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### A Tax on the Clones: The Strange Case of Bitcoin Cash

Eric D. Chason

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# A TAX ON THE CLONES: THE STRANGE CASE OF BITCOIN CASH

*Eric D. Chason\**

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## I. INTRODUCTION

The 2017 were remarkable times for Bitcoin and other cryptocurrencies. In January 2017, the market price for one unit of Bitcoin (1 BTC)<sup>1</sup> was approximately \$1,000; by December 2017, it had climbed to almost \$20,000.<sup>2</sup> Despite the collapse of this speculative bubble, Bitcoin remains an important development in economics, finance, technology, and law.

Also in 2017, Bitcoin produced an offshoot cryptocurrency, Bitcoin Cash. Bitcoin Cash arose because members of the Bitcoin community disagreed on how Bitcoin should change in response to its growing popularity and allow for a greater number of transactions.<sup>3</sup> Bitcoin and other cryptocurrencies are governed by “communities” and “consensus.”<sup>4</sup> Community members who wanted deeper, more structural, changes effectively departed the Bitcoin community and created a new one, Bitcoin Cash.

The dissidents did not create Bitcoin Cash from scratch. Instead, they cloned Bitcoin as it existed on August 1, 2017 and grafted their desired changes onto the cloned system.<sup>5</sup> Since Bitcoin is not backed by any external assets or business enterprise,<sup>6</sup> the dissidents could create Bitcoin Cash seemingly out of thin air, writing some computer code and garnering support of users. There was no severance, spin off, or other division of the Bitcoin system in a formal or legal sense. Since its creation, Bitcoin Cash has become a successful cryptocurrency, currently ranking sixth in terms of market

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<sup>1</sup> “Bitcoin” can mean the entire system or the units of cryptocurrency. To distinguish the two, this article generally uses “BTC” to refer to units of Bitcoin and designates them by numeral. Writing “1 BTC” is similar to writing \$1 or 1 USD. The article extensively discusses the creation of Bitcoin Cash, which is abbreviated “BCH” in a similar style. See generally *List of Cryptocurrencies*, WIKIPEDIA, [https://en.wikipedia.org/wiki/List\\_of\\_cryptocurrencies](https://en.wikipedia.org/wiki/List_of_cryptocurrencies) (listing cryptocurrency abbreviations) (last visited Feb. 19, 2019).

<sup>2</sup> See Noah Smith, *Yep, Bitcoin Was a Bubble. And It Popped*, BLOOMBERG (Dec. 11, 2018), <https://www.bloomberg.com/opinion/articles/2018-12-11/yep-bitcoin-was-a-bubble-and-it-popped>.

<sup>3</sup> See *infra* Part III.C.

<sup>4</sup> See Eric D. Chason, *How Bitcoin Functions as Property Law*, 49 SETON HALL L. REV. 129, 135 (2019) (“Rather than using laws and institutions to coordinate and regulate his new form of property, [Bitcoin’s creator] relied on technology and incentive engineering to bring a community (Bitcoin users) into consensus about ownership.”).

<sup>5</sup> See *infra* Part III.C.

<sup>6</sup> See *infra* Part III.B.

capitalization.<sup>7</sup> The original Bitcoin system remains in first place by a wide margin.<sup>8</sup>

Because Bitcoin Cash cloned the Bitcoin system, it produced a windfall for Bitcoin owners. Everyone who owned units of Bitcoin on August 1, 2017 became the owner of an equal number of units Bitcoin Cash.<sup>9</sup> The Bitcoin owners did not have to do anything to receive this windfall. Their Bitcoin “private keys” (akin to passwords)<sup>10</sup> would allow them to transfer and control an equal amount of Bitcoin Cash whenever they chose to do so.<sup>11</sup>

And thus, a serious income tax problem was born. Did Bitcoin owners have gross income because of the Bitcoin Cash windfall? To date, the Internal Revenue Service (“I.R.S.”) has not addressed the issue.<sup>12</sup> Turning to underlying doctrine, we know that gross income means “undeniable accessions to wealth, clearly realized, and over which the taxpayers have complete dominion.”<sup>13</sup> Bitcoin Cash has obvious value and was worth around \$145 per BTC in late February 2019. Because of this value, Bitcoin owners had an “undeniable accession to wealth” when they received the Bitcoin Cash windfall.

Notwithstanding this accession to wealth, the new Bitcoin Cash owners may not have had gross income. When Bitcoin Cash was created on August 1, 2017, its new owners possibly did not have a “clearly realized” accession to wealth, and they may also not have had “complete dominion” over it.<sup>14</sup> Part of the reason for this issue is that Bitcoin owners received Bitcoin Cash whether they asked for it or not, and there was no formal mechanism to notify them of their new wealth. It was as if, without telling you, someone put property inside a storage unit that you could open with your house key.

Despite its name, Bitcoin Cash is not cash, and some scholars have contended that non-cash windfalls are simply not gross income unless expressly included by the Internal Code Revenue.<sup>15</sup> Prizes, such as cars won on game shows, are expressly taxed.<sup>16</sup> Other windfalls, like record-setting baseballs caught by fans, might not be.<sup>17</sup> Even if the I.R.S. could assert immediate taxation of Bitcoin Cash upon its creation, perhaps it should not. On August 1, 2017, Bitcoin Cash traded on very thin markets and had speculative value. Moreover, Bitcoin Cash is not the only crypto clone.

<sup>7</sup> See *infra* note 182 and accompanying text.

<sup>8</sup> See *Top 100 Cryptocurrencies by Market Capitalization*, COINMARKETCAP, <https://coinmarketcap.com> (last visited Mar. 8, 2019).

<sup>9</sup> On March 8, 2019, the market capitalization for Bitcoin was more than \$69 billion. Ethereum was in second place, having a market capitalization of under \$15 billion. See *id.*

<sup>10</sup> See generally *infra* Part II.C (discussing private keys).

<sup>11</sup> See *infra* note 31 and accompanying text.

<sup>12</sup> See *infra* Part IV.C.

<sup>13</sup> *Commissioner v. Glenshaw Glass*, 348 U.S. 426, 431 (1955).

<sup>14</sup> See *infra* note 189 and accompanying text.

<sup>15</sup> See Lawrence A. Zelenak & Martin McMahon, Jr., *Taxing Baseballs and Other Found Property*, 84 TAX NOTES 1299 (Aug. 30, 1999).

<sup>16</sup> See I.R.C. § 74(a).

<sup>17</sup> See Zelenak & McMahon, *supra* note 15, at 1308; but cf. Treas. Reg. § 1.61-14(a) (expressly including “treasure trove” in gross income).

According to one count, there are more than seventy new cryptocurrencies based on Bitcoin.<sup>18</sup> Most of these are worthless, but requiring Bitcoin owners to value each of them would pose enormous administrative difficulties.<sup>19</sup>

For these reasons, Bitcoin Cash, and other crypto clones, should not be taxed as income immediately upon their creation. Rather, they should be taxed—as ordinary income—when the owners sell, exchange, or otherwise dispose of their Bitcoin Cash. Such actions unambiguously exert “complete dominion,” which is necessary and sufficient to trigger the taxation. In short, the creation of Bitcoin Cash should be taxed as an “open transaction” that has no tax consequences until the owner exerts control over the newly created Bitcoin Cash.<sup>20</sup>

The tax issues surrounding Bitcoin Cash and other crypto clones cannot be fully resolved or understood without understanding the underlying technology. Part II of this Article introduces the reader to cryptocurrencies, focusing on the elements essential to understanding Bitcoin Cash and the tax issues surrounding it. Part III discusses the “scalability” problem facing Bitcoin and why it led to the creation of a new cryptocurrency, Bitcoin Cash. Part IV addresses the current state of I.R.S. cryptocurrency guidance. Part V introduces the taxation of cryptocurrencies, observing that the creation of Bitcoin Cash presents an unresolved issue. Part VI discusses the general tax rules on the taxability of windfalls and, in particular, property windfalls. Part VII describes various approaches to taxing the creation of Bitcoin Cash, settling upon the open-transaction treatment described in the prior paragraph. Part VIII offers some concluding thoughts.

## II. CRYPTOCURRENCIES AND BLOCKCHAINS

### A. Introduction

In a prior Article, I proposed the following definition of Bitcoin:

The Bitcoin system creates a notional unit of transfer called “Bitcoin,” which may be further fractionated.... Owners may transfer units (in whole or in part) by following a protocol established by the Bitcoin system. Ownership of the units is established by a set of records called the “blockchain.” The blockchain serves to record—and link—all transactions going back to the initial creation of Bitcoin in early 2009. Bitcoin has no central authority or super-user with enhanced authority. It is administered by all users, collectively, and the consensus of all users determines ownership of Bitcoin (and settles any disputes about ownership).<sup>21</sup>

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<sup>18</sup> See *infra* note 184 and accompanying text.

<sup>19</sup> See *id.*

<sup>20</sup> See *infra* Part VI.D.

<sup>21</sup> Chason, *supra* note 4, at 139.

This Part introduces cryptocurrencies by expanding upon this definition. Ultimately, the goal is to understand the tax issues surrounding the August 2017 creation of Bitcoin Cash and similar cryptocurrencies.

Bitcoin, the first successful cryptocurrency and progenitor of Bitcoin Cash, is the focus of this Part. Note that “Bitcoin” can refer to either the Bitcoin system or to units of transfer. Similarly, writers might use “the dollar” to speak of the U.S. currency system or to identify one unit of that currency.

### B. Notional Property

Bitcoin (like most cryptocurrencies) is purely “notional” property, meaning it exists only as a matter of recordkeeping. Owners have the right to transfer their interests, but otherwise have no rights to “enjoy” Bitcoin. Owners cannot occupy or use Bitcoin like they can occupy or use real property. Bitcoin may appreciate in value, giving owners a market-based gain. However, Bitcoin is not backed by any other property, and it does not offer any dividends, interest, rents, or royalties.<sup>22</sup>

Despite these differences, Bitcoin and real property share many fundamental traits surrounding their transfer. Owners of real property transfer their interests using written deeds, which describe the property being transferred. The deed will identify the grantor, describe how she obtained the property, and identify the grantee. The grantor must sign the deed and usually have it notarized.<sup>23</sup>

Bitcoin units are transferred using computer files that look and function like deeds to real property. The computer files name the transferor and the transferee,<sup>24</sup> and they describe the interest being transferred (i.e., the quantity of Bitcoin).<sup>25</sup> Like real property deeds, Bitcoin “deeds” state how the transferor acquired the interest. And, they contain a (digital) signature executed by the transferor.<sup>26</sup>

### C. Private Keys

“Private keys” are at the heart of the Bitcoin-transfer system. For users, private keys function like passwords. A user can transfer her Bitcoin only if she knows her private key, and a thief can steal Bitcoin by accessing the

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<sup>22</sup> See *id.* at 138.

<sup>23</sup> See generally 23 AM. JUR. 2d. *Deeds* §§ 1 & 12 (2018) (describing elements of deeds).

<sup>24</sup> Bitcoin does not, however, use legal (human) names. Instead, Bitcoin users identify themselves with alphanumeric “Bitcoin addresses.” See Chason, *supra* note 4, at 142.

<sup>25</sup> Owners can transfer very small fractions of a single Bitcoin unit. The smallest fraction is one hundred millionth of a single Bitcoin (or  $10^{-8}$ ). See ANDREAS M. ANTONOPOULOS, *MASTERING BITCOIN: PROGRAMMING THE OPEN BLOCKCHAIN* 18 (2d ed. 2017) (“The bitcoin network can transact in fractional values, e.g., from millibitcoin (1/1000th of a bitcoin) down to 1/100,000,000th of a bitcoin, which is known as a satoshi.”).

<sup>26</sup> See Chason, *supra* note 4, at 147–49.

owner's private key.<sup>27</sup> More precisely put, the private key is needed to create a digital signature, which is needed to transfer Bitcoin.<sup>28</sup>

Differences exist, however, between private keys and traditional passwords. No central authority exists that can reset a lost private key. Users who lose their private keys also lose their Bitcoin. Private keys are also much longer and typically hidden from the user; specialized "wallet" software or hardware stores the private keys. Prudent users generate their private keys with specialized random number generators.<sup>29</sup>

Private keys also determine a user's "Bitcoin address," which functions like a username. Bitcoin addresses are completely public and can be observed on the Bitcoin blockchain. As a result, Bitcoin is not truly anonymous; all transactions are completely public and are attributed to addresses.<sup>30</sup>

As described later, these details about Bitcoin private keys are important to Bitcoin Cash and the tax issues surrounding it. When members of the Bitcoin community created Bitcoin Cash in August 2017, every owner of Bitcoin became an owner of an equal number of Bitcoin Cash units. The creators essentially cloned the Bitcoin blockchain and grafted new features onto the clone. As a result of this process, owners of Bitcoin could use their Bitcoin private keys to control the new units of Bitcoin Cash.<sup>31</sup>

#### D. Consensus and Transfers

To arrive at consensus about ownership, the Bitcoin community needs consensus about how owners can transfer their interests. A software package, known as "Bitcoin Core," implements the consensus protocol for transferring interests.<sup>32</sup> This consensus protocol is comparable to the law governing real-property deeds, requiring that the deed be signed, in writing, etc.<sup>33</sup>

Suppose that Alice transfers 1 BTC to Bob. Alice would need to create a digital file that names herself as transferor and names Bob as transferee. The file would not actually use their legal names, but would instead use alphanumeric "addresses" controlled by Alice and Bob.<sup>34</sup> The file would also

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<sup>27</sup> See *id.* at 145.

<sup>28</sup> *Id.* at 148.

<sup>29</sup> See *id.* at 142–43.

<sup>30</sup> See *id.* at 140 n.44.

<sup>31</sup> See Aaron van Wirdum, *A Beginner's Guide to Claiming Your "Bitcoin Cash" (and Selling It)*, BITCOIN MAGAZINE, <https://bitcoinmagazine.com/articles/beginners-guide-claiming-your-bitcoin-cash-and-selling-it/>, (Aug. 1, 2017) ("Anyone who held bitcoin at 12:20 p.m. UTC should have an equivalent amount of BCH attributed to their Bitcoin private keys.").

<sup>32</sup> See Jean Bacon et. al., *Blockchain Demystified: A Technical and Legal Introduction to Distributed and Centralised Ledgers*, 25 RICH. J.L. & TECH. 1, 139 (2018) ("At the macro-level, the platform's purpose is to facilitate a peer-to-peer system of electronic cash. The means consist of the Bitcoin core software and the hardware provided by nodes and miners."); Huang-Chih Sung, *When Open Source Software Encounters Patents: Blockchain As an Example to Explore the Dilemma and Solutions*, 18 J. MARSHALL REV. INTELL. PROP. L. 55, 60 (2018) ("'Bitcoin Core' is free software driven by the Bitcoin community").

<sup>33</sup> See Chason, *supra* note 4, *passim*.

<sup>34</sup> See *supra* note 24.

contain a digital signature prepared by Alice, demonstrating her control of the 1 BTC and her assent to the transfer.<sup>35</sup>

The digital file would also demonstrate how Alice came to own the 1 BTC that she is transferring to Bob. New units of Bitcoin are continuously created through “mining,” discussed in more detail later.<sup>36</sup> So, Alice could demonstrate her ownership by showing that she successfully mined the 1 BTC in the past. Alternatively, Alice could demonstrate that a bona fide owner of 1 BTC previously transferred it to her. Ultimately, Alice (and any other transferor) would need to establish current ownership by chain of title to previously mined Bitcoin.<sup>37</sup>

To transfer the 1 BTC from Alice to Bob, the digital file would include the elements described above (along with other data that are not worth mentioning in our context). Recall that Alice must prepare the file according to the consensus protocol (e.g., the Bitcoin Core software). Alice will not, however, prepare the file by hand. She will almost certainly have specialized software installed on her computer or device that does the technical work for her.<sup>38</sup> Once the file is complete, she can transmit it to Bob.

Bob can then use his own software to verify the transfer file that Alice just sent him. Bob could check many of the details without needing any external facts. For example, Bob can confirm Alice’s digital signature simply by running his own software. One tricky detail, however, is that Bob needs to confirm that Alice actually owns the 1 BTC. There might be multiple digital files that make up the chain of title, showing that Alice can link her ownership either directly or indirectly to previously mined Bitcoin. Alice herself, though, would have required a similar chain of title when she received the 1 BTC. The computer files transferring Bitcoin are not particularly large,<sup>39</sup> and Alice could simply transmit the entire chain of title to Bob.

So far, we have seen a simple system for transferring property via computer files. Provided that the community agrees on a particular protocol for the computer files, the parties do not seem to need any central coordination. To transfer 1 BTC to Bob, Alice prepares a file that effectuates the transfer (similar to a deed). She sends that file to Bob, along with a history of all transfer files in Alice’s chain of title. As described in the next Section, however, Bob faces a problem.

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<sup>35</sup> See *supra* note 28 and accompanying text.

<sup>36</sup> See *infra* Part II.F.

<sup>37</sup> When Satoshi Nakamoto created Bitcoin in early 2009, he started with an initial “genesis block” of 50 BTC. See Sumit Agarwal, *Bitcoin Transactions: A Bit of Financial Privacy*, 35 CARDOZO ARTS & ENT. L.J. 153, 160 (2016); Chason, *supra* note 4, at 131.

<sup>38</sup> See Reuben Grinberg, *Bitcoin: An Innovative Alternative Digital Currency*, 4 HASTINGS SCI. & TECH. L.J. 159, 163 (2012).

<sup>39</sup> The median Bitcoin transfer file is about 226 bytes. See ANTONOPOULOS, *supra* note 25, at 128. Modern email systems can easily transfer data of over one million bytes (a megabyte).



*E. The Double Spend Problem*

To recap our prior example, Alice owned a single Bitcoin (1 BTC) that she legitimately acquired. She transferred this 1 BTC to Bob, and Bob can now establish that he now owns 1 BTC. So far, so good. There is, however, a difficult problem: preventing Alice from transferring the same 1 BTC two (or more) times.<sup>40</sup>

For example, suppose that, after transferring the 1 BTC to Bob, Alice purports to transfer the same 1 BTC to Charlie. Now, Charlie also has a transfer file, digitally signed by Alice, that purports to give Charlie 1 BTC. Alice would supplement this transfer file with the same “chain of title” that she supplied previously to Bob. That chain of title is a set of transfer files simply showing how Alice came to acquire the 1 BTC. Alice does not, however, include the file transferring 1 BTC to Bob. As far as Charlie can tell, Alice still owns the 1 BTC.

If Alice tried to transfer the same real property (e.g., Blackacre) to Bob and Charlie, we would expect a courtroom fight. Bob and Charlie both want to occupy and use Blackacre and to exclude the other.<sup>41</sup> Alice’s attempted “double spend” of the 1 BTC is more complicated. Bitcoin is notional property, and the 1 BTC exists solely as a recordkeeping entry. Charlie seemingly has no way of knowing about Bob’s ownership. If Charlie could himself transfer the 1 BTC to another party (Dara), then Charlie seems to own 1 BTC, as does Bob. Charlie’s ownership of the 1 BTC does not impair Bob’s, so long as third parties recognize both as owners of 1 BTC.

Rather than causing a legal dispute between Bob and Charlie, Alice has effectively increased the number of outstanding Bitcoin units in the entire system. Alice might transfer the same 1 BTC dozen, hundreds, thousands, etc. times over. If Alice had such power over real property, we should have cause to rejoice. Real property has inherent value as a place to farm, live, and work. Society would be better off if Alice could magically increase the supply of a natural resource.<sup>42</sup> Bitcoin is notional property, however, and has no inherent value. Alice’s double spend of the 1 BTC is essentially the act of a counterfeiter who has copied paper currency. Alice could conceivably destroy the Bitcoin system if she could counterfeit units of Bitcoin at will. Bitcoin has value only because it is scarce, and the system places an upper limit on the amount of Bitcoin that can circulate.<sup>43</sup>

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<sup>40</sup> Cf. Misha Tsukerman, *The Block Is Hot: A Survey of the State of Bitcoin Regulation and Suggestions for the Future*, 30 BERKELEY TECH. L.J. 1127, 1128 (2015) (“Virtual currencies such as Bitcoin were not viable in the past because of the “double-spending” problem, where an owner of a digital currency file could easily make an exact copy of that file and send it to more than one person.”).

<sup>41</sup> Cf. Robin Paul Malloy & James Charles Smith, *Real Estate Transactions: Problems, Cases, & Materials* 266–68 (5th ed. 2017) (describing race, race-notice).

<sup>42</sup> Cf. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1099 n.22 (1972) (referring to the “problem of allocation of scarce resources”).

<sup>43</sup> See *Bitcoin Block Reward Halving Countdown*, <https://www.bitcoinblockhalf.com> (last visited Mar. 8, 2019).

To restate the problem, Alice's transfer file to Bob does not put Charlie and other Bitcoin users on notice that Bob (not Alice) now owns the 1 BTC. The law of real estate transfers relies on central authority—the public records office—to assure Bob of his title.<sup>44</sup> If Alice transfers Blackacre to Bob, then Bob simply records the deed in the public records office. Before contracting with Alice to buy Blackacre, Charlie would need to search the public records for any prior deeds made by Alice (or anyone else in the chain of title). Central recordkeeping is the “obvious” way to solve the problem of competing deeds and of Bitcoin double spends.

#### F. Blockchain and Mining

When creating Bitcoin, however, Satoshi Nakamoto expressly wanted to avoid centralized authority. A centralized authority would necessarily have special privileges not available to all users of Bitcoin, and these special privileges could be subject to abuse or neglect.<sup>45</sup> Satoshi Nakamoto's solution was to bring users into *consensus* about Bitcoin ownership. If the Bitcoin community recognizes Bob as the rightful owner of the 1 BTC previously owned by Alice, then the community does not need a central authority to maintain records and mediate disputes; Bob would be the owner because other Bitcoin users recognize him as the owner. Moreover, the community of users would simply disregard any attempt by Alice to double spend her 1 BTC.<sup>46</sup>

Satoshi Nakamoto's first step was to make the community of Bitcoin users responsible for maintaining a collection of all Bitcoin transfers. Consider the incentives of Bob and Charlie under this paradigm. When Alice transferred 1 BTC to Bob, she delivered to him a computer file (similar to a deed). Bob will want to add this file to the community-maintained collection of all transfer files. So, he will publicize the file and share it with as many other users as possible. As for Charlie, he will want to check this community-maintained collection of all transfer files when transacting with Alice; once he sees that Alice already transferred the 1 BTC to Bob, he should refuse to accept it as payment.

Readers coming from a purely legal background may be surprised at the extent to which Bitcoin bypasses centralized control.<sup>47</sup> A community-maintained collection of Bitcoin-transfer files serves the same function as a

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<sup>44</sup> Cf. *supra* note 41 (referring to race, race-notice, and notice statutes dealing with real estate transactions).

<sup>45</sup> See Chason, *supra* note 4, at 140.

<sup>46</sup> Mechanically, Bitcoin users maintain a database of unspent transaction outputs or UTXO. When Alice transfers 1 BTC to Bob, Alice would no longer have UTXO (because her 1 BTC is no longer “unspent”). Bob would, however, have UTXO of 1 BTC. See generally Bacon et al., *supra* note 32, at 34 & n.82 (describing the UTXO mechanism).

<sup>47</sup> See Scott D. Hughes, *Cryptocurrency Regulations and Enforcement in the U.S.*, 45 W. ST. L. REV. 1, 3 (2017) (“[C]ryptocurrencies have a decentralized structure that is not confined to one legal jurisdiction. While legislators can make consumers and businesses within a specific geographic location subject to regulation, a decentralized blockchain is difficult to regulate.”).

public records office. Users (like Charlie) can check this collection before accepting units of Bitcoin as payment for goods or services. Moreover, software and computerized protocols function like clerks, examining transfer files to make sure that they are formally valid.

However, there are still problems with this system. The Bitcoin community is not a hivemind, and different members might maintain different collections of prior Bitcoin-transfer files. These differences could become important if Alice tries to “double spend” the 1 BTC by making the transfers in quick succession. She might transfer the 1 BTC to Bob first and then, 30 minutes later, attempt to transfer the same 1 BTC to Charlie. Charlie might try to check with various sources to see if Alice previously transferred the 1 BTC. Yet, given how recently the Alice-to-Bob transfer occurred, those sources might not yet reflect the transfer. Or, perhaps some sources contain the Alice-to-Bob transfer and some do not.

Without a central institution maintaining a set of records, we have no obvious way to order transactions.<sup>48</sup> In the prior example, I said that Alice transferred to Bob first and to Charlie second. But, perhaps this fact is not known. Or, more realistically, there may be no automated way to know which one came first. Some members of the Bitcoin community might believe the “Bob transfer” came first, whereas some might believe that the “Charlie transfer” came first. Without a central institution, there is no official timekeeper who can timestamp and determine the order of Bitcoin transfers.

Satoshi Nakamoto recognized this problem<sup>49</sup> and solved it with the related innovations of “blockchain” and “Bitcoin mining.” We will consider mining first. Ultimately, Satoshi Nakamoto concluded that *some* party needs to have the power to timestamp transactions and determine their chronological order. Rather than assigning that power to a central institution, however, he created a competitive system that allocates that power to different interested parties. Parties periodically compete based on who can solve an arbitrary mathematical puzzle in the fastest time; success depends solely upon luck and computational resources. Roughly every ten minutes, the contest produces a new winner.<sup>50</sup>

The contest winner will identify recent Bitcoin transfers, check them for validity, and assemble the valid transfers into a new “block.” The block is itself a computer file, essentially a collection of the files effectuating recent Bitcoin transfers. To encourage participation in the mining process, the block also contains a special transaction that gives the winning miner a reward, currently set at 12.5 BTC.<sup>51</sup> All Bitcoin units originate from past mining rewards.

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<sup>48</sup> Cf. *supra* note 41 and accompanying text (describing how real estate transactions rely on centralized recordkeeping).

<sup>49</sup> See Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* 2, <https://bitcoin.org/bitcoin.pdf> (last visited Mar. 8, 2019) (describing the time-stamp function of the Bitcoin system).

<sup>50</sup> See *id.* at 4.

<sup>51</sup> The original mining prize was 50 BTC. Periodically, the prize is cut in half. In May 2020, the prize will halve again. See *Bitcoin Block Reward Halving Countdown*, BITCOIN BLOCK HALF <https://www.bitcoinblockhalf.com> (last visited Mar. 8, 2019) (“Reward-Drop

Blocks are linked into a blockchain together using “cryptographic hash functions” that act like digital fingerprints. To be more precise, every block contains the cryptographic hash of the immediately preceding block. So, for example, block #500,001 contains a cryptographic hash of block #500,000. This cryptographic hash links block #500,001 and #500,000 and protects the blockchain from attempts at tampering with the blockchain’s contents. Moreover, by linking blocks together, the cryptographic hash function put the blocks in their correct order. And, with the blocks placed in correct order, transactions are in their correct order as well.<sup>52</sup>

Let us now return to the Alice-Bob transfer. As before, Alice executes a digital transfer file, similar to a deed, that purports to give 1 BTC to Bob. Bob receives this file and shares it with other Bitcoin users. Wanting his transfer to appear on the blockchain, Bob has every reason to share news of it with other users. As the Alice-Bob transfer file spreads throughout the Bitcoin network, prospective miners will learn about the Alice-Bob transfer and include it in blocks they are attempting to create. At some point in the near future, the Alice-Bob transfer should appear in a block created by a winning miner. Then, the Alice-Bob transfer becomes part of the Bitcoin blockchain, preventing Alice from spending it again (e.g., with a transfer to Bob).

### *G. Role of the “Longest” Blockchain*

Suppose that Alice received the 1 BTC in February 2016, and the transfer to Alice was recorded on block #400,000. Bob (and anyone else) can inspect the blockchain to see that she received the transaction.<sup>53</sup> Alice transferred the 1 BTC to Bob in December 2017, and this transfer was recorded on block #500,000. If Alice now tries to transfer the same 1 BTC to Charlie, she should fail. Charlie can inspect the blockchain to see that, while Alice owned the 1 BTC in February 2016, she later transferred it to Bob.

Alice and Charlie cannot do anything to tamper with the prior transfer to Bob. The blockchain is maintained by a wide variety of users and efforts to tamper with the set of records are obvious. That being said, there is no “official” blockchain. There is only a “consensus” blockchain, which is recognized by members of the Bitcoin community. Bob (not Alice or Charlie) owns the 1 BTC because the consensus blockchain says he owns it.

The consensus blockchain is, generally speaking, the longest one.<sup>54</sup> Suppose that Charlie (after receiving the 1 BTC double spend from Alice) tries to create an alternative blockchain. Since the Alice-Bob transfer appears

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ETA date: 24 May 2020 18:14:14 . . . [T]he coin reward will decrease from 12.5 to 6.25 coins.”).

<sup>52</sup> See ARVIND NARAYANAN ET AL., *BITCOIN AND CRYPTOCURRENCY TECHNOLOGIES* 30 (2016) (describing how Bitcoin places transactions in their correct order).

<sup>53</sup> See, e.g., *BITCOIN BLOCK EXPLORER*, <https://blockexplorer.com> (last visited Mar. 9, 2019).

<sup>54</sup> See Scott J. Shackelford & Steve Myers, *Block-by-Block: Leveraging the Power of Blockchain Technology to Build Trust and Promote Cyber Peace*, 19 *YALE J. L. & TECH.* 334, 348 n.65, 388 (2017) (“[T]he [Bitcoin] community will only accept the longest [block]chain.”)

on block #500,000, Charlie simply ignores that block (and all later blocks). He creates an alternative block (call it #500,000a) that recognizes Charlie, not Bob, as the owner of the 1 BTC. In effect, Charlie goes back to December 2017 and begins rewriting the blockchain. In order to rewrite block #500,000, however, Charlie must also “remine.” He needs to resolve the mathematical puzzle imposed by the Bitcoin system. Suppose Charlie does that, and he produces new block #500,000a.

The Bitcoin community would reject Charlie’s alternative block. In mid-February 2019, the consensus blockchain was more than 560,000 blocks long.<sup>55</sup> Charlie has produced a blockchain, but it is too short at only 500,000 blocks long (including his newly produced block #500,000a). The consensus blockchain wins because it is longer and includes more transactions than the one produced by Charlie. Charlie’s efforts are futile if no one else recognizes them.

#### H. Unintentional Forks

This model of recognizing the longest blockchain works well so long as there is a single longest blockchain.<sup>56</sup> Suppose the community recognizes one blockchain as the longest. By successfully mining a new block of transactions, a miner extends this longest blockchain to an even longer one. The members of the community will recognize this newly extended blockchain as the longest, and miners will shift their attention to extending it.

Since the Bitcoin community communicates over the internet, news of new blocks travels quickly. However, sometimes miners will complete blocks in close succession, and the community will not readily know which block to recognize.<sup>57</sup> Suppose the blockchain is currently 560,000 blocks long (its state in early 2019). Miner X and miner Y both complete block 560,001 within quick succession. In this scenario, members of the community do not know who came first. Should they recognize X’s block (560,001x)? or Y’s block (560,001y)?

Observers would describe the blockchain as having “forked” since there are two plausible blockchains (the difference being the last block).<sup>58</sup> While the fork may seem unsettling to the consensus model, similar forks have arisen with some regularity. In the past they have been resolved very rapidly, almost always within one block.<sup>59</sup> A successful miner will build upon one of

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<sup>55</sup> Block #560,000 was mined on January 24, 2019. *See Block #560000*, BITCOIN BLOCK EXPLORER <https://blockexplorer.com/block/> (last visited Feb. 19, 2019).

<sup>56</sup> *See supra* note 54 and accompanying text.

<sup>57</sup> *See Shackelford & Myers, supra* note 54, at 348 n.65, 388 (“[B]ecause of communication delays and other problems it is possible for there to be several competing chains that simultaneously are essentially the same length. Eventually, through random processes, one will become substantially larger than the other, and the community will coalesce around this chain.”).

<sup>58</sup> *See id.*

<sup>59</sup> *See ANTONOPOULOS, supra* note 25, at 244 (“Forks are almost always resolved within one block.”).

the two candidates (560,001x or y) when creating the next block (560,002). By building upon one of the candidates, the successful miner recognizes it as the one that the rest of the community will follow. It becomes “correct” simply by being built upon. The newly mined block will end the fork, and a single consensus blockchain will emerge.

### I. Markets for Cryptocurrencies

Later, this Article will analyze how valuation and liquidity issues affect the taxation of cryptocurrencies and tokens.<sup>60</sup> How easily can holders of crypto assets convert their holdings into U.S. dollars? To support that analysis, this Section examines markets for cryptocurrencies and tokens. The most important issue is to see how those subject to U.S. income taxation (i.e., citizens and residents)<sup>61</sup> can liquidate their crypto assets into U.S. dollars.

Markets in which cryptocurrencies trade directly against the U.S. dollar are considered “fiat exchanges” within the cryptocurrency community.<sup>62</sup> Because cryptocurrencies are global, some fiat exchanges also offer trading between other non-U.S. currency (like the pound sterling and the euro). As of early 2019, the Kraken cryptocurrency exchange offered direct trading against the U.S. dollar for eighteen different cryptocurrencies.<sup>63</sup> Coinbase has a higher volume of transactions<sup>64</sup> but offers fewer cryptocurrencies for trading.<sup>65</sup> Both offer trading for Bitcoin Cash but did not do so immediately upon its creation.<sup>66</sup>

Not all cryptocurrencies have direct trading against the U.S. dollar, and a wider variety can be traded against other cryptocurrencies. The Binance exchange purports to be the largest crypto-exchange in the world.<sup>67</sup>

<sup>60</sup> See *infra* Part VI.A.

<sup>61</sup> Cf. BORIS BITTKER & LAWRENCE LOKKEN, FEDERAL TAXATION OF INCOME, ESTATES & GIFTS ¶ 65.1.2 (2018) (“The United States taxes U.S. citizens, alien individuals residing in the United States, and corporations organized under the laws of the United States or one of the states . . . on all of their income, regardless of geographic origin—that is, on worldwide income.”).

<sup>62</sup> See *Cryptocurrency Exchange Reviews*, BITPREMIER, <https://www.bitpremier.com/best-exchanges> (last visited Mar. 9, 2019) (“[A] fiat exchange allows. . . the direct conversion of US Dollars, Euros; and most government-backed currencies into cryptocurrency.”).

<sup>63</sup> See *Currency Pairs Available for Trading on Kraken*, KRAKEN, <https://support.kraken.com/hc/en-us/articles/201893658-Currency-pairs-available-for-trading-on-Kraken> (last visited Mar. 9, 2019) (listing 18 cryptocurrencies for trading against the U.S. dollar).

<sup>64</sup> *Coinbase Review 2018 – Is the World’s Largest Bitcoin Exchange \*REALLY\* the Best?*, QOINBOOK, <https://qoinbook.com/blogs/coinbase-review-2018-is-the-worlds-largest-bitcoin-exchange-really-the-best/> (last visited Mar. 9, 2019) (stating that Coinbase “serves the majority of the American market”).

<sup>65</sup> *Top 50 Cryptocurrency Prices: Available on Coinbase*, <https://www.coinbase.com/price> (last visited Mar. 9, 2019) (listing ten cryptocurrencies for trading against the U.S. dollar).

<sup>66</sup> See *infra* Part VI.A.

<sup>67</sup> See Ryan Brown, *Crypto Exchange Binance Says It’s Still Profitable ‘Even in this Bear Market’*, CNBC (Feb. 14, 2019), <https://www.cnbc.com/2019/02/14/crypto-exchange-binance-profitable-despite-bear-market-cfo-says.html> (describing Binance as “the world’s largest cryptocurrency exchange by trading volume”).

Participants cannot transact in U.S. dollars on the exchange. Instead, participants trade between particular cryptocurrencies. For example, Binance participants might trade between an obscure cryptocurrency and Bitcoin. A participant who wanted to liquidate into U.S. dollars could convert her holdings into Bitcoin (on the Binance exchange) and then sell the Bitcoin on one of the U.S.-dollar exchanges (Coinbase, Kraken, etc.).<sup>68</sup> Because of its greater breadth, Binance supports new cryptocurrencies earlier than Coinbase and Kraken. Thus, when a new cryptocurrency emerges, owners may find it difficult or impossible to buy or sell it using U.S. dollars directly. They may, however, be able to buy or sell indirectly, using an established cryptocurrency (e.g., Bitcoin) as a conduit.<sup>69</sup>

### III. SCALABILITY, SCHISM, AND BITCOIN CASH

#### A. *Bitcoin's Block Size and Transaction Rate*

Earlier, we saw that Bitcoin relies on a “consensus protocol” for creating and confirming transactions. For example, to transfer Bitcoin, users must create a digital file that resembles a deed of real property. Every ten minutes or so, Bitcoin “miners” assemble recent transfer files into “blocks” of transactions. These blocks are then appended to the longest existing blockchain, which is the one that the community recognizes as showing the correct chain-of-title to all Bitcoin ownership.<sup>70</sup>

The consensus protocol is largely found in the Bitcoin Core software package.<sup>71</sup> Users must generally follow this package so that the rest of the community recognizes their actions. For example, if Alice creates her own set of rules to transfer 1 BTC to Bob, the rest of the community might not recognize that transfer as being valid. Part of the consensus protocol governs the size of Bitcoin blocks to a single megabyte (1 MB). This limit, combined with the rule that miners create blocks every 10 minutes, constrain the Bitcoin system to about 7 transactions per second:

How many transactions can the Bitcoin network process per second? This limitation comes from the hardcoded limit on the size of blocks. Each block is limited to a megabyte, or about 1 million bytes. Each transaction is at least 250 bytes. Dividing 1 million by 250, we see that each block has a limit of 4,000 transactions, and given that blocks are found every 10 minutes, we're left with about 7

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<sup>68</sup> See *Comments on Notice 2014-21: Virtual Currency Guidance*, AM. INST. OF CPAS, May 30, 2018, at 17–18 [hereinafter “AICPA”] (describing how to use Bitcoin as a conduit for selling Binance listed cryptocurrencies).

<sup>69</sup> See *id.*

<sup>70</sup> See *supra* Part II.G.

<sup>71</sup> See *supra* note 32 and accompanying text.

transactions per second, which is all that the Bitcoin network can handle.<sup>72</sup>

In contrast, Visa can handle 24,000 transactions per second.<sup>73</sup>

Some Bitcoin users might be content with seven transactions per second. For them, Bitcoin could look like a substitute for gold or silver, an investment commodity that users generally buy and hold for relatively long periods of time. Others in the Bitcoin community, however, believed that this transaction rate was far too slow. For them, Bitcoin should look like a substitute for dollars and debit cards. If Bitcoin is to supplant (or at least supplement) the U.S. dollar or some other official currency, it needs a far greater capacity to clear transactions.<sup>74</sup>

These problems are a product of Bitcoin's recent success. For much of its ten-year history, Bitcoin was an obscure creature. After Satoshi Nakamoto created it in early 2009, his immediate problem was getting others to pay any attention to it at all. Nakamoto mined many of the early blocks, and he eventually succeeded in getting others to engage in the mining process. Over time, more and more people began using Bitcoin, and this increased use began to make the 1 MB block size more limiting. As a result, the network's needs increased beyond the existing seven transactions per second limit.<sup>75</sup>

Individual users could, in effect, buy priority treatment for their transactions. When transferring Bitcoin, users have the option of setting aside an amount of Bitcoin for the miner who includes the transaction in the block. This fee is typically a small portion of the miner's income compared with the mining prize discussed earlier.<sup>76</sup> Even if fees are small, miners can claim them with little effort by prioritizing transactions that have fees. For example, if Alice transfers 1 BTC to Bob, she might set aside a relatively small amount (perhaps 0.00005 BTC) for the successful miner. Doing so makes it far more likely that a miner will confirm her transaction within the next one or two blocks (which would be mined over the next 20 minutes or so).

Thus, users buy priority treatment by paying fees. High fees are, in the eyes of some, problematic. They threaten the philosophical goal of some adherents, who hope that Bitcoin will become a low-cost alternative to the U.S. dollar and banks.<sup>77</sup> Using Bitcoin values from late February 2019, the 0.00005 BTC fee hypothesized above is roughly 19 cents. This is a small amount compared to the 1 BTC transfer worth roughly \$3,750. However, Bitcoin fees do not depend upon the amount of Bitcoin being transferred. Only the size of the transfer size matters. When prioritizing transactions, miners do not care whether Alice transfer 1 BTC or 0.001 BTC. Thus, rising Bitcoin fees are particularly threatening to small Bitcoin transactions.

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<sup>72</sup> See NARAYANAN ET AL., *supra* note 52, at 72.

<sup>73</sup> See *Small Business Retail*, VISA, <https://usa.visa.com/run-your-business/small-business-tools/retail.html> (last visited Mar. 9, 2019).

<sup>74</sup> See *Bitcoin Divides to Rule*, THE ECONOMIST (Aug. 5, 2017).

<sup>75</sup> See NARAYANAN ET AL., *supra* note 52, at 72.

<sup>76</sup> See ANTONOPOULOS, *supra* note 25, at 126–30.

<sup>77</sup> See *supra* note 74 and accompanying text.



Finally, the scalability problem places an upper limit on widespread adoption. Many Bitcoin adherents want to see Bitcoin succeed for political or philosophical reasons. Bitcoin attracts libertarians and anarchists who seek the reduction (or destruction) of the U.S. monetary system. If Bitcoin is to do this job, it needs to support commerce on the scale of Visa and Mastercard.

### B. The Scalability Problem

Recall that scalability is a problem because blocks of transactions cannot exceed 1 MB in size. Authorities in a centralized system might simply increase the limit in order to increase the possible rate of transactions. Since Bitcoin is decentralized, however, no centralized authority can force such a change. To accommodate increased capacity, some influential members of the Bitcoin community could *propose* software changes that would increase the maximum block size from 1 MB to say 8 MB.<sup>78</sup>

Such a change would cause what is known as a “hard fork” in the blockchain because it would isolate users who do not update. Suppose 60% of all Bitcoin users follow the proposed change from 1 MB to 8 MB. The 60% who follow recognize 8 MB blocks would view their own rules as valid; they would view blocks that continue to follow the old 1 MB as “valid” but simply too restrictive. In contrast, the 40% who do not update would view the 8 MB limit as simply invalid; in their view, any block over 1 MB in size is illegal.<sup>79</sup> Because hard forks risk fracturing the network into different camps, many Bitcoin developers resist making changes that do not enjoy near-unanimous support.<sup>80</sup>

In the months leading up to the creation of Bitcoin Cash, many in the Bitcoin community wanted a hard fork to increase the block size. Others in the community resisted a hard fork, believing that alternative means could solve Bitcoin’s scalability problem.<sup>81</sup> Other possibilities for increasing the transaction rate include a proposal called “Segregated Witness” or SegWit that would restructure Bitcoin blocks.<sup>82</sup> The restructured blocks under SegWit would be valid under pre-existing versions of Bitcoin Core. So, the change would not result in a hard fork. The technical details behind SegWit are daunting and not covered here. However, blocks mined under SegWit could contain more transactions than blocks created in the standard method.<sup>83</sup>

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<sup>78</sup> Eight megabytes (8 MB) is the size of the Bitcoin Cash block. *See Bitcoin Cash*, WIKIPEDIA, [https://en.wikipedia.org/wiki/Bitcoin\\_Cash](https://en.wikipedia.org/wiki/Bitcoin_Cash) (last visited Jan. 1, 2019, 17:55 GMT) (“The proposed split included a plan to increase the number of transactions its ledger can process by increasing the block size limit to eight megabytes.”).

<sup>79</sup> *See generally* ANTONOPOULOS, *supra* note 25, at 256–60 (describing hard forks).

<sup>80</sup> *See id.* at 260.

<sup>81</sup> *See* Nathaniel Popper, *Some Bitcoin Backers Are Defecting to Create a Rival Currency*, NY TIMES (July 25, 2017) <https://www.nytimes.com/2017/07/25/business/dealbook/bitcoin-cash-split.html>.

<sup>82</sup> *See generally* ANTONOPOULOS, *supra* note 25, at 331–44 (describing SegWit).

<sup>83</sup> *See* Nick Webb, *A Fork in the Blockchain: Income Tax and the Bitcoin/Bitcoin Cash Hard Fork*, 19 N.C.J.L. & TECH. 283, 291 (2018).

Another possibility would be to move many Bitcoin transactions off the blockchain altogether. A proposed “Lightning Network” envisions complex transactions by which users transfer Bitcoin over a network of “channels” that users establish.<sup>84</sup> In an ordinary Bitcoin transaction, the recipient (say Bob) will want the transfer recorded on the blockchain immediately for fear that the transferor (say Alice) will engage in a double-spend transaction (say, transfer it to Charlie). Channel transactions, however, create more complex relationships that allow recipients to defer recording the transfer on the blockchain without the fear of a double spend.<sup>85</sup>

Channels could allow Alice and Bob to transfer Bitcoin back and forth over a few months and simply record the net transfer on the blockchain at some later time. By keeping many interim transactions off of the blockchain, channels give Bitcoin a larger capacity.<sup>86</sup> A network of channels (i.e., the Lightning Network) could cast some users as conduits so long as the end recipient can safely defer recording the transfer on the blockchain.<sup>87</sup> Like SegWit, the Lightning Network has many technical details beyond the scope of a law review article. The important point is that the Lightning Network would allow users to transfer Bitcoin without immediately recording the transfers on the blockchain. And, when users do record their transactions, they record only their net transfers in a single transaction.

We might generalize the competing proposals as follows. Some users wanted a direct increase in the size of the block from 1 MB to 8 MB. The technical demands of this change are simple, but the change could disrupt and fragment the Bitcoin community. Without a central authority, no one is compelled to recognize an increase in block size. Alternatively, some users sought to avoid this disruption with technical innovations like SegWit and the Lightning Network. These innovations introduce complexity. But, they are simply features that users could voluntarily follow or ignore. For example, users who refuse to join the Lightning Network could still record their transactions directly on the blockchain.

### C. Schism

Influential developers and miners debated the scalability problem for years. Given the decentralized nature of Bitcoin, however, there was no mechanism to force them into a compromise or consensus. On August 1, 2017, proponents of increasing the block size released their proposal to increase the limit from 1 MB to 8 MB.<sup>88</sup> As noted earlier, this move created a “hard fork” in the Bitcoin blockchain.

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<sup>84</sup> See Sean McLeod, *Bitcoin: The Utopia or Nightmare of Regulation*, 9 ELON L. REV. 553, 558 (2017).

<sup>85</sup> See generally ANTONOPOULOS, *supra* note 25, at 284-297 (describing Bitcoin payment channels).

<sup>86</sup> See *id.*

<sup>87</sup> See *id.* at 297-304.

<sup>88</sup> Webb, *supra* note 83, at 291.

As a result of the hard fork, anyone who owned 1 BTC before August 1, 2017 would see their ownership recorded on two separate blockchains. One blockchain used the old 1 MB block limit. Another blockchain used the new 8 MB limit. Users of the new 8 MB limit adopted the term “Bitcoin Cash,” hoping to emphasize the cryptocurrency’s use as a method for payment.<sup>89</sup> Most users called the preexisting 1 MB blockchain “Bitcoin,” though some called it “Bitcoin Core,” because a group called the Bitcoin Core Development Team supported the 1 MB blockchain. Other technical changes (called “replay protection”) further distinguished the two blockchains.<sup>90</sup> A valid Bitcoin (Core) transfer would not be recognized as a valid Bitcoin Cash transfer (and vice versa).

As a result, Bitcoin Cash is a new cryptocurrency, and anyone who owned 1 BTC on August 1, 2017 would continue to own 1 BTC along with 1 unit of Bitcoin Cash (abbreviated BCH).<sup>91</sup> To see how this happened, suppose that Alice acquired 1 BTC prior to August 1, 2017. Time passes, and miners continue to add new 1 MB blocks to the Bitcoin blockchain. On August 1, 2017, some miners begin to add 8 MB blocks to the Bitcoin blockchain and follow other technical changes in the transfer protocol. They add blocks to the pre-existing Bitcoin blockchain to create Bitcoin Cash blockchain. Other miners continue to add 1 MB blocks to the Bitcoin blockchain. Since these two approaches are inconsistent, the blockchain has experienced a hardfork.

Despite the inconsistency, Alice’s preexisting 1 BTC is recognized on both blockchains. On the Bitcoin Cash blockchain, Alice has 1 BCH. On the Bitcoin blockchain, we say that Alice has 1 BTC. Suppose that Alice spends the 1 BCH. The Bitcoin Cash blockchain recognizes this transfer as valid. But, because Bitcoin Cash promoters made technical changes to the transfer protocol, her transfer file is considered invalid under the Bitcoin blockchain.<sup>92</sup> Thus, she still owns 1 BTC, even after transferring the 1 BCH.

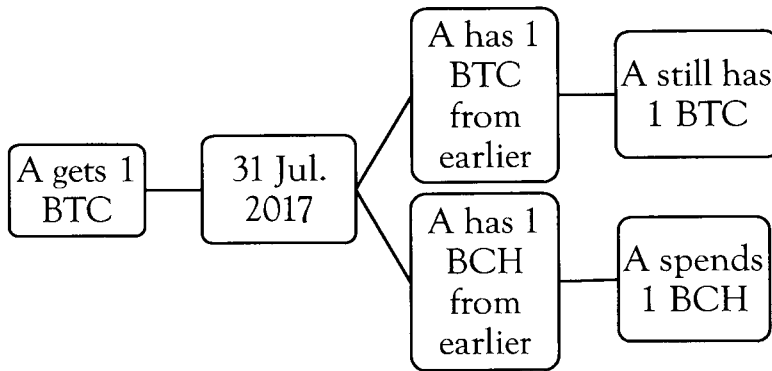
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<sup>89</sup> Cf. *Peer-to-Peer Electronic Cash*, BITCOIN CASH, (Mar. 9, 2019), <https://www.bitcoincash.org> (“Bitcoin Cash brings sound money to the world, fulfilling the original promise of Bitcoin as ‘Peer-to-Peer Electronic Cash.’ Merchants and users are empowered with low fees and reliable confirmations.”).

<sup>90</sup> See *Life After Hard Forks: What You Need to Know About Replay Protection*, SFOX (Feb. 1, 2019), <https://blog.sfox.com/life-after-hard-forks-what-you-need-to-know-about-replay-protection-ab8adaf6ddf6>.

<sup>91</sup> The last pre-fork block was Bitcoin block #478,558. See *supra* note 88 (“All Bitcoin holders as of block 478558 are also owners of Bitcoin Cash.”).

<sup>92</sup> See *supra* note 90.



#### D. Bitcoin Cash and “Price Discovery”

To summarize the prior Section, Bitcoin owners received a windfall on August 1, 2017. On that date, every owner of one Bitcoin (1 BTC) retained that 1 BTC but also received a new cryptocurrency, Bitcoin Cash, in the amount of 1 BCH. U.S. tax law should arguably tax this windfall as income when owners “have complete dominion” over the newly created Bitcoin Cash.<sup>93</sup> We will return to the income tax issues later, but they raise two important questions about the Bitcoin Cash hardfork. First, when did Bitcoin owners “have complete dominion” over their Bitcoin Cash? Second, what was the price of Bitcoin Cash at that time?

Bitcoin Cash did not have a recognizable moment of birth. Rather, it emerged as a new cryptocurrency over the course of several hours. To understand why, we must turn to some details about the hardfork and the Bitcoin blockchain. Over the years since Bitcoin was created in 2009, a new block has been mined roughly every ten minutes.<sup>94</sup> This process continued with a single blockchain until August 1, 2017. To be more precise, Bitcoin block #478,558 was the last block of the unified blockchain,<sup>95</sup> and miners found it around 13:20 GMT on August 1, 2017.<sup>96</sup> Was Bitcoin Cash created at this time? Perhaps not, because the Bitcoin Cash system experienced a substantial delay in producing its first block separate from the original Bitcoin system. Bitcoin Cash, however, took almost *five hours* (not the usual ten minutes) to produce its first new block, which was mined at 18:12 pm (GMT) on August 1, 2017.<sup>97</sup>

Why would five hours matter? Bitcoin Cash was a windfall to owners of Bitcoin, as every Bitcoin owner received an equal amount of Bitcoin Cash. Arguably, this windfall was gross income when Bitcoin Cash was created. Because of market fluctuations, the time of creation determines the *value* of

<sup>93</sup> See *infra* Part VI.A.

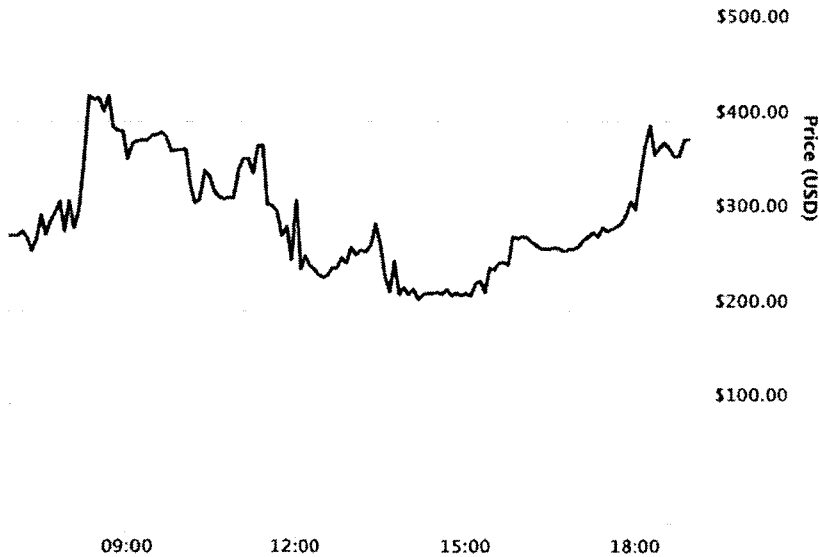
<sup>94</sup> See *supra* note 50 and accompanying text.

<sup>95</sup> See *supra* note 91.

<sup>96</sup> *Bitcoin Cash Block Explorer*, BITCOIN.COM, <https://explorer.bitcoin.com/bch> (input 478558) (last visited Mar. 9, 2019).

<sup>97</sup> *Bitcoin Cash Block Explorer*, BITCOIN.COM, <https://explorer.bitcoin.com/bch> (input 478559) (last visited Mar. 9, 2019).

Bitcoin Cash and thus the amount of gross income. Over the course of August 1, 2017, the reported price of Bitcoin Cash fluctuated wildly between \$200 and \$400 per unit. The chart below shows price fluctuations for Bitcoin Cash on August 1, 2017.<sup>98</sup> Times are given in GMT.



These reported values may not be reliable. We should not think of the August 1, 2017 launch of Bitcoin Cash as an initial public offering, in which market participants can readily trade a new asset. Initially, Bitcoin Cash trading volumes were very low as few exchanges supported the new cryptocurrency.<sup>99</sup> Over time, more and more exchanges supported. For example, Coinbase, the largest U.S. cryptocurrency exchange, did not support Bitcoin Cash until December 19, 2017.<sup>100</sup>

So, there is no easy answer to questions about Bitcoin Cash's moment of birth and value at that time. Without answers to those questions, developing rules for its taxation is a difficult task. Before focusing on how to tax the Bitcoin Cash windfall, the next Part discusses how the I.R.S. currently views cryptocurrencies.

<sup>98</sup> *Bitcoin Cash Charts*, COINMARKETCAP, <https://coinmarketcap.com/currencies/bitcoin-cash/#charts> (last visited Mar. 9, 2019).

<sup>99</sup> Joseph Young, *These Bitcoin Exchanges and Wallets Are Supporting Bitcoin Cash*, BITCOIN MAGAZINE (Aug. 2, 2017), <https://bitcoinmagazine.com/articles/these-bitcoin-exchanges-and-wallets-are-supporting-bitcoin-cash/>.

<sup>100</sup> *Buy, Sell, Send and Receive Bitcoin Cash on Coinbase*, COINBASE (Dec. 19, 2017), <https://blog.coinbase.com/buy-sell-send-and-receive-bitcoin-cash-on-coinbase-65f1b2c7214b>.

## IV. I.R.S. NOTICE 2014-21

## A. Introduction

I.R.S. Notice 2014-21<sup>101</sup> states the I.R.S.'s position on the taxation of cryptocurrencies or "convertible virtual currency"<sup>102</sup> as the I.R.S. and other United States agencies would describe them. According to the Notice, "Virtual currency is a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value. . . [B]ut it does not have legal tender status in any jurisdiction."<sup>103</sup> The Notice expressly identifies Bitcoin as a "convertible" virtual currency because "it has an equivalent value in real currency, or . . . acts as a substitute for real currency."<sup>104</sup>

In its Notice, the I.R.S. asserted three primary positions about the federal-income taxation of cryptocurrencies. First, cryptocurrencies are considered "property."<sup>105</sup> Second, cryptocurrencies are not considered to be "foreign currency."<sup>106</sup> Third, cryptocurrency miners have gross income immediately upon receiving the mining award.<sup>107</sup> The Notice addressed additional issues that result from the three primary positions. For example, taxpayers who receive cryptocurrency in exchange for services will need to include the value of the cryptocurrency in gross income.<sup>108</sup>

## B. Classification as "Property"

The Code and related authorities do not define foreign currency,<sup>109</sup> and the I.R.S. probably had administrative authority to classify cryptocurrencies as foreign currencies.<sup>110</sup> Such a classification would likely appeal to proponents of cryptocurrencies.<sup>111</sup> Under section 988(e)(2) of the Code, holders of foreign currency may exclude a de-minimis amount of foreign-

<sup>101</sup> I.R.S. Notice, 2014-16 I.R.B. 938.

<sup>102</sup> See *id.*

<sup>103</sup> *Id.*

<sup>104</sup> *Id.*

<sup>105</sup> *Id.* ("For federal tax purposes, virtual currency is treated as property.").

<sup>106</sup> *Id.* ("[V]irtual currency is not treated as currency that could generate foreign currency gain or loss for U.S. federal tax purposes").

<sup>107</sup> *Id.* at 939 ("[W]hen a taxpayer successfully 'mines' virtual currency, the fair market value of the virtual currency as of the date of receipt is includible in gross income.").

<sup>108</sup> *Id.* at 938.

<sup>109</sup> See Adam Chodorow, *Bitcoin and the Definition of Foreign Currency*, 19 FLA. TAX REV. 365, 379 (2016) ("Although Code section 988 contains detailed rules for how to treat foreign currency, it does not define the term. Nor do the extensive regulations for that section. Indeed, the term foreign currency is not defined anywhere in the Code, its regulations, or in the case law.").

<sup>110</sup> See *id.* at 379, 380.

<sup>111</sup> Cf. *Is Bitcoin Legal?*, COINTELEGRAPH, <https://cointelegraph.com/bitcoin-for-beginners/is-bitcoin-legal> (last visited Mar. 9, 2019) (describing recognition of cryptocurrencies by various governments).

currency gain.<sup>112</sup> The rationale behind the exclusion is administrative simplicity. Tourists, for example, who make a small gain while holding euros do not need to report the gain on their return. Despite pleas from advocates,<sup>113</sup> the I.R.S. has not yet granted such an exemption for cryptocurrencies.

In short, the IRS places cryptocurrencies in the category of “property” rather than “foreign currency.” The tax laws already have a well-developed system of taxing property transactions, and these would apply to cryptocurrencies. For example, suppose Alice received 1 BTC as compensation on January 1, 2017. She would have gross income equal to the US-dollar value of 1 BTC on January 1, 2017.<sup>114</sup> At that date, 1 BTC was worth roughly \$1000, which we will use as Alice’s gross income. Alice now owns property, which has a tax-cost basis of \$1000.<sup>115</sup> If Alice sold the 1 BTC on August 1, 2018 for \$7700, she would have \$6700 of taxable gain. Because Alice sold “property,” this taxable gain should be classified as capital gains unless Alice was a dealer in Bitcoin.<sup>116</sup>

In many investment and employment contexts, Notice 2014-21 supplies sensible answers, despite the recurring need to value cryptocurrencies. The Code operates in U.S. dollars, and taxpayers will often need to value their cryptocurrencies. Employees who are paid in cryptocurrencies should be taxed like everyone. The same goes for investors who buy and sell cryptocurrencies.

### C. *Crypto Windfalls: An Unresolved Issue*

For crypto investors, Notice 2014-21 has two primary rulings: (1), cryptocurrencies are “property,” but (2) are not “foreign currency.” Being property, cryptocurrencies potentially produce capital gains and losses. Not being foreign currency, cryptocurrencies do not qualify for de-minimis exclusions.

The Notice left many questions unanswered.<sup>117</sup> This Article addresses one of the most prominent unresolved issues: what are the tax consequences

<sup>112</sup> I.R.C. § 988(e)(2).

<sup>113</sup> See *infra* note 117.

<sup>114</sup> See I.R.C. § 83(a).

<sup>115</sup> See BITTKER & LOKKEN, *supra* note 61, at ¶ 41.2.5 (discussing tax-cost basis).

<sup>116</sup> See I.R.C. § 1221.

<sup>117</sup> See generally Stevie D. Conlon, Anna Vayser, & Robert Schwaba, *Taxation of Bitcoin, Its Progeny, and Derivatives: Coin Ex Machina*, 158 TAX NOTES 1001 (Feb. 19, 2018) (describing open issues in the taxation of cryptocurrencies). Shortly after the Notice was released, the American Bar Association Section of Taxation (“ABA Tax Section”) and the American Institute of CPAs (“AICPA”) offered comments on many of these issues. See *Comments on Notice 2014-21*, A.B.A. SEC. TAX’N, Mar. 24, 2015, <https://www.americanbar.org/content/dam/aba/administrative/taxation/policy/032415comments.authcheckdam.pdf>; *Comments on Notice 2014-21: Virtual Currency Guidance*, AM. INST. OF CPAs (June 10, 2016), <https://www.aicpa.org/Advocacy/Tax/DownloadableDocuments/AICPA-Comment-Letter-on-Notice-2014-21-Virtual-Currency-6-10-16.pdf>. A long-standing request is that cryptocurrency users be allowed a de-minimis exemption similar to that under I.R.C. § 988(e)(2).

from crypto windfalls like the creation of Bitcoin Cash?<sup>118</sup> Should the recipients have gross income immediately upon creation? If so, how would they determine the amount? Alternatively, if the recipients can defer income to some later time, is the later income “ordinary income” (taxable at individual rates up to 37%)<sup>119</sup> or more favorable “capital gains” (potentially taxable at individual rates of 20% or less)?<sup>120</sup>

Answering these questions requires us to consider a broader question: how should property windfalls generally be taxed? Interestingly, this question itself does not have a clear answer, at least in practice.

## V. TAXING PROPERTY WINDFALLS

### A. *Defining Gross Income*

The Code defines gross income to mean “all income from whatever source derived.”<sup>121</sup> The definition identifies common items of gross income (like compensation, interest, and dividends) but clarifies that gross income is not limited to them.<sup>122</sup> The United States Supreme Court has repeatedly stated that “gross income” should be interpreted broadly. “The starting point in the determination of the scope of ‘gross income’ is the cardinal principle that Congress in creating the income tax intended ‘to use the full measure of its taxing power.’”<sup>123</sup>

The Treasury regulations reinforce the expansive scope of the gross-income definition. “Gross income means all income from whatever source derived, unless excluded by law. Gross income includes income realized in any form, whether in money, property, or services. Income may be realized, therefore, in the form of services, meals, accommodations, stock, or other property, as well as in cash.”<sup>124</sup> This expansive definition is supplemented by a clear directive that windfalls should be taxed.

In addition to the items enumerated in section 61(a), there are many other kinds of gross income. For example, punitive damages such as treble damages under the antitrust laws and exemplary damages for fraud are gross income. Another person’s payment of the taxpayer’s income taxes constitutes gross income to the taxpayer unless excluded by law. Illegal

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<sup>118</sup> For a prior discussion, see Webb, *supra* note 82, at 309 (describing this issue as a clear problem but with little guidance).

<sup>119</sup> See I.R.C. § 1(j)(2) (describing individual tax rates from 2018 to 2025).

<sup>120</sup> The 20% rate applies if the capital gains are “long-term” in nature, meaning that the taxpayer held the property for more than one year. See *generally* I.R.C. § 1(h)(1)(D) (identifying 20% as the highest rate on “net capital gain”); I.R.C. § 1221 (defining “net capital gain” based on capital assets held for more than one year).

<sup>121</sup> I.R.C. § 61(a).

<sup>122</sup> See *id.*

<sup>123</sup> *Commissioner v. Kowalski*, 434 U.S. 77, 82 (1977) (quoting *Helvering v. Clifford*, 309 U.S. 331, 334 (1940)).

<sup>124</sup> Treas. Reg. § 1.61-1(a).



gains constitute gross income. Treasure trove, to the extent of its value in United States currency, constitutes gross income for the taxable year in which it is reduced to undisputed possession.<sup>125</sup>

Punitive damages and treasure trove are two forms of windfalls, and in the early years of the income tax, such windfalls were arguably outside the definition of gross income. In 1920, the United States Supreme Court said that “[i]ncome may be defined as the gain derived from capital, from labor, or from both combined.”<sup>126</sup> Thirty five years later in *Commissioner v. Glenshaw Glass*,<sup>127</sup> the Court deprecated this definition, saying it “was not meant to provide a touchstone to all future gross income questions.”<sup>128</sup> Announcing a definition that continues to this day, the Court equated gross income with “undeniable accessions to wealth, clearly realized, and over which the taxpayers have complete dominion.”<sup>129</sup>

This doctrinal definition and the quoted regulation both support the taxation of treasure trove and other windfalls. Despite the romance of buried treasure, the treasure-trove regulation has led a dull existence. By one count, only one case relies upon it.<sup>130</sup> In that case,<sup>131</sup> the taxpayers purchased an old piano for \$15. Hidden inside the piano, they found \$4467 in old currency. Citing the treasure-trove regulation, the court held that the \$4467 of old currency was gross income in year it was found.<sup>132</sup>

Do the treasure-trove regulations compel taxation of Bitcoin Cash? Perhaps not. Arguably, cryptocurrency would not be “treasure trove.” According to Black’s Law Dictionary,

Treasure trove consists essentially of articles of gold and silver, intentionally hidden for safety in the earth or in some secret place, the owner being unknown, although it is probable that the category might include articles made from the required metals buried in the ground for other purposes, for example in connection with an ancient sepulture. In the United States, the state has never claimed title to lost property by virtue of its character as treasure trove, and it has been stated that the law relating thereto is merged with that of lost goods generally, although there is authority for the proposition that while treasure trove in the United States

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<sup>125</sup> Treas. Reg. § 1.61-14(a).

<sup>126</sup> *Eisner v. Macomber*, 252 U.S. 189, 207 (1920) (quoting *Doyle v. Mitchell Bros. Co.*, 247 U.S. 179, 185 (1918)).

<sup>127</sup> 348 U.S. 426 (1955).

<sup>128</sup> *Id.* at 431.

<sup>129</sup> *Id.* Modern courts routinely cite *Glenshaw Glass* and its definition. *See, e.g.*, *Maehr v. U.S.*, 137 Fed. Cl. 805, 813 (Fed. Cl. 2018) (quoting *Glenshaw Glass*, 348 U.S. at 431).

<sup>130</sup> *See also* Zelenak & McMahon, *supra* note 15, at 1301 (“Only once has a court relied on the regulation—to support the inclusion in gross of cash found in an old piano.”).

<sup>131</sup> *Cesarini v. United States*, 296 F. Supp. 3 (N.D. Ohio 1969), *aff’d*, 428 F.2d 812 (6th Cir. 1970).

<sup>132</sup> 296 F. Supp. at 7–8.

belongs to the finder, found goods not of that character go to the owner of the locus in quo.<sup>133</sup>

Being neither gold or silver and not being hidden at all, Bitcoin Cash might fall outside the terms of the treasure-trove regulation.

Even so, the quoted regulation reads as a catch-all (“there are many other kinds of gross income”) with treasure trove as an example. The catch-all, along with *Glenshaw Glass*, does not depend upon definitional issues like whether something is “treasure trove.” Despite the breadth of this taxing power, however, many forms of accession to wealth seem to escape taxation in practice.<sup>134</sup> As illustrated by a sporting event from more than twenty years ago, these practices led some scholars to conclude that windfalls of *property* (as opposed to cash) are generally not taxable.

### B. Taxing Valuable Baseballs

Finding gold, silver, and cash results in gross income under the treasure-trove regulation. Should the regulation (or the general principles of gross income) also apply when taxpayers find other, less liquid property? The question caused a minor public uproar in the summer of 1998. At the time, major-league baseball players Mark McGwire and Sammy Sosa were both on track to break Roger Maris’ single-season homerun record, dating back to the 1961 season. Major League Baseball, hoping to recover from fan discontent and recent labor disputes, successfully turned the homerun race into a major “feel good” news story. Mark McGwire claimed that the race “brought the country together and helped make baseball a sport that people care about and talk about again.”<sup>135</sup>

The tax angle of this story did not, however, generate such good feelings. Every day of every season, baseball fans scramble to catch homerun balls. By long-established custom, a baseball that leaves the field and enters the stands become the property of the fan who catches the ball. Usually, the ball is simply a personal keepsake for the lucky fan, and its value is so low that there is no point in wondering whether it should be taxed as treasure trove.

The McGwire-Sosa race, however, promised to give some lucky fan more than a simple keepsake. The record-setting homerun ball would be a very valuable collectible. Curious financial reporters wondered whether the lucky fan would also receive a hefty tax bill for the value of the ball. I.R.S. officials declared that, of course, the record-setting baseball would be gross income to the fan who recovered. To tax lawyers, the result was a natural extension of the treasure-trove regulation and the underlying principles of gross income.<sup>136</sup>

<sup>133</sup> *Treasure Trove*, BLACK’S LAW DICTIONARY (10th ed. 2014) (quoting RAY ANDREWS BROWN, *THE LAW OF PERSONAL PROPERTY* § 13, at 27–28 (2d ed. 1955)).

<sup>134</sup> See Alice G. Abreu & Richard K. Greenstein, *Defining Income*, 11 FLA. TAX REV. 295, 299 (2011).

<sup>135</sup> David Leonhardt, *Myth of Men Who Saved Baseball*, N.Y. TIMES, Mar. 30, 2005.

<sup>136</sup> See Zelenak & McMahon, *supra* note 15, at 1299.

To members of Congress and the general public, taxing the lucky seemed ridiculous.<sup>137</sup> Part of the controversy came from the potentially ruinous taxation of a fan who caught the ball and gave it back to the hitter (McGwire or Sosa). Such a fan might have income tax upon catching the ball (under the treasure-trove regulation) and an additional gift tax upon giving it back to the hitter. The I.R.S. quickly clarified, however, that a fan who returned the ball would have neither income nor gift tax consequences.<sup>138</sup> Charles Rossotti, then the I.R.S. Commissioner, quipped, “Sometimes pieces of the tax code can be as hard to understand as the infield fly rule. All I know is that the fan who gives back the home run ball deserves a round of applause, not a big tax bill.”<sup>139</sup>

Ultimately, a man named Philip Ozersky became baseball’s luckiest fan. He caught Mark McGwire’s final homerun of the season, number seventy, on September 27, 1998. In January 1999, Mr. Ozersky sold the baseball for over \$3 million.<sup>140</sup> Even after this conclusion, nettlesome tax issues remained. Did Mr. Ozersky have income in 1998 when he caught the ball? Or, was all of the income deferred until 1999 when he sold the ball? The treasure-trove regulation seems to point toward taxation of the baseball in 1998 when Mr. Ozersky caught it. Even if the baseball is not technically “treasure trove,” the principles of income taxation seem to point toward taxation. To paraphrase *Glenshaw Glass*, Mr. Ozersky arguably had an accession to wealth that was clearly realized and over which he had complete dominion.<sup>141</sup> This view seemed to be the consensus amongst knowledgeable commentators at the time.

### C. The Scholarly Debate

Nearly a year after the record-setting homerun, Professors Lawrence Zelenak and Martin McMahon published a provocative article attacking the treasure-trove regulation and arguing for deferred taxation of fans like Mr. Ozersky.<sup>142</sup>

[W]e think the [treasure-trove] regulation is wrong and that found property—except cash—should *not* be included in gross income. Instead, the finding of property should be

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<sup>137</sup> See *id.*

<sup>138</sup> See Internal Revenue Service Release, IR-98-56 (Sept. 8, 1998), <https://www.irs.gov/pub/irs-news/ir-98-56.pdf>.

<sup>139</sup> *Id.*

<sup>140</sup> See John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 447 n.30 (2004).

<sup>141</sup> See Andrew D. Appleby, *Ball Busters: Taxing Record-Setting Baseballs*, 33 VT. L. REV. 43, 45 (“[I]f found property satisfies the three *Glenshaw Glass* requirements, the property is gross income.”). Appleby raises interesting valuation issues with respect to the baseball that Ozersky caught. When Ozersky caught the ball, there was no guarantee that it would represent the record-setting homerun. If McGwire hit another homerun, then Ozersky’s ball would be worth fair less. See *id.* at 53–56.

<sup>142</sup> See Zelenak & McMahon, *supra* note 15.

treated as a form of imputed income, with the tax deferred until the property is sold or otherwise disposed of.<sup>143</sup>

In Zelenak and McMahon's view, Ozersky should not have had income until 1999, when he sold the baseball. They observed that in many settings comparable to the 1998 baseball, I.R.S. does not enforce the treasure-trove regulation. Their examples include "commercial fishermen, big game hunters, prospectors and miners, and professional treasure hunters." For example, prospectors and miners do not pay tax when they extract the resource (i.e., when the property is reduced to undisputed possession). Instead, they pay tax when they later sell the resource.<sup>144</sup>

According to Zelenak and McMahon, principles of "imputed income" support deferring taxation of found property.<sup>145</sup> Generally speaking, "imputed income" includes goods and services produced for oneself or one's family. Even though imputed income might enrich its producer, it is not subject to the income tax. For example, people who grow their own crops do not pay tax when they harvest or eat the crops. More generally, Zelenak and McMahon identify cash-based transactions as the focus of the income tax. "[T]he income tax is about the inclusion of the receipt of *cash* in gross income."<sup>146</sup> They acknowledge that the income tax clearly applies to many non-cash transactions (like the exchange of property and compensation paid with the transfer of property). However, the reason for taxing these transactions is to discourage tax avoidance. Employees pay tax when they receive employer stock because employer stock is a substitute for cash. Thus, the income tax applies to cash transactions and substitutes for cash transactions.

Shortly after Zelenak and McMahon published their article, Professor Joseph Dodge published a sharp rejoinder, arguing for the immediate taxation of the lucky fan and of any other property windfalls.<sup>147</sup> Dodge resisted Zelenak and McMahon's assertion that the income tax reaches non-cash items only to prevent tax avoidance.<sup>148</sup> According to Dodge, "[t]he 'income tax' idea is keyed to changes in wealth (including property)."<sup>149</sup>

Dodge's position essentially adopts the Haig-Simons definition of economic income. According to this definition, "Personal income may be defined as the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question."<sup>150</sup> Dodge recognizes that this definition often yields to administrative "convenience

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<sup>143</sup> *Id.* at 1300–01 (citations omitted).

<sup>144</sup> *See id.* at 1303.

<sup>145</sup> *See id.* at 1304–07.

<sup>146</sup> *Id.* at 1304.

<sup>147</sup> See Joseph M. Dodge, *Accessions to Wealth, Realization of Gross Income, and Dominion and Control: Applying the "Claim of Right Doctrine" to Found Objects, Including Record-Setting Baseballs*, 4 FLA. TAX REV. 685 (2000).

<sup>148</sup> *See id.* at 690.

<sup>149</sup> *Id.*

<sup>150</sup> Henry Simons, *Personal Income Taxation* 50 (1938).

factors.” For example, appreciation in the value of assets clearly represents a change in wealth and is thus economic income. However, due to lack of liquidity and valuation difficulties, the income tax does not tax appreciation until it is “realized” in the form of a sale, exchange, or disposition.<sup>151</sup>

In Dodge’s view, true windfalls are most similar to prizes and awards, which the Code expressly includes in gross income.<sup>152</sup> For example, someone who wins a new car on a television show must include its value in gross income.<sup>153</sup> As a result, Dodge would tax the lucky baseball fan immediately upon catching a valuable baseball.<sup>154</sup>

#### D. Conclusion

This Article does not intend to settle the debate about taxing baseballs. Rather, it summarized the issues and ensuing scholarly debate to highlight the difficulties inherent in taxing newly created cryptocurrencies. Tax lawyers thought it was perfectly ordinary to tax a lucky fan who caught a valuable baseball, even if the fan puts the ball on her mantle as a keepsake. To the tax lawyers, the important issue is that the fan had an “undeniable accession to wealth, clearly realized, and over which [she had] complete dominion.”<sup>155</sup> Even without the treasure trove regulations, taxation of the fan seems routine.

To politicians and members of the public, however, taxation seems unfair unless (and until) the fan sells the baseball. Even the Internal Revenue I.R.S. found itself willing to excuse taxation if the fan disclaimed the ball shortly after catching it.<sup>156</sup> Roughly a year later, Professors Zelenak and McMahon sketched an academic theory to explain this reluctance about taxing the lucky baseball fan, focusing on the deferral of imputed income.

As shown below, newly created cryptocurrencies raise many of the same issues.<sup>157</sup> Holders of existing cryptocurrencies may find themselves owning newly created cryptocurrencies. For example, on August 1, 2017, every owner of the Bitcoin cryptocurrency became an owner of newly created Bitcoin Cash cryptocurrency through a “hard fork” (discussed in much more detail later). The Bitcoin owners were simply lucky. They did not have to exchange their Bitcoin holdings to receive Bitcoin Cash. Indeed, they did not have to do anything at all. For every unit of Bitcoin an owner owned, she instantly owned an equal number of Bitcoin Cash units.

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<sup>151</sup> See Dodge, *supra* note 147, at 691, 694.

<sup>152</sup> See *id.* at 705 (citing I.R.C. § 74(a)).

<sup>153</sup> In 2004, Oprah Winfrey gave new cars to 276 people in the audience of her television show, each of whom had to report the car’s value on their tax returns. See *Oprah Car Winners Hit with Hefty Tax*, CNN MONEY, (Sept. 13, 2004, 5:05 PM), [https://money.cnn.com/2004/09/22/news/newsmakers/oprah\\_car\\_tax/](https://money.cnn.com/2004/09/22/news/newsmakers/oprah_car_tax/).

<sup>154</sup> See Dodge, *supra* note 147, at 724–25.

<sup>155</sup> Commissioner v. Glenshaw Glass, 348 U.S. 426, 431 (1955).

<sup>156</sup> See Zelenak & McMahon, *supra* note 15, at 1299 (citing I.R.S. News Release, IR-98-56 (Sept. 8, 1998)).

<sup>157</sup> See *infra* Part VI.

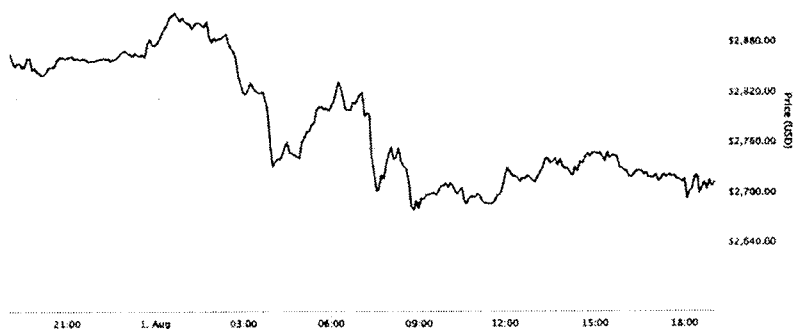
This Part explores four different approaches to taxing Bitcoin Cash: the Taxation-Upon-Creation Approach, the Deemed-Zero-Value Theory, the Tax-Free Reorganization Theory, and Open-Transaction Treatment.

## VI. RESOLVING THE TAXATION OF BITCOIN CASH AND OTHER CRYPTO CLONES

### A. Taxation-Upon-Creation Approach

To recap, members of the Bitcoin community broke away to create a new cryptocurrency, Bitcoin Cash. They did this by cloning the Bitcoin blockchain as it existed on August 1, 2017. Since Bitcoin Cash and Bitcoin share the same blockchain, every Bitcoin owner (as of August 1, 2017) received an equal number of Bitcoin Cash units. Bitcoin owners could simply use their existing “private keys” (essentially passwords) in order to transfer or sell their new Bitcoin Cash, using a slightly different protocol.

Upon first inspection, this windfall appears to be a simple case of gross income. Gross income includes “accessions to wealth, clearly realized, and over which the taxpayers have complete dominion.”<sup>158</sup> Bitcoin owners certainly enjoyed an “undeniable accession to wealth” of wealth when they received Bitcoin Cash. The price of Bitcoin itself stayed within the range of \$2700 to \$2750 in the hours following the creation of Bitcoin Cash. Owners do not appear to have suffered any loss of value to their Bitcoin holdings (as shown in the figure below).<sup>159</sup> Thus, Bitcoin Cash was simply free money to them.



The fact that Bitcoin Cash is not cash<sup>160</sup> does not prevent its taxation under caselaw and the regulation. The form of income does not matter under

<sup>158</sup> *Glenshaw Glass*, 348 U.S. at 431.

<sup>159</sup> BITCOIN CHARTS, <https://coinmarketcap.com/currencies/bitcoin/#charts> (last visited Mar. 9, 2019).

<sup>160</sup> For accounting purposes, “cash” means currency and demand deposits. See DONALD E. KIESO ET AL., INTERMEDIATE ACCOUNTING 217 (14th ed. 2012).

black-letter law.<sup>161</sup> As a matter of administrative practice, however, many non-cash receipts enjoy tax forgiveness or deferral. As a non-cash windfall, Bitcoin Cash *could* be taxed under the law. However, perhaps tax *should* be deferred as a matter of administrative practice.

Several facts illustrate the administrative difficulties in imposing immediate taxation. As already discussed, the market for Bitcoin Cash was thin and volatile on August 1, 2017. Reported prices ranged from \$200 to \$400. These price reports might not be usable to assign a value for taxation, because so few sales were occurring.<sup>162</sup> And, even if these reports are to be believed, we cannot firmly point to the time when Bitcoin Cash was created.

Many new owners held their Bitcoin Cash through the Coinbase exchange. Such owners did not have direct access to their Bitcoin Cash holdings, and Coinbase initially refused to support Bitcoin Cash. Such owners had no way of accessing their Bitcoin Cash until December 2017. Had Coinbase simply *delayed* access until December 2017, then their clients might theoretically have had income on August 1, 2017. Under the economic benefit doctrine, taxpayers have gross income when amounts are irrevocably set aside for their benefit (even if the taxpayer cannot initially access the amounts).<sup>163</sup> In August 2017, however, Coinbase clients were not facing a mere delay. Though later changing its position, Coinbase initially refused to support Bitcoin Cash altogether. As a result, the taxation-upon-creation approach probably does not apply to Coinbase clients.

Furthermore, the creation of Bitcoin Cash was not a “legal” event like a corporate transaction. When transacting with shareholders, corporations must provide notice and often must seek shareholder approval. In contrast, the creators of Bitcoin Cash did not “transfer” anything to the pre-existing owners of Bitcoin. Instead, they simply released software that recognized Bitcoin owners as owners of a new cryptocurrency, Bitcoin Cash. These owners did not receive any formal notice, nor did they have to take any affirmative steps to accept their Bitcoin Cash.

We can contrast this creation with another famous non-cash windfall, the record setting baseball of 1998. Anyone who has attended or watched a baseball game has seen fans scrambling to claim ordinary foul balls and homeruns. Unlike the owners of Bitcoin, they had to do something in order to claim a windfall, which argues against taxing Bitcoin owners under the taxation-upon creation approach. Perhaps, though, notice and acceptance are not necessary to the taxation-upon-creation approach. After all, the constructive-receipt doctrine holds that taxpayers can be taxed on income when it is made available to them.<sup>164</sup> Constructive receipt typically applies,

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<sup>161</sup> See Treas. Reg. § 1.61-1(a) (“Gross income includes income realized in any form, whether in money, property, or services.”); BITTKER & LOKKEN, *supra* note 61, at ¶ 5.1.2.

<sup>162</sup> See *supra* Part III.D.

<sup>163</sup> For example, an employee would have gross income if her employee set aside funds for her in an irrevocable trust. See BITTKER & LOKKEN, *supra* note 61, at 60.3.

<sup>164</sup> See Treas. Reg. § 1.451-2(a) (“Income although not actually reduced to a taxpayer’s possession is constructively received by him in the taxable year during which it is credited to his account, set apart for him, or otherwise made available so that he may draw upon it at any time.”).

however, when taxpayers know they have income but wait to accept it. Bitcoin Cash holders did not even know they had income at all, which argues against the taxation-upon-creation approach.

In sum, the taxation-upon-creation approach is problematic administratively. Similar windfalls do not face immediate taxation.<sup>165</sup> Despite the fungible nature of Bitcoin Cash, taxation-upon-creation might lead to case-by-case analysis. Some Bitcoin owners could not access their Bitcoin Cash upon creation (e.g., because it was held through Coinbase). Even if these obstacles can be overcome, determining the time-of-creation value would be problematic. One plausible response to all of these problems is to assume that the time-of-creation value is zero, an approach discussed in the next Section.

### *B. The Deemed-Zero-Value Theory*

Other commentators have rejected taxing Bitcoin Cash at its fair market value upon creation.<sup>166</sup> These commentators would still “tax” Bitcoin Cash upon its creation but have taxpayers assume that it has a fair market value of zero at that time. For example, the ABA Section on Taxation has asked the I.R.S. to treat Bitcoin Cash in the following manner (referring to Bitcoin Cash generically with a reference to a 2017 hard fork):

1. Taxpayers who owned a coin that was subject to a Hard Fork in 2017 would be treated as having realized the forked coin resulting from the Hard Fork in a taxable event.
2. The deemed value of the forked coin at the time of the realization event would be zero, which would also be the taxpayer’s basis in the forked coin.
3. The holding period in the forked coin would start on the day of the Hard Fork.<sup>167</sup>

This approach is the most taxpayer-friendly approach possible beyond complete forgiveness of all taxes. It defers all gross income until owners sell the Bitcoin Cash or exchanges it for other property, and it gives them the lowest possible tax rate. Upon the ultimate sale or exchange, most owners would have capital gains. Holding Bitcoin Cash for more than one year (i.e., until August 2, 2018) would generate preferential long-term capital gains. Currently, the highest tax rate for long-term capital gains is 20%, as opposed to 37% for ordinary income.

This theory solves most of the administrative difficulties raised in the prior Section. The hour of creation and resulting value no longer matter. Owners face no tax consequences until they take the affirmative act of selling

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<sup>165</sup> See *supra* Part V.C.

<sup>166</sup> See AICPA, *supra* note 68; *Comments on the Tax Treatment of Hard Forks*, A.B.A. SEC. OF TAX’N, Mar. 19, 2018, <https://www.americanbar.org/content/dam/aba/administrative/taxation/policy/031918comments2.pdf> [hereinafter “ABA TAX SECTION”].

<sup>167</sup> ABA TAX SECTION, *supra* note 166, at 12.



or exchanging their Bitcoin Cash. Coinbase clients might wonder whether their ownership began on August 1, 2017 (creation of Bitcoin Cash), December 19, 2017 (Coinbase support of Bitcoin Cash), or some intermediate time.<sup>168</sup> Presumably, the deemed-zero-value proponents would solve this ambiguity in favor of taxpayers by assuming ownership began on August 1, 2017. An earlier start date allows the owners to enjoy long-term capital gains on August 2, 2018 rather than at some later time.

A handful of other (non-cryptocurrency) transactions enjoy the deemed-zero-value theory. Perhaps the most prominent (and notorious) is the preferential treatment enjoyed by managers of private-equity and hedge funds. In a typical structure, outside investors (like university endowments) invest in the fund while managers control the fund's investments. The managers typically receive an ownership interest in the funds, entitling them to a significant portion of fund profits (perhaps 20%).<sup>169</sup>

Under doctrine developed by the I.R.S. and the courts, the managers do not have gross income when they initially receive the profits interest, which is thought to be too speculative in nature to value. Instead, the managers have income only when the fund itself has income. Because much of the fund income comes from investments, the fund managers often pay tax only at the lower long-term-capital-gains rate.

Most commentators believe that these tax benefits are unwarranted.<sup>170</sup> The justifications for lowered taxes long-term capital gains usually focus on the incentives for investment and capital mobility. The fund managers are not, however, receiving returns on investment capital. Instead, they provide human capital, and returns on human capital are overwhelmingly taxed as ordinary income. Moreover, investment fund managers are typically quite wealthy, and their special tax break erodes progressivity and tax equity.

These criticisms do not uniformly apply to the owners of Bitcoin Cash. They may or may not be disproportionately wealthy. They are not being compensated for human capital. Yet, they are not being compensated for investment capital either. A windfall fell into their laps, and there is no obvious justification for augmenting their luck with lower taxation.<sup>171</sup> Furthermore, the discussion about investment-fund managers reveals how limited and controversial the deemed-zero-value theory is. Congress and the I.R.S. should be slow to expand this tax windfall, especially to taxpayers who enjoyed an economic windfall.

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<sup>168</sup> See *id.* at 8 (“[W]hen an owner holds an original coin in an account maintained by an intermediary such as Coinbase, the timing of realization becomes murky.”).

<sup>169</sup> See generally Victor Fleischer, *Two and Twenty: Taxing Partnership Profits in Private Equity Funds*, 83 NYU L. REV. 1 (2008) (describing compensation structures of investment funds and their tax implications).

<sup>170</sup> See, e.g., *id.*

<sup>171</sup> Cf. generally Eric A. Kades, *Windfalls*, 108 YALE L.J. 1489, 1492 (1999) (proposing higher levels of taxation on windfalls).

*C. The Tax-Free Reorganization Theory*

Another plausible proposal for taxing the creation is to liken it to a tax-free exchange or reorganization.<sup>172</sup> The Code contains several nonrecognition provisions that defer taxation. Perhaps the best known is section 1031, which offers nonrecognition for like-kind exchanges of real property.<sup>173</sup> Another qualifying transaction, a corporate spinoff, might be considered analogous to the creation of Bitcoin Cash. In a corporate spinoff, the corporation distributes shares of a subsidiary corporation to its shareholders. If the transaction satisfies statutory requirements, the shareholder does not have gross income upon receiving the shares.<sup>174</sup> So far, this reorganization theory seems to yield the same tax consequences as the deemed-zero-value theory. As we will see in a moment, the main difference lies in determining the tax basis of both the Bitcoin and Bitcoin Cash holdings.

Suppose Alice bought 1 BTC on January 1, 2016 for \$430. With this purchase, Alice takes a \$430 cost basis in her 1 BTC; subsequent gain or loss is determined by reference to this \$430 basis. On August 1, 2017, her 1 BTC becomes two separate assets: 1 BTC and 1 BCH. The deemed-zero-value theory would not alter any tax attributes of her 1 BTC; she still has a \$430 basis, and her holding period began on January 1, 2016. As for the new 1 BCH, the deemed-zero-value theory would assign \$0 cost basis and a holding period beginning on August 1, 2017.

Under the reorganization approach, Alice still has no income on August 1, 2017. However, following the rules for tax-free spinoffs, Alice would allocate her \$430 basis between Bitcoin and Bitcoin Cash based on their relative fair market values.<sup>175</sup> On August 1, 2017, Bitcoin was worth around \$2750<sup>176</sup> and Bitcoin Cash was worth anyone's guess. Using \$375 as a plausible value for 1 BCH, Alice's 1 BCH constitutes 12% of her new ownership ( $1 \text{ BCH} / (1 \text{ BCH} + 1 \text{ BTC}) = 12\%$ ). Thus, Alice would reallocate 12% of her original \$430 basis to her 1 BCH. The 1 BCH would have a basis of \$51.60, while the 1 BTC would have a basis of \$378.40 (the remaining 82%). Alice's holding period in the 1 BCH would start on the date that she originally bought the 1 BTC, January 1, 2016.<sup>177</sup>

Ultimately, the differences between the deemed-zero-value approach and the reorganization approach are relatively small. Alice would have no income upon the creation of Bitcoin Cash either way. Neither approach is inherently more favorable to Alice. If she wants to sell the 1 BCH first, Alice would benefit from lower gains and long-term capital gains rates. In contrast, the reorganization approach produces a higher amount of gain on Alice's 1

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<sup>172</sup> See Nelson C. Yates II, *Stock or Livestock? Hard Fork Basis Allocation*, 162 TAX NOTES 61 (Jan. 7, 2019).

<sup>173</sup> See I.R.C. § 1031.

<sup>174</sup> See I.R.C. § 355(a)(1).

<sup>175</sup> See I.R.C. § 358(b); Treas. Reg. § 1.358-2(a)(2)(i).

<sup>176</sup> See Bitcoin (BTC) Historical Data, <https://coinmarketcap.com/currencies/bitcoin/historical-data/?start=20170731&end=20170802> (last visited Mar. 9, 2019).

<sup>177</sup> See Treas. Reg. § 1.1223-1(a).

BTC because this approach forces her to reallocate some of her basis to the 1 BCH. Whether Alice would prefer one approach depends on the timing of her future sales of her 1 BTC and 1 BCH.

The corporate spinoff and the creation of Bitcoin Cash share a rough similarity. In a corporate spinoff, a corporation distributes shares of a subsidiary to its shareholders. Afterwards, the shareholders directly own shares of the subsidiary corporation and may sell them without selling their original shares of the distributing corporation. The distributing corporation looks like Bitcoin, and the subsidiary corporation looks like Bitcoin Cash. The corporate spinoff enjoys tax-deferred treatment because it is simply a change in form of investment.<sup>178</sup> After the spinoff, the shareholders control the former subsidiary directly, whereas they previously controlled it indirectly (via their ownership of the distributing corporation).

This rationale—continuation of investment—does not exist in the creation of Bitcoin Cash and other crypto clones. In both form and substance, Bitcoin was not a parent of Bitcoin Cash. Bitcoin and Bitcoin Cash are notional assets, not backed by any property.<sup>179</sup> Consensus and algorithms, not corporate directors, govern the two systems. Bitcoin Cash came about because members of the Bitcoin community could not reach consensus on how the system should handle more transactions. Rather than continue with the Bitcoin community, some members cloned the Bitcoin blockchain and used the clone as the start of a new system.<sup>180</sup>

Moreover, the reorganization approach has all of the valuation and administrative challenges of the taxation-upon-creation approach. As noted earlier, in a corporate spinoff, shareholders need to allocate their existing cost basis between the new shares they receive and the shares they previously owned. They must allocate the basis based on the relative values of the new and old shares. In the earlier example, Alice needed to value her 1 BCH in order to reallocate some of her original \$430 basis in the 1 BTC she purchased in 2016.<sup>181</sup> On August 1, 2017, the market for Bitcoin was well established and would produce a value of around \$2750. However, the market for Bitcoin Cash was not well established at that time.

Because of these problems, the reorganization approach is the least desirable of the three discussed so far. The taxation-upon-creation approach follows the general principles and doctrines of the income tax but generates serious valuation and administrative problems. The deemed-zero-value approach solves these problems but also gives Bitcoin Cash holders a tax windfall in addition to their economic windfall. The reorganization approach has the worst features of the two others, giving Bitcoin Cash holders a tax windfall *and* producing difficult valuation problems.

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<sup>178</sup> See BITTKER & LOKKEN, *supra* note 61, at ¶ 94.1.1.

<sup>179</sup> See *supra* Part II.B.

<sup>180</sup> See *supra* Part III.C.

<sup>181</sup> See *supra* note 175 and accompanying text.

#### D. A Proposal for Open-Transaction Treatment

New cryptocurrencies like Bitcoin Cash will inevitably create valuation and administrative disputes. In the early hours and days of their existence, they may not be supported by an active market. It may also be unclear when they even come into existence. For these reasons, the owners should be able to defer the tax consequences of their crypto windfalls.

Bitcoin Cash has been a successful new cryptocurrency. In early 2019, it had a market price of around \$130 (compared with Bitcoin's price of around \$3900)<sup>182</sup> and was the sixth most valuable cryptocurrency in terms of market capitalization. It is not, however, the only cryptocurrency created by cloning on existing blockchain. Other forked cryptocurrencies include Bitcoin SV (market price of \$67; ranked eleventh in market capitalization), Bitcoin Gold (market price of \$13; ranked twenty-seventh in market capitalization), and Ethereum Classic (market price of \$4.31; ranked eighteenth in market capitalization).<sup>183</sup> A full description of these cryptocurrencies is beyond the scope of this Article, but they raise issues similar to those discussed about Bitcoin Cash.

Moreover, these are not the only new cryptocurrencies. By one count, there are *more than seventy* new cryptocurrencies based on Bitcoin alone<sup>184</sup> and additional clones based on Ethereum. Most of these new cryptocurrencies are completely worthless, and many cannot even be transferred effectively. The taxation-upon-creation and reorganization approaches would both require taxpayers to value each of these new cryptocurrencies. Even if the I.R.S. and taxpayers could overcome the valuation and administrative difficulties in taxing Bitcoin Cash upon creation, they would need to give some attention to the seventy-odd other cryptocurrencies that have been created in similar fashion. For these reasons, taxpayers should be allowed to defer income tax consequences from receiving crypto windfalls like Bitcoin Cash.

Deferral of income from crypto windfalls seems inevitable. However, capital gains treatment for the entire windfall is not. As noted above, crypto windfalls do not have the usual policy justification for lower taxation of long-term capital gains. The windfall beneficiaries were not "investors" in the new cryptocurrencies they received. Instead, crypto windfalls should be taxed as ordinary income when owners sell or exchange the new cryptocurrency.

Perhaps the best doctrinal analogy for crypto clones is free samples of merchandise.<sup>185</sup> Free samples (like books sent to reviewers and teachers) are clearly accessions to wealth.<sup>186</sup> They are not gifts, because the transferor's

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<sup>182</sup> See *Cryptocurrency Market Capitalizations*, COINMARKETCAP, <https://coinmarketcap.com> (last visited Mar. 9, 2019).

<sup>183</sup> See *id.*

<sup>184</sup> See *Bitcoin Forks and Airdrops*, FORKDROP.IO, <https://forkdrop.io> (last visited Mar. 9, 2019).

<sup>185</sup> Cf. Zelenak & McMahon, *supra* note 15, at 1300 (discussing unsolicited merchandise in the context of property windfalls).

<sup>186</sup> See *Haverly v. United States*, 513 F.2d 224, 226 (7th Cir. 1975).

intent is to increase market share and publicity for the merchandise.<sup>187</sup> Nevertheless, the I.R.S. and the courts have excused taxation on merchandise samples unless the recipient attempts to sell the merchandise or donate it to charity.<sup>188</sup> Absent a sale or donation of sample merchandise, the recipient has arguably not exercised “complete dominion” over the merchandise within the meaning of *Glenshaw Glass*.<sup>189</sup> The precise tax consequences of selling or donating the merchandise are murky as the issue has not generated much litigation.<sup>190</sup>

Extending the merchandise-sale approach to crypto windfalls, policymakers should tax the recipients when they exercise complete dominion by making a transfer on the blockchain. A blockchain transfer is verifiable, as anyone can inspect the blockchain. Moreover, it is an unambiguous act of exerting complete dominion over the cryptocurrency. Only the owner, with access to private keys (akin to passwords), can make such a transfer. Upon taking this act, the owner would have gross income equal to fair market value of the cryptocurrency at the time of transfer.

Another analogy is the tax treatment of compensatory stock options, bestowed upon corporate executives and other highly compensated employees. Options that do not qualify for special treatment as incentive stock options are taxed only when the employee exercises the option.<sup>191</sup> The options are not, however, income to the employee when granted because their valuation is so speculative.<sup>192</sup> In short, compensatory stock options are taxed as “open transactions” that have no tax consequences until the employee takes some act to close the transaction. Bitcoin Cash has similar characteristics, in that its value upon creation is speculative.

Some commentators have urged the I.R.S. to extend the principles of I.R.C. § 83(b) to Bitcoin Cash and other crypto clones.<sup>193</sup> By its terms, section 83(b) allows employees to accelerate compensation income when their employers transfer restricted stock.<sup>194</sup> Section 83(b) does not apply, however, to the transfer of most compensatory stock options because the value of options is too speculative.<sup>195</sup> In these cases of speculative value, the Treasury regulations deny taxpayers the ability to make a section 83(b) election.<sup>196</sup> In

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<sup>187</sup> But cf. I.R.C. § 102 (excluding gifts from gross income); *Commissioner v. Duberstein*, 363 U.S. 278, 285 (1960) (holding that gifts arise from the donor’s “detached and disinterested generosity”).

<sup>188</sup> Charitable donation would give the recipient a deduction. Excusing tax upon receipt and granting a deduction upon donation would provide unwarranted double tax benefits. See *Haverly*, 513 F.2d at 227.

<sup>189</sup> *Id.*

<sup>190</sup> See BITTKER & LOKKEN, *supra* note 61, at ¶ 5.5.2.

<sup>191</sup> See Treas. Reg. § 1.83-7(a).

<sup>192</sup> In rare cases, options are taxed upon grant when they have a “readily ascertainable fair market value.” See *id.*

<sup>193</sup> See AICPA, *supra* note 68, at 10; see also ABA TAX SECTION, *supra* note 166, at 12.

<sup>194</sup> See I.R.C. § 83(b).

<sup>195</sup> See Treas. Reg. § 1.83-7(b)(2).

<sup>196</sup> See *Cramer v. Commissioner*, 64 F.3d 1406 (9th Cir. 1995) (denying section 83(b) election for option that lacked ascertainable value).

short, the solution to speculative values is to defer realization of ordinary income, not to assume there was zero income at the time of creation.

## VII. CONCLUSION

The creation of Bitcoin Cash led to a windfall for Bitcoin owners. Owners of Bitcoin, as of August 1, 2017, received an equal number of units of Bitcoin Cash. The creation came about because dissidents in the Bitcoin community cloned the Bitcoin blockchain and grafted some desired changes on to the clone. From the perspective of Bitcoin owners, the creation might have looked like a corporate spinoff or similar reorganization. However, Bitcoin did not distribute or fundamentally change after the creation of Bitcoin Cash. No good analogy exists, beyond record setting homeruns and free books sent to reviewers.

The tax issues surrounding Bitcoin Cash reopen a twenty-year-old debate among tax scholars. Should property windfalls be taxed when received (e.g., when a fan catches a valuable baseball), or later, when sold? Arguments in favor of deferring taxation are particularly strong in the case of Bitcoin Cash. The lucky owners took no actions to receive the Bitcoin Cash, never received notice, and had no say in the matter. Until they sell or transfer the Bitcoin Cash, the new owners may not have exercised the “complete dominion” necessary to trigger gross-income inclusion under the case law. Moreover, immediate taxation would require difficult valuation determinations both for Bitcoin Cash and for dozens of near-worthless cryptocurrencies that followed its pattern of creation.

Thus, the I.R.S. should defer taxation on Bitcoin Cash. It should not, however, augment the economic windfall with a tax windfall. Bitcoin Cash owners should have ordinary income (not preferred capital gains treatment) when they sell or transfer their new holdings.