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Adequately Identifying Bitcoin Dispositions for Federal Income Tax Purposes

By Jim Calvin*

INTRODUCTION

Bitcoin is an open-source, peer-to-peer, decentralized digital currency.¹ While it can be acquired through a process called mining or in exchange for goods or services, it is often purchased for money from a number of exchanges, and can be traded outright or as a leveraged physical using margin, futures, forwards, and swap positions.²

Those new to the Bitcoin protocol need to be prepared for recursively studying the subject matter underlying each of its mechanisms.³ A sufficiently obsessive interest can be rewarded with occasional

breaks, and this, of course, applies when considering it for federal income tax purposes. The classification of bitcoin for federal income tax purposes is the base-case — as discussed below, bitcoin is property that is likely a commodity — from which tax accounting certainties iteratively follow, but, again, the actual Bitcoin implementation can be counterintuitive and subject to exceptions. For example, transactions are not fungible except sometimes. The recent Bitcoin chain-split⁴ is also considered because it affects tax accounting; however, the chain-split defies easy analogy to existing precedents related to income realization, or, arguably, a property division. This article will discuss only Bitcoin. While the Bitcoin protocol is the master version or inspiration for subsequent decentralized cryptocurrencies, there are often significant differences that can lead to quite different federal income tax consequences.⁵

Notice 2014-21, *IRS Virtual Currency Guidance*, describes how general tax principles apply to transactions in virtual currency.⁶ The notice identifies bitcoin as a convertible virtual currency defined as: “Virtual currency that has an equivalent value in real currency, or that acts as a substitute for real currency.”⁷ While the notice answers many fundamental questions, including classifying convertible virtual currencies as property for federal income tax purposes,⁸ it does not further classify convertible virtual currencies nor approach the issues discussed here. While the IRS has classified bitcoin as property, it is likely to be further classified as a commodity for federal income tax purposes.

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¹ See generally Jerry Brito, Andrea Castillo, *Bitcoin: A Primer for Policymakers*, Mercatus Center at George Mason University (Kindle Edition) at 79–81.

² The term “bitcoin physical” is possibly the most incorrect characterization of bitcoin; however, the term physical is used to mean a non-derivative position.

³ Recommended texts and resources: Andreas M. Antonopoulos, *Mastering Bitcoin: Programming the Open Blockchain*, O’Reilly Media, Inc. (2d ed. 2017); Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller & Steven Goldfeder, *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction*, Princeton University Press (2016); Jimmy Song, Medium at <https://medium.com/@jimmysong>; Coin Center at <https://coincenter.org/learn>.

coincenter.org/learn.

⁴ As discussed below, on August 1, 2017, a software fork, or copy of Bitcoin, called Bitcoin Cash caused a chain-split resulting in pre-existing owners of bitcoin to receive bitcoin cash.

⁵ All section references are to the Internal Revenue Code of 1986, as amended, and the regulations thereunder, unless otherwise specified.

⁶ 2014-16 I.R.B. 938.

⁷ See also Financial Crimes Enforcement Network (FinCEN) Guidance on the Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies (FIN-2013-G001, Mar. 18, 2013).

⁸ Notice 2014-21, Q&A-1.

Moreover, and counterintuitively, bitcoin — more precisely, unspent transaction outputs — are as unique as physical stock certificates. Thus, the default identification rule of the §1012 regulations is likely to be actual delivery.⁹ This default rule will often not apply to the owner who uses a hosted wallet, and does not control his private keys.¹⁰

BACKGROUND

It is well-known that Bitcoin was originally described by an anonymous developer in 2008,¹¹ and that the first bitcoin was created on January 3, 2009.¹² The Bitcoin source code repository is on GitHub, and may be freely forked — meaning, copied — subject to an MIT license.¹³ Only limited aspects of Bitcoin will be considered here for purposes of discussing the identification rules for federal income tax purposes and the effects of the recent chain-split.

The Bitcoin Innovation

The central innovation of Bitcoin is not merely technological — that is, it is not limited to its use of a blockchain nor its cryptography; instead, it is an elegant interplay of technology, incentives, and game theory that results in a consensus of its ownership being cryptographically recorded on a blockchain. It works because bitcoin, the currency, can itself be used to reward accurate recordkeeping by miners; however, that reward is earned only if a record — block — is validated through agreement by other nodes.¹⁴ Moreover, while the value of bitcoin is its spot price, that

value was created, and is sustained by, its core software developers, infrastructure businesses, miners, and merchants. Although there is no formal contract, the social and technological relationships underlying Bitcoin suggests there is an implied agreement between and among each of its participants.¹⁵ Were that, in fact, the case, changes affecting the value of bitcoin (e.g., increasing the supply of bitcoin) would almost certainly be a material change in economic terms, while other changes (e.g., data structure modifications) could be ignored.¹⁶

Bitcoin Chain-Split

On August 1, 2017, a software fork, or copy of Bitcoin,¹⁷ which included altered consensus rules, caused a chain-split.¹⁸ The forked version of Bitcoin, known as Bitcoin Cash, is supported by groups disagreeing with the development of the Bitcoin reference code master.

The chain-split caused owners of bitcoin who controlled their private keys prior to the chain-split¹⁹ to own an equal number of bitcoin and bitcoin cash after the chain-split.²⁰ Bitcoin cash has value. On August 1, 2017, bitcoin was actively traded with one source showing prices between \$2,921 and \$2,686,²¹ while the price of bitcoin cash was indicated by the same source as being between \$426 and \$210.²²

Bitcoin Cash

Bitcoin Cash modifies the Bitcoin reference code master by increasing the maximum base block size,

⁹ Section 1011(a) provides that the adjusted basis for determining gain or loss from the sale or other disposition of property is its cost determined under §1012 subject to certain adjustments. The §1012 regulations provide special rules for purposes of determining the basis of stocks (and bonds). *See also Commissioner v. Covington*, 120 F.2d 768, 770–71 (5th Cir. 1941), *aff'g in part, rev'g in part* 42 B.T.A. 601 (1940), *cert. denied*, 315 U.S. 822 (1942) (commissions paid to purchase included in basis); and *Spreckels v. Helvering*, 315 U.S. 626, 630 (1942), *aff'g* 119 F.2d 667 (9th Cir. 1941), *aff'g in part, rev'g in part* 41 B.T.A. 1204 (1940), *nonacq.* 1940-2 C.B. 14 (commissions paid on sales deducted from selling price).

¹⁰ *See* Bitcoin Wiki at https://en.bitcoin.it/wiki/Private_key (a private key is a secret number required to send bitcoin).

¹¹ Satoshi Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System” at <https://bitcoincore.org/bitcoin.pdf>.

¹² *See* <https://blockexplorer.com/block/000000000019d6689c085ae165831e934ff763ae46a2a6c172b3f1b60a8ce26f>.

¹³ MIT License at <https://opensource.org/licenses/MIT>; the Bitcoin source code master version can be found at <https://github.com/bitcoin/bitcoin>.

¹⁴ For purposes of this discussion, a node is a program that validates transactions and blocks, and a miner is a node that creates blocks, and for this service, is rewarded with bitcoin if its block is validated by other nodes and added to the blockchain.

¹⁵ *See generally Corbin on Contracts*, Matthew Bender & Company, Inc. (2017, Spring), at §1.3; Narayanan, *et al.*, see n. 3, above at 170 (Kindle Edition) (“... Bitcoin relies on agreement by the participants, and that consensus is a fragile construct that consists of interlinked technical and social components.”).

¹⁶ *See* Reg. §1.1001-1(a); *Cottage Savings Ass'n v. Commissioner*, 494 U.S. 554 (1991). *See generally* James M. Peaslee, *Modifications of Nondebt Financial Instruments as Deemed Exchanges*, 95 Tax Notes 737 (Apr. 29, 2002).

¹⁷ Github.com at <https://help.github.com/articles/github-glossary/> (a fork is a copy of a repository).

¹⁸ *See* Antonopoulos, n. 3, above, at 5205–5206 (Kindle Edition) (a change in the consensus rules causing a chain-split which is permanent is known as a hard fork).

¹⁹ The first Bitcoin Cash block was produced at 18:12:41 UTC, August 1, 2017 (viaBTC). *See* <https://blockchair.com/bitcoin-cash/block/478559>; <http://blockdozer.com/insight/blocks-date/2017-08-01>.

²⁰ An owner of bitcoin held on an exchange does not typically control the private keys to that bitcoin. Despite that, many exchanges have agreed to cause their customers to receive bitcoin cash attributable to their bitcoin.

²¹ *See* Bitcoin price history at <https://coinmarketcap.com/currencies/bitcoin/historical-data/>.

²² *See* Bitcoin cash price history at <https://coinmarketcap.com/currencies/bitcoin-cash/historical-data/>.

adding decreasing difficulty adjustments in the case of a low hash rate, and removing the segregated witness functionality (or SegWit, BIP91/BIP148) from Bitcoin.²³ In addition, Bitcoin Cash transactions use a new flag, SIGHASH_FORKID, which prevents Bitcoin Cash transactions from being replayed on the Bitcoin blockchain, and vice versa.²⁴

Anyone may fork the Bitcoin reference code master, and change its consensus rules; however, doing so does not cause a chain-split unless it is actually adopted and activated by miners, intermediary nodes, and wallets. Bitcoin Cash had sufficient support to cause the first hard-fork of Bitcoin.²⁵ The result is a permanent branching of the blockchain. One branch is valid under Bitcoin, but invalid under the rules of Bitcoin Cash, and vice versa. Miners choosing to operate under the Bitcoin Cash rules will add blocks that are no longer valid, and will be rejected by Bitcoin nodes.²⁶

While it may seem that the Bitcoin blockchain was copied, in fact, Bitcoin Cash is actually a permanent fork of the pre-existing Bitcoin blockchain with both sharing a pre-split transaction history. A Bitcoin Cash wallet will identify spendable transactions — unspent transaction outputs, or UTXOs — recorded on the Bitcoin blockchain based upon pre-existing Bitcoin UTXO addresses associated with the private keys controlled by that wallet. While a pre-existing Bitcoin UTXO can be referenced by a Bitcoin Cash transaction, the UTXO is recorded as sent only for purposes of the Bitcoin Cash blockchain. The Bitcoin network will reject the Bitcoin Cash transaction as invalid. Thus, the Bitcoin Cash transaction will not be removed from the Bitcoin UTXO set. This means that a Bitcoin UTXO existing prior to the chain-split can be spent as a Bitcoin Cash UTXO after the chain-split, but doing so will not consume the Bitcoin UTXO. Thus, for example, a person owning 10 bitcoin prior to the chain-split will control 10 bitcoin cash after the chain-split as well as his or her pre-existing 10 bitcoin.

²³ See Bitcoin Improvement Proposals (BIPs) at <https://github.com/bitcoin/bips>.

²⁴ See Bitcoin Cash project website and FAQs for all changes, at <https://www.bitcoincash.org/>.

²⁵ See BIP99 at https://github.com/bitcoin/bips/blob/master/bip-0099.mediawiki#schism_hardforks (defining schism hardforks); Antonopoulos, n. 3, above at 5236–5237 (Kindle Edition) (clones having modified consensus rules, but which did not cause chain-splits, include Bitcoin XT, Bitcoin Classic, and Bitcoin Unlimited).

²⁶ See Narayanan, *et al.*, n. 3, above, at 172 (Kindle Edition) (explaining chain-splits).

Federal Income Tax Treatment of the Chain-Split

The Bitcoin chain-split has no obvious analogy for federal income tax purposes; however, whether or not it is a realization event, the chain-split has basis effects. While the conclusion may not be certain, the following can be said: There was no exchange of bitcoin for bitcoin cash;²⁷ and, the receipt of bitcoin cash was a consequence of holding bitcoin.

An owner of bitcoin is entitled to bitcoin cash merely on the basis of his ownership. As a result, he may be treated as realizing ordinary income to the extent of the value of bitcoin cash.²⁸ The value is normally determined on the date of actual or constructive receipt.²⁹ Bitcoin cash was actively trading over-the-counter within hours of the chain-split.³⁰ If it was a realization event, then the basis of bitcoin cash would be equal to the ordinary income actually recognized,³¹ and gain or loss on the disposition of bitcoin cash would be determined using that basis. Alternatively, it might be argued that the chain-split was similar to a property division.³² In that case, the basis in each bitcoin would be allocated between it and the related bitcoin cash.³³

²⁷ See *Spalding v. Commissioner*, 7 B.T.A. 588 (1927) (defining exchange). See discussion above, “Bitcoin Chain-split.”

²⁸ *National-Standard Co. v. Commissioner*, 749 F.2d 369 (6th Cir. 1984), *aff’d* 80 T.C. 551 (1983); *Commissioner v. Starr Bros., Inc.*, 204 F.2d 673 (2d Cir. 1953). See also Notice 2014-21, Q&A-8 (gross income from mining); PLR 9824026 (nonperiodic payments were ordinary); Preamble to Proposed Regulations, REG-166012-02, 69 Fed. Reg. 8886 (Feb. 26, 2004) (“The proposed regulations under [§] 1.162-30 provide that in general, the net periodic and nonperiodic payments (including mark-to-market deductions) are deductible by the payor under [§] 162 as ordinary and necessary business expenses.”).

²⁹ See, e.g., Notice 2014-21, Q&A-3 (gross income from sale of goods or services), and Q&A-8 (gross income from mining).

³⁰ Reg. §1.1001-1(a) (“... only in rare and extraordinary cases will property be considered to have no fair market value”); Rev. Rul. 58-402, 1958-2 C.B. 15; *Waring v. Commissioner*, 412 F.2d 800 (3d Cir. 1969); *McCormac v. United States*, 424 F.2d 607 (Ct. Cl. 1970); but see *Burnet v. Logan*, 283 U.S. 404, 412 (1931).

³¹ See, e.g., §1286(b)(2) (stripped bonds); see also Notice 2014-21, Q&A-4 (basis of virtual currency received as a payment for goods or services).

³² See, e.g., Rev. Rul. 56-437, 1956-2 C.B. 507 (partition of property); PLR 201419001 (division of trust), PLR 201349002 (modification and division of a trust), PLR 200736002 (pro-rata trust decanting); but see PLR 97300007 (notional principal contract is a single, indivisible financial instrument); FSAs 1998-124 and 1999-1041 (interest rate swap is to be treated as a single indivisible financial product).

³³ See, e.g., §1286(b)(3) (allocation of basis in the case of stripped bonds based on fair market value); Reg. §1.307-1(a) (allocation of basis in the case of a non-taxable stock distribution based on fair market value).

Adequate Identification of Bitcoin Dispositions

Assuming a taxpayer has not otherwise made an adequate identification, then it is likely that either FIFO or actual delivery will apply to a bitcoin disposition.³⁴ Actual delivery likely applies if the taxpayer controls his private keys;³⁵ otherwise, FIFO applies.³⁶ Thus, to avoid unintended results, taxpayers should consider using standing instructions that may be overridden by another form of adequate identification.³⁷

Section 1012 Regulations

When a taxpayer has acquired fungible property — such as stocks or bonds — on different dates or at different prices, and sells only a portion of that property, a problem arises: What was sold? The regulations provide methods, including safe harbors, for purposes of adequately identifying stocks and bonds.³⁸ The regulations do not, however, provide safe harbor methods for other fungible property such as commodities or futures; nevertheless, it is likely that a taxpayer may still make an adequate identification for other types of fungible property including commodity positions.³⁹ While the methods provided for stock sales can be followed for this purpose, an adequate identification is not limited to the methods or evidentiary requirements provided in the regulations.⁴⁰

Third-party confirmations of a taxpayer's specification are often not provided in the case of bitcoin transactions; however, confirmation of the taxpayer's instructions is not required unless the taxpayer seeks to satisfy the safe harbor requirements of the regulations.⁴¹ Regardless, a taxpayer must still obtain evidence verifying that an identification was made prior to, or at the time of, sale, transfer, delivery, or distri-

bution.⁴² And, while the regulations do permit an adequate identification to be made before the settlement date of a stock trade,⁴³ this leeway has little practical use in the case of bitcoin transactions, which can be expected to be added to the blockchain within approximately 10 minutes, and are irreversible.⁴⁴

FEDERAL INCOME TAX CLASSIFICATION OF BITCOIN

The Commodity Futures Trading Commission (CFTC) has specifically determined that bitcoin is a commodity:

The definition of a “commodity” is broad. (citation omitted). Bitcoin and other virtual currencies are encompassed in the definition and properly defined as commodities.⁴⁵

Most recently, on July 24, 2017, in its order of registration of LedgerX LLC as a derivatives clearing organization (DCO), the CFTC again referred to bitcoin as a commodity.⁴⁶

The IRS has ruled that:

The word “commodities” is used in section 864(b)(2)(B) . . . in its ordinary financial sense and includes all products that are traded in and listed on commodity exchanges located in the United States. Furthermore, the word “commodities” includes the actual commodity and commodity futures contracts.⁴⁷

³⁴ See Reg. §1.1012-1(c)(1)(i) (First-in, first-out (FIFO) means the property that is treated as sold or transferred will be charged against the taxpayer's earliest transactions to determine basis and holding period).

³⁵ Reg. §1.1012-1(c)(2).

³⁶ Reg. §1.1012-1(c)(1)(i).

³⁷ Reg. §1.1012-1(c)(8).

³⁸ Reg. §1.1012-1(c). Unless otherwise noted, these regulations apply to both stocks and bonds. Reg. §1.1012-1(c)(6) (providing that Reg. §1.1012-1(c)(1) - §1.1012-1(c)(5), §1.1012-1(c)(8), and §1.1012-1(c)(9) apply to bonds).

³⁹ *Perlin v. Commissioner*, 86 T.C. 388 (1986).

⁴⁰ *Hall v. Commissioner*, 92 T.C. 1027, 1036 (1989) (“[*Helvering v. Rankin*, 295 U.S. 123 (Apr. 29, 1935)] is typical of the long-held judicial approach to adequate identification, i.e., that adequate identification is feasible in a wide variety of circumstances”).

⁴¹ *Concord Instruments Corp. v. Commissioner*, T.C. Memo 1994-248 (concluding that Reg. §1.1012-1(c)(3) provides a safe harbor, and not the exclusive means to adequately identify stock to avoid FIFO).

⁴² Reg. §1.1012-1(c)(8).

⁴³ *Id.*

⁴⁴ Bitcoin Wiki, Irreversible Transactions, https://en.bitcoin.it/wiki/Irreversible_Transactions.

⁴⁵ In re Coinflip, Inc., d/b/a/ Derivabit, et al., Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodity Exchange Act, Making Findings and Imposing Remedial Sanctions, CFTC Docket No. 15-29 (Sept. 17, 2015), available at <http://www.cftc.gov/ucm/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliporder09172015.pdf>. See also In re BFXNA INC. d/b/a Bitfinex, Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodity Exchange Act, as Amended, Making Findings and Imposing Remedial Sanctions, CFTC Docket No. 16-19 (June 2, 2016), available at <http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfbfxnaorder060216.pdf>.

⁴⁶ CFTC Grants DCO Registration to LedgerX LLC, available at <http://www.cftc.gov/PressRoom/PressReleases/pr7592-17>.

⁴⁷ Rev. Rul. 73-158, 1973-1 C.B. 337. Generally, §864(b)(2)(B)(ii) provides that a trade or business in the United States does not include trading in commodities for the taxpayer's own account whether by the taxpayer or its employees or its agents. Section 864(b)(2)(B)(ii) applies only if the commodities are of a kind customarily dealt in on an organized commodity exchange and if the transaction is of a kind customarily consum-

Furthermore, private rulings have concluded that both unregulated (not traded on a regulated U.S. commodity exchange) and regulated currencies are commodities.⁴⁸ The revenue ruling and private rulings harmonize the usage of the term “commodity” with its ordinary meaning, and its treatment under the Commodity Exchange Act (CEA). Under the CEA, a commodity is anything for which futures trade whether or not trading happens on a regulated exchange.⁴⁹

The interpretative doctrine of ordinary meaning is apparent; however, and perhaps more relevant, is the doctrine of *in pari materia* — laws dealing with the same subject matter should be interpreted harmoniously (literal translation: “in a like manner”).⁵⁰ This latter doctrine would strongly support classification of bitcoin as a commodity for federal income tax purposes because doing so is consistent with its treatment by the CFTC.⁵¹ Moreover, the IRS recently indicated that it would defer to definitions subject to the rule-making authority of other agencies.⁵²

While the IRS rulings address the term commodity for purposes of §864(b)(2)(B), because the subject matter is identical, it would generally be expected to have the same meaning each place it appears in the Code. Where, however, the context indicates otherwise — that is, if the mechanical application would create an obvious incongruity or frustrate an evident

dated at such place.

⁴⁸ See, e.g., PLR 8850041 (futures, forwards, options, and spot transactions on currencies were commodities for purposes of §864(b)(2)(B)(iii), including unregulated currencies such as the Malaysian Ringgit), PLR 8527041 (for purpose of §864(b)(2)(B) there is no requirement that the transactions be consummated on an organized exchange), PLR 8813012 (transactions in forward contracts serve essentially the same financial purpose as regulated futures and were commodities for purposes of §864(b)(2)(B)), PLR 8326013 (foreign currency forwards were commodities), PLR 7743083 (foreign currency futures were commodities).

⁴⁹ See 7 U.S.C. §1a(9) (defining “commodity” as including agricultural products as well as “. . . all services, rights, and interests . . . in which contracts for future delivery are presently or in the future dealt in.”). Bitcoin futures can be traded at Crypto Facilities (<https://www.cryptofacilities.com/derivatives/resources>); regulated by the U.K. Financial Conduct Authority), BitMEX (<https://www.bitmex.com/app/futuresGuideExamples>), and other organized exchanges.

⁵⁰ See generally 2B Norman Singer & Shambie Singer, *Sutherland Statutes & Statutory Construction* §51:3 (7th ed.).

⁵¹ See, e.g., §6045(g)(3)(B)(iii) (adjusted basis reporting of any commodity or contract therein if it is determined to be appropriate by the Treasury); Reg. §1.6045-1(a)(5)(i) (providing a definition of commodity for purposes of §6045 by reference to CFTC approval of trading of regulated futures contracts in the property or interest therein).

⁵² See NPRM REG-123600-16, 81 Fed. Reg. 66,576 (Sept. 28, 2016) (Prop. Reg. §1.851-2).

statutory purpose — then it would be appropriate to depart from the definition.⁵³

Finally, the Securities and Exchange Commission (SEC) has not specifically opined on the treatment of bitcoin; however, it has distinguished between virtual currencies based on functions enumerated as relevant by the Financial Action Task Force⁵⁴ — that is, as (1) a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value — and other tokens that can be securities.⁵⁵ A determination that bitcoin is a commodity does not preclude, nor has it conflicted with, the SEC’s regulation of investment schemes involving bitcoin. The securities laws have been applied to investment funds, fraudulent schemes, and unregistered securities involving bitcoin without having classified bitcoin as a security.⁵⁶

The term commodity for federal income tax purposes is likely to include bitcoin. Thus, because the CFTC has determined that bitcoin is a commodity, it is likely to be treated as such for federal income tax

⁵³ See n. 51, above (commodity is defined by reference to CFTC regulation, though limited as appropriate for adjusted basis reporting); *Sirbo Holdings, Inc. v. Commissioner*, 509 F.2d 1220, 1223 (2d Cir. 1975) (“[W]here the Internal Revenue Code is concerned, no controlling weight can be given to the usual presumption that, when the same words are used in several sections of a statute, they mean the same thing. Rather the court will look at the Congressional history and purpose in each case.”); *Lawson v. Suwannee S.S. Co.*, 336 U.S. 198, 201 (1949); *Rowland v. California Men’s Colony*, 506 U.S. 194 (1993).

⁵⁴ See FATF Report, *Virtual Currencies, Key Definitions and Potential AML/CFT Risks*, FINANCIAL ACTION TASK FORCE (June 2014), <http://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.

⁵⁵ See U.S. Securities and Exchange Commission, *Report of Investigation Pursuant to §21(a) of the Securities Exchange Act of 1934: The DAO, Securities Act Release No. 81207* (July 25, 2017), at 3, <https://www.sec.gov/litigation/investreport/34-81207.pdf> (discussing Ether, which was not addressed by the CFTC).

⁵⁶ *SEC v. Shavers*, No. 4:13-CV-416, 2013 BL 208180 (E.D. Tex. Aug. 6, 2013). *SEC v. Erik T. Voorhees*, SEC Administrative Proceeding File No. 3-15902 (June 3, 2014), available at <https://www.sec.gov/litigation/admin/2014/33-9592.pdf> (The Commission brought an administrative action in connection with the offering of unregistered securities of two bitcoin-related entities); *BTC Trading, Corp. and Ethan Burnside*, Securities Act Release No. 9685 (Dec. 8, 2014), available at <http://www.sec.gov/litigation/admin/2014/33-9685.pdf> (The Commission brought an administrative action in connection with the operation and offering of securities of two online exchanges, neither of which were registered with the Commission, that accepted payment in bitcoin and primarily listed virtual currency-related companies.); *SEC v. Sand Hill Exchange, et al.*, Securities Act Release No. 9809 (June 17, 2015), available at <https://www.sec.gov/litigation/admin/2015/33-9809.pdf> (The Commission took legal action against an online exchange that accepted payment in bitcoin in connection with disseminating fraudulent information, among other matters).

purposes unless otherwise specified.⁵⁷ This conclusion is limited to bitcoin. While bitcoin is likely to be a commodity, and unlikely to be a security, there are digital assets that have been, or may be, determined to be securities or other property types.⁵⁸

Identification Methods for Bitcoin Sales

Because bitcoin is likely to be treated as a commodity for federal income tax purposes, the identification conventions applicable to commodity positions are relevant. In *Perlin v. Commissioner*,⁵⁹ the Tax Court held that a taxpayer could specify commodity futures positions to close where the instructions were consistent with CFTC regulations. The CFTC regulations cited allowed FIFO if no specific identification was made by the taxpayer.⁶⁰ The court noted that the regulations permitting the identification of lots sold, in the case of stock, provided a useful analogy:

A useful analogy is provided in the Income Tax Regulations concerning the treatment of stock sales. Where an investor is selling stock from a portfolio held by his broker, he may identify the specific shares to be sold, or he may assume that the shares are disposed of on a FIFO basis. (citation omitted). . . . Though it appears that use of the special instructions created large tax losses, we know of no authority which suggests that a seller of property must sell property that would produce a gain prior to selling property that would produce a loss.⁶¹

⁵⁷ See, e.g., §6045(g)(3)(B)(iii), and n. 51.

⁵⁸ See U.S. Securities and Exchange Commission, Report of Investigation Pursuant to §21(a) of the Securities Exchange Act of 1934: The DAO, Securities Act Release No. 81207 (July 25, 2017), at 3. <https://www.sec.gov/litigation/investreport/34-81207.pdf>; Peter Van Valkenburgh, “Framework for Securities Regulation of Cryptocurrencies v1,” Coin Center Report, Jan 2016, available at <https://coincenter.org/2016/01/securities-framework/> (providing a thorough discussion of the application of the Howey test to cryptocurrencies); Jerry Brito, Houman Shadab, and Andrea Castillo, *Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets, and Gambling*, 144 Colum. Sci. & Tech. L. Rev. Vol. XVI (Apr. 2014); see also Winklevoss Bitcoin Trust, U.S. SEC. Form S-1 (Registration Statement); BZX Rule 14.11(e)(4)(C) (discussing classification of bitcoin).

⁵⁹ *Perlin*, 86 T.C. 388.

⁶⁰ 17 C.F.R. §1.46(b) (1980).

⁶¹ *Perlin*, 86 T.C. at 431.

Section 988 Regulations

Notice 2014-21 provides that bitcoin is treated as property for federal tax purposes,⁶² but “. . . is not treated as currency that could generate foreign currency gain or loss.”⁶³ Without actually saying so, this means §988 does not apply to bitcoin. Among other results, §988 provides that foreign currency gain or loss is generally treated as ordinary income or loss.⁶⁴

Section 988 does treat nonfunctional currency as property (other than money), and this was also the case prior to its enactment for federal income tax purposes.⁶⁵ As such, a taxpayer may establish a basis in nonfunctional currency, and realize gain or loss upon a sale or other disposition under §1001. Very generally, all §988 does is treat gain or loss as exchange gain or loss. Thus, while the notice effectively makes §988 inapplicable, the §988 basis determination regulations do include a limitation on basis determinations that should be considered as cautionary. The regulations provide:

The basis of nonfunctional currency withdrawn from an account with a bank or other financial institution shall be determined under any reasonable method that is consistently applied from year to year by the taxpayer to all accounts denominated in a nonfunctional currency. For example, a taxpayer may use a first in first out method, a last in first out method, a prorata method . . . , or any other reasonable method that is consistently applied. However, a method that consistently results in units of nonfunctional currency with the highest basis being *withdrawn* first shall not be considered reasonable.⁶⁶

While this would preclude using specific identification to treat units of nonfunctional currency having the highest basis as being withdrawn first, it is a specific rule applying only to the basis of nonfunctional currency withdrawn from a bank account.⁶⁷ Moreover, other than this exception, the adjusted basis of

⁶² Notice 2014-21, Q&A-1.

⁶³ Notice 2014-21, Q&A-2.

⁶⁴ §988(a)(1)(A). Certain *de minimis* personal gains in foreign currency are not recognized under §988(e)(2).

⁶⁵ See, e.g., *Gillin v. United States*, 423 F.2d 309, 311 (Ct. Cl. 1970) (“[foreign currency] is frequently treated, not as the medium of exchange, but as property or a commodity”).

⁶⁶ Reg. §1.988-2(a)(2)(iii)(B)(1) (emphasis added).

⁶⁷ See Mulrone, 921 T.M., *Tax Aspects of Foreign Currency*, at III.C.4.b.(1).

nonfunctional currency is determined under generally applicable Code provisions.⁶⁸

The notice only says that virtual currency “is not treated as currency that could generate foreign currency gain or loss.” It does not say it is a nonfunctional currency;⁶⁹ however, only nonfunctional currency transactions can generate foreign currency gain or loss under §988.⁷⁰ This means that the specific exception provided in the §988 regulations is unlikely to apply to bitcoin absent further Congressional action or administrative guidance. While nonfunctional currency held in a bank account is fungible, bitcoin is not. Bitcoin can be specifically identified like a physically held stock certificate.⁷¹ Thus, interpretative principles, as well as key differences in subject matter, lead to the conclusion that the specific regulatory exception provided in §988 is unlikely to apply to bitcoin.⁷²

The following discussion assumes that this conclusion is correct. Thus, the general rules for basis determination are considered for purposes of making an “adequate identification.” Furthermore, an adequate identification can be made in more than one way⁷³ — in other words, the safe harbors provided for stock sales in the regulations are not the only acceptable methods.

Overview of Adequate Identification of Stock Sold

In the case of stocks,⁷⁴ the regulations provide that, if a taxpayer does not make an “adequate identification,” then the stock that is treated as sold or transferred will be charged against the taxpayer’s earliest

transactions to determine basis and holding period.⁷⁵ This method is often referred to as FIFO.

The FIFO method is often thought to be the default method of identification in the case of stocks; however, that is not the case. As with any property, if the taxpayer, or the IRS, can show which of the taxpayer’s specific stock certificates were actually delivered, then that property constitutes the stock sold or transferred by the taxpayer unless the taxpayer can show he made a different adequate identification.⁷⁶

The courts and regulations do permit a taxpayer to engage in the fiction of identifying something as being sold without regard to that which was actually delivered; however, the taxpayer must be able to show he made an “adequate identification.”⁷⁷ A taxpayer who fails to do so will be treated as having sold the stock certificate actually delivered to the transferee “. . . whether or not the taxpayer intends, or instructs his broker or other agent, to sell or transfer stock from a lot purchased or acquired on a different date or for a different price.”⁷⁸ FIFO only applies if there has not been an adequate identification, and an adequate identification includes being able to show which property was actually delivered.⁷⁹

Bitcoin Dispositions

If bitcoin is transferred by a taxpayer who controls his private keys, then the taxpayer or IRS will be able to show which of the taxpayer’s bitcoin amounts were actually delivered. It becomes much more difficult — perhaps, practically impossible — to show which bitcoin amounts were transferred if the taxpayer does not control his private keys. This latter case often occurs if an agent, such as an exchange, holds bitcoin for the taxpayer; however, some exchanges do provide arrangements under which a taxpayer can segregate tax lots or control his private keys.⁸⁰

Unspent Transaction Outputs

The Bitcoin network stores only transaction data. It uses an append-only data structure, a blockchain, for this purpose. The only bitcoin that can be sent, consumed, or spent are referred to as unspent transaction

⁶⁸ Reg. §1.988-2(a)(2)(iii)(A).

⁶⁹ Notice 2014-21, Q&A-2 (“ . . . virtual currency is not treated as currency that could generate foreign currency gain or loss for U.S. federal tax purposes.”).

⁷⁰ See §988(c)(1)(A) (defining “§988 transaction” in terms of nonfunctional currency transactions); §988(b) (defining “foreign currency gain or loss” as arising from §988 transactions); Reg. §1.988-1(c) (defining “nonfunctional currency” as other than the taxpayer’s functional currency defined in §985); §985(b) (defining the term “functional currency” to mean the U.S. dollar except in the case of certain qualified business units).

⁷¹ See discussion below, “Bitcoin Dispositions” (discussing UTXOs).

⁷² See Joel Prentiss Bishop, *Commentaries on the Written Laws and Their Interpretation* §112a, at 106–07 (1882) (“[T]he general and specific in legal doctrine may mingle without antagonism, the specific being construed simply to impose restrictions and limitations on the general.”).

⁷³ *Hall*, 92 T.C. at 1036 (citing *Helvering v. Rankin*, 295 U.S. 123, 128–129 (1935)).

⁷⁴ See n. 38, above (these same rules generally apply to bonds).

⁷⁵ Reg. §1.1012-1(c)(1)(i).

⁷⁶ Reg. §1.1012-1(c)(2).

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ For example, exchanges may enable multisignature security arrangements that associate an address with more than one private key including one known only to the beneficial owner. See Bitcoin Wiki, Multisignature, at <https://en.bitcoin.it/wiki/Multisignature>.

outputs (UTXOs).⁸¹ The entire state of the system consists of the set of UTXOs. Each UTXO has an owner, and a value denominated in satoshis.⁸² A transaction spends one or more UTXOs and creates one or more new UTXOs. The Bitcoin blockchain does not contain a ledger or account balance for each user;⁸³ instead, an application — or, wallet — is used to aggregate all UTXOs for which the user was the recipient.⁸⁴ The application operates by scanning the blockchain, and, effectively, accumulates UTXOs having private keys controlled by that wallet.⁸⁵ A transfer of bitcoin references previous UTXOs as new transaction inputs.⁸⁶ These UTXOs are aggregated as new outputs for purposes of building a transaction.⁸⁷

Because each output can only ever be referenced once by an input of a subsequent transaction, the entire combined input value must be sent. This can easily be observed on the Bitcoin blockchain, and is demonstrated below with an actual transaction. Thus, for example, if aggregated UTXOs equal 301 BTC⁸⁸ but the sender only needs to send 300 BTC, two outputs are created: 300 BTC to the recipient address, and one back to the sender. The amount sent back is known as change, and, with the exception of a single input transaction having no transactions fees, cannot be identified with any particular input.⁸⁹ Any input

not redeemed by an output is considered a transaction fee, and whoever generates the block receives it.⁹⁰

Because transactions are not encrypted, it is quite easy for the taxpayer or the IRS to browse and view transactions using a blockchain browser.⁹¹ While the identity of the parties involved are not disclosed, the details of the transaction are public.⁹²

There are different approaches to managing private keys,⁹³ and the types and uses of wallet applications.⁹⁴ The private keys may be held directly by the owner, or, in the case of a hosted wallet, held by an agent such as an exchange or custodian. Private keys that are held by an agent may not be directly associated with a beneficial owner, and, in such a case, the transfer of bitcoin based upon any particular set of UTXOs would not be meaningful for purposes of making an adequate identification.⁹⁵ Moreover, a transfer of bitcoin off-exchange to the direct control of an owner should be made to separate addresses corresponding to the separate tax lots transferred off the exchange. This an easy step, and will avoid a loss of tax accounting identity which may be necessary for future tax planning.

Example of a Bitcoin Transaction

A sender's UTXOs are often less than the required amount, and must be aggregated to build the transaction; however, the sender may have a single UTXO that exceeds the required transaction amount. In any event, the inputs must equal or exceed the required outputs, and the sender will receive back any excess as change.⁹⁶ Thus, all of the transaction input values are aggregated, and the total (less any transaction fee)

⁸¹ See Antonopoulos, n. 3, above, at 2476–2555 (Kindle Edition).

⁸² See Bitcoin Developer Guide, Denominations, <https://bitcoin.org/en/glossary/denominations> (transactions are expressed in satoshis with one bitcoin equaling 100,000,000 satoshis).

⁸³ Compare Ethereum Design Rationale, <https://github.com/ethereum/wiki/wiki/Design-Rationale> (explaining that Ethereum does not use UTXOs; instead, it stores a list of accounts where each account has a balance, as well as Ethereum-specific data (code and internal storage), and a transaction is valid if the sending account has enough balance to pay for it, in which case the sending account is debited and the receiving account is credited with the value).

⁸⁴ See Bitcoin Developer Guide, Wallets, <https://bitcoin.org/en/developer-guide#wallets>.

⁸⁵ See Antonopoulos, n. 3, above, at 2495 (Kindle Edition).

⁸⁶ See Bitcoin Developer Guide, Coinbase/Generation Transaction, <https://bitcoin.org/en/glossary/coinbase-transaction> (for ease of illustration, coinbase transactions will not be further discussed).

⁸⁷ See Antonopoulos, n. 3, above, at 2495 (Kindle Edition).

⁸⁸ See n. 82, above. Transactions are expressed in satoshis with one bitcoin (BTC) equaling 100,000,000 satoshis.

⁸⁹ A reasonable allocation between and among UTXOs and the change is typically necessary, as is UTXO consolidation. One method would use relative fair market value at the date of disposition. This is equivalent to using relative UTXO inputs. See, e.g., §1286(b)(2). Such a method seems overly complex for change amounts which are *de minimis*, and simplified methods are needed.

⁹⁰ See Bitcoin Wiki, Transaction Fees, https://en.bitcoin.it/wiki/Transaction_fees.

⁹¹ See, e.g., btc.com (enter the transaction id from the example).

⁹² See generally Bitcoin Wiki, Transaction, <https://en.bitcoin.it/wiki/Transaction>; see also Mumblewimble (July 19, 2016) at <https://scalingbitcoin.org/papers/mumblewimble.txt> (describing a proposal to increase privacy, fungibility, and scalability of Bitcoin).

⁹³ See Bitcoin Developer Guide, <https://bitcoin.org/en/developer-guide#wallet-files> (private keys are used to send bitcoin — the person who knows or holds the private keys controls the associated bitcoin); Antonopoulos, n. 3, above, at 1305 (Kindle Edition).

⁹⁴ See Bitcoin Wiki, Securing Your Wallet, https://en.bitcoin.it/wiki/Securing_your_wallet.

⁹⁵ See Bitcoin Wiki, Multisignature, <https://en.bitcoin.it/wiki/Multisignature>. An agent may provide a multi-signature (multisig) feature for owners. Multisig refers to requiring more than one key to authorize a bitcoin transaction. This allows the owner to control some or all of his private keys.

⁹⁶ See Bitcoin Developer Guide, Transactions, <https://bitcoin.org/en/developer-guide#transactions>.

is completely consumed by the outputs of the transaction.⁹⁷

In this example, there are seven inputs to a transaction equaling 300.01854520 BTC. The output is sent to two different addresses, and a fee of 0.00852381

BTC is subtracted. The recipient will later reference the output of this transaction as an input for a send transaction.⁹⁸

⁹⁷ *Id.*

⁹⁸ See Bitcoin Wiki, Transaction, <https://en.bitcoin.it/wiki/Transaction>.

Home / Block - 477829 / Transaction 85779a65cdb2220dd37cb61adf0ebecdd66badee1af4de1d1f18a2761e648a0			
Summary			
Height	477829	Input	300.01854520 BTC
Confirmations	25	Output	300.01002139 BTC
Timestamp	2017-07-27 12:50:55	Sigops	8
Size (rawtx)	1,110 Bytes	Fees	0.00852381 BTC
Virtual Size	1,110 Bytes	Fees Rate (BTC / KB)	0.00767911 BTC
Weight	4,440 Bytes		
Input (7)	300.01854520 BTC	Output (2)	300.01002139 BTC
1LX4qsVsGMF2ZFhurtyZS7coqVHVB75cPh	1.98330000	14Fd117P3HPkwn4BwwiDKLp8YseC5fR4v	0.01002139
1LX4qsVsGMF2ZFhurtyZS7coqVHVB75cPh	90.73370000	1MNvnd1V6wNjkoxdM255ixVtBPYGjB8Fkc	300.00000000
1LX4qsVsGMF2ZFhurtyZS7coqVHVB75cPh	79.45920000		
1LX4qsVsGMF2ZFhurtyZS7coqVHVB75cPh	49.18000000		
1LX4qsVsGMF2ZFhurtyZS7coqVHVB75cPh	11.76360000		
12hTqvbcfbML3E8AEvxywt3JjvEsh3CtE	0.01004520		
1LX4qsVsGMF2ZFhurtyZS7coqVHVB75cPh	66.88870000		

Here, the input equaled 300.01854520 BTC. Assume for this example that only 300 BTC needed to be sent. In that case, the wallet creates two outputs: one of 300 BTC is sent to the recipient, and one for the remainder, less transaction fees, is sent back to the sender. The seven inputs in this example are the property delivered.⁹⁹ Unless the taxpayer has made another adequate identification, he is required to treat the inputs actually transferred as the property delivered.¹⁰⁰

CONCLUSION

Bitcoin is likely a commodity for federal income tax purposes. Because bitcoin is likely to be treated as a commodity, the identification conventions applicable to commodity positions generally apply. Counterintuitively, bitcoin transactions are as unique as

physical stock certificates, which means the default identification rule of the §1012 regulations is likely to be actual delivery; however, this will often not apply to an owner who uses a hosted wallet, and does not control his private keys.

As a result, bitcoin dispositions and transfers often require unique tax accounting considerations. For example, a disposition may require a reasonable allocation of change between and among UTXOs; and a transfer of bitcoin off-exchange to the direct control of the owner should be made to separate addresses corresponding to the separate tax lots transferred. This use of corresponding addresses avoids a loss of tax accounting identity in future tax planning.

Taxpayers are well-advised to have in place standing instructions that reflect their intended tax outcomes, and the manner in which they hold and transact bitcoin. These standing instructions may be overridden by a different instruction prior to or at the time of the trade; however, in all cases, sufficient evidence of an adequate identification is necessary to avoid unintended outcomes.

⁹⁹ See Reg. §1.1012-1(c)(2) (providing that there is an adequate identification if it can be shown which stock certificates were actually delivered). See generally n. 89, above (reasonable allocation of change for each UTXO).

¹⁰⁰ *Id.*