



'Coin'ing the Tax 'Bit'

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In June 2014, King's College, a Christian liberal arts school in New York City, became the first accredited college in the United States to accept bitcoin for tuition, other expenses, and donations.¹Retailers like Overstock.com have started accepting bitcoin as a mode of payment. Other retailers like Whole Foods, Lowe's, and Sports Authority are allowing customers to pay with gift cards, purchased by using bitcoins.²With the bitcoin entering the financial routine, we make an attempt to understand this crypto currency and its impact on the regulatory framework.

What is Bitcoin?

In 2009, a software developer, under the alias Satoshi Nakamoto created 'bitcoin.' Bitcoin is a form of digital currency, created and held electronically. Bitcoins are not printed like dollars or euros. They are not created by any central bank. Bitcoins are created by people all around the world, using software that solves mathematical problems.

¹ USA Today, Patrick Foster, June 14, 2014

<http://college.usatoday.com/2014/06/14/new-york-college-becomes-first-in-u-s-to-accept-bitcoin-for-tuition/>

² <http://newsbtc.com/2014/09/02/users-can-now-spend-bitcoin-whole-foods-products-via-egifter/>

In simpler terms, bitcoin network is just a digital file that lists accounts and money like a ledger. Just like a bank maintains an account ledger for every customer, the bitcoin network maintains a copy of the digital file on every computer in the Bitcoin network, as illustrated by Fig. 1. This means that everyone can see everyone else's transactions.

Figure 1: Sample of a Bitcoin digital file

Alice	5.3
Bob	100
Frank	700
Carlos	3
Jane	1.3
Charlie	4.645
Scott	.00000001
Kristin	1

Suppose Alice wants to transfer 5 bitcoins to Bob (Refer to Fig. 2).

Figure 2: Bitcoin transaction messages:

Transaction Messages		
		Digital Signature
Alice → Bob	5.0 BTC	04323784...
Alice → Dave	12 BTC	88432738...
Alice → Juan	2000 BTC	00328434...
Alice → Bob	14 BTC	19382637...

^
different every time

She broadcasts this message to the entire bitcoin network. Upon receiving this message, every computer in the network updates their copy of the ledger with this information.

In the bitcoin world, the names of Alice and Bob are replaced by numbers. Each account has a specific identity represented by digits. The true identity of the owner is thus protected. Simply put, one deals with complete strangers.

To verify that the request is genuine, bitcoin network uses a 'digital signature.' A digital signature is a password which authenticates the bitcoin transaction. Each bitcoin transaction has a unique digital signature. The digital signature works by utilizing two different but connected keys: a "private key" to create a signature and a "public key" to verify the transaction.

This is a simple explanation of how bitcoins work.³ In truth, instead of ledger balances, ownership of bitcoins is verified through links to previous transactions.

To send 5 bitcoins to Bob, Alice must reference the previous transactions through which she received 5 or more bitcoins. Other computers, verifying the Alice and Bob transaction will check the referenced transactions to make sure that Alice was in fact the recipient and also that the inputs add up to 5 or more bitcoins. Through these referenced links, ownership of bitcoins is passed along in a kind of chain, where the validity of each transaction is dependent on previous transactions. Once a transaction has been used, it is considered spent and cannot be used again. Otherwise, someone could double-spend an input by referencing it in multiple transactions. Therefore, when verifying a transaction, in addition to the other checks, computers also make sure that the inputs have not been spent already. Thus, instead of a ledger of balances, bitcoin nodes keep track of a giant list of transactions.

Bitcoin 'Mining'

Bitcoin is a peer to peer network: everyone who creates bitcoin is a fraction of the entire bitcoin network. With paper money, a government decides when to print and distribute money. Bitcoin does not have a central government, so how are bitcoins created? With bitcoin, people use specialized software to solve math problems, and in exchange they are

³ For how bitcoin works, bitcoin mining, popularity of bitcoin, see [bitcoinmining.com](http://www.bitcoinmining.com), [khanacademy.org](http://www.khanacademy.org), and [Imponderable Things \(Scott Driscoll's Blog\)](http://www.imponderablethings.com/2013/07/how-bitcoin-works-under-hood.html). <http://www.imponderablethings.com/2013/07/how-bitcoin-works-under-hood.html>

issued a certain number of bitcoins as commission. By solving the algorithms, they are verifying the transactions in the network, such as the Alice and Bob transaction mentioned previously. More miners means more verification and, therefore, a more secure network. The bitcoin network changes the difficulty of the math problems depending upon how fast they are being solved.

In early days, miners were able to solve these problems with computers and processors. As bitcoin grew, miners moved on to graphic cards, used for gaming purposes, for solving algorithms. Graphic cards are faster but use a lot of power. Today, bitcoins are mined with the help of Application Specific Integrated Circuit-chips (ASICs). ASIC technology has made bitcoin mining faster with comparatively less power.

Bitcoin mining needs ample resources in terms of hardware, software, and electricity. As more miners join the network, it becomes more difficult for a single individual to mine bitcoins. Hence, the miners form a pool, solve the algorithms together, and share the proceeds according to the work performed.

Bitcoin Trade and ATM

Bitcoin mining creates bitcoins. The bitcoins reach the consumers by way of open trade, just like the stock exchange, but bitcoins are bought and sold on an unregulated exchange. Another way of distributing bitcoins is through the 'Bitcoin ATM.' Bitcoin ATMs enable the bitcoin owners to exchange

the digital currency for cash and vice versa. The world's first bitcoin ATM opened in Vancouver, Canada in October 2013.⁴

Why did the Bitcoin become so Popular?

Bitcoin gained popularity due to its unique features:

- 1) **Privacy:** A person's real-world identity can be separated from his pseudonym within the bitcoin system. Although privacy is sometimes associated with illicit transactions, there may be legitimate reasons for wanting to maintain one's own privacy.
- 2) **Accessibility:** Anyone in the world can transact using bitcoin so long as they have access to the internet. Such easy access might not work for other forms of transactions.
- 3) **Transaction costs:** The cost to validate a bitcoin transaction is insignificant when compared to a credit card transaction fee. With bitcoin, the person initiating the transfer sets a proposed fee appropriate enough to provide an incentive for a bitcoin miner to validate the transaction. At the same time, it is not much extra effort for a miner to add one more transaction to the block on which they are working.
- 4) **Decentralization:** No central parties are involved in a bitcoin transaction (example, a bank). No one can "freeze" your bitcoin account or try to seize your assets. All transactions are public, and the transaction block chain is a publicly verifiable trail that you own the bitcoins you do.

⁴ <http://www.bbc.com/news/technology-24756030>, Nov 1, 2013

5) **Irreversibility:** Once a transaction happens, it cannot be undone, which might be advantageous or even necessary for some merchants.

Proposed Regulations for Bitcoin in New York:

On July 17, 2014, the New York State Department of Financial Services (DFS) issued a draft of its “BitLicense” regulatory framework for New York virtual currency businesses. The proposed regulatory framework contains rules for consumer protection, anti-money laundering compliance, and cyber security.⁵

The following is a summary of the proposed legislation:

1) DFS BitLicenses will be required for firms engaged in the following virtual currency businesses: receiving or transmitting virtual currency on behalf of consumers; securing, storing, or maintaining custody or control of such virtual currency on the behalf of customers; performing retail conversion services; buying and selling virtual currency as a customer business or controlling, administering, or issuing a virtual currency. The license will not be required for merchants or consumers that utilize virtual currency solely for the purchase or sale of goods or services.

2) Each firm will hold virtual currency of the same type and amount as any virtual currency owed or obligated to a third party. The licensee would be required to maintain a bond or trust account in United States dollars in such form and

⁵ NY Dep. of Financial services, Press release, July 17, 2014
<http://www.dfs.ny.gov/about/press2014/pr1407171.html>

amount, as is acceptable to the DFS, for the protection of the licensee’s customers.

3) Upon completion of any transaction, each firm shall provide to a customer a receipt containing the following information: the name and contact information of the firm, including a telephone number established by the licensee to answer questions and register complaints; the type, value, date, and precise time of the transaction; the fee charged; the exchange rate, if applicable; a statement of the liability of the licensee for non-delivery or delayed delivery; and a statement of the refund policy of the licensee.

4) When opening accounts for customers, firms would have to verify their identity to the extent reasonable and practicable and maintain records of the information used to verify such identity, including name and physical address.

5) Each licensee would have to maintain a cyber-security program designed to perform a set of core functions: identifying internal and external cyber risks; protecting systems from unauthorized access or malicious acts; detecting system intrusions and data breaches; and responding and recovering from any breaches, disruptions, or unauthorized use of systems.

Additional requirements for books and records, reporting, auditing, compliance measures, disaster recovery, and transitional periods have been proposed in the draft.

Having these rules in place would certainly help in monitoring the virtual currency. The draft was followed by a 45-day public comment period. Further action on this draft is awaited.

Present Guidance from the IRS

On March 25, 2014 the IRS issued a press release providing some guidance on the tax implications of the virtual currency, as later promulgated in Notice 2014-21, 2014-16 IRB (April 14, 2014).

The notice discusses issues like information reporting requirements and determining FMV of currency and whether certain transactions generate ordinary income or capital gains.

Per the IRS notice, virtual currency that has an equivalent value in real currency, or that acts as a substitute for real currency, is referred to as “convertible” virtual currency. Bitcoin is one example of a convertible virtual currency. Bitcoin can be digitally traded between users and can be purchased for, or exchanged into, U.S. dollars, Euros, and other real or virtual currencies. The most important aspect of the IRS notice is that the IRS will treat bitcoin as property—not currency—for U.S. federal tax purposes. As such, general tax principles that apply to property transactions will apply to transactions using bitcoins. Bitcoin will be not treated as currency that could generate foreign currency gain or loss. Generally, any taxpayer who receives virtual currency as a payment for goods and services shall include in his/her gross income the fair market value of the currency on the date of receipt. For U.S. tax purposes, transactions using virtual currency must be reported in U.S. dollars. If a virtual currency is listed on an exchange, the fair market value of the virtual currency will be determined by converting the virtual currency into U.S. dollars at the exchange rate, in a reasonable manner.

Furthermore, a taxpayer will recognize a gain if the fair market value of property received in exchange for virtual currency exceeds the taxpayer's adjusted basis of the virtual currency. If the fair market value of the property received is less than the adjusted basis of the virtual currency, the taxpayer has a loss. Upon mining, a bitcoin miner will include the fair market value of the virtual currency as of the date of receipt as gross income. Wages paid in bitcoin would be subject FICA, FUTA, and federal income tax withholding. If bitcoin mining is undertaken as trade or business, the net earnings from self-employment will constitute self-employment income and will be subject to self-employment tax. For 1099 purposes, payment of fixed and determinable income using virtual currency with a value of \$600 or more to a U.S. non-exempt recipient in a taxable year will be required to be reported to the IRS and the payee. Failure to timely or correctly report virtual currency transactions will attract penalty under sections 6721 and 6722.

The IRS notice throws light on the federal tax treatment of bitcoin transactions. However, there are a few open tax issues which have not been yet addressed.

Open Tax Issues:

❑ Reporting for FBAR and Form 8938 :

Under present law, the instructions for the FinCEN Form 114 (FBAR) and Form 8938 - Statement of Specified Foreign Financial Assets - do not specifically address the reporting of virtual currency. If the bitcoins are held on behalf of the taxpayer by any entity, reporting may be

required. However, the current guidance is silent on this issue.

❑ **State Taxation :**

Presently, few states have any kind of guidance for bitcoin transactions. In California, the State Board of Equalization clarified that sales and use tax would apply to virtual currency transactions like bitcoin in the same manner as traditional payment methods, such as cash or credit card.⁶ For example, a restaurant sells a taxable meal to a customer with an advertised menu price of \$50. The customer pays the restaurant 0.065 Bitcoin for the meal. The measure of tax from the sale of the meal is \$50, which is the amount allowed by the retailer for the 0.065 Bitcoin at the time of the sale. The restaurant should retain a copy of the menu in its records to document the measure of tax from its virtual currency transactions.

❑ **Tracking The Basis In Bitcoins :**

Every bitcoin used in the system can be tracked by the algorithms. Hence, the specific identification method of inventory seems appropriate for bitcoin transactions. For simplicity, should the FIFO inventory method be allowed to track basis? Presently, the FIFO is used for tracking the basis of securities only.

❑ **Impact On Estate Tax and Gift Tax :**

Simply put, federal estate tax is normally due when a taxpayer dies and if the total value of his estate (which essentially includes everything--property of all types) exceeds a certain amount after taking deductions. Gift tax is due when a taxpayer gifts something in excess of the specified amount to a single person. In both cases, the issue is valuation of bitcoin. At what value should the bitcoins be included as property? Bitcoins are not recognized on any national stock exchanges, so various platforms that issue bitcoins use different values for bitcoins. In such a situation, the valuation of bitcoin is not uniform.

Cautions:

❑ **Loss of Bitcoins :**

If a person loses his credit card, the credit card company may reimburse him for his loss depending on his contract with the company. In the U.S., bank accounts are protected up to a certain amount by the FDIC (Federal Deposit Insurance Corporation). If a taxpayer loses his bitcoins, either by theft or any other reason, no protection is available to the taxpayer.

⁶ Board of Equalization Special Notice (June 2014):

<http://www.boe.ca.gov/news/2014/1382.pdf>.

⁷ For bitcoin picture, see en.bitcoin.it , For Figures 1 and 2, see Imponderable Things (Scott Driscoll's Blog)

❑ Illegal Activities :

Recently, law enforcement officials shut down Silk Road, a black market website which sold drugs for bitcoins. Bitcoin became popular due to the anonymity factor. How will laws ensure that the bitcoin transactions are for legitimate purposes?

❑ Will the popularity of the bitcoin have any effect on the world currencies?

When compared to a currency, bitcoin falls short of certain important qualities. Presently, the bitcoin is relatively nascent. Unlike a currency, bitcoin lacks ample liquidity and controlled volatility. A currency is backed by confidence, created through sound monetary policy and regulation. Bitcoin is backed by the expectation that the encryptions behind the virtual currency cannot be hacked. A country with limited investment options of bank deposits and real estate may flock to bitcoin for diversity. More investment options might undermine the value of bitcoin, and not the currencies.

As the bitcoin is growing, so is its legislation. It would be interesting to see a form 1098-T with a small box specifying the tuition paid in bitcoins. It has become imperative for tax professionals to keep track of the bitcoin developments. Going forward, a relevant question for every client could be, 'do you have any bitcoin transactions?'

And you never know, the next time you file your tax return, your tax advisor may accept his fees in bitcoin!

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Asmita Bedekar would like to thank Professors Annette Nellen and Joel Busch for their guidance on this article.