This Summer, Coindesk (May 9, 2019), <https://www.coindesk.com/well-tokenize-the-house-mortgages-are-coming-to-ethereum-this-summer>.

²⁶⁶ See *supra* note 226.

²⁶⁷ See e.g., HMRC, Stamp Duty Land Tax, <https://www.gov.uk/stamp-duty-land-tax>; Irish Tax and Customs, What is Stamp Duty?, <https://www.revenue.ie/en/property/stamp-duty/what-is-stamp-duty/index.aspx>. See generally Will Kenton, Stamp Duty, Investopedia (Jun. 20, 2020), <https://www.investopedia.com/terms/s/stampduty.asp>.

²⁶⁸ HMRC Business Paper, *supra* note 169, at #stamp-duty-and-stamp-duty-reserve-tax.

²⁶⁹ Switzerland Federal Tax Administration ("CH FTA"), <https://www.estv.admin.ch/estv/en/home.html>.

their contribution. The securities issuance stamp tax is triggered when a shareholder's total contribution exceeds CHF1 million. The tax is payable by the company to which the contribution is made.

The FTA levies the transfer stamp tax when one of the parties or one of the intermediaries involved in a transfer of taxable securities is a securities dealer according to the Swiss Stamp Tax Act. This can be applied to cryptoasset exchanges, if the exchange is a securities dealer. In that case, the tax must be paid by the exchange. The domicile of the seller and buyer is irrelevant.

In the United Kingdom, purchases of "stock or marketable securities" and/or "chargeable securities" would be subject to a stamp duty reserve tax if there is consideration in "money or money's worth."²⁷⁰ Broadly, "debt" counts as chargeable consideration for stamp duty in the following scenarios:

- Release of a debt – The seller has an outstanding debt to the purchaser (which could be in the form of exchange tokens). The seller transfers shares to the purchaser, and in consideration the purchaser releases the seller from the debt.
- Debt is assumed – A third party has an outstanding debt to the purchaser (which could be in the form of exchange tokens). The seller transfers shares to the purchaser, and in consideration the seller is assigned the right to the debt from the third party.

In Belgium, the purchase and sale of "marketable securities" on the secondary market is subject to tax on the stock exchange transaction. To the extent that the cryptoasset is treated as a security, it should therefore qualify for the application of this tax.²⁷¹

²⁷⁰ HMRC Business Paper, *supra* note 169, at #stamp-duty-and-stamp-duty-reserve-tax.

²⁷¹ Belgian Federal Tax Administration, Q&A on the Stock Exchange Transaction Tax, https://eservices.minfin.fgov.be/myminfweb/pages/fisconet?_ga=2.61203503.2068220269.1591623511-919187143.1587023796#!/document/e1b72c6b-e2a1-4a34-82dd-76ed483e2737.

xii. Wealth Tax

Some jurisdictions, such as Switzerland, levy through their cantons (equivalent to provinces) income tax and net wealth tax on the gross global assets (including rights with a cash value but excluding real estate and permanent establishments abroad) of taxpayers within that cantonal region.²⁷² The Swiss FTA treats cryptoassets similarly to foreign currency, providing respective tax rates corresponding to different cryptocurrencies.²⁷³ Cantons have varied tax rates.²⁷⁴

xiii. Estate (or Inheritance) Tax/Gift Tax

A number of countries impose a transfer tax – that is, a tax on the value of asset transferred – on assets gifted from one individual to another. Some countries, like the United States, impose a gift tax (transfer during life) and estate tax (transfer at death) to be paid by the donor or the donor’s estate at the time of the transfer.²⁷⁵ In other cases, that tax is imposed on the donee of the gift – an inheritance tax (typically at death).

In the United States, the recipient should not be taxed until he or she disposes of the cryptoasset.²⁷⁶ The amount of estate tax is determined by applying the relevant tax rates to the taxable estate – the gross estate reduced by any

²⁷² LOC 2018 World Report, *supra* note 1, at 70, citing Bundesgesetz über die Harmonisierung der direkten Steuern der Kantone und Gemeinden (“StHG”) [Federal Act on the Harmonization of Direct Taxes Levied by Cantons and Municipalities], SR 642.14, art. 2, para. 1 (Dec. 14, 1990), <https://www.admin.ch/opc/de/classified-compilation/19900333/201801010000/642.14.pdf>, archived at <http://perma.cc/5QP8-2NXP>.

²⁷³ StHG, *supra* note 272, citing Kanton Zug, Finanzdirektion. Steuerverwaltung [Canton Zug, Finance Directorate, Tax Administration], Kryptowährungen (Bitcoin, Ethereum, Tokens usw.): Merkblatt Steuern für Privatpersonen [Cryptocurrencies (Bitcoin, Ethereum, Tokens etc.): Explanatory Leaflet for Private Persons] (Nov. 30, 2017), <https://www.zg.ch/behoerden/finanzdirektion/steuerverwaltung/kryptowaehrungen/download/Kryptowaehrungen-Merkblatt-def.-30.11.2017.pdf/download>, archived at <http://perma.cc/VGX2-C5HS>. The FTA recommends tax rates on different cryptocurrencies for wealth tax purposes although cantonal tax administrations are free to impose different rates.

²⁷⁴ StHG, *supra* note 272.

²⁷⁵ Note that there is a credit allowed against gift and estate taxes of each person (known as the applicable credit) equal to \$5 million (\$10 million for tax years 2018 through 2025), which is adjusted annually for inflation (for 2020, the applicable credit is \$11.58 million). See IRC Section 2010(c).

²⁷⁶ See IRS FAQ, *supra* note 21, at Q&A 30 (relating to a recipient of a gift of virtual currency). The recipient’s basis in the virtual currency is equal to the donor’s basis plus any gift tax paid, for purposes of computing a gain, or the lesser of the donor’s basis or the fair market value, for purposes of computing a loss. *Id.* at Q&A 31.

deductions. The gross estate includes the value of all property, whether real or personal, tangible or intangible, wherever situated.²⁷⁷ Because cryptoassets are generally treated as property for federal tax purposes, they are likely subject to estate taxes just like any other transfer of property at death.²⁷⁸

Gift, estate, and inheritance taxes raises a number of practical issues. First, taxing authorities must ascertain the value of the cryptoasset. That valuation, as regularly described herein, is partially dependent on how the taxing jurisdiction characterises it – i.e., property, currency, etc. In addition, pricing methodologies between exchanges vary, making accurate valuation for transfer tax purposes difficult. A related question, is whether there is a value to ascribe to a cryptoasset that is lost?²⁷⁹ Can a state tax an asset that might never be found again?

Second, how should taxing authorities ascribe cryptoasset “ownership” to any one individual. In many cases, this is a matter of mere possession – particularly where the “owner” may hold cryptoassets in cold storage anonymously. It is akin to cash currency in that regard, and enforcing a tax against such an asset is difficult as a practical matter. On the other hand, holding cryptoassets on exchanges such as Coinbase, potentially provides easier tracking and ascribing of ownership to impose either an estate or inheritance tax, unless the exchange is decentralised, lacks a third-party agent, or has a third-party agent who refuses to provide information to a representative of the purported decedent cryptoasset owner’s estate.

Finally, in the case of the estate tax, cryptoasset owners must consider their jurisdictional domicile as well as citizenship when determining the jurisdictions under which they are likely to be taxed. While many countries have treaties preventing double taxation on transfer tax events, such as death, many do not. Furthermore, identifying the “situs” of the cryptoasset may ultimately result in jurisdictional battles.

²⁷⁷ See IRC Sections 2033-2045.

²⁷⁸ See IRS Notice 2014-21, *supra* note 21, at Q&A 1; IRS FAQ, *supra* note 20, at Q&A 2.

²⁷⁹ See, e.g., Nikhilesh De, Troubled Canadian Crypto Exchange QuadrigaCX Owes its Customers \$190 Million and Cannot Access Most of the Funds, Coindesk (Feb. 1, 2019), <https://www.coindesk.com/quadriga-creditor-protection-filing>.

xiv. Charitable Donations

The donation of cryptoassets to a charity should generally be treated as any other donation of property. In other words, it should be tax-deductible. The IRS clarified that the amount of the charitable contribution deduction is generally equal to the fair market value of the virtual currency at the time of the donation if it was held more than a year (or the lesser of the donor's basis or the fair market value at the time of the contribution).²⁸⁰ In addition, the IRS clarified that the donation of virtual currency does not result in recognition of gain or loss.²⁸¹

The documentation and reporting requirements applicable to charitable donations also applies to donations of virtual currency, including the requirement to obtain an appraisal for donations of property worth more than \$5,000.²⁸²

b. Taxable Events – Security Tokens

Similar to the treatment of cryptocurrency, transactions involving tokens have tax consequences – in many cases the consequences are similar to those arising if one were to use fiat currency rather than a token to effectuate the transaction. But there are specific transactions involving tokens that should be considered.

Under the tax law of many jurisdictions, cryptoassets are treated as property. However, the type of property is not generally specified. Regardless, the purchase of property is generally not taxable to the acquirer. For example, if an individual pays \$10 for an equity token, it would likely be viewed as buying an equity interest in the business for \$10, resulting in a \$10 basis to the acquirer in the equity token. If at some point in the future the individual were to sell that token, gain would be recognised on the difference between the value received in exchange for the token and the \$10 basis in the token. The character of that gain (i.e., capital vs. ordinary) depends on the use of the asset in the hands of the owner.

An ICO or an STO, is similar in many ways to an initial public offering (“IPO”) in the traditional sense. Tokens are offered to investors in exchange for fiat currency or

²⁸⁰ IRS FAQ, *supra* note 20, at Q&A 33. The deduction for charitable contributions is subject to certain income limitations and limitations based on the type of charity the asset is donated to. IRC Section 170(b). For example, contributions of appreciated capital gain property (other than qualified appreciated stock) to private foundations are limited to basis.

²⁸¹ IRS FAQ, *supra* note 20, at Q&A 34.

²⁸² See IRS FAQ, *supra* note 20, at Q&A 35, 36.

cryptocurrency to fund the creation and growth of the underlying business model. An IEO is conducted by a cryptoasset exchange on behalf of the company that seeks to raise funds with its newly issued tokens. The token issuers pay a listing fee along with a percentage of the tokens sold during the IEO, and the exchange conducts the anti-money laundering and “know-your-customer” compliance.²⁸³

The issuance of the token may result in income to the issuer. If the token is viewed as equity for tax purposes, the issuance by the issuer should not be taxable,²⁸⁴ but if the token is viewed as property or a commodity, the proceeds would likely be taxable. The purchase of the token, itself, is not a taxable transaction to the investor; instead, it results in cost basis and any gain or loss would be recognised upon the later sale or exchange of the token. If the investor transfers cryptoassets or other property in exchange for the token, he or she would realise gain or loss on that transfer. However, if the token is treated as equity, the investor may qualify for tax-deferred treatment on the transfer of any cryptocurrency or other property.²⁸⁵

c. Taxable Events – Utility Tokens

As defined in the taxonomy of cryptoassets in Section 2.a., *Introduction to Cryptoassets*, above, utility tokens are consumptive in nature. Certain business models may require ownership of a token to access a system or pay for use of a particular business model or access to other parties on the platform. For example, to access a website that provides goods or services, a user may need to have a token. Tokens may also be required to transact within the ecosystem with the other users. Alternatively, such tokens may provide a discount to a service on the platform.

Many issuers in the United States have asserted that the tokens they are issuing are utility tokens to avoid classification as a security by the SEC.²⁸⁶ The IRS has not provided guidance on the treatment of utility tokens. If the token can be used to

²⁸³ For example, BitTorrent engaged in an IEO through Binance, and Veriblock engaged in an IEO through Bittrex. See Gertrude Chavez-Dreyfuss, *Explainer: Initial Exchange Offerings Flourish in Crypto Market*, Reuters (Jun. 20, 2019), <https://www.reuters.com/article/us-crypto-currencies-offerings-explainer/explainer-initial-exchange-offerings-flourish-in-crypto-market-idUSKCN1TL2E0>.

²⁸⁴ See, e.g., IRC Section 1032. See Section 3.c. *Security Tokens*, above, for further discussion of security tokens.

²⁸⁵ See, e.g., IRC Section 351. To qualify for tax-deferred treatment, one or more persons must transfer property to a corporation solely in exchange for stock of the corporation, and immediately after the transfer, such persons must be in control of the corporation (within the meaning of IRC Section 368(c)).

²⁸⁶ See Section 3.c.i(A) *Security*, above, for further discussion of SEC classification of tokens.

obtain a good or service on a platform, the issuance of a utility token may be treated as a prepaid good or service to the issuer.²⁸⁷ Or, if the token is convertible into fiat currency, so that it serves as a medium of exchange, it could be treated as property under IRS guidance.²⁸⁸ Either way, the issuer would realise taxable income upon issuance of the token. If the tokens are held as investment assets, their issuance would give rise to capital gain or loss. On the other hand, if the tokens are held primarily for sale to customers in the ordinary course of the issuer's business, then the sale of the tokens would give rise to ordinary gain or loss.²⁸⁹ If treated as a sale of a good, it might be subject to inventory accounting.²⁹⁰ If the token issuer is a controlled foreign corporation, the income generated may be subject to tax as subpart F or global intangible low-taxed income.²⁹¹

The investor would realise taxable gain or loss upon use or conversion of the token for goods, services, or fiat currency, or cryptoassets. See discussion above in Section 3.b.vi. (*Conversion into Cash*), vii. (*Conversion into Other Cryptocurrency*), and viii. (*Conversion into Other Property, Goods, or Services*), above. If the token represents a mere discount for a service, it is unlikely to result in tax.

Similarly, there is little to no guidance on the treatment of utility tokens in the United Kingdom. The most recent HMRC publication states they are out of scope for current guidance.²⁹²

In France, the French tax authorities have published a ruling,²⁹³ which states that the mere acquisition or issuance of utility tokens should not in principle be a "VATable" operation as the utility token only secures at this stage a right to a potential good or service. The further use of a utility token to obtain a good or service should however trigger VAT taxation.

²⁸⁷ See Section 3.d. *Utility Tokens or Consumption Tokens*, above, for further discussion of utility tokens.

²⁸⁸ See IRS Notice 2014-21, *supra* note 21, at Section 2 and Q&A 1; IRS FAQ, *supra* note 20, at Q&A 1, 2.

²⁸⁹ IRC Section 1221(a).

²⁹⁰ See, e.g., IRC Section 471.

²⁹¹ See IRC Sections 951, 951A. See also Section 7. *Appropriate Taxing Jurisdiction*, below, for further discussion of cross-border issues governing token issuances.

²⁹² HMRC, *supra* note 5.

²⁹³ France Tax Agency, RESCRIT - TVA - Assujettissement et base d'imposition d'une offre au public de jetons [Subject and Tax Base of a Public Offer of Tokens], BOI-RES-000054 (Aug. 7, 2019), <http://bofip.impots.gouv.fr/bofip/11971-PGP.html?identifiant=BOI-RES-000054-20190807>.

5. Treatment of New Financial Contracts

As we move forward in the evolution of tokens, new instruments, including new financial contracts, are being developed to access available capital in a tax efficient manner.

a. Contracts for the Pre-sale of Tokens

Developers raise money to build blockchain networks including smart contracts. The cost of hiring a software development team, legal and business advisors, and achieving legal compliance can be significant. Following the traditional model of selling preferred stock to initial investors may result in no return for the investors because blockchain networks and smart contracts are generally expected to be open source -- decentralised and autonomous from their creators.²⁹⁴ As a result, investment in blockchain technology often involves "pre-sales," or early sales of tokens prior to their development.

The contracts used for these pre-sales are known as Simple Agreement for Future Tokens ("SAFTs"), which are based on Simple Agreements for Future Equity ("SAFEs").²⁹⁵ A SAFE is a financing contract that may be used by start-up companies to raise seed capital in a manner similar to convertible debt but designed to be treated as equity for local law purposes. A SAFE generally provides the investor the right to receive equity of the company on certain triggering events at a price that is generally lower than securities issued in later rounds of financing (based on a discount rate or valuation cap). SAFEs have all the same conversion features but lack certain debt hallmarks (namely a fixed maturity date and interest) of convertible notes.

SAFTs are used to pre-sell tokens before they are issued (or even ready to issue). The typical SAFT provides that the holder, in exchange for a price paid in fiat or cryptocurrency, has the right to receive a certain number of tokens, which are usually priced at a discount from the anticipated token offering price. There are typically no dividend or voting rights or any right to receive interest. If the token offering does not

²⁹⁴ See Peter Van Valkenburgh, What Is "Open Source" and Why Is it Important for Cryptocurrency and Open Blockchain Projects?, Coin Center (Oct. 17, 2017), <https://www.coincenter.org/education/advanced-topics/open-source/>.

²⁹⁵ SeeCarolynn Levy, Safe Financing Documents (Sept. 2018), <https://www.ycombinator.com/documents/>; Jake Frankenfield, Introduction to Simple Agreement to Future Tokens, Investopedia (Jan. 25, 2018), <https://www.investopedia.com/terms/s/simple-agreement-future-tokens-saft.asp>.

go forward, the SAFT provides that the holder may receive its purchase price back to the extent the company has assets remaining.

Start-ups generally rely on tax exemptions applicable to sales of stock in order to raise money prior to becoming profitable. However, as discussed above,²⁹⁶ tokens may not be eligible for these exemptions. SAFTs provide a potential means to defer that income until the token is issued. The intended tax treatment of SAFTs under U.S. tax law is as a prepaid forward contract. A traditional forward contract does not have any tax effect until the subject of the contract is delivered, because the contract is merely executory.²⁹⁷ Essentially the transaction is held “open” and a taxable event occurs only when the contract is no longer executory and the property is delivered. The IRS has ruled that tax is deferred under a prepaid “variable” forward contract where the property to be delivered varies depending on, for example, its value, or the obligor can deliver cash instead of the property.²⁹⁸ However, the IRS has not ruled on the treatment of SAFTs, and open transaction treatment generally is disfavored by the IRS.²⁹⁹ Of course, when a token is delivered, it results in the recognition of gain.

A Simple Agreement for Future Tokens or Equity (“**SAFT-E**”) entitles the holder to receive tokens in the event of a token issuance or of or stock in the event of an equity issuance (or both). This is essentially a combination of the SAFT and the SAFE – it contains elements of equity and a forward sale of tokens. The IRS has not ruled on the treatment of SAFT-E. It is possible that it could be treated similar to an investment unit and bifurcated into its component parts or as a single instrument based on its predominant character until one of the events is triggered (similar in concept to convertible debt).³⁰⁰

²⁹⁶ See *supra* note 283 and accompanying text.

²⁹⁷ See, e.g., *Lucas v. North Tex. Lumber*, 281 U.S. 11 (1930) (taxpayer notice of intent to exercise option did not give rise to income until actual delivery because notice created executory contract only); *Rich Lumber Co. v. United States*, 237 F.2d 424 (1st Cir. 1956) (executory sale not closed until settlement); *S.C. Johnson & Son, Inc. v. Comm’r*, 63 T.C. 778 (1975) (no income to donor on donating appreciated forward contracts, because he had no right to gain until delivery under the contract).

²⁹⁸ See Rev. Rul. 2003-7, 2003-1 C.B. 363.

²⁹⁹ Treas. Reg. § 1.1001-1(a) (stating that the open transaction doctrine should only apply “only in rare and extraordinary cases”). See also Notice 2008-2, 2008-2 I.R.B. 252 (stating that the IRS was considering the tax policy issues raised by the treatment of prepaid forward contracts, including whether parties to a prepaid forward contract should be required to accrue income or expenses during the term of the contract). It is also possible that the IRS could view the SAFT as a debt instrument and impute taxable interest payments over the term of the SAFT.

³⁰⁰ See *supra* note 158.

Notes convertible into equity or tokens (“NCETs”), have also become popular. This achieves similar economics to the SAFT-E, but because it now reflects significant changes from the well-known SAFE, the tax treatment becomes increasingly uncertain. At the outset, it is not clear whether an NCET is equity or debt. Assuming that it is debt, borrowers are not generally subject to tax on the principal amount of a loan. Similarly, lenders are not generally subject to tax when the loan is repaid. However, any amount that exceeds the principal on the loan is generally deductible as an interest payment by the borrower, and recognised as interest income by the lender. This tax treatment is complicated by the fact that the borrower is paying the principal of the debt in property. Similar to the SAFT example above, this would generally result in the borrower recognising gain when the tokens are delivered in satisfaction of the note. This treatment is supported by IRS rulings involving exchangeable debt instruments.³⁰¹ Additional instruments that are being developed include:

- Token Equity Convertible (“TEC”), which enables a holder to exchange equity for an equal proportion of company-owned tokens;³⁰²
- Automated Convertible Note, created by Consensys, which is convertible into equity of the company but also contains a token purchase option for the investor in the event of a token sale;³⁰³
- Tokenised convertible warrant, which is a blockchain token that is convertible into shares of a company outside the blockchain. This is the model first followed by Palladium to launch what it called the world’s first initial convertible coin offering (“ICCO”) in Malta.³⁰⁴

³⁰¹ See FSA 199940007 (in which the IRS Chief Counsel’s Office advised that an instrument similar to a debt exchangeable into common stock (known as DECS) was not debt because there was no minimum payment at payable maturity (only a payment determined by reference to the then-current value of the referenced shares); noting that the “presence of a sum certain payable at maturity is a sine qua non of debt treatment under the Code.”). See also FSA 200131015.

³⁰² Jamie Goldstein, Token Equity Convertible (TEC) — A New Way to Invest in Crypto Companies (Dec. 4, 2017), <https://medium.com/pillar-companies/token-equity-convertible-tec-a-new-way-to-invest-in-crypto-companies-391399c39181>.

³⁰³ Consensys, Automated Convertible Note, <https://consensys.net/convertible-note/>.

³⁰⁴ Gerald Fenech, World’s First Initial ‘Convertible Coin Offering (ICCO)’ Launches in Malta, Yahoo Finance (Jul. 12, 2018), <https://finance.yahoo.com/news/world-first-initial-convertible-coin-084637340.html>.

Issues multiply when taxpayers try to distribute tokens to their service providers at presale prices. Service providers generally report compensation using a cash basis method of accounting. Therefore, the income event only occurs when the token is delivered. This would cause the service provider to be subject to tax at potentially a much higher value. Developers building blockchains or token contracts are often obligated to design custom contracts to compensate employees that allow the compensation to be delivered for tax purposes earlier than the date the token is launched.³⁰⁵

b. Smart Contracts

The latest innovations in blockchain and token design have resulted in a surge of smart contracts that codify complex financial arrangements, previously only achieved between private parties. Secured debt obligations, which are based on contracts that are hundreds of pages long and customised for sophisticated financial parties are achieved with a few lines of code in the blockchain world.

The MakerDAO contract allows counterparties to contribute ether to the contract, and receive DAI.³⁰⁶ This DAI is a U.S. dollar stablecoin that can then be used to transact. Upon returning the DAI, the ether is returned to the owner. Pledging the ether, much like mortgaging a house, should not generally result in a tax event. However, this is an oversimplification of the MakerDAO contract. The actual mechanics of the contract are extremely complex and the tax treatment is far from clear.

Other examples of smart contracts include:

- Yangon Stock Exchange is a stock exchange in Myanmar operating on the blockchain using smart contracts for settlement execution.³⁰⁷

³⁰⁵ See Alfredo B. D. Silva, Ali U. Nardali, and Aria Kashefi, Cryptocurrency Compensation: A Primer on Token-Based Awards, Harvard Law School Forum on Corporate Governance (May 19, 2018), <https://corpgov.law.harvard.edu/2018/05/19/cryptocurrency-compensation-a-primer-on-token-based-awards/#:~:text=A%20token%20award%20would%20allow,paying%20any%20cash%20purchase%20price>.

³⁰⁶ See Kerman Kohli, What's MakerDAO and What's Going on with it? Explained with Pictures, Hackernoon (Mar. 12, 2019), <https://hackernoon.com/whats-makerdao-and-what-s-going-on-with-it-explained-with-pictures-f7ebf774e9c2>.

³⁰⁷ See Angus Leung, Myanmar Could Become Home to Blockchain Stock Exchange, Daiwa and YSX Test Platform, Cointelegraph (Nov. 4, 2016), <https://cointelegraph.com/news/myanmar-could-become-home-to-blockchain-stock-exchange-daiwa-and-ysx-test-platform>.

- The Depository Trust & Clearing Corporation (“DTCC”) successfully traded credit default swaps on the blockchain using smart contracts created by Markit to carry out the economic terms for a security.³⁰⁸
- Share & Charge is a blockchain-based product that allows users to share charging stations for electric vehicles across a decentralised platform.³⁰⁹
- Populous facilitates invoice financing on the blockchain, making it easy for anyone to buy and sell outstanding invoices on the blockchain using smart contracts.³¹⁰

Generally, parties to smart contracts will again be forced to draw analogies to complex financial arrangements to determine the tax treatment of these transactions. The democratisation of this aspect of financial services comes at a significant tax compliance burden. Currently, there is no clear tax treatment to provide taxpayers with assurance that they have accounted for their transactions correctly.

c. Governance Contracts with Value Transfers

The evolution of blockchain technology has also resulted in the design of governance contracts, including the DAO and Moloch DAO, and governance blockchains, including Tezos and Cosmos. These governance contracts and blockchains allow token holders to vote on actions of the blockchain. Typically, we see this technology developed using staking tokens, although mined blockchains have governance elements as well.

DAO stands for decentralised autonomous organisation. In its most idealised form, it allows participants to contribute valuable cryptocurrency in exchange for tokens. In return, the participants can vote on the use of the cryptocurrency, for investment purposes or otherwise. The decisions of these participants sometimes have to be acted on by individuals. In this way, DAOs act like corporations, where shareholders vote to direct the actions of the corporation.

Under U.S. law, a corporation or limited partnership may exist if the entity is organised under the laws of the states, the District of Columbia, or the federal government. However, even absent these formalities, an agreement to cooperate may be treated as

³⁰⁸ DPCC Press Release, Successful Blockchain Test Completed by Axoni, DTCC, Markit, and Multi-Bank Working Group (Apr. 7, 2016), <https://www.dtcc.com/news/2016/april/07/successful-blockchain-test-completed>.

³⁰⁹ Slock.It, Use Cases, <https://slock.it/use-cases/#E-Charging>.

³¹⁰ Populous World, <https://populous.world/>.

a constructive or de facto partnership or joint venture.³¹¹ The determination of whether a general partnership exists is based on the facts and circumstances of the organisation. It has been held that if persons join together for the present conduct of an undertaking or enterprise (such as by making a capital contribution to the enterprise and sharing in net profits), they should be treated as partners in a partnership.³¹² Characterising these relationships as partnerships would create significant practical problems for participants. For example, partnerships are required to file a tax return and furnish a Schedule K-1, *Partner's Share of Income, Deductions, Credits, etc.*, to each partner, and these parties may not be easily identified. In addition, partners must recognise income earned by the partnership regardless of whether the income is distributed to the partners.³¹³

Of course, the determination of the taxing jurisdiction of a DAO is an additional challenge. It is not clear how the tax rules would be enforced against the DAO itself, but participants can be held liable where they are tax resident.

Some developers working on governance contracts and governance blockchains have tried to work around this issue by organising nonstock corporations or foundations. In such a case, the participants in the organisation control the actions of these legal entities. One benefit of these measures is to provide some clarity regarding the tax compliance obligations for the participants.

³¹¹ A partnership includes "a syndicate, group, pool, joint venture, or other unincorporated organization through or by means of which any business, financial operation, or venture is carried on, and which is not, within the meaning of [the Internal Revenue Code], a corporation or a trust or estate." IRC Section 761(a).

³¹² See, e.g., *Comm'r v. Culbertson*, 337 U. S. 733 (1949); *Luna v. Comm'r*, 42 T.C. 1067 (1964).

³¹³ See IRC Section 702(a).

6. Unique Tax Issues Relating to Cryptoassets

a. Proof of Work vs. Proof of Stake

As of the date of this paper, there are two main types of consensus mechanisms.³¹⁴ A consensus mechanism is the way to validate transactions in a blockchain by using either (1) a so-called proof of work (“**POW**”) or (2) proof of stake (“**POS**”) consensus mechanism. As no one authority has control or responsibility over the validity/accuracy of the data held, a consensus algorithm replaces central trust (i.e., an organisation or government) with a decentralised trustless system. In effect this is how a distributed set of computers agree on which group of transactions will be appended to the blockchain next. We note that a number of hybrid systems are being developed, which combine both POW and POS.

i. Proof of Work (“**POW**”)

In a POW system, each validating node in the network, has to use computing power to try to be the first one to solve a mathematical problem.³¹⁵ It is a race between the validating nodes to “mine”³¹⁶ the next block (i.e., validate the transaction and generate the code to add it to prior blocks). The winner is rewarded with a newly minted cryptoasset and the block’s associated transaction fees. Each validating node is therefore called a “miner.” The newly created block, once validated by the miner, is appended to the blockchain, thus confirming a set of transactions, which all miners agree is the truth. Competition for the rewards, as mentioned above, is what keeps the blockchain secure, but it requires significant computing power and, hence, investment in computer hardware and electricity.

Within POW, the miners compete in a race to solve a cryptographic puzzle. The solution to the puzzle involves four variables - the time, the summary of the proposed transactions, the identity of the previous block, and a variable called

³¹⁴ Binance Academy, Consensus Mechanism, What is a Blockchain Consensus Algorithm?, <https://www.binance.vision/blockchain/what-is-a-blockchain-consensus-algorithm>; Jake Frankenfield, Consensus Mechanism (Cryptocurrency), Investopedia (Jun. 25, 2019), <https://www.investopedia.com/terms/c/consensus-mechanism-cryptocurrency.asp>.

³¹⁵ Blockgeeks, The In’s and Out’s of Cryptographic Hash Functions, <https://blockgeeks.com/guides/cryptographic-hash-functions/>.

³¹⁶ A miner is in effect a computer or many computers working to solve a specific problem.

the nonce. The nonce³¹⁷ is a random number that when combined with the other three variables, via a cryptographic hash function, results in an output that fits particular difficulty criteria. This difficulty is defined by a parameter that is periodically adjusted to ensure, regardless of the amount of mining computer power deployed, that a block is validated at regular intervals (e.g., every 10 minutes in the case of the Bitcoin blockchain).

The most important characteristic of POW is the fact that each block created will contain a unique link to the previous block (one of the four variables), which includes when the block was created, its set of transactions, and the block's nonce. This links all blocks together, so changing one block's transaction will require changing every block created after that. This change would be rejected by the distributed miners. Therefore, this property of POW ensures the blockchain is immutable.

In the United States, the fair market value of the cryptoassets received by the successful miner is includible in gross income.³¹⁸ If the miner's mining activity constitutes a trade or business, the mining rewards are subject to self-employment tax.³¹⁹ In addition, the miner may deduct fees and expenses (for example, electricity or home office) incurred in connection with the mining business, and claim depreciation or amortisation deductions with respect to computer equipment and software.³²⁰

Miners may share resources and form a mining pool, and split the reward equally, according to the amount of work they contributed to the probability of finding a block. It is possible that a mining pool would constitute a constructive or de facto partnership. See discussion constructive or de facto partnerships in Section 5.c., *Governance Contracts with Value Transfers*, above.

³¹⁷ Binance Academy, Nonce, <https://academy.binance.com/glossary/nonce>; Jake Frankenfield, Nonce, Investopedia (Aug. 12, 2019), <https://www.investopedia.com/terms/n/nonce.asp#:~:text=A%20nonce%20is%20an%20abbreviation,blockchain%20miners%20are%20solving%20for>.

³¹⁸ IRS Notice 2014-21, *supra* note 21, at Q&A 8.

³¹⁹ IRS Notice 2014-21, *supra* note 21, at Q&A 9.

³²⁰ IRC Sections 162(a), 167, 197. It is also possible to take advantage of special tax provisions that temporarily allow taxpayers to deduct the entire cost of equipment in the year it is placed in service. See IRC Sections 168(k), 179.

Cloud mining allows miners, instead of using their own machines, to buy mining power of the hardware placed in remote data centers. The mining is done in the cloud, without having to deal with offline issues, such as electricity, hosting, or installation and maintenance. Cross-border cloud mining by non-U.S. persons may raise novel issues, because it is not clear under what circumstances this mining income would be treated as income sourced within the United States.

ii. **Proof of Stake (POS)**

POS can be thought of as an alternative form of mining, one that does not require significant amounts of hardware and electricity, but instead requires people to put their reputation and capital at risk to help validate transactions. To become a validator under POS, one must stake a balance of the cryptoasset. Validators are then selected by the protocol to attest to the validity of the transactions in the block (called “forging” or “minting”). The selected validator receives additional tokens (known as “staking rewards”). The protocol imposes rules (known as “slashing rules”) that cause a validator to forfeit its stake if it validates a fraudulent transaction or engages in other behaviour that is detrimental to the protocol. As the name implies, by placing something “at stake,” the validators are incentivised to be honest.

Because validators may increase their chances of being selected by staking more cryptoassets, validators may form a staking pool to increase their staking capacity. In such a pool, cryptoasset holders delegate their tokens to a validator to increase their chances of selection. Similar to a mining pool, this could result in a partnership.

POS is far less energy intensive than POW and therefore potentially more scalable. However, one could argue that POS is not as decentralised as POW because concentrating cryptoassets may increase the chances of successful validation.

The differences between mining and staking raise the question of whether staking rewards should be treated differently than mining rewards. The IRS has not provided guidance on staking rewards, though it seems reasonable to conclude that staking rewards represent an accession to wealth similar to mining rewards.³²¹ However, staking seems more like a passive investment activity,

³²¹ See *Comm’r v. Glenshaw Glass*, 504 U.S. 229 (1992); IRS Notice 2014-21, *supra* note 21, at Q&A 8.

whereas mining is more like the provision of a service. Thus, the nature of the income may be more like a dividend or other return on investment rather than compensation. As such, it may not be subject to employment taxes.

b. Treatment of Forks

i. Introduction to Hard Forks

A hard fork is the splitting of a digital asset's blockchain in a backward-incompatible way, resulting in two distinct digital assets.³²² For this reason, a hard fork is sometimes referred to as a “chain split.” The code and data are replicated from the original digital asset to create a new one, adding backward-incompatible changes. Once the hard fork occurs, the two digital assets are non-fungible with each other but share the pre-fork transaction and ledger history.

Hard forks occur for two key reasons: (1) when competing visions of a digital asset's future development fail to reach agreement; (2) unforeseen bugs or intentional fixes to system-critical issues. Hard forks falling in the first category are sometimes referred to as contentious hard forks, while hard forks falling in the second category are referred to as noncontentious hard forks.³²³ High profile contentious hard forks include the etherium/etherium classic hard fork in July 2016 to return ether that was stolen during the DAO hack, and the bitcoin/bitcoin cash hard fork in August 2017 over ideological differences about how best to scale the network to accept a larger number of users. High profile noncontentious hard forks include Ethereum's Byzantium hard fork in October 2017 to improve scalability, enhance cryptography, and move towards a POS consensus mechanism.

³²² See generally Jake Frankenfield, Hard Fork (Blockchain), Investopedia (Nov. 25, 2019), [https://www.investopedia.com/terms/h/hard-fork.asp#:~:text=A%20hard%20fork%20\(or%20hardfork,version%20of%20the%20protocol%20software](https://www.investopedia.com/terms/h/hard-fork.asp#:~:text=A%20hard%20fork%20(or%20hardfork,version%20of%20the%20protocol%20software); Amy Castor, A Short Guide to Bitcoin Forks, Coindesk (May 16, 2017), <https://www.coindesk.com/short-guide-bitcoin-forks-explained>; Binance Academy, Hard Forks and Soft Forks, <https://academy.binance.com/blockchain/hard-forks-and-soft-forks>; Cointelegraph, What is Hard Fork?, <https://cointelegraph.com/bitcoin-cash-for-beginners/what-is-hard-fork>.

³²³ See Jordan Heal, Hard forks: Contentious or not?, CoinRivet (Jan. 16, 2019), <https://coinrivet.com/hard-forks-contentious-or-not/#:~:text=A%20hard%20fork%20that%20is,help%20enhance%20a%20network's%20blockchain>.

When a hard fork occurs, developer and miner support are key components in determining whether the digital assets gain or lose value and relevancy. If poorly implemented, hard forks can also cause instability in the digital asset's network, because of transactions that may be valid on both networks. A hard fork can be risky, although it is generally conducted to improve a blockchain's architecture, the community supporting the blockchain may not fully agree on the imposed upgrade.

When the fork occurs, a new copy of the existing blockchain is made. This creates two identical ledgers (i.e., a split blockchain). The two blockchains share a common ancestor (i.e., the common historic transactions), and the developers of the new blockchain can now tweak the code.

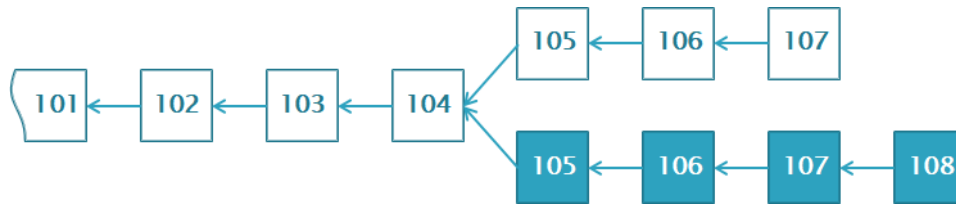
(A) Contentious Hard Forks

In the case of a contentious hard fork, the chain split is permanent, with subsets of the network validating transactions for each chain, creating a unique cryptocurrency. When the new chain goes live, everyone who held the original cryptocurrency will have access to the new forked cryptocurrency (assuming they held their private keys or were on a platform that supports the fork). The creation of the new native asset is provided to the holder, on a 1:1 ratio based on original token holding. This creation of a new token can have possible tax implications. The same private key accesses the original cryptocurrency and the forked cryptocurrency.

Access is not automatic, however. In order to claim the forked cryptocurrency, the holder of the original cryptocurrency must be in control of his or her private keys or hold the cryptocurrency in a third-party wallet that supports the fork -- sometimes third-party wallets and exchanges will support forks, sometimes they will not -- before the snapshot, or the specific block number, or "block height," at which the hard fork occurs. Once the hard fork is live, the holder will need to move his or her cryptocurrency to a new wallet on the new blockchain and import the private key. If the cryptocurrency is held in a third-party wallet, the wallet provider will provide specific instructions.

In theory, the value of the original cryptocurrency splits, though price discovery for the new cryptocurrency can take a little while and result in considerable volatility due to thin trading while wallet providers determine if they will support the new cryptocurrency.

The following diagram illustrates a contentious hard fork:



(B) Noncontentious Hard Forks

In the case of a noncontentious hard fork, the chain split is not permanent, because the entire network will transition to the upgraded version of the blockchain. The original blockchain effectively “dies.”

ii. Tax Treatment of Hard Forks

Hard forks raise unique tax issues. Specifically, does a holder of a cryptocurrency that experiences a hard fork realise income? If so, how much and when?

(A) HMRC Guidance for Hard Forks³²⁴

The value of the new cryptoassets is derived from the original cryptoassets already held by the individual. This means that Section 43 Taxation of Capital Gains Act 1992 will apply.

After the fork, the new cryptoassets need to go into their own pool. Any allowable costs for pooling of the original cryptoassets are split between the pool for the: original cryptoassets and the new cryptoassets. HMRC will consider cases of difficulty as they arise.

Costs must be split on a just and reasonable basis under Section 52(4) Taxation of Capital Gains Act 1992. HMRC does not prescribe any

³²⁴ HMRC, *supra* note 5.

particular apportionment method. HMRC has the power to enquire into an apportionment method that it believes is not just and reasonable.

(B) IRS Guidance for Hard Forks

The IRS released Revenue Ruling 2019-24,³²⁵ which provides guidance on the tax treatment of hard forks. The ruling concludes first that a taxpayer does not have gross income as a result of a hard fork of a cryptocurrency the taxpayer owns if the taxpayer does not receive units of a new cryptocurrency.³²⁶ Thus, if the taxpayer holds its cryptocurrency in a third-party wallet that does not support the forked currency, the taxpayer would not have income. Similarly, a taxpayer should not have income as a result of a noncontentious hard fork, because it does not result in the taxpayer receiving units of a new cryptocurrency.³²⁷

However, a taxpayer does have ordinary income as a result of an airdrop of a new cryptocurrency following a hard fork if the taxpayer receives units of new cryptocurrency.³²⁸ Such income arises once the taxpayer has dominion and control over the forked currency, which the IRS concludes is at the time it is recorded on the distributed ledger, because the taxpayer immediately has the ability to dispose of forked cryptocurrency.³²⁹ However, as discussed above, the ability to dispose of the forked cryptocurrency is not automatic, and market discovery can take a little while. Thus, the price at the time the fork is recorded on the ledger may be much different than it ends up being after market discovery. See Section 6.e.i, *Valuation*, below.

iii. Treatment of Soft Forks

A soft fork can be viewed as a backward-compatible software update for a digital asset blockchain. Soft forks can refine the governance rules and functions of a digital asset blockchain but, unlike hard forks, are compatible with the previous blockchain. This means that a soft fork does not result in a split of the blockchain into two digital assets. For a soft fork to be implemented, a specific

³²⁵ Rev. Rul. 2019-24, 2019-44 I.R.B. 1004.

³²⁶ See also IRS FAQ, *supra* note 20, at Q&A 21.

³²⁷ Compare IRS FAQ, *supra* note 20, at Q&A 29 (addressing soft forks).

³²⁸ See also IRS FAQ, *supra* note 20, at Q&A 22.

³²⁹ See also IRS FAQ, *supra* note 20, at Q&A 23.

level of readiness to enforce the new rules must be signaled by miners. Soft forks are optional for all users in the system, and it is not necessary for users to immediately upgrade, unless they want to use the new features.

A soft fork does not result in the creation of a new native token and thus does not generate a taxable event.³³⁰

c. Airdrops

i. Introduction to Airdrops

An airdrop is a distribution of a cryptoasset, usually for free, to numerous wallet addresses.³³¹ Airdrops are primarily implemented as a way of gaining attention and new followers, resulting in a larger user base and a wider disbursement of coins. The aim therefore is to increase the network of the cryptoasset project.

At the time of writing there are generally two types of airdrops. In one, wallet addresses are selected at random and the cryptoasset will be deposited in the recipient's wallet. The other involves a marketing strategy whereby the recipient signs up to receive the airdrop via a bulletin board or social media, for example.

ii. Tax Treatment of Airdrops

(A) HMRC Guidance for Airdrops

Income tax will not always apply to airdropped cryptoassets received in a personal capacity.³³² Income tax may not apply if they are received:

- Without doing anything in return (for example, not related to any service or other conditions); or
- Not as part of a trade or business involving cryptoassets or mining.

³³⁰ See IRS FAQ, *supra* note 20, at Q&A 29.

³³¹ See generally Jake Frankenfield, Cryptocurrency Airdrop, Investopedia (Nov. 12, 2019), <https://www.investopedia.com/terms/a/airdrop-cryptocurrency.asp>; Matt Hussey, What are Airdrops and Smart Airdrops?, Decrypt (Jan. 22, 2019), <https://decrypt.co/resources/airdrops>; Rajarshi Mitra, What Are Airdrops? 5 Benefits of Free Tokens - Ultimate Guide, Blockgeeks, <https://blockgeeks.com/guides/what-are-airdrops/>.

³³² HMRC, *supra* note 5, at #airdrops.

Airdrops that are provided in return for, or in expectation of, a service are subject to income tax either as miscellaneous income, or receipts of an existing trade.

The disposal of a cryptoasset received through an airdrop may result in a chargeable gain for capital gains tax, even if it is not chargeable to income tax when it is received. Where changes in value are brought into account as part of a computation of trade profits, income tax will take priority over capital gains tax.

(B) IRS Guidance for Airdrops

Although the IRS guidance refers to airdrops following hard forks, it appears that the guidance only addresses the treatment of hard forks and does not specifically address airdrops in the ordinary sense of the word.³³³ However, the reasoning applied to hard forks³³⁴ would likely result in ordinary income when the airdrop is received, regardless of whether the recipient is an individual or business taxpayer.

d. Record Keeping Standards for Blockchain Transactions

Blockchain is not a data standard; however, it needs a global standard to have the record information accepted. The challenge for reporting arises with the types of cross-border transactions in dealing with different accounting rules, languages, and currencies.

eXtensible Business Reporting Language (“XBRL”)³³⁵ has a standardised taxonomy that is already accepted globally. SEC’s EDGAR³³⁶ system, in which public companies file their annual statements and other SEC disclosures, is already using XBRL and has a

³³³ See Rev. Rul. 2019-24, *supra* note 310.

³³⁴ See *id.*

³³⁵ See generally XBRL, An Introduction to XBRL, <https://www.xbrl.org/the-standard/what/an-introduction-to-xbrl/>; Financial Accounting Standards Board, About XBRL, <https://www.fasb.org/jsp/FASB/Page/SectionPage&cid=1176157087972>; Centre for Financial Market Integrity, eXtensible Business Reporting Language (2009), <https://www.cfainstitute.org/-/media/documents/article/position-paper/xtensible-business-reporting-language-guide-for-investors.ashx>.

³³⁶ SEC, About EDGAR (May 27, 2020), <https://www.sec.gov/edgar/aboutedgar.htm>.

memorandum of understanding with ESMA.³³⁷ The IRS is has implemented International Data Exchange Service (“IDES”)³³⁸ for FATCA reporting and the European Union has been working on harmonisation via eIDAS³³⁹ In the private sector, a number of law firms have created a consortium³⁴⁰ to create General-Purpose Legal Mark-up Language (“GLML”).

There may need to be a shift for the standard to be based on the timestamp rather XBLR reporting standards across systems. This is because the implementation of smart contracts will require new global data standards. There may be need for a new digital registrar with standardisation around timestamps and time events that will allow audits for conversions and reduce volatility in systems. This technology is being developed. For example, TAXMAP³⁴¹ has developed “Digital Tax Stamps” to solve this and will accelerate transfers and real-time reporting and audit transparency.

e. Gain or Loss Computation

Because gain or loss is calculated as the amount realised less basis, both fair market value and basis are important concepts. The amount realised from a sale or exchange of property is the total amount of money received plus the fair market value of other property and services received.³⁴² The concept of basis in a number of jurisdictions is in effect the starting cost – i.e., how much the investor purchased the asset for less any allowable costs. As discussed in the next two sections, both of these concepts are challenging when dealing with a new class of digital assets. In the context of cryptoassets, IRS guidance provides that if virtual currency is disposed of for cash, other virtual currency, other property, or services, gain or loss is equal to the difference between the amount received and the adjusted basis.³⁴³

³³⁷ SEC and ESMA, Memorandum of Understanding: Concerning Consultation, Cooperation, and the Exchange of Information Related to the Supervision of Cross-Border Regulated Entities (2012), https://www.sec.gov/about/offices/oia/oia_bilateral/esma-mou.pdf.

³³⁸ IDES, International Data Exchange Service, <https://ides-support.com>.

³³⁹ European Parliament, Regulation (EU) No. 910/2014 (Jul. 23, 2014), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG.

³⁴⁰ Finextra, Consortium Formed to Push Machine-Readable Trade Language (Oct. 23, 2019), <https://www.finextra.com/pressarticle/80344/consortium-formed-to-push-machine-readable-trade-language/ai>.

³⁴¹ TAXMAP, Distributed Tax Ledger, <http://www.taxmap.it>

³⁴² See IRC Section 1001(b).

³⁴³ IRS FAQ, *supra* note 20, at Q&A 6, 14, 16, 19.

i. Valuation

The basis of value in the traditional securities world is derived from the net present value (“NPV”) of future cash flows.³⁴⁴ This idea states that a dollar today is worth more than a dollar tomorrow. For example, if an investor puts \$100 in a savings account and receives a 5% annual return, then 1 year from now that \$100 will be worth \$105. Therefore, investors either want the \$100 today or the \$105 in 1 year but not the \$100 in 1 year. Ignoring inflation, which also erodes the future value, the investor would have effectively lost money.

Other consumable or transferable assets are valued by the market dynamics of supply and demand, so too are most liquid assets such as cash (although we note that currencies can be manipulated by the issuing government).

(A) Basis of Value of Cryptoassets

For cryptoassets, there are two types of basis of value: utility and speculative, which reflect the fact that cryptoassets are used as a store of value or a medium of exchange.³⁴⁵ Actual valuation methods are outside the scope of this paper, but below we consider some of the factors influencing value.

(1) Utility Value

Digital units of bitcoin for example do not exist beyond unspent transaction outputs, or credits in the blockchain. Therefore, a significant portion of the basis of value is in what the underlying

³⁴⁴ See generally Amy Gallo, A Refresher on Net Present Value, Harvard Business Rev. (Nov. 19, 2014), <https://hbr.org/2014/11/a-refresher-on-net-present-value>; Corporate Finance Institute, Net Present Value (NPV), <https://corporatefinanceinstitute.com/resources/knowledge/valuation/net-present-value-npv/>; Will Kenton, Net Present Value (NPV), Investopedia (Apr. 27, 2020), [https://www.investopedia.com/terms/n/npv.asp#:~:text=Net%20present%20value%20\(NPV\)%20is,a%20projected%20investment%20or%20project](https://www.investopedia.com/terms/n/npv.asp#:~:text=Net%20present%20value%20(NPV)%20is,a%20projected%20investment%20or%20project).

³⁴⁵ See generally Yulin Liu, Cryptocurrency Valuation, Coinmonks (Jun. 21, 2019), <https://medium.com/coinmonks/cryptocurrency-valuation-d9979074404>; Lyn Alden, How to Value Bitcoin and Other Cryptocurrencies, Lyn Alden Investment Strategy (May 22, 2020), <https://www.lynalden.com/cryptocurrencies/>; Ernst & Young LLP, The Valuation of Crypto-assets (2019), https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/emeia-financial-services/ey-the-valuation-of-crypto-assets.pdf.

blockchain enables the user to do, that is, a bitcoin's utility value, which drives demand for the asset.

Much of the Bitcoin blockchain's utility value is used to transact in bitcoin and therefore the value can be derived from the demand to use bitcoin as a means of exchange. Similarly, bitcoin like cash, is a store of value and therefore some of the demand will be based on this attribute. These attributes draw out the current supply of bitcoin, which results in more people wishing to use bitcoin and therefore driving up the price people are willing to pay to gain access to it.

(2) Speculative Value

Speculative value is derived from what people think the adoption of the cryptoasset and thus the underlying blockchain will be in the future. As the industry is a little over 10 years old, we have yet to see any mass adopted use cases. Therefore, we can only speculate, much like we did in the 1980's and 1990's at the beginning of the internet. The first use case was email protocol³⁴⁶ as an application layer over the universally adopted internet protocol layer TCP/IP.³⁴⁷ Could we have imagined at the time the use cases that are common place today (e.g., smart meters, streaming of video and music, internet of things)?

To further understand and quantify speculative value, we could look to equities. In a newly listed public company, for example, much of the market capitalisation of the company is what investors expect from the company (in profits) in the future. The sales multiple to the company's value of a newly listed company is much higher than that of a mature company. The investor is speculating as to the unknown performance of the new company, whereas with the older company investors are valuing it much more closely to the current and historic performance.

³⁴⁶ Internet Engineering Task Force ("IETF"), Simple Mail Transfer Protocol (Oct. 2008), <https://tools.ietf.org/html/rfc5321>.

³⁴⁷ IETF, Internet Official Protocol Standards (May 2008), <https://tools.ietf.org/html/std1>.

(B) Factors Affecting Value of Cryptoassets

The belief of cryptoasset inflation can be based on a number of factors, of which a non-exhaustive list follows:³⁴⁸

Supply and demand - Many cryptocurrencies (e.g., bitcoin, [litecoin](#), [dash](#)) have a fixed supply,³⁴⁹ therefore inherently controlling inflation, as demand increases with a limited supply results in a price increase.³⁵⁰

Volatility - Volatility is the degree of trading price variation over time and is a measure of the uncertainty or risk in a cryptoasset's value. In other words, the price of the security can change dramatically over a short time period in either direction, thus fueling speculative trading.

Network effect - The view that the number of users of the network will increase over time, i.e., become more popular and move into the mainstream. One can calculate the value of how willing the market is to pay for the transactional utility of a blockchain.

Trustless - After the financial crisis of 2008, many western governments, through central banks, began increasing their currency money supply, known as "quantitative easing."³⁵¹ One of the major risks of this method to stimulate an economy could be runaway inflation. Many believers in cryptoassets do not trust governments to manage the economy and specifically the money supply. Global politics and news events can have an effect on the value of cryptoassets.

Security – Many cryptoassets have an open source code, so anyone can examine it. New updates for fixing some bugs and weak points in code can

³⁴⁸ See, e.g., Andrew Tar, Bitcoin Price, Explained, Cointelegraph (Jun. 26, 2017), <https://cointelegraph.com/explained/bitcoin-price-explained>.

³⁴⁹ See CoinMarketCap, Top 100 Cryptocurrencies by Market Capitalization, <https://coinmarketcap.com/>.

³⁵⁰ See Bluford Putnam and Erik Norland, An In-Depth Look at the Economics of Bitcoin, Bloomberg (Jul. 13, 2018), https://www.bloomberg.com/news/sponsors/cme-group/the-fundamentals-of-trading-futures-and-options/?adv=13162&prx_t=lsYDA4xQkAUt8PA.

³⁵¹ See Trefis Team, Quantitative Easing in Focus: The U.S. Experience, Forbes (Nov. 16, 2015), <https://www.forbes.com/sites/greatspeculations/2015/11/16/quantitative-easing-in-focus-the-u-s-experience/#369a3fc6528d>.

give an impetus for price growth. Meanwhile, successful account hacks or server attacks can bring down the exchange rate.

Correlation - Historically, there has been a relatively low correlation between the values of bitcoin and other investment assets, such as stocks, bonds, gold, real estate, and oil.³⁵² A low correlation generally means that the asset can be used as an effective portfolio diversifier. However, bitcoin's correlation to other assets has increased significantly during the coronavirus pandemic during the first half of 2020, as investors converted assets to cash.³⁵³ It is difficult to conclude based on the large price swings bought on by pandemic fear, subsequent central bank intervention, and other events in Bitcoin such as the halving; we will need more data to draw conclusions for 2020.

We refer the reader to the GDF Market Integrity document,³⁵⁴ which will discuss the intrinsic value drivers of cryptoassets, such as the whitepaper, the community and developers, and the issuance model.

(C) Valuation for Tax Purposes

In terms of determining amount realised for tax purposes, the investor does not need to employ any sophisticated valuation models. The current guidelines from the major jurisdictions suggests using the prices that were used to buy and sell as per the trading platform/exchange where the cryptoassets were acquired. Most reputable exchanges will provide a report of the transaction history for each of their clients. This information should have all relevant data such as price, volume, and date/time stamp, therefore allowing the investor to calculate gains and losses.

³⁵² Chris Burniske and Adam White, Bitcoin: Ringing the Bell For a New Asset Class, at 15-19 (Jan. 16, 2017), https://research.ark-invest.com/hubfs/1_Download_Files_ARK-Invest/White_Papers/Bitcoin-Ringing-The-Bell-For-A-New-Asset-Class.pdf.

³⁵³ Anthony Zie, Bitcoin's Correlations With Global Financial Assets Soar Amid Coronavirus Crisis, Cointelegraph (Apr. 5, 2020), <https://cointelegraph.com/news/bitcoins-correlations-with-global-financial-assets-soar-amid-coronavirus-crisis>; Nate Maddrey, Is Bitcoin an Uncorrelated Financial Asset, A Safe Haven Asset, or Both? Investigating Bitcoin's Changing Correlations, Coin Metrics State of the Network: Issue 46 (Apr. 14, 2020), <https://coinmetrics.substack.com/p/coin-metrics-state-of-the-network-7c4>; Bitcoin Reaches Record High Correlation to S&P 500, Coindesk (Jul. 10, 2020), <https://www.coindesk.com/bitcoin-reaches-record-high-correlation-to-sp-500/>; Noelle Acheson, Crypto Long & Short: Is Bitcoin More Like Gold or Equities?, Coindesk (Apr. 6, 2020), <https://www.coindesk.com/bitcoin-halving-gold-equities>.

³⁵⁴ Please refer to the Market Integrity section of the GDF website for publication access: <https://www.gdf.io/docsconsultations/part-x-code-of-conduct-principles-for-market-integrity/>.

However, because exchanges are not connected, prices will vary across the exchanges depending on the buy and sell activity on each one. This means that larger exchanges will yield more market-relevant prices.³⁵⁵ In addition, more regulated exchanges may avoid market manipulation and yield more market-relevant prices. In theory, traders seeking arbitrage returns should force a convergence among prices on different exchanges, but this has not been the case with cryptoasset exchanges.³⁵⁶ In the United States, the IRS has confirmed that a taxpayer can rely on the amount recorded by the exchange on the distributed ledger if the cryptocurrency is received in a transaction facilitated by an exchange.³⁵⁷ If the transaction is facilitated by a centralised or decentralised cryptocurrency exchange but is not recorded on a distributed ledger or is otherwise an off-chain transaction, then the fair market value is the amount the cryptocurrency was trading for on the exchange at the date and time the transaction would have been recorded on the ledger if it had been an on-chain transaction.³⁵⁸ Similarly, the fair market value of cryptocurrency received in a peer-to-peer transaction is determined at the date and time of the transaction. For this purpose, the taxpayer can rely on a blockchain explorer and worldwide indices.³⁵⁹

When a taxpayer receives cryptocurrency in exchange for property or services, and that cryptocurrency is not traded on any cryptocurrency exchange and does not have a published value, then the IRS has concluded that the fair market value of the cryptocurrency received is equal to the fair

³⁵⁵ See Kira Egorova, *Crypto Exchanges, Explained*, Cointelegraph (Jul. 10, 2018), <https://cointelegraph.com/explained/crypto-exchanges-explained>.

³⁵⁶ See Stevie D. Conlon, *Valuation of Cryptocurrencies and ICO Tokens for Tax Purposes*, Wolters Kluwer Expert Insights (Feb. 6, 2020), <https://www.wolterskluwer.com/en/expert-insights/valuation-of-cryptocurrencies-and-ico-tokens-for-tax-purposes#156>; Ilgar Alekperov, *Examination of Bitcoin Liquidity, Price Discovery and Marketplace Development*, Traders Magazine (Feb. 6, 2020), <https://www.tradersmagazine.com/departments/cryptocurrencies/examination-of-bitcoin-liquidity-price-discovery-and-marketplace-development/>.

³⁵⁷ IRS FAQ, *supra* note 20, at Q&A 25.

³⁵⁸ *Id.* This is more restrictive than prior guidance, which provided that the value of cryptocurrency that is listed on an exchange could be determined using the exchange rate, in a reasonable manner that is consistently applied. IRS Notice 2014-21, *supra* note 21, at Q&A 5.

³⁵⁹ IRS FAQ, *supra* note 20, at Q&A 26. Although the guidance refers to a blockchain explorer that analyses worldwide indices, a blockchain explorer locates the transactions, while a global pricing index would contain pricing information.

market value of the property or services exchanged for the cryptocurrency when the transaction occurs.³⁶⁰

The value of crypto assets generally must be determined in the taxpayer's local currency.³⁶¹ If, for example, the exchange only quotes a cryptoasset to U.S. dollars and the investor has a U.K. tax domicile, then the investor would need to conduct an additional step to calculate the British pounds sterling/U.S. dollar exchange rate at the time of transacting.

ii. Computation of Basis

The concept of basis in a number of jurisdictions, is in effect the starting cost – i.e., how much the investor purchased the asset for (equity for example), less any allowable costs. In the United States, the IRS clarified that the basis of virtual currency purchased with fiat currency is the amount spent to acquire the virtual currency, including fees, commissions, and other acquisition costs in U.S. dollars.³⁶²

The gain or loss is computed by the amount realised less the basis (i.e., cost). We note that certain costs are allowable when reporting gains and losses on cryptoassets. Below is a non-exhaustive list:

- Transaction fees paid before the transaction is added to a blockchain;
- Advertising for a purchaser or a vendor;
- Professional costs to draw up a contract for the acquisition or disposal of the cryptoassets;
- Costs of making a valuation or apportionment to be able to calculate gains or losses.

³⁶⁰ IRS FAQ, *supra* note 20, at Q&A 27.

³⁶¹ See IRS Notice 2014-21, *supra* note 21, at Q&A 5; IRS FAQ, *supra* note 20, at Q&A 6.

³⁶² IRS FAQ, *supra* note 20, at Q&A 7. The guidance also clarifies the cost basis is the fair market value of the property received in the exchange. For example, if virtual currency is received as payment for goods or services, the cost basis is equal to the fair market value of the virtual currency in U.S. dollars when the virtual currency is received. IRS Notice 2014-21, *supra* note 21; IRS FAQ, *supra* note 20, at Q&A 4, 12, 20. Similarly, the cost basis of property received in exchange for virtual currency is equal to the fair market value of the property at the time of the exchange. IRS FAQ, *supra* note 20, at Q&A 17.

If the investor is selling a unit of cryptocurrency (or fraction of a unit), he or she may need to identify which basis is being recovered. This may not be so easy, if the investor trades in high volumes and the price is volatile, for example.

In the United States, the default rule is specific identification, which means the seller picks which unit he or she is selling. IRS guidance confirmed this default rule in the context of virtual currency and explained that virtual currency may be specifically identified by documenting the unit's unique digital identifier, such as a private key, public key, or wallet address.³⁶³ But specific identification is going to be difficult, unless the cryptoassets are held in separate wallets. Where the cryptoasset is held in a custodial wallet, the account holder may have no ability to identify the unit being sold. Moreover, an exchange may have a pooled wallet in which it holds all of its customers' cryptoassets.

In the securities area, the U.S. tax rules permit certain assumptions (e.g., first-in-first-out ("FIFO"), last-in-first-out, average basis), but only FIFO has been specifically extended to cryptocurrency.³⁶⁴

Other jurisdictions, such as the United Kingdom, adopt pooling concepts to compute basis. Under pooling, shares of the same company, Apple for example, can be placed in a separate pool to those of a different company, Amazon for example. The prices paid for multiple purchases can be netted, when it comes to calculate a gain or loss. This in effect does away with the requirement to match the specific share purchased to being sold. As these are fungible assets, many tax jurisdictions may allow for pooling. The HMRC defines pooling as "assets where they are of a nature to be dealt in without identifying the particular assets disposed of or acquired"³⁶⁵

Instead of tracking the gain or loss for each transaction individually, each type of asset is kept in a "pool." The consideration originally paid for the tokens goes into the pool to create the pooled allowable cost.

³⁶³ IRS FAQ, *supra* note 20, at Q&A 36, 37. The information must show the date and time each unit was acquired and disposed of the holder's basis and fair market value of each unit at the time it was acquired, and the amount received for each unit. *Id.* at Q&A 37. Although the guidance specifies only wallet identification information, presumably transaction identification information is also acceptable to specifically identify units of virtual currency, such as transaction IDs, transaction hashes, or UTXOs.

³⁶⁴ IRS FAQ, *supra* note 20, at Q&A 38.

³⁶⁵ HMRC, *supra* note 5.

Some jurisdictions impose a special pooling rule if assets are bought and sold within a short time period. For example, in the United Kingdom, there is a “30-day rule,” which applies if:

- The day that a person disposes of tokens of the same cryptoasset (even if the disposal took place before the acquisition); and
- Is within 30 days after the person disposed of tokens of the same cryptoasset.

If the special rules apply, the new cryptoassets and the costs of acquiring them stay separate from the main pool. The gain or loss should be calculated using the costs of the new tokens of the cryptoasset that are kept separate.

If the number of tokens disposed of exceeds the number of new tokens acquired, then the calculation of any gain or loss may also include an appropriate proportion of the pooled allowable cost.

f. Barter/Non-cash Transactions Giving Rise to Cash Tax

We classify non-cash or barter transactions resulting in cash tax as scenarios where the exchange of non-cash goods, services, or cryptoassets result in tax liabilities. This includes, but is not limited to:

- Trading one cryptoasset for another cryptoasset or for other property or services;
- Lending cryptoassets and receiving interest in the form of cryptoassets;
- Receiving cryptoassets as compensation for services rendered;
- Receipt of cryptoassets in a hard fork or airdrop.

If one cryptoasset is traded for another, one may need to consider his or her local jurisdiction’s capital gains tax rates, depending on factors like the length of time the tokens were held, and the respective jurisdictions’ rules for calculating capital gains. There may be narrow exceptions from tax – for example, like-kind exchanges in the

United States, which are no longer available for assets other than real property after the Tax Cuts and Jobs Act of 2017.³⁶⁶

7. Appropriate Taxing Jurisdiction

This section is primarily focused on the corporate income taxation of business income in an international context and, in general, is written based on standard OECD taxation principles, which are applied in the majority of developed national tax jurisdictions as well as in many tax treaties. However, there is significant subnational variation. Therefore, it is essential that both subnational law and practice as well as the relevant double taxation treaties are referred to when considering the issue of cross-border tax liability.

International taxation issues are extremely relevant for companies involved in either the issuance or exchange of cryptoassets, as activities often cross borders. For example:

- Often development teams operate virtually in a number of different jurisdictions and may operate either independently as contractors or as employees of affiliated companies. Often valuable IP is created in the process and it should not be automatically assumed that economic ownership of such IP for tax purposes will vest in the jurisdiction of the legal owner of such IP.³⁶⁷
- When looking to issue new cryptoassets (e.g., via an ICO or STO), the jurisdiction of the issuing entity will often be different than the jurisdiction of the team involved in the running the overall project so there may need to be cross-border services arrangements in place.³⁶⁸ In addition, businesses must consider whether the issuing company has sufficient economic substance in its jurisdiction of incorporation.³⁶⁹

³⁶⁶ An Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018, Pub. L. No. 115-97 (Dec. 22, 2017).

³⁶⁷ See OECD, OECD/G20 Base Erosion and Profit Shifting Project, Addressing the Tax Challenges of the Digital Economy, ACTION 1: 2015 Final Report, at 12 (2015), <http://dx.doi.org/10.1787/9789264241046-en>.

³⁶⁸ See generally OECD, OECD/G20 Base Erosion and Profit Shifting Project, Tax Challenges Arising from Digitalisation – Interim Report 2018: Inclusive Framework on BEPS, at 24 (2018), <http://dx.doi.org/10.1787/9789264293083-en> (hereinafter “OECD 2018 Interim Report”).

³⁶⁹ See generally Vistra, Economic Substance, <https://www.vistra.com/economic-substance>.

- It is common for businesses looking to expand into a new market to establish a branch office or subsidiary in another country to enable better personal interaction with local customers or other market participants or to make sales locally.³⁷⁰
- Many individuals operating in the cryptoassets space spend a significant amount of their time on the road travelling and may, inadvertently, create a taxable presence of the entity that they work for in one or more countries depending on how long they spend in a jurisdiction and what they do when they are there.
- Market participants involved in the trading of cryptoassets such as digital asset exchanges, over-the-counter brokers, or financial institutions will often establish exchange/booking entities in jurisdictions where there is an established and friendly regulatory framework covering such businesses. However, it is very common that the technology and operations platforms supporting such exchanges, the traders booking trades, or the senior management and executives actually running the business, are employed by affiliated entities in other jurisdictions.³⁷¹

In each of the above cases, it is possible that the taxing rights over the profits derived by such businesses may be split among multiple countries. The primary objective for any company operating internationally should be to try to ensure that there is as much clarity as possible on which jurisdiction has taxing rights, such that any income earned is not taxed simultaneously by two or more jurisdictions.³⁷²

Tax authorities will generally assert their taxing rights in the cases of international business income in three principal ways: (1) residence; (2) permanent establishment; and (3) transfer pricing.

³⁷⁰ See Grant Thornton, Insights: Checklist for International Growth, at § 4 (Jan. 6, 2020), <https://www.grantthornton.global/en/insights/articles/checklist-for-international-growth/>.

³⁷¹ See generally OECD 2018 Interim Report, *supra* note 368, at 24.

³⁷² See generally Tax Foundation, How Are Multinational Corporations' Foreign Profits Treated Around the World? (Jul. 21, 2016), <https://taxfoundation.org/how-are-multinational-corporations-foreign-profits-treated-around-world/>; Economic Policy Institute, Issue Brief No. 378: The Simple Fix to the Problem of How to Tax Multinational Corporations — Ending Deferral (Mar. 31, 2014), <https://www.epi.org/publication/how-to-tax-multinational-corporations/>.

Each of these concepts are explained below, followed by a discussion on whether cryptoassets will trigger the OECD's impending Digital Services Tax.³⁷³

a. Residence Issues

Residency is the primary means by which a jurisdiction claims taxing rights over a company. It will also determine taxing rights to income under a double tax treaty. Many jurisdictions will tax locally resident companies on their worldwide income (typically offering a credit against foreign taxes incurred to avoid double taxation). Other jurisdictions may only tax resident companies on locally sourced profits and offer an exemption from tax for foreign income.

While definitions of residency vary by jurisdiction, factors such as: (1) place of incorporation; (2) place of central management and control; or (3) place of effective management are common factors that may determine residency. Because of the existence of a number of different tests for residency, it is possible for a company to be resident in more than one jurisdiction at the same time (particularly if there is not a double tax treaty in place with a tie breaker clause), which may lead to the risk of double taxation.

Example – ICO Co., incorporated in the Cayman Islands issues utility tokens via an ICO. However, the directors of ICO Co. spend all their time in Country B and conduct ICO Co. board meetings virtually from Country B. It is therefore possible (depending on local law/relevant double tax treaty (if any)) that Country B could treat ICO Co. as a Country B resident and assert taxing rights over ICO Co.'s worldwide income.

b. Permanent Establishment/Nexus Issues

A permanent establishment ("PE") is the primary means by which most tax authorities assert taxing rights on nonresident enterprises that conduct business in their jurisdictions. There are a number of different types of PE and exact definitions will vary by country and by treaty. However, in each case they seek to define a threshold or nexus, above which economic activity in that jurisdiction may be subjected to taxes on income. Common types of PE threshold include:

³⁷³ See OECD, Public Consultation Document: Secretariat Proposal for a "Unified Approach" under Pillar One, at 3 (2019), <https://www.oecd.org/tax/beps/public-consultation-document-secretariat-proposal-unified-approach-pillar-one.pdf>.

i. Fixed Place of Business PE

Such a PE may exist if there is a fixed place of business where the business of a nonresident enterprise is carried out. The definition of fixed place can cover a wide variety of locations (office, co-working space, or even the offices of another company made available for employees to use), but generally, it must be a location that is at the disposal of the enterprise to use and it must be used habitually. There are also often exemptions from such a PE if the activities performed are only preparatory or auxiliary in nature. Some tax treaties/local law may also set a fixed amount of time above which a PE will be deemed to exist.

Example: BlockChain Co. is a resident of Country A. However, one of BlockChain Co.'s VC investors makes desks/co-working space available in their offices in Country B for BlockChain Co. software engineers or management to use when travelling to Country B. At the end of the year it appears that at least one of the desks available has been used almost every working day of the year by different BlockChain Co. employees as many have family in Country B that they visit frequently. Depending on the activities performed by BlockChain Co. employees when using the office, this may create a PE of BlockChain Co. in Country B and will subject BlockChain Co. to Country B taxes on the profits generated from the PE.

ii. Dependent Agent PE

A dependent agent PE may exist where a party habitually concludes contracts, or plays a principal role in the negotiations leading to the conclusion of contracts, in a jurisdiction in the name of a nonresident. Such a party need not be an employee of the nonresident (and could be a company or an independent contractor). There may also be exemptions for agents who act independently as part of their ordinary course of business.

Example: Wallet Co., operates a digital assets custody solution in Country A. Wallet Co. has a senior advisor who is a well-respected member of the local crypto fund community in Country B where she lives and has an advisory services contract with Wallet Co. The senior advisor regularly spends time promoting Wallet Co. services to her business contacts and has been successful in signing up a number of new Country B clients for Wallet Co. There is a risk that the senior advisor could create a dependent agent PE of Wallet Co. in

Country B and subject some or all of the custody fee income from local clients to Country B taxation.

iii. Services PE

These are less common, but may exist in some jurisdictions if employees of a nonresident spend a specific number of days performing services in a jurisdiction.

iv. Other Issues to Consider

It should be noted that the tax implications of having a PE in a jurisdiction could be wider than simply subjecting locally sourced profits to tax. Companies may also need to consider local payroll withholding obligations in the jurisdiction of the PE (even for non-local staff who may work temporarily for the PE), as well as to understand if the PE has any local VAT/GST registration obligations.

c. Relation to Subnational Corporate Income Taxation

As noted in Section 4.a.vii., *Sales and Use Taxes*, above, U.S. Constitutional principles shifted under a 2018 decision of the U.S. Supreme Court such that in many circumstances a physical presence is no longer necessary for a vendor to be subject to a jurisdiction's sales and use tax law. However, even before the issuance of that decision, subnational jurisdictions asserted an ability to apply "economic nexus" for purposes of their income taxes and other business activities taxes.

Furthermore, U.S. tax treaties (and the PE concept) generally are not determinative of findings of subnational income tax jurisdiction. Therefore, activities that do not give rise to a U.S. PE for federal income taxes might still create tax presence for state income taxes. Examples include the temporary storage of inventory, traveling employees and other representatives, and economic nexus from having customers within a jurisdiction.

d. Transfer Pricing

Transfer pricing rules exist as a means to determine the allocation of profits of a multinational enterprise between jurisdictions so that tax authorities can assert their taxing rights over such profits. Transfer pricing rules are now prevalent in most jurisdictions, and typically give the tax authorities the power to adjust the pricing on

transactions that either local resident companies, or PEs, enter into with related parties in cases where these are viewed to differ from an arm's-length price.

Transactions where pricing may need to be considered between different entities in a group could include, but are not limited to: intragroup services, transfers/license of IP, intragroup lending, transfers/loans of digital assets, secondment arrangements, share-option schemes, or token-based employee incentive plans.

Particular issues can arise on transfer pricing that are unique to companies involved in digital assets that are worthy of note:

- Many prominent blockchain platforms have been structured as non-profit companies or foundations with their own independent governance structures so that their interests can be aligned with token holders. However, there will typically be a separate company (DevCo) (often in a different tax jurisdiction) that has a long-term contract with the token issuer that will employ the staff/contractors responsible for developing the platform, as well as marketing and encouraging use cases and adoption. DevCo will typically be a for-profit enterprise and will often be controlled by the same group of founders that established the foundation and who may continue to have board seats. In such situations, it will be important to consider whether the foundation and DevCo are deemed to be under common control and whether transfer pricing rules may apply to any payments (in tokens or fiat) made by the foundation to DevCo and how DevCo can demonstrate that these have been agreed at arm's-length prices.
- In the case of utility tokens, the token issuer may make a specific commitment to token holders that the tokens can be put to a specific use (perhaps in order to obtain services at a discounted price, or to be used to access certain services). If the token issuer needs to rely on a related party in order to fulfill that commitment, then the contractual arrangements between the token issuing entity (which has received an advance payment for the service) and the affiliated company (which will deliver the service) needs to be properly considered and priced at an arm's-length rate.
- Cryptoasset exchanges often operate their actual regulated exchange in a jurisdiction that is different from where the technology, operations, and key management are based. In such circumstances, the exchange entity, which

books the exchange fees and income, will need to pay an arm's-length fee to the entity to which it outsources the technology platform and operations.

Many countries have mandatory transfer pricing documentation requirements that require taxpayers to present their pricing analysis contemporaneously so that this can be shared with the tax authorities.

e. Taxes Related to Digital Economic Activity

In recent years, a number of tax authorities have expressed concern that some digitally enabled business models that generate profits from the collection and exploitation of data and network effects (e.g., social networks, customer review sites, search engines) are not being effectively taxed under the current internal tax system. This is primarily because a physical presence (i.e., a local subsidiary or PE) is often not needed in order to earn potentially significant profits from users in a market. Particularly when, for example, Country A users using the services do not pay for services provided, but instead provide their data, which is then monetised (but potentially outside of Country A), it can be very difficult for a Country A to tax assert taxing rights over an overseas-based technology company.

This has led to a number of proposals for digital services taxes, or for a new type of PE or nexus. Many have been proposed by individual countries.³⁷⁴ However, as international coordination will be important to ensure that double taxation is avoided in such circumstances, the OECD is looking at proposals currently for a new international framework. Based on current plans, the OECD is expecting to release its recommendations on this in 2020, so it is too early to take firm action on this. However, following the finalisation of this work, there may be some significant changes to the way in which profits are allocated between jurisdictions, with a move away from taxing profits in the locations where activities are performed, to the locations of the users of services and markets that provide the data that fuels such business models.

³⁷⁴ As of the writing of this paper, Austria, France, Hungary, Italy, Poland, Turkey, and the United Kingdom have implemented a digital services tax. Belgium, the Czech Republic, Slovakia, and Spain have published proposals to enact a digital services tax, and Latvia, Norway, and Slovenia have either officially announced or shown intentions to implement such a tax. Elke Asen, What European OECD Countries Are Doing about Digital Services Taxes, Tax Foundation (Jun. 22, 2020), <https://taxfoundation.org/digital-tax-europe-2020/>.

At the time of writing, there has been relatively little discussion from tax authorities on the application of such rules to blockchain/digital asset-based business models. However, blockchain-based business models share many of the same characteristics, and this space shares many similarities to sales and use taxes discussed above in Section 4.a.v., *Sales and Use Taxes*.

8. Information Reporting

a. Income/Gain Reporting

IRS Notice 2014-21 and the FAQs provide some limited guidance on the application of U.S. tax information reporting requirements with respect to certain cryptoasset transactions. IRS Notice 2014-21 also states that “[t]axpayers may be subject to penalties for failing to comply with tax laws,” including information reporting penalties under IRC Sections 6721 and 6722 and accuracy-related penalties under IRC Section 6662.³⁷⁵ IRS Notice 2014-21 does, however, note that relief may be available for taxpayers who can demonstrate reasonable cause for underpayment or failure to properly file information returns is due to reasonable cause.³⁷⁶

Specifically, the IRS guidance provides that payment of wages in virtual currency must be reported by the employer on IRS Form W-2, *Wage and Tax Statement*, and payment of compensation of \$600 or more to an independent contractor must be reported on IRS Form 1099-MISC, *Miscellaneous Income*.³⁷⁷ In addition, “third party settlement organizations” (generally, persons who make settlement payments in the form of virtual currencies between merchants and their customers) are required to report such settlement payments to such merchants on IRS Form 1099-K, *Payment Card and Third Party Network Transactions*, if, for the calendar year, both (1) the number of transactions settled for the merchant exceeds 200, and (2) the

³⁷⁵ IRC Sections 6721, 6722, and 6662; IRS Notice 2014-21, *supra* note 21, at Q&A 16.

³⁷⁶ *Id.*

³⁷⁷ IRS Notice 2014-21, *supra* note 21, at Q&A 11, 13; IRS FAQ, *supra* note 20, at Q&A 10

gross amount of payments made to the merchant exceeds \$20,000.³⁷⁸ Many of the larger cryptoasset exchange platforms (e.g., Coinbase) have determined that they are subject to these reporting requirements and have provided IRS Forms 1099-K to certain users.³⁷⁹

However, the guidance does not reference other reporting requirements, so it is unclear whether and how they apply. For example, the IRS could potentially apply the gross proceeds and basis reporting requirements under IRC Section 6045 to cryptoasset transactions. These rules generally require any person who meets the definition of a “broker” to provide annual reports on Form 1099-B, *Proceeds from Broker and Barter Exchange Transactions*, to the IRS regarding (1) the gross proceeds from the disposition of, among other assets, securities and commodities,³⁸⁰ and (2) the adjusted basis of “specified securities” that are sold by the broker on behalf of a customer.³⁸¹ Cryptoassets arguably could be treated as “commodities” for purposes of the gross proceeds reporting regime,³⁸² and it is also possible that the IRS

³⁷⁸ IRS Notice 2014-21, *supra* note 21, at Q&A 15. The information reporting rules for third-party settlement organisations are set forth in IRC Section 6050W and the Treasury Regulations promulgated thereunder.

³⁷⁹ See, e.g., Coinbase.com, *1099-K Tax Forms FAQ for Coinbase Pro, Prime, Merchant*, <https://support.coinbase.com/customer/en/portal/articles/2721660-1099-k-tax-forms-faq-for-coinbase-pro-prime-merchant>

³⁸⁰ IRC Section 6045(a), Treas. Reg. § 1.6045-1(a)(9). The term “broker” is defined in Treas. Reg. § 1.6045-1(a)(1) as “any person...U.S. or foreign, that, in the ordinary course of a trade or business during the calendar year, stands ready to effect sales to be made by others.”

³⁸¹ IRC Section 6045(g); Treas. Reg. § 1.6045-1(d). The term “specified security” generally covers stock, debt, and options and securities futures contracts on stock or debt. Treas. Reg. § 1.6045-1(a)(14)-(15).

³⁸² The term “commodity” is defined for these purposes in Treas. Reg. § 1.6045-1(a)(5)(i) as “[a]ny type of personal property or an interest therein (other than securities as defined in paragraph (a)(3)), the trading of regulated futures contracts in which has been approved by the Commodity Futures Trading Commission.” Commentators have noted that cryptoassets might fall within this definition because contracts relating to certain cryptoassets are traded on both the Chicago Board Options Exchange and Chicago Mercantile Exchange and have been approved by the CFTC. However, it would appear to require amendments to the regulations to

could treat cryptoassets as “specified securities” for purposes of the basis reporting regime.³⁸³

b. Foreign Account Reporting – FBAR and FATCA

Another area of uncertainty is the information reporting requirements applicable to foreign accounts. Two such requirements apply in the United States.

First, any United States person with a financial interest in, or signature (or certain other) authority over, a financial account located outside of the United States with a “maximum account value” of over \$10,000 at any time.³⁸⁴ As a general matter, such persons are required to file a FinCEN Form 114, *Reports of Foreign Bank and Financial Accounts* (“FBAR”), and complete certain FBAR-related questions on their federal tax and information returns. The FBAR reporting requirements apply to any “financial account,” which includes bank, securities, commodity futures, and options accounts, insurance policies with a cash value, mutual funds or similar pooled funds or any other accounts maintained in a “foreign financial institution” or a person “performing the services of a financial institution.” Certain cryptoasset exchanges and custodial services could be treated as “foreign financial institutions” for these purposes – if so, any account holders that are U.S. persons generally would be subject to the FBAR reporting rules. Nonetheless, FinCEN has reportedly indicated that cryptoassets are not currently required to be reported on an FBAR.³⁸⁵

extend Form 1099-B reporting to cryptoassets. See Treas. Reg. § 1.1065-1(a)(5), (9) (defining sale to include dispositions of commodities and defining commodities to include any other personal property that the Secretary determines is treated as a commodity).

³⁸³ If cryptoassets are characterised as commodities for purposes of the gross proceeds reporting requirements, then cryptoassets generally would not be properly treated as “specified securities,” unless specifically designated as such by the IRS pursuant to new guidance.

³⁸⁴ 31 C.F.R. § 1010.350.

³⁸⁵ This was done in a letter to the American Institute of Certified Public Accountants. See Kirk Phillips, *Virtual Currency Not FBAR Reportable (At Least for Now)*, *Journal of Accountancy* (Jun. 19, 2019); William Baldwin, *Bitcoin: IRS Takes On The Crooks—And The Good Guys*, *Forbes* (Jul. 18, 2019). See also U.S. Government Accountability Office, *Virtual Currencies – Additional Information Reporting and Clarified Guidance Could Improve Tax Compliance*, GAO-20-188, at pp. 31, 42 (Feb. 2020).

Second, FATCA also requires reporting with respect to certain foreign accounts. Specifically, any “specified person” that has an interest in “specified foreign financial assets” the aggregate value of which exceeds \$50,000 on the last day of the taxable year or \$75,000 at any time during the taxable year) is required to report such assets on IRS Form 8938, *Statement of Foreign Financial Assets*, which is attached to the specified person’s U.S. federal tax returns.³⁸⁶ Although the term “specified foreign financial assets” is defined broadly for these purposes, it is not clear whether this reporting regime covers cryptoassets.

In addition, FATCA requires certain “foreign financial institutions” (“FFIs”) to register with the IRS and to file information on Form 8966, *Foreign Account Tax Compliance Act (FATCA) Report*, as well as comply with certain withholding and due diligence requirements, with respect to “financial accounts” maintained by U.S. persons. Generally, an FFI includes any non-U.S. entity that is a custodial institution, an investment entity, or a depository institution.³⁸⁷ A “financial account” includes any depository or custodial account maintained by an FFI as well as any equity or debt interest in an FFI (other than interests that are regularly traded on an established securities market).³⁸⁸

The IRS has not released any guidance on the circumstances under which a cryptoasset intermediary would be treated as an FFI or a cryptoasset investment would be treated as a “financial account.” Nonetheless, applying the current definitions in the regulations, it is possible to conclude, depending on their activities, that centralised cryptocurrency exchanges taking custody of private keys, custodial wallet providers, and cryptocurrency investment funds could be viewed as FFIs providing financial accounts to their customers.

³⁸⁶ The term “specified person” is defined in Treas. Reg. § 1.6038D-1(a)(2) to include any U.S. citizen.

³⁸⁷ Treas. Reg. § 1.1471-5(e)(1).

³⁸⁸ Treas. Reg. § 1.1471-5(b)(1).

c. Identifying Taxpayer for Purposes of Reporting Cryptoasset Transactions

The blockchain contains a permanent record of all cryptoasset transactions, which tax authorities can access. However, while each transaction is associated with a wallet address, the owner of that wallet is not identified on the blockchain.

Centralised cryptoasset exchanges now require details of individuals including proof of identity and addresses to satisfy their know your customer (“KYC”) obligations. A decentralised exchange (“DEX”) is a cryptocurrency exchange which operates in a decentralised way, i.e., without a central authority. DEXs allow peer-to-peer trading of cryptocurrencies. DEXs do not offer the same rigour and compliance processes with KYC checks on individuals, and as a result, generally do not deal in fiat currency.³⁸⁹

Cryptoasset transactions should be recognised and disclosed in line with all taxable transactions. In addition, taxpayers are generally required to satisfy certain recordkeeping requirements. Under HMRC guidance, the onus is on individuals to keep records for each crypto asset transactions.³⁹⁰ The asset records must contain the following:

- The type of cryptoasset;
- Date of the transaction;
- If they were bought or sold;
- Number of units;
- Value of the transaction in pound sterling;
- Cumulative total of the investment units held; and
- Bank statements and wallet addresses, if needed for an enquiry or review.

Under U.S. tax law, taxpayers are required to maintain records sufficient to establish the positions taken on their tax returns.³⁹¹ Thus, records should document sales,

³⁸⁹ See generally Will Warren, What is a Decentralized Exchange?, Coin Center (Oct. 10, 2018), <https://coincenter.org/entry/what-is-a-decentralized-exchange>.

³⁹⁰ HMRC, *supra* note 5, at [#record-keeping](#).

³⁹¹ IRC Section 6001.

exchanges, or other dispositions of virtual currency and the fair market value of the virtual currency.³⁹²

9. Civil and Criminal Enforcement

In the United States and other developed countries, criminal tax prosecutions have generally been in decline in recent years. For example, recent study from Syracuse University shows that the IRS has drastically reduced the number of cases it refers for criminal prosecution.³⁹³ The decline started after 2013, which is the same year the IRS announced its “Swiss Bank Program.”

Some of this reduction in criminal referrals may be due to budget cuts.³⁹⁴ Another likely cause of the reduction is that the IRS’s Swiss Bank program has presented a new model of global tax enforcement, one which relies less on traditional enforcement mechanisms such as civil examinations and criminal prosecutions, and more on data-sharing among jurisdictions.³⁹⁵ It is likely to serve as a model for future enforcement for cryptoasset taxation, both in the United States and among other tax authorities. For example, in July 2018, several tax authorities formed the Joint Chiefs of Global Tax Enforcement (known as the “J5”), which targets transnational tax crime through increased enforcement collaboration. The J5 comprises the Australian Criminal Intelligence Commission and ATO, the Canada Revenue Agency, the Netherlands Fiscale Inlichtingen- en Opsporingsdienst, U.K. HMRC, and U.S. IRS Criminal Investigation.³⁹⁶

³⁹² IRS FAQ, *supra* note 21, at Q&A 45.

³⁹³ See Transactional Records Access Clearinghouse, *Taxpayers Referred for Criminal Prosecution by IRS Reach New Low* (Mar. 26, 2018), <http://trac.syr.edu/tracreports/crim/502>. The report shows a steady decline in IRS referrals for criminal prosecution from 2013 (when the Swiss Bank Program began) to the present. The report notes: “The latest available data from the Justice Department show that during January 2018 the government reported receiving 135 new referrals for prosecution from the Internal Revenue Service. According to referral-by-referral data obtained by the Transactional Records Access Clearinghouse (TRAC), this number was down substantially from its peak four years ago. For the most recent twelve month period this meant that IRS referred only 1,824 taxpayers for criminal prosecution, compared with the same twelve month period four years ago when it had referred more than twice that number (3,896).”

³⁹⁴ See Chuck Marr & Cecile Murray, *IRS Funding Cuts Compromise Taxpayer Service and Weaken Enforcement*, Center on Budget and Policy Priorities, (Apr. 4, 2016), <https://www.cbpp.org/research/federal-tax/irs-funding-cuts-compromise-taxpayer-service-and-weaken-enforcement>.

³⁹⁵ Manoi Viswanathan, *Tax Compliance in a Decentralizing Economy*, 34 GA. ST. UNIV. L. REV. 2 (Winter 2017-2018).

³⁹⁶ See IRS, *Joint Chiefs of Global Tax Enforcement*, <https://www.irs.gov/compliance/joint-chiefs-of-global-tax-enforcement>.

With the Swiss Bank Program, the IRS provided an opportunity for taxpayers to come forward and pay back taxes and fines, and by doing so avoid criminal prosecution. It first began with data collection in the form of broad “John Doe” summonses to the banks that held those accounts.³⁹⁷ These sought to gather data on U.S. account holders who might owe back taxes, essentially targeting all Americans with foreign bank account holdings. In the Swiss Bank Program, the IRS created an effective “feedback loop” of banks, bankers, and lawyers providing information on U.S. customers with offshore accounts, and in turn U.S. customers giving information on bankers and lawyers that had helped them establish offshore accounts.³⁹⁸

Seeking to start a similar feedback loop for cryptocurrency tax enforcement, in 2016 the IRS served a “John Doe” summons to Coinbase. Coinbase is an online platform and digital currency “wallet” that allows its users to exchange and transact with digital currencies such as bitcoin. Some of these transactions, possibly most of them, had never been reported to the IRS.³⁹⁹ In July 2019, the IRS began sending letters to approximately 10,000 cryptocurrency holders advising them of their obligation to report cryptocurrency transactions and to correct previous tax filings.⁴⁰⁰ Many of the recipients of these letters were likely obtained through IRS efforts such as the John Doe summons.⁴⁰¹

³⁹⁷ Leandra Lederman, *The Use of Voluntary Disclosure Initiatives in the Battle Against Offshore Tax Evasion*, 57 VILL. L. REV. 499, 527 (2012) (“The IRS has wisely increased the general penalty each time, rather than offering the same or more attractive terms, which would encourage non-compliers to wait for a better deal, as well as undermining taxpayers’ perceptions of the fairness of the federal income tax system generally and the offshore compliance effort in particular.”).

³⁹⁸ See, e.g., Jay R. Nanavati & Justin A. Thornton, DOJ and IRS Use “Carrot ‘n Stick” to Enforce Global Tax Laws, 29 CRIMINAL JUSTICE 2 (Summer 2014) (noting that the IRS’s voluntary disclosure programs have induced 43,000 taxpayers to report their foreign bank accounts and to pay taxes, penalties, and interest to the IRS of approximately \$6 billion).

³⁹⁹ The IRS’s summons enforcement request included a declaration noting that from 2013 to 2015, less than 1,000 tax returns out of the more than 120 million electronically filed individual returns in each year appear to have reported bitcoin transactions on Form 8949. See Declaration of David Utzke, Pacer Docket 1:1, No. 3:17-cv-01431 (N.D. Cal.) (Mar. 16, 2017).

⁴⁰⁰ See IRS, *IRS has Begun Sending Letters to Virtual Currency Owners Advising Them to Pay Back Taxes, File Amended Returns*, IR-2019-132 (Jul. 26, 2019), <https://www.irs.gov/newsroom/irs-has-begun-sending-letters-to-virtual-currency-owners-advising-them-to-pay-back-taxes-file-amended-returns-part-of-agencys-larger-efforts>.

⁴⁰¹ The John Doe summons resulted in Coinbase turning over records for approximately 13,000 account holders. Kelly Phillips Erb, *Coinbase Notifies Customers That It Will Turn Over Court-Ordered Data*, Forbes (Feb. 28, 2018), <https://www.forbes.com/sites/kellyphillipserb/2018/02/28/coinbase-notifies-customers-that-it-will-turn-over-court-ordered-data/#9ad1efb14316>.

The IRS's (mostly) successful enforcement of its John Doe summons against Coinbase suggests more such summonses may be coming, in order to uncover information on cryptocurrency transactions.⁴⁰² As with the early years of the IRS's Swiss Bank enforcement efforts, John Doe summonses can help set the stage for future IRS enforcement actions. It is also worth remembering is that the IRS did not merely gather information from foreign banks. It also issued John Doe summonses to FedEx, DHL, and UPS, to see which Americans were corresponding with foreign banks.⁴⁰³

The IRS and other global taxing jurisdictions may be expected to make a similar push to creatively triangulate data on cryptocurrency transactions, perhaps with summonses to Internet Service Providers.⁴⁰⁴ They also may target social media platforms like Facebook, Google, and Twitter, or other technology service providers that are not directly involved with cryptocurrencies, but which might have information on which users are transacting in cryptocurrencies.⁴⁰⁵

Finally, the IRS added a new question on Schedule 1, *Additional Income and Adjustments to Income*, of the Form 1040 asking: "At any time during 2019, did you receive, sell, send,

⁴⁰² Coinbase challenged the summons, and the scope was narrowed by the IRS to customers with transactions at least \$20,000 and narrowed further by the court to include only: (1) taxpayer ID numbers; (2) names; (3) birth dates; (4) addresses; (5) records of account activity, including transaction logs or other records identifying the date, amount, and type of transaction (purchase/sale/exchange), the post-transaction balance, and the names of counterparties to the transaction; and (6) all periodic statements of account or invoices (or the equivalent). *United States v. Coinbase Inc.*, No. 3:17-cv-01431 (N.D. Cal. 2017). The court held that such information as user profiles, user preferences, use security setting and history, user payment methods, and other information related to the funding sources used for their account were "broader than necessary."

⁴⁰³ See Robert W. Wood, IRS Issues John Doe Summons To FedEx, DHL, UPS, HSBC In Massive Offshore Account Hunt, *Forbes* (Dec. 20, 2014), <https://www.forbes.com/sites/robertwood/2014/12/20/irs-issues-john-doe-summons-to-fedex-dhl-ups-hsbc-in-massive-offshore-account-hunt/#73d5a9b3eb10>.

⁴⁰⁴ See Dashiell C. Shapiro, Cryptocurrency and the Shifting IRS Enforcement Model, *STANFORD JOURNAL OF BLOCKCHAIN LAW & POLICY* 1 (2018).

⁴⁰⁵ According to a training deck obtained from the IRS, the IRS hopes to use Grand Jury subpoenas on firms such as Apple, Google, and Microsoft to check taxpayers' download history for crypto-related applications. See, e.g., Nathan J. Richman, IRS Crypto Investigation Training Emphasizes Grand Jury Subpoena, 2019 TNTF 128-6 (Jul. 3, 2019), <https://www.taxnotes.com/tax-notes-today-federal/criminal-violations/irs-crypto-investigation-training-emphasizes-grand-jury-subpoena/2019/07/03/29pdk?highlight=%22criminal%20investigation%22%20cryptocurrency>; Anna Baydakova, IRS Confirms It Trained Staff to Find Crypto Wallets, *Coindesk* (Jul. 15, 2019), <https://www.coindesk.com/irs-confirms-it-trained-staff-on-finding-crypto-wallets>; Helen Partz, IRS Allegedly Hopes to Make Tech Giants Release User Crypto Activity, *Cointelegraph* (Jul. 9, 2019), <https://cointelegraph.com/news/irs-allegedly-hopes-to-make-tech-giants-release-user-crypto-activity>.

exchange, or otherwise acquire any financial interest in any virtual currency?" The question is modeled after the questions on Schedule B, *Interest and Ordinary Dividends*, regarding interests in foreign financial accounts, which the IRS used as a tool in the Swiss Bank Program.

10. Conclusions and Recommendations to Regulators/Tax Authorities

The cryptoasset industry is continuing to rapidly evolve due to the expansionary nature of digital transformation, growing market adoption and the increase of formal institutional recognition and even government participation. At the time of publication of this document, more attention has turned to the development of stablecoins and blockchain backed CBDCs, whereas ICOs have all but faded in late 2018.

Due to the nascency and the shifting nature of the cryptoasset, tax authorities have likely been hesitant to provide express guidance; however, common themes and practices have emerged among seemingly uncoordinated jurisdictional responses: (1) treating cryptoassets similar to property or other assets rather than currency; (2) assessing the cryptoasset according to its nature and use regardless of its stated intent or its regulatory classification; and (3) applying existing regulatory regimes to cryptoassets once classified. The goal of this paper has been to take stock of the cryptoasset tax landscape, and from that, to help taxpayers and tax authorities identify areas needing further attention, including difficulties in compliance or other scenarios at risk of arbitrage.

Tax authorities should balance their valid concern of ensuring compliance with the potential burden and dampening effect on innovation on this nascent industry. Thus, providing some clarification on how to define and distinguish between types of cryptoassets would be helpful, keeping in mind how that might coincide with other regulatory approaches within the jurisdiction. Widely divergent regulatory approaches within a jurisdiction may lead to confusion and possibly avoidance altogether by cryptoasset businesses, thereby also discouraging innovation.⁴⁰⁶ As discussed above in Section **Error! Reference source not found.**, *Introduction to Cryptoassets*, the tripartite taxonomy of (1) payment tokens, (2)

⁴⁰⁶ One illustration of regulatory confusion involves the U.S. federal agencies respectively taking contradictory approaches in regulating and defining cryptoassets. The IRS regulates cryptoassets as "property" whereas the CFTC considers them "commodities" and the SEC considers them "securities." On the other hand, FinCEN regulates cryptoasset businesses as "money" changers. Carol Golforth, US Law: Crypto is Money, Property, a Commodity, and a Security, all at the Same Time, Oxford Business Law Blog (Dec. 7, 2018), <https://www.law.ox.ac.uk/business-law-blog/blog/2018/12/us-law-crypto-money-property-commodity-and-security-all-same-time>.

security tokens, and (3) utility tokens is well-represented in documentation by global standard-setting bodies with some jurisdictions following suit (e.g., Hong Kong, United Kingdom).⁴⁰⁷ Therefore, express guidance acknowledging such without overly stringent requirements would proffer the beginnings of a tax framework that could align with already existing financially regulated concepts while maintaining the flexibility to allow for further technological developments, including entirely new regulatory approaches. Moreover, publishing this taxonomy approach could help usher industry participants into accordingly structuring their businesses in a tax-directed manner, further promoting financial stability and market integrity for the industry.

On an aspirational note, this same principle of cooperation and harmony called for between regulatory agencies within one jurisdiction can be extrapolated to the global level. At a time where more and more CBDCs are being announced by central banks (e.g., China, Sweden, Switzerland)⁴⁰⁸ and other cryptocurrencies by global conglomerates (e.g., Facebook's Libra), the call for a multi-jurisdictional approach synchronising cryptoasset concepts is increasingly more necessary, even more so relating to taxation, given that the OECD is expected to announce how the digital economy will be taxed later this year.

The OECD statement⁴⁰⁹ of the "Tax Challenges Arising from the Digitalisation of the Economy" could have an impact on cryptoassets. The OECD proposes to expand the scope to include "nexus, data and characterisation" in market jurisdictions. Under Pillar 1, the OECD expects to include the following non-exhaustive list of business: online search engines; social media platforms; online intermediation platforms (including the operation of online marketplaces, irrespective of whether the user is a business or consumer); digital content streaming; online gaming; cloud computing services; and online advertising services. If digital businesses use cryptoassets to conduct operations, then nexus could be applied by market jurisdictions for tax compliance.

The landscape of the cryptoasset industry is constantly undergoing changes and these changes are by no means insignificant. It is the hope of the GDF Tax Working Group to facilitate the development of tax rules that are in alignment with the existing global regulatory framework to enable a more sustainable and stable economic future.

⁴⁰⁷ See HK IRD Practice Note, *supra* note 6; HMRC, *supra* note 5.

⁴⁰⁸ OECD Cryptoassets in Asia, *supra* note 90.

⁴⁰⁹ OECD, Statement by the OECD/G20 Inclusive Framework on BEPS on the Two-Pillar Approach to Address the Tax Challenges Arising from the Digitalisation of the Economy (Jan. 2020), <https://www.oecd.org/tax/beps/statement-by-the-oecd-g20-inclusive-framework-on-beps-january-2020.pdf>.

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