Development of virtual money as a response to the imperfections of the modern financial system

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This article attempts to answer the question what factors led to the establishment of bitcoin - the first digital money which is completely private and independent of central banks or any other supervisory authority. In the article enumerated many factors, but indicated the most important which was the global financial crisis in 2008. Additionally, the article presents the genesis of bitcoin, the comparison to classic money and its unique features which are also the reasons for its unprecedented popularity.

Keywords: classic currencies, virtual currencies, crypto-currencies, financial system
INTRODUCTION

In the modern rapidly changing globalised world, as a consequence of technological progress and considerable intensification of both the amount and volume of information flow, an increasing number of areas of human activity has been subject to the process of migration from areas of reality traditional from the beginning of existence of man, so called the real world, to the sphere of artificial world, present only on the internet, called the virtual world. This also concerns the most important financial sphere of human activity, namely owning and managing money. As a result of favourable external conditions originating in the so-called real world (crisis on global financial markets), a new phenomenon developed, called virtual currencies, crypto-currencies, or digital currencies, often described as the “gold rush of the 21st century”.

The objective of this article is to present the causes of development of the new phenomenon of the modern financial world, namely virtual currencies, and its advantages as compared to the fiduciary so-called “classic currencies”, based only on the increasingly weakening trust of central banks and the global financial system.

CLASSIC VERSUS VIRTUAL MONEY (SIMILARITIES AND DIFFERENCES)

In common understanding, in most general terms, money is defined as any kind of assets accepted by the surroundings as a tender. According to the most popular definition of money, widely represented in the literature on the subject, it is a general and common tender equivalent, permanently expressing the value of assets (Jagas, Pałaszewski, 1997).

Money is usually defined by functions it fulfills in the market economy. The most important one is the tender function, permitting the performance of transactions of exchange of goods and services in economic turnover. Money is also a measure of value, allowing for the comparison of the value of particular goods. It also fulfills the function of a means of accumulation of wealth. It can be spent for purchases in the future, and it will (or should) still represent its original purchasing power (Poskart 2015).

In the modern times, and specifically since the breakdown of the new global financial order established after World War 2, the Bretton Woods system, in 1971, only the system of paper (fiduciary) currencies has been functioning in the global economy, with no coverage in gold. As a consequence of such a situation, money has become exclusively symbolic, i.e. its cost of production is multiple times lower than the value it represents – it’s face value, manifesting so-called purchasing power (Skawińska, Sobiech-Grabka, Nawrot, 2010). In the global financial system, parallel to money in the paper form, also scriptural (intangible) money functions in the form of electronic money.

Because we currently only deal with fiduciary (fiat) money, i.e. money that completely deviated from the standard of gold, and whose existence is only based on trust to the financial system, its credibility requires the authority of the institution of state and central bank. As a result of systematic growth of private, corporate, and national debt in the world, reaching almost the threefold value of the global GNP (Bank of International Settlements 2018), the authority began to gradually decline. Excessive production of money by the banking system and the resulting vast debt caused an increase in inflation expectations, as well as concerns about the survival of the financial system as a whole. This provided favourable ground for the development of an alternative to the current money and financial markets, namely virtual money, also called digital money or crypto-currency.

The phenomenon of presence of virtual money in the world has been observed for a relatively short time, since 2008. Its appearance was a consequence of the crisis in global financial markets. Its symbolic beginning is considered to be 15 September 2008 – the day of the collapse of the American investment bank Lehman Brothers. The most influential regulator of financial markets, namely the American Federal Reserve System (FED), undertook activities aimed at saving the global financial system. They involved the application of non-standard tools of monetary policy known as QE – quantitative easing, aimed at (in very simplified terms) printing vast amounts of money (in the case of FED at a rate of 60 billion USD monthly), and its introduction to the global monetary system. In many circles of investors, this resulted in a drastic decrease of trust to the majority of institutions regulating markets, as well as to the entire global financial system.

The situation became a catalyst of “bottom-up” measures aimed at freeing, i.e. privatisation of the process of money emission, previously reserved for the banking system. The effect was the appearance of the first in the world private crypto-currency known as bitcoin (BTC). It was preceded by the online publication on 1 November 2008 of the so-called Satoshi Nakamoto manifest by the anonymous creator (or group of creators) hiding under the pseudonym. The document explained the functioning of the crypto-currency itself, and the entire blockchain constituting the basis of its architecture (Nakamoto 2008). It has many advantages in comparison to the classic architecture of the monetary system. The key advantage seems to be its decentralisation, preventing any “manual” manipulation within the blockchain environment, not to mention the currently common procedure of printing money, applied on a mass scale and in a coordinated way in the current monetary system by central banks of the leading global economies (ECB, BOJ, FED). The value of the programme in the United States alone at the end of 2013 amounted to more than 3 trillion USD.

Bitcoin triggered dynamic development of other digital currencies around the world, providing the basis for the creation of a “more honest”, completely private, independent from any central banks and governments (denationalised), uncontrollable global system of value transfer (monetary system). Bitcoin and other digital
currencies have therefore become competitors not only for all fiduciary currencies, commonplace in the modern global financial system, but also for the current transaction systems (networks) functioning in the traditional banking system.

The vast development and increase in popularity of the crypto-currency market around the world, constituting an extraordinary social phenomenon, is manifested by the number of new crypto-currencies, currently amounting to more than 1600, with a total capitalisation exceeding 216 billion USD, whereas bitcoin corresponds to approximately 105 billion USD, i.e. approximately 42.5% of the total capitalisation of the market (Coinmarketcap, 2018). In December 2017, the value of one bitcoin beat all records and increased to an unbelievable amount of more than 20,000 USD per currency unit, at the time constituting the equivalent to almost three ounces of gold (in 2016, one BTC was worth only slightly more than 500 USD). Its price currently oscillates around 6,000 USD per 1 BTC. It is worth emphasising that for the first time, Bitcoin debuted on the MtGox website on 17 August 2010 with a price of 0.063 USD/BTC. Importantly, the value of bitcoin, as well as the remaining crypto-currencies (unlike traditional currencies) is exclusively the effect of high demand for the currency generated by investors, with its stable, inconsiderably growing supply.

**BITCOIN – VIRTUAL MONEY COMPARED TO FIDUCIARY MONEY**

Bitcoin was defined by its creator Satoshi Nakamoto as: “a full-featured version of electronic money based on the peer-to-peer model of network communication, permitting sending online payments from one to another entity without the necessity of the transaction passing through financial institutions” (Nakamoto 2008). In other words, the Bitcoin network functions with no intermediaries, i.e. it is not necessary to involve the participation in transactions of the so-called trusted third party, i.e. banks and their transaction systems. This makes the transactions cheaper than classic bank transactions.

Officially, the term of virtual money was for the first time defined in the report of the European Central Bank (ECB) entitled “Virtual currency schemes”, published in October 2012. According to the report, the term virtual money covers a kind of unregulated digital (electronic) money emitted and usually controlled by its creators, and used and accepted by members of a specified virtual community (European Central Bank, 2012). Such money does not exist in material terms, it has no material equivalent such as a coin or banknote, and functions only in the digital universum of the Internet.

The most important property of bitcoin, as well as the remaining digital currencies, considerably differentiating them from traditional money, is the fact that their market, unlike the traditional markets, is decentralised, devoid of all geographic or time restrictions, functioning 24 h per day, 7 days a week. Their greatest advantage is the fact that they function outside the financial system or jurisdiction of any government. This makes them less prone to value depreciation resulting from inflation processes caused by mass printing of money by central banks of the leading economies of the modern world than classic money.

One of the properties of crypto-currencies making them more “honest” is their predefined supply. Unlike traditional money, the supply of bitcoin is predefined as a result of an algorithm incorporated in the system, and it will never exceed 21 million items, which can only occur around 2140. The bitcoin is divisible to the eighth decimal place, i.e. it is divided into 100 million parts known as satoshi (equivalent of grosz in the case of PLN). Therefore, there is no concern about deficiency of the currency in the future (for comparison, traditional currencies are quoted up to four decimal places, and physical cash to two). The supply of bitcoin systematically increases, although at an increasingly slow rate, as a result of an increase in the level of difficulty of “mining” BTC – cryptographic calculations that have to be performed to obtain new units of the currency. This way, the behaviour of BTC imitates that of physical gold. Its supply is also constant and increases slowly and in a stable way as a result of its mining. The limited and maximum bitcoin supply and the forecasted increase in demand for the currency suggests a future increase in its value.

All the above suggests that crypto-currencies constitute more honest money, because unlike the current money they are not susceptible to inflation pressure, but rather have a deflation character. They cannot be simply printed to any amount according to current needs. They are therefore predestined for storing their purchasing power in a long-term and more permanently, which is accordance with the desires of any private money holder.

Unfortunately, this does not concern modern money the supply and rate of growth of which can be (or already is) unlimited. In order to save their banking system (too extensive to collapse) from bankruptcy, modern states are capable of almost anything: printing “empty” money, increasing taxes, blocking accounts, or charging 10% of deposits, as was the case in Cyprus. Therefore, virtual currencies, including bitcoin, constitute very dangerous competition for the monetary monopole of particular countries and the dictate of central banks.

Due to the predefining of the maximum amount of crypto-currency, it is impossible to print new money, like it is currently done by central banks in the case of modern money, e.g. American FED, European ECB, and Japanese BOJ. The architecture of the blockchain system on which crypto-currencies are based does not allow for the involvement of the institution of the central bank (the system is programmed as decentralised). It also has no master server that could be hacked, closed based on a state administrative decision, or subject to a failure. Due to all this, crypto-currencies have a chance of becoming a monetary system with high credibility, and to attract new users with an increase in their exchange rate. Due to the systematically decreasing rate of growth of their supply, however, investors may perceive digital currencies exclusively as goods. If they are perceived
this way, and not as money, in the case of growing exchange rate of the currency, investors are less likely to sell it, and more likely to store it hoping for further growth of its market value in the future.

The amount of currency in the turnover is exclusively determined by the market. It is created by servers based on the reported demand. As a result of introduction by the creators of Bitcoin of a special key in the programme generating the new currency, the value of the new emission of the currency gradually and systematically decreases, because its creation ("mining") requires computers with increasingly advanced computing power (it resembles the growing difficulty of "mining" new gold deposits in the real world). The solution works as a specific "inflation break", implemented to the system architecture to prevent the danger of a rapid increase in the emission, and the occurrence of a situation of excessive supply in the market of "newly-mined" Bitcoins.

Another important property of crypto-currencies is the fact that no intermediaries participate in turnover settled in the currency. Where no intermediaries participate, transactions costs are usually very low, making the currencies more honest. The transactions involve no taxes or regulations and avoid the system, which is certainly an incentive for all users of digital currencies currently using expensive international bank transfers. Unlike in the case of a traditional transfer, no transaction system is needed here. Two computers connected to the Internet are enough. Crypto-currencies can be sent online to any recipient in the world – transactions are performed online based on the p2p (peer to peer) principle. It is one of the greatest advantages of crypto-currencies over traditional currency in the case of which foreign transfers to distant parts of the world involve the necessity of incurring often considerable commission fees, sometimes exceeding (in the case of small amounts) the value of the transferred amount.

Another property of crypto-currencies is the anonymous character of transactions (it is easy to exchange them without the necessity of involvement of intermediaries). Resources are transferred directly between computers connected to the Internet based on the p2p (peer to peer) communication model. The sender performs a transaction with the recipient exclusively by means of a sequence of alphanumeric digits. It is not necessary to provide personal data or account numbers, like in the case of a conventional bank transfer. This permits immediate transfer of resources with complete anonymity of the transaction. It is possible because the user can be only identified by means of so-called address which one can have to any amount, and which cannot be associated with the IP address of the computer. This poses a danger of overuse of the currency in trade transactions concerning illegal goods or services.

CONCLUSIONS

According to some, crypto-currencies are a tender, and should not be treated as investment goods. Over a short period of time they can bring considerable profits with speculative character. In long-term, however, they should not be treated as typical long-term investment assets. With an increase in the value of Bitcoin (in December 2017 it reached the record 20,000 USD for 1 BTC), its popularity and degree of acceptance as a tender also grows, not only among the internet community, but also among online stores, and even companies providing their activity in the so-called reality sphere.

A good test for the virtual currency will certainly be the usefulness of its application for the purposes of everyday life transactions. Its objective assessment will probably require several more years, unless future events show that it was created only for speculative purposes, allowing for fast generation of wealth only for its creators and a narrow circle of persons in the know. In such a case, however, crypto-currencies should not be expected to be in common use only in the online world.

Today, BTC is a currency functioning in private turnover, so far of a niche character. It offers incredibly promising future, although still with a substantial degree of uncertainty resulting from the lack of knowledge on how central banks and global institutions of financial supervision for which it constitutes an actual threat will respond to the growing popularity of Bitcoin and potential increase in its importance. Private (or central) banks could lead to its collapse through coordinated interventions on the BTC market. This would not be difficult considering the currently negligible capitalisation of not only the bitcoin market, but also the entire global market of crypto-currencies. As mentioned above, its total capitalisation amounts to less than 240 billion USD (Chrabonszczewska 2013). The application of crypto-currencies as official money would have a number of far-reaching effects. First of all, it would result in the loss of control by central institutions over the monetary system. It could not be steered manually, and all interactions would be regulated by an independent mechanism. This would entail complete reorientation of the current economic relations, and complete marginalisation of the state and other institutions in financial markets (Franków M. Kopyściański T. 2016). Moreover, it is unknown in which direction the current increasingly indebted and inefficient financial system will evolve, and what develops after its potential collapse.

Further undeniable threats include enormous fluctuations of the exchange rate of crypto-currencies, and hacking attacks on owners of the currency resulting in its theft.

It seems, however, that in spite of the threats, crypto-currencies will revolutionise the global financial system, play an important role in the future monetary system, and replace traditional currencies, initiating a new global payment system.

REFERENCES

Aggregate Reserves of Depository Institutions and the Monetary Base. Federal Reserve. [Online].