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Research Note

Virtual Currency: The Next Generation Banking Model

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Abstract – This research note describes the unique features of virtual currencies, specifically Bitcoin. It also discusses the reasons for its consumer attraction and the associated risks that it faces.

What is Virtual Currency?

Virtual currency is an alternate form of money that is non-government created, electronic, and can be used to purchase goods and services from online as well as traditional retailers. One of the most current popular forms of virtual currency is Bitcoin. The concept of Bitcoin was introduced through a 2008 paper written by Satoshi Nakamoto, which proposed a peer-to-peer system that allowed payments to be sent between anonymous online users without the intermediary use of a financial institution.[1] In 2009, Bitcoin went live for the purpose of being a “peer-to-peer electronic cash system” that ensured that the same “coin(s)” was not being spent more than once by a single owner.[2] This was accomplished through the use of complex math functions as well as publicly recorded time stamped transactions.[3] Once a transaction has occurred, the transaction is irreversible.[4] Despite the efforts of many journalists, very little is known of the developer or group of developers known by the pseudonym, Satoshi Nakamoto. However, in April reports claimed that Satoshi owns at least one million Bitcoins, which at that time’s exchange rate was worth approximately $96 million.[5]

Bitcoins are unlike traditional fiat currency. The Bitcoin currency is not issued by a government organization or managed by a central bank.[6] Furthermore, Bitcoins are not limitless. The creator, Satoshi, set the maximum number of Bitcoins allowed to be in circulation at 21 million.[7] Since its inception in 2009, Bitcoin has over 11 million coins in circulation, more than half of the total available coins.[8]

Acquiring Bitcoins

So how can someone gain possession of Bitcoins? First, an online user must obtain a piece of software, known as a virtual wallet, which allows a user to store and conduct business with the digital currency.[9] Once the digital wallet is acquired, through installation on a computer or mobile device, the user will be able to access the Bitcoin network.[10] The network is the basis for all transactions associated with Bitcoin. While being connected to the Bitcoin network, users can create “coins” by using intense data mining software and hardware tools.[11] Bitcoins are hidden in a complex set of unstructured data.[12] Users are then rewarded with Bitcoins when they are able to solve this complex algorithmic function. These functions increase in difficulty as the amount of coins that are found increase. Many have compared the process to “digging for gold.”[13] Due to the difficulty and effort it takes to successfully data mine for coins, users also have an option to take the easy way and purchase Bitcoins from online exchanges. These virtual exchanges, such as mtgox.com and coinbase.com, allow users to purchase and store coins for a currency exchange fee of 1% or less.[14]

Bitcoins can be used to purchase goods from retailers and online merchants. However, the list of companies that accepts Bitcoins is relatively small. Companies such as Reddit.com, OKCupid, WordPress, and Foodler accept Bitcoins for its goods and services.[15] Although the list of companies accepting Bitcoins is small, it does not mean that the list will remain small, nor does it mean that companies are not intrigued by the possibilities that digital currency brings.

The Rise of Bitcoin

At the beginning of the year, one Bitcoin was only worth $13.51.[16] However, in April the price for one Bitcoin skyrocketed and traded as high as $270.[17] Now according to online exchanges, such as mxgox.com, one Bitcoin is currently worth approximately $115. Despite its incredibly high volatility, Bitcoin continues to attract investors.

In April, it was reported that Tyler and Cameron Winklevoss owned almost $11 million worth of Bitcoin.[18] You may remember the Winklevoss twins from their legal dispute and settlement with Mark

Zuckerberg over the founding of Facebook. The Winklevoss twins are one of the first to publicly announce their backing of Bitcoin. Cameron Winklevoss supported his financial decision, "People really don't want to take it seriously. At some point that narrative will shift to 'virtual currencies are here to stay.' We're in the early days."[19] It's true that Bitcoin is still very much in the early stages. Despite this, Bitcoin has gotten the attention of not only the Winklevoss brothers but also Silicon Valley investment firms that have financed bitcoin-related companies.[20] Even eBay has announced it will look into new ways of incorporating Bitcoin into its PayPal business operations.[21]

In general, the attraction to virtual currency is mostly due to lower transaction costs from removing financial institution intermediaries. The fees associated with using banks or credit card companies, which are usually passed down to the customer, are eliminated with virtual currency. This is especially helpful when conducting transactions that are low in value, usually less than a few dollars. Also, another benefit to virtual currencies is the instantaneous exchange and verification of money. Specifically with Bitcoin, without a financial intermediary and with transaction history recording, the exchange of money is seamless and the time it takes to verify is practically immediate. Although virtual currency is not a new concept, Bitcoin has succeeded in areas where its previous predecessors have failed. Bitcoin verifies money is not being double counted or counterfeited through the use of anonymous transaction time stamping.[22] Not only does this ensure immediate exchange and verification but it also allows users to remain anonymous while doing so. Bitcoin has also attracted many users and investors with its approach to control supply.[23] Due to the limited supply, many people speculate that the value of a Bitcoin will continue to increase as the supply decreases. However, as we have seen with past bubbles, speculation will not always lead to financial wealth.

The Associated Risks

There are several legal and ethical implications that arise with any virtual currency, especially when looking at the Bitcoin business model. Bitcoin essentially ensures anonymous transactions over the Internet, which makes it impossible to track the parties involved. This could attract illegal entities such as drug dealers and criminals involved in money laundering. According to many sources, Bitcoin is widely used on Silk Road, an anonymous marketplace that has been linked to the purchase and sale of illegal drugs.[24] Essentially, the anonymous nature of Bitcoin can attract other criminals that have a desire to successfully launder money by exchanging "dirty" money into Bitcoins and then back into "clean" money.

Similar to the conventional currency, digital currency can also be lost or stolen. Since inception, there have been several Bitcoin thefts from hackers.[25] There have also been system crashes that resulted in "lost" currency.[26] Again, lost and stolen currency would be very difficult, nearly impossible, to trace as all users are anonymous. Unlike traditional financial institutions, Bitcoin currency is not backed by insurance of any kind.[27] Once a Bitcoin is lost or stolen, it is gone for good.

Perhaps the biggest risk to Bitcoin is that the concept of virtual currency applied to practice is still in the early stages. It is very possible that consumer confidence in virtual currency becomes so low that it deems Bitcoins valueless.[28] Virtual currency does not have the years of trust nor does it have the regulations that fiat currency has. Years of lawsuits and lobbying have inspired laws and regulations for conventional currencies. If Bitcoin hopes to continue to operate for the long term, a governing body will most likely need to intervene to define what those laws and regulations should be. Financial disclosure is one area in particular that can affect Bitcoin. It was reported earlier this month by The Financial Times that the U.S. Commodity Futures Trading Commission (CFTC) is currently discussing the possibility of Bitcoin being under CFTC jurisdiction, which could make things difficult for virtual currency exchange companies.[29] The managing partner of Union Square Ventures, Fred Wilson, stated his concern for certain regulations on Bitcoin, "If I really sat down and thought about writing a financial disclosure statement, I could probably list dozens of risks."[30]

Conclusion

Many people still believe that virtual currency is speculative and that many signs point to another bubble. The high volatility of Bitcoin was demonstrated in the large swings that the market experienced from the beginning of the year until now. This has proven the market for Bitcoin is still an unstable one. However, the need for instant, lower cost, and private transactions will maintain, if not increase in the future. Will Bitcoin be the vehicle for these types of transactions in the future? Time will only tell where the outlook of virtual currency lies.

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