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INSIGHT

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Virtual money: the next step after PSD2 and Instant Payments?

VIRTUAL MONEY CAN BE DEFINED AS A DIGITAL REPRESENTATION OF VALUE THAT IS ISSUED AND CONTROLLED BY ITS DEVELOPERS, AND USED AND ACCEPTED AMONG THE MEMBERS OF A SPECIFIC COMMUNITY. UNLIKE REGULAR MONEY, IT IS RELYING ON A SYSTEM OF TRUST AND NOT ISSUED BY A CENTRAL BANK OR OTHER BANKING AUTHORITY.

Virtual Money can be defined as a digital representation of value that is issued and controlled by its developers, and used and accepted among the members of a specific (virtual) community. Unlike regular money, it is not issued by a central bank or other banking authority and is therefore called unregulated, decentralized and relying on a system of trust. Most virtual currencies are convertible and can be exchanged to "real" money like the US Dollars. In this article, Sia Partners explains why "Virtual Money" could become really important, which are the main products and players in the market today and what are their main characteristics, risks and advantages. We also explain key concepts related to Virtual Money, such as "Mining", "Blockchain" and give a short introduction on how to start using Bitcoins.

Is virtual money the same as digital money?

A lot of confusion exists around the terms virtual money and digital money.

When we are talking about digital money, this concerns the categories M2 and M3 of the financial system (M1 are the physical notes and coins in circulation). Worldwide, more than 95% of the currencies is digital. Virtual money originally only referred to the currencies that did not live in the real world and were only exchanged online (typically in gaming systems). In a later phase, virtual currencies started to expand to the physical world and blurred the line between virtual and digital money. Most government institutions prefer to use the term digital currency although they are referring to virtual currency.

Who are the different important actors in the virtual money market and how many are there?

A lot of Virtual Currencies (VC) exist (see table for an overview of some of the most important players), and every virtual currency has its own way of functioning. Most of them are cryptocurrencies (digital currencies in which encryption techniques are used). Each virtual currency has its own founder(s), its algorithms and a varying level of anonymity. What they all have in common is their young age. Bitcoin for example, the most "settled" currency which is still – by far – the most important one in terms of Market Capitalization and popularity has been created in 2009. Since then, many virtual currencies have appeared as you can see on CoinMarketCap.com. Bitcoin today still accounts for approximately 90% (approximately $4.8bn out of $5.3bn) of total VC Market Capitalization, which consists of more than 650 currencies. Others however, like for example XenCoin, have only lived for a couple of months and reached a Market Capitalization of a mere $40k before disappearing.

Zoom on Bitcoin and its "Blockchain" technology

Bitcoin is making use of peer-to-peer-technology, the processing and spending of bitcoins is happening collectively through a network. Every payment gets encrypted by a unique secret key and is sent from one address to another over the block chain, which is a decentralized public register

	Bitcoin	Litecoin	Dash *(ex-Darkcoin)*	Peercoin	Dogecoin	Primecoin
Year of launch	2009	2011	2014	2012	2013	2013
Founder	**Satoshi Nakamoto.** There are no records of Nakamoto's identity or identities prior to the creation of Bitcoin.	**Charlie Lee**, a MIT graduate and former Google engineer.	**Evan Duffield**, a software developer who also used to work at Wells Fargo.	Software developers **Sunny King** (a pseudonym) and **Scott Nadal**.	**Billy Markus** and **Jackson Palmer**	**Sunny King** (who also developed Peercoin)
Market Cap *(End of Nov '15)*	$ 4,822,091,019	$ 135,488,328	$ 12,778,159	$ 8,546,103	$ 13,087,919	$ 775,920
Price *(End of Nov '15)*	$ 324.18	$ 3.13	$ 2.13	$ 0.375006	$ 0.000128	$ 0.062764
Main Characteristics	Bitcoin still has a **huge lead** in terms of its **market capitalization, acceptance and usage.** Today, it is still by far the most popular virtual currency.	Litecoin is designed to **produce more coins** (Four times that of Bitcoin) and at a **faster rate** (1/4th of the time of Bitcoin). Overall, Litecoin is seen as second to Bitcoins in value, but Litecoins are more easily obtainable and transactional.	Though Bitcoins are anonymous when compared to traditional money, there is still a record of all transactions ever carried out. **Dash offers more anonymity** as its transactions are almost untraceable.	Unlike most of its peers who are deflationary, this virtual currency is an **inflationary currency** since there is **no fixed upper limit on the number of coins.** It also promotes its energy efficiency concerning mining and its transparent, open-source network.	There is **no limit to how many Dogecoin can be produced** i.e. the supply of coins would remain uncapped (analog to Peercoin). Dogecoin deals with large numbers of coin that are lesser in value individually, making the currency more accessible with a low entry barrier and fit for carrying out smaller transactions.	Mining Primecoins involves finding special long chains of prime numbers (known as Cunningham chains and bi-twin chains) and offers **greater security** and **mining ease** to the network. These chains of prime numbers are believed to be of great **interest in mathematical research.**

that tracks everyone's bitcoins. Miners verify for every Bitcoin whether the person who sends the money is indeed the owner of the money and every Bitcoins is send once by its owner. It is a very convenient way to transfer money all around the globe without passing by an intermediary.

Read Sia Partners' decryption of the Blockchain technology here.

"Mining" as defined by Bitcoin

"Mining is a distributed consensus system that is used to confirm waiting transactions by including them in the block chain. It enforces a chronological order in the block chain, protects the neutrality of the network, and allows different computers to agree on the state of the system. To be confirmed, transactions must be packed in a block that fits very strict cryptographic rules that will be verified by the network. These rules prevent previous blocks from being modified because doing so would invalidate all following blocks. Mining also creates the equivalent of a competitive lottery that prevents any individual from easily adding new blocks consecutively in the block chain. This way, no individuals can control what is included in the block chain or replace parts of the block chain to roll back their own spends".

Nice to know

Miners used to be small individual miners on their computers in their basement. Nowadays, the mining business is becoming an industry in which big investments are made to increase the computing power in order to acquire a larger part of the mining business. Maintaining competition in this business is as important as in any other business, as it contributes to maintaining a decent level of quality in the network. However, as no regulator exists in today's Virtual Currencies market, competition cannot easily be enforced, which causes a systemic risk to the whole network.

Advantages and risks

Main advantages of the Blockchain technology and associated risks

The Blockchain technology used in Bitcoins and other VCs has an important advantage compared to existing technologies as it contributes to achieving a higher worldwide financial integration. VCs like Bitcoin are first of all "global" currencies (compared to the 200+ local currencies in use worldwide). They grant access to the financial system to anyone who has internet access, thus making (instant) international payments possible for almost everyone on the planet, without making use of the existing Financial System and Banking networks. This is particularly important given today, and according to the IMF, around 50% of the World's adult population do not access formal banking services in any form.

Furthermore, the technology is intrinsically more resistant to manipulation as it does not require any kind of intermediary to perform a transaction. Moreover, Blockchain technologies can aid industry participants to adhere to a number of regulations including AML (Anti-Money Laundering) and T+2 Settlement (read more here). A sine-qua-non condition for this is off course that the technology provides (as in certain VCs today) visibility to view the full transaction history of every event throughout the chain.

VCs created with the Blockchain technology can also be customized ex ante regarding their inflationary or deflationary character, which makes the system less dependent on centralized monetary policies. The downside is however that intervention (on fluctuation, excess or lack of inflation/deflation…) might be more difficult…

Finally, transaction costs could be much lower than today, as the only cost would be to the (mining) network.

Shifting power of banking and regulatory agencies towards the customer

This new payment environment has the tools to completely disrupt the hierarchy in the banking system, as the use of the technology implies that no permission is needed from any third party to make a payment. It basically gives every actor in the system the same rights… and duties.

Proponents of VCs argue that regulators have failed to protect consumers in recent years and especially during the financial crisis. By making use of VCs, security in the financial systems would be each customer's responsibility for his/her own payments. However, it remains to be seen how a highly deregulated system based on Blockchain technology would perform in terms of security.

Bitcoin : do it yourself

1/ Install a Bitcoin wallet (kind of software) on your mobile or computer.

2/ After you installed this wallet, it will generate you a Bitcoin address (you can create more whenever you need one). Actually this is how email works, the only difference is that Bitcoin addresses should only be used once.

3/ Disclose your address(es) to the person who wants to pay you out something or vice versa.

4/ Get Bitcoins by accepting these payments or buy them from an individual or an exchange. These transactions are a transfer of value between Bitcoin wallets that gets included in the block chain.

Regulation

Although the advantages of the Blockchain technology and the use of Virtual Currencies are numerous, they are extremely disruptive and imply many risks. Therefore, if this new payment method is to be the future in payments, it will need to be implemented step by step, and intensively regulated. The question is also whether regulation will be able to decrease the illegal activities or whether it will have the opposite effect where people will try to bypass the rules and the activities will shift to a dark place of the internet?
Government agencies are extremely worried and want to regulate these activities as soon as possible. However since most of them are still trying to understand the functioning of these cryptocurrencies, regulations are still in a very early stage. On top of that, virtual currencies are global and not bound to a specific country or currency area. This of course also makes the creation of laws, regulations and the enforcement of these even more difficult.
A wide variety of ways to cope with this new digital revolution exists nowadays. It is not easy to find an optimal balance between protecting the consumer and respecting his privacy, while not discouraging innovation.

In the US, each state has its own financial regulators and laws. In New York for example BitLicense was proposed by the New York State Department of Financial Activities and came very recently into effect (August 2015). Although they tried to customize and optimize the rules by asking input from Bitcoin specialists and the financial industry, it is already receiving a lot of resistance. People argue that this BitLicense is invading the citizen's privacy even more than setting up a bank account and is treating them as if they were criminals. One of the most respected Bitcoin Mining Pools was run by Eleutrhia, but according to them this regulation forced them to shut down their business: *"New York regulators are now proposing things which would make it essentially illegal for anybody to use Bitcoin in that state without being registered. It is so over-reaching that it would even catch things like the Bitcoin tipbot on reddit, which would be an illegally operating entity if it allows you to tip a New York resident".*

In Europe, Virtual Currencies have been studied by the EBA. More than one year ago, on 4th July 2014, the EBA published its Opinion on Virtual Currencies, in which the organization clearly expresses its doubts on the matter. The EBA identifies more than 70 risks associated with Virtual Currencies. While all those risks should be addressed by a long-term vision, in order to allow for a safe and sound payment system in Europe – say, comparable to SEPA – some of them should be mitigated immediately. As an immediate response, the EBA recommends that national supervisory authorities discourage credit institutions, payment institutions and e-money institutions from buying, holding or selling Virtual Currencies.
In any event, many other – more urgent – steps will need to be taken before initiating large regulatory works on VCs and Blockchain. Firstly, and just after completion of the SEPA implementation in Europe, the PSD2 regulation has yet to be implemented, with the full impact of TPPs, Fintechs and other disruptors starting to reveal themselves. Secondly, the urgency to set up a frame for European and global Instant Payments solutions, following the entrance of these new players, will also require an immediate and pragmatic approach from banks and regulators. These two factors will without any doubt delay a potential full adoption of VCs in Europe, but also in the world. A full regulatory framework on VCs and Blockchain technology is thus expected to stay on hold for some more time.

Conclusion

With a mere $5.3bn Market Capitalization today, and given the many barriers that remain before a large-scale adoption could be possible from a regulation point of view, we cannot expect Virtual Currencies to really disrupt the traditional system in the following years. However, we are convinced that these currencies will mark the start of a new era in payments, in which technology as a currency will gradually take its place in the traditional payment environment. As VCs are putting banks

under pressure – offering an alternative for (instant) payments and showing new technologies like Blockchain – Banks and Fintechs will need to look towards the virtual alternative and decide how to position themselves in order to avoid missing the boat of the (mid/long term) future of payments. Meanwhile, the EBA and other regulators will first need to seek to implement the PSD2 regulation and set up a frame for Instant Payments.

Sources

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