What Is Money? From Commodities to Virtual Currencies/ Bitcoin

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1. Introduction

Money is a term of art that may be described by its functions. The three primary functions are 1) a means of exchange in terms of 2) a defined unit of account that is used as 3) a measure and store of value. What constitutes money and the methods of payments has evolved over time. This article focuses on money and payments in the United States. Laws and regulations that are applicable in the U.S. may not apply in other countries, and vice versa.

2. Commodity Money

Some forms of money were being used as early as 2200 BC, but the forms of money have changed considerably since then.[1] The early money was usually a commodity that had intrinsic value, such as gold, silver, cattle, and seeds. Around the 18th century, "commodity-backed" money appeared. These were pieces of paper (e.g. gold certificates) that could be exchanged for a fixed amount of the underlying commodity (e.g. gold). The advantages of commodity-backed money were its portability and the fact that large amounts of value could be transferred by a single piece of paper.

3. Fiat Money

Over time, commodity-backed money was replaced by fiat money. Fiat money is any legal tender designated and issued by a central government authority. In the United States, fiat money is legal tender that consists of United States coins and currency (including Federal Reserve notes and circulating notes of Federal Reserve Banks and national banks) that can be used to pay for all debts, public charges, taxes, and dues. Foreign gold and silver coins are not legal tender for debts.[2] Fiat money does not mean that the dollars or fractions of dollars must equal something having intrinsic or substantive value.[3]

In 1863, President Abraham Lincoln enacted the National Banking Act to establish a national banking system and a uniform national currency. The Act also provided for the sale of government bonds to help finance the Civil War and it allowed national banks to issue notes (i.e. currency). The National Banking Act was originally known as the National Currency Act. The "National Currency Era," allowing national banks to issue currency, came to an end in1935 as currency was consolidated into Federal Reserve Notes, United States Notes, and Silver Certificates.[4]

The first fiat money issued in the United States was produced in 1690. The Massachusetts Bay Colony, one of the original 13 colonies, issued paper money to cover the costs of their military expeditions.[5] The issuance of paper notes spread to the other colonies, and in 1739, Benjamin Franklin's printing company in Philadelphia printed notes with complex patterns cast from actual leaves that were difficult to counterfeit.

In 1775, the Continental Congress issued paper currency - "Continental Currency" - to finance the Revolutionary War. However, the Continental Currency was denominated in Spanish milled dollars, had no backing from the government, and was easily counterfeited. As a result of these shortcomings, the currency declined in value.

The Coinage Act of 1792 created the U.S. Mint, and established a federal monetary system with coins backed by gold, silver, and copper. In 1861, Congress authorized the Treasury to issue non-interest-bearing Demand Notes that were called "greenbacks" because of their color. All U.S. currency printed since then remains valid and is redeemable at full face value.

Subsequently, the methods of payments gradually evolved from coins and currency to electronic checks, credit cards, stored value cards, smart cards, and various forms of electronic payments via the Internet, land line phones, and mobile phones. Some of these methods have biometric security devices (e.g. finger prints, iris scan, voice recognition) for security purposes.[6]

According to the Board of Governors of the Federal Reserve system in the United States, there is "no Federal statute mandating that a private business, a person, or an organization must accept U.S. currency or coins as payment for goods or services. Private businesses are free to develop their own policies on whether to accept cash unless there is a state law which says otherwise."[7] For example, a gas station may refuse to take bills larger than $20 to buy gasoline.

4. Virtual Currencies

In recent years, there has been growth of virtual currencies. The Financial Crimes Enforcement Network (Fin CEN) distinguishes "real" currency from "virtual currency."

A "real" currency is "coin and paper money of the United States or any other country that is designated as legal tender, circulates, and is customarily used and accepted as a medium of exchange in the country of issuance.[8]

In contrast to a real currency, virtual currency is a medium of exchange that operates like a currency in some environments, but does not have all of the attributes of real currency. In particular, virtual currency does not have legal tender status in any jurisdiction.[9] Therefore, under the Bank Secrecy Act, virtual currency does not meet the criteria to be considered currency because it is not legal tender.[10] Nevertheless, it acts as a substitute for real currency and can be exchanged for real currency.[11] Virtual currencies are also referred to as fiduciary currencies, which means that they have no intrinsic value (i.e. they are not backed by gold, silver, oil, wheat, or other commodities), and their value is determined by government fiat or the market price.[12]

There are many different virtual currencies. For example, World of Watercraft (WoW) Gold, is used in a game designed by Blizzard Entertainment, and Linden Dollars are used in Second Life, a virtual community in an online game.[13] Facebook Credits (FB) can be used to buy virtual goods on the Facebook platform, and Frequent-Flyer loyalty programs offer vouchers and bonus points that can be exchanged for flights.[14] Bitcoin is a virtual currency that will be discussed in detail shortly. The main focus here is on virtual currency schemes used as a form of electronic money to buy goods and services and for other purposes.[15]

The advantages of virtual currency are:[16]

- The user can remain relatively anonymous.
- It is easy to use.
- The fees may be low.
- It is globally accessible through the Internet.
- It serves as a store of value and can be used to transfer value domestically and internationally.
- There are few transaction limits.
- It is generally secure.
- The transactions are irrevocable.

From the point of view of law enforcement agencies and government authorities, disadvantages of virtual currency include the fact that:

- Some systems may have been created to facilitate money laundering.
- It tends to be decentralized, with no central administrator to maintain records or report suspicious financial activities.
- It can be used to exploit the weaknesses in the anti-money laundering and counter-terrorism regimes in various countries.

Convertible virtual currencies can be centralized or decentralized. The centralized virtual currencies have a repository and a single administrator who exchanges the virtual currency for real currency or funds, or vice versa. Decentralized virtual currencies do not have a centralized repository or single administrator. The value is electronically transmitted between the buyer and the seller of the currency. In all fairness, it must be pointed out that any currency can be used for both legal and illegal purposes. Recent U.S. Senate Hearings focus on the illegal activities of digital currencies.

The Silk Road was an online market place where many illegal products and services were sold using Bitcoins for two-and-a-half years or more.[17] The most popular products were illegal drugs and forged documents such as passports. "Silk Road was used by several thousand drug dealers and other unlawful vendors to distribute hundreds of kilograms of illegal drugs and other illicit goods and services to well over a hundred thousand buyers, and to launder hundreds of millions of dollars from these unlawful transactions."[18] It was also known for gun running and murder for hire. Approximately $1.2 billion in transactions were made through the Silk Road.

Liberty Reserve, a currency-transfer and payment processing company based in Costa Rica, allowed customers to move money anonymously. It is another example of how an anonymous currency processor was used to facilitate part of large-scale illegal business operations enabling criminals to engage in various frauds, drug trafficking, child pornography, and money laundering.[19] Liberty Reserve processed transactions worth approximately $8 billion over the twelve-month period preceding October 2013; however, this measure may be artificially high due to the extensive use of automated layering in Bitcoin transactions.

By way of comparison, in 2012, the Bank of America processed $244.4 trillion in wire transfers, and Western Union made remittances totaling approximately $81 billion. According to the United Nations Office on Drugs and Crime (UNDOC), the amount of all global criminal proceeds available for laundering through the financial system in 2009 was $1.6 trillion.[20]

5. Bitcoin

Bitcoin is a decentralized or person to person (P2P) virtual currency available in the United States and other countries for use in online transactions. Bitcoins can also be traded on an exchange or through private transactions. Bitcoins are stored in an online wallet by companies like Blockchain, My Wallet, and Coinbase that provide safekeeping services. The Bitcoin balances in online wallets are a matter of public record that can be accessed by a number stored in physical representations of Bitcoins, called tokens. The wallets also have a private key that is used for transferring Bitcoins. The payment transactions are recorded and shared in a public ledger called a "block chain" that is shared by all nodes participating in the system; this assures that the same Bitcoins cannot be spent twice.[21]

Bitcoin is a cryptocurrency, which means that it relies on complex cryptographic software protocols to generate the currency and to validate transactions.[22] Other cryptocurrencies include Litecoin, Peercoin, Namecoin, and Bbqcoin.[23] In addition, there are Amazon Coins, Ripple, OpenCoin, MintChip, and Linden Dollars.[24] Finally, there are anonymous Internet payment schemes, such as Moscow-based WebMoney, Perfect Money based in Panama, and CashU, which serves the Middle East and North Africa.[25]

Some businesses in the United States accept Bitcoins.[26] It is recognized by Germany as private money.[27] In China, individuals can trade in Bitcoins, but they cannot be exchanged for real currency at Chinese banks. In Finland, it is considered a "commodity," and it is accepted by some businesses.[28] In Canada and Norway, Bitcoin is legal, but it is not legal tender.[29] Bitcoin is banned in Thailand,[30] and virtual currencies are illegal in Russia.[31]

Bitcoin was created in 2008 or 2009 by Satoshi Nakamoto, who wrote a paper entitled "Bitcoin: A Peer-to-Peer Electronic Cash System."[32] The system allows payments to be sent directly from one party to another anonymously, without going through a financial institution or keeping records of the transactions. Previously, payers had to rely on third-party services such as MasterCard or PayPal to make the payments and keep records of the transactions.

Bitcoin offers users a low cost global payment standard, and an easy way to transact business across national borders. It also offers privacy. Moreover, it cannot be easily confiscated by a government, which makes it attractive to criminals, including drug dealers.[33] This brought it to the attention of FinCEN (Financial Crimes Enforcement Network), the Department of Justice, and other government agencies.[34] Under FinCENs rules, "anyone who accepts and transmits a convertible virtual currency, or buys or sells convertible currency for any reason is a money transmitter" under the Bank Secrecy Act (BSA).[35] The definition does not differentiate between real and virtual currencies. However, the definition does have some exclusions.[36] Futures commission merchants that are registered with and regulated by the Commodities Futures Trading Commission are excluded, for example.

Some online transactions are denominated in Bitcoins, which derive their value in an open market. The price/value is highly volatile; Bitcoins began trading at less than five cents in 2010 and soared to more than $1,200 in 2013.[37] The stated value was $535 in February 2014.[38] Bitcoins used to be actively traded on the Mt. Gox currency exchange in Tokyo and Japan and on the BTC exchange based in China.[39] Bitcoins can also be traded on Bitstamp, located in Reading, United Kingdom, and in the Republic of Slovenia.[40]

Mt. Gox's multiple currency markets allowed users to purchase and resell their Bitcoins in up to 16 different currencies, along with the ability to securely store Bitcoins in a virtual "vault" for safe keeping.[41] However, the so-called vault was not completely safe and Mt. Gox filed for bankruptcy in Japan after 850,000 customers and the exchanges Bitcoins (worth about $425 million at current prices) disappeared.[42] Mt. Gox also filed for Chapter 15 bankruptcy protection in Dallas, Texas, where it had stored some of its data on computer servers.[43]

Being a peer-to-peer network, Bitcoin depends on its users, who are called miners, to create the currency units and verify transactions. In other words, it is a decentralized system with no central monetary authority. Bitcoins are created or "mined" by computers solving increasingly complex math problems (i.e. algorithms) that verify the sequence of data (i.e. the block) that are linked together and are recorded in a public ledger known as the "block chain." The miners are rewarded with transactions fees. The system was designed so that the maximum number of Bitcoins that can be mined is 21 million, and the system will cease operation in 2140.[44]

Because Bitcoin payments are peer-to-peer, the transaction costs are lower than if they had to go through a third-party intermediary. This makes Bitcoin attractive to some cost-conscious small businesses and for those who want to send low-cost remittances to relatives living in developing countries. RoboCoin is the first Bitcoin Automatic Teller Machine (ATM).[45] It allows one to buy and sell Bitcoins on a RoboCoin ATM. Gavin Andreson, chief scientist for Bitcoin, stated in an interview with the *Wall Street Journal,* that Bitcoin is "still an experiment, and (you should) only invest time or money you could afford to lose."[46]

6. Conclusion

What constitutes money and the method of payments has evolved continuously since 2200 BC.

Commodities, such as gold and silver, were replaced by commodity-backed paper money. Next came fiat money (i.e. U.S. coins and currency), which was first issued in the United States in 1690. Subsequently, the methods of payments evolved from currency to checks, credit cards, and various forms of electronic payments. The latest innovation is virtual currencies that operate like currency, but do not have all of the attributes of real currency. For example, U.S. currencies are "legal tender" for all public and private debts, but virtual currencies do not have that status. Nevertheless, virtual currencies have attributes that make them attractive for both legal and illegal activities. These include but are not limited to user anonymity, low user costs, accessibility though the Internet, and irrevocable transactions.

Bitcoin is the most successful of more than a dozen other virtual currencies that are used globally for both legal and illegal activities. Thus, Canada, China, Germany, Norway, Thailand, the United States, and other countries have different laws applying to virtual currencies. The evidence suggests that virtual currencies – Bitcoins and others - will play an increasing role in payments systems, not just in the U.S., but worldwide. According to CoinDesk, Bitcoins are being used in North and South America, Europe, Africa, and Asia.[47]

The number of companies accepting Bitcoins in November 2013 soared from 552 to more than 1,000. "useBitcoins.info" reported that more than 2,000 businesses use Bitcoins worldwide.[48] However, the value of virtual currencies, such as Bitcoin, is volatile. Caveat Emptor! (Let the buyer beware!)

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