THE DIGITIZATION OF MONEY - CHALLENGES AND OPPORTUNITIES FOR THE GLOBAL ECONOMY

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Abstract: *In modern society the majority of existing problems and solutions are related to money. Sustainable economic development depends to a major extent on the functionality of monetary financial laws, principles, methods and monetary instruments. Given the role of money held in economy, the problem of controlling the volume of money supply and management of its circulation has been widely studied by economists and researchers all times, each time facing new economic and social realities. The recent development of digital technologies is really a major new challenge not only for society and the whole economy, but also for monetary authorities, and policy promoted by them and economic thought in general. The new digital payment systems, currencies generated by their appearance, which essentially represent something completely different from traditional coin, are innovations that could create new problems for the authorities, problems that need to be identified and resolved in a timely manner. Regardless of whether the crypto-currency is still at an early stage, its occurrence and development cannot be neglected or bounded. The paper aims at presenting digital currency, considering its advantages and disadvantages, as well as its place in the global economy.*

Key words: *crypto currencies, global economy, digital money, digital payment systems.*
JEL Classification: *E42, E51.*

1.Introduction

It is difficult to imagine the current global economy without the existence of a freely convertible currency which has an internationally recognized value. The historical evolution of the form of money has considerably changed over the centuries: from the money commodity with intrinsic utility, the money - symbol intrinsic value until the money modern fiat, without any value or intrinsic utility, that is controlled only by a central authority that people are willing to accept in exchange of some goods and services, simply because they trust the central authority. Therefore trust is the essential element of any fiduciary monetary system.

After the global financial crisis the role and the importance of virtual money in the process of making virtual payments has considerably increased (for example, Bitcoin), which are emitted by a network of users of that system of payment. Unlike traditional currencies, crypto-currencies do not have physical form and are not guaranteed or supported by a central monetary authority. These coins circulate relying only on the exchange value of the trust given by users of that system. There are over 200 other current virtual coins nowadays and this number is growing. Although the legitimacy of digital currency movement is still under many questions because of the high volatility of their exchange rate, the significant potential of digital technology remains indisputable.

The introduction and use of digital currency has become possible due to the development of payment systems based on cryptography, used as a means of securing transactions and accounts. This type of money currently used in such payment systems is also called crypto-currencies. Although there are many crypto-currencies, the most popular digital currency Bitcoin is still decentralized. It is based on an innovative cryptographic system, which ensures security of transactions, but also the money issue - blockchain. Unlike classical money, controlled by a central authority, Bitcoin is a digital currency "peer-to-peer" operating online (Nakamoto, 2008). The essential difference between this type of money and the classical money created by banks is that the first is a payment instrument, a medium of exchange and store of value compared to the latter that is the result of monetary policy.

Emerging from the influence of any monetary authorities created, the new currency is a challenge for the central banks of each country separately and as for the global economy as well, that has already created a specific system or way of management and control of money circulation, with levers of influence are almost entirely in the hands of central banks and international monetary authorities.

2. The evolution of digital money in modern economy

The Internet is one of the most popular innovations in technology and communications that irretrievably influenced both the economic and social sphere of humanity. Since its inception, it has acquired a special scale continuing adding millions of users annually, a level which could not be unanticipated even by its creators.

According to Internet World Stats, if at the end of 2000 the number of Internet users was 361 million, then towards the middle of 2016 this figure had already risen to 3675 million people which constitute cover 50.1% of the total globe population. Such a major spread of the Internet had an impact not only on the modalities of interaction and communication between people, but also respectively on their entrepreneurial and disbursement activities.

The emergence of a great number of communities in various fields became possible due to the high penetration of the Internet into society, some of which were introduced during its evolution and its own virtual currency used for trade in goods and services they offer. Thus, a new form of money was created and is used in the Internet - digital currency (Figure no. 1).

<table>
<tr><td rowspan="3">Legal status</td><td>Unregulated</td><td>- Certain types of local currencies</td><td>- Virtual currency</td></tr>
<tr><td rowspan="2">Regulated</td><td rowspan="2">- Banknotes and coins</td><td>- E-money</td></tr>
<tr><td>- Commercial bank money (deposits)</td></tr>
<tr><td colspan="2" rowspan="2"></td><td>Physical</td><td>Digital</td></tr>
<tr><td colspan="2">Money format</td></tr>
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Figure no. 1. Matrix of money in the economic environment

Source: ECB, 2012.

The advent of digital currency payment offers alternative opportunities for consumer who uses goods and services, that giving his confidence involuntarily takes part in its development. One of the most widespread of this kind virtual currency is Bitcoin, which has recorded a meteoric rise in recent years (Figure no. 2). Since its appearance until the beginning of 2017 their number has already exceeded 16 mil., and its market value, which was originally invalid, has already reached over 1000 US dollars (Blockchain, 2017).

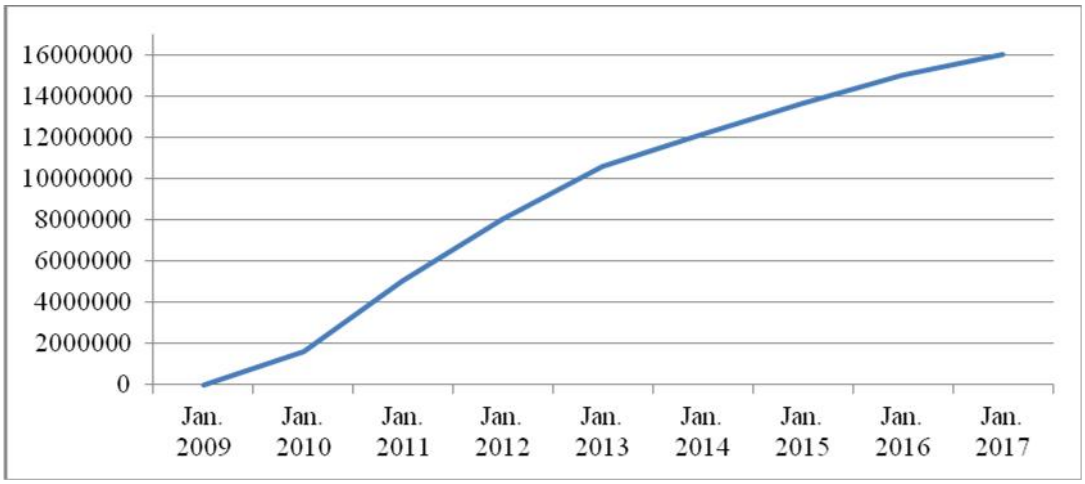

Figure no. 2. Evolution of the total number of Bitcoin in circulation

Source: Blockchain, 2017. *Bitcoins in circulation*. [online] Available at: <https://blockchain.info/ro/charts/total-bitcoins?timespan=all> [Accessed 01 February 2017].

Therefore, the main difference between centralized monetary mass (one that is subject in one way or another monetary authority) and decentralized (digital) is related to their functions. The main function of virtual currencies is to fulfill the function as a medium of exchange and an account unit in the virtual community. Nevertheless, the main question is whether these virtual currencies could take over other functions of money as the traditional store of value and what risks would spread its presence to monetary authorities and their policies.

3. Digital currency, its features, advantages and limitations

In comparison to classical currency, digital currency, for example Bitcoin, cannot be created but only obtained either by mining - a complicated and expensive process, which relies both on information technologies as well as on a complicated recent mathematic algorithm, meant to correct and maintain in a certain limit the amount of Bitcoin generated by the system. The creation of the cripto currency itself is limited to installing a file that has recorded the latest deals - block distributed network between all its users. When the computer detects a new block, it can get a certain number of Bitcoins. This number changes over time and is decreased by a factor of 0.5 every four years. The holder can obtain a quantity of Bitcoins either by accepting them as a means of payment and exchange, either by buyng them from a specialized platform.

Bitcoin exchange rate is determined by their current market demand, although they are not reported to all existing currencies in circulation. There are several exchange platforms operating in real time for purchasing Bitcoin and allow users conversion of US dollars into Bitcoin and vice versa.

Because the total number of Bitcoin is limited and tends towards 21 million, this system supports itself, is encoded, completely anonymous and is not subject to inflation. But this is not the only advantage of owning Bitcoin, there are some more advantages that are mentioned below (Böhme et al., 2015):

- Anonymity, one of the main properties of Bitcoin - the users cannot be identified, the amount of transfer and address representing a random sequence of characters that are generated on each transaction again;

- Payments without limits or restrictions, unlike the banking system, Bitcoin allows payments worldwide without restrictions;

- Lower fees for transfers and assistance, a lower charge, averaging 0.7-1%, depending on the stock exchange and payment system ;

- Decentralization, which allows it to be independent of any State or third party for clearing. The system is purely peer-to-peer, users experience a greater degree of freedom than with national currencies.

- Ability to be created by anybody, any network user, having special knowledge and skills, is able to create Bitcoin .

Despite its great advantages, Bitcoin system has also several disadvantages, such as:

- Keeping money in Bitcoin does not bring any profits in the form of interest such as stores created from banks, but from the increased value;

- The system is at an early stage of development that means it involves additional risk and volatility;

- Digital money is decentralized; it will not be able to benefit from support from monetary authorities and financial institutions of the country in case of risks.

These advantages and disadvantages are related more to Bitcoin users, but for the global economy this currency and other similar electronic currencies involve absolutely other risks and incidences. Along the risks that depend on geo-political and military factors, as well as terrorism, the development Bitcoin presents a major shift in economic thinking, the organization of economic life, an environment transformation process full of challenges, barriers and limitations.

4. Challenges and opportunities for global economy

The rapid growth of Bitcoin's popularity has sparked interest in the international world of monetary authorities, which became more and more interested in this subject, trying to identify challenges related to movement of virtual currencies, discussing and defining the possibilities for regulating their policy implications, etc. demonstrations in major international forums. However, it must be noted that most of these events result in the issuance of warnings to users of virtual currency on the risks related to the purchase, holding or trading of virtual currencies such as Bitcoin (EBA, 2013). Moreover, the European Banking Authority published a notice in July 2014, which found that regulated financial institutions should be aware of those risks and discourage those involved in buying, holding or selling this digital currency.

The monetary authorities are trying also different regulatory purposes and otherwise, try to define or classify virtual currencies, focusing particularly on the nature of non-monetary of crypto-currencies, bringing the argument that only a means of payment that has government guarantee could be considered as money. In this way, crypto-currencies are considered more as a digital representation of value that is not issued by a central bank, a credit institution or an institution for issuing electronic money, which in certain circumstances can be used as an alternative to cash.

However, in the last twenty years the inability of contemporary banking system has been clearly seen, especially it does not meet anymore the requirements of consumers in the age of massive development digitization, mobile communications, Internet and social networks.

Even if we do not take into consideration monetary manipulation and abuses in recent years, basic money transfers - are neither cheap nor too fast. For example, remittance flows are subject to relatively high taxes and credit cards, which have changed little in recent years and are also not very suitable for online transactions. The access to

banking services is also limited, a considerable part of the world population considering banking system expensive and too difficult.

Comparing banking services with the ability to transfer instantly and securely across the entire globe any amount of money during 24 hours, 7 days a week, with (almost) no fee, no approval or support of a third person the advantage of digital payment systems is obvious. Respectively, with the development of information systems that allow quick access to a huge amount of information, communication video and audio without territorial barriers and time limits are clear expectations across the changing financial system and monetary policy, which must also keep pace and become more efficient, more accessible and fair. In such circumstances, Bitcoin and other virtual currencies in general, are the only ones that can cope perfectly with these new challenges.

However, taking into account the disadvantages Bitcoin, namely the high volatility of this, we believe that it can be viewed more in terms of the possibility to experiment with money into a new realm of freedom (Nakamoto, 2008), to test various alternatives in order to detect what form the money would be the best. Since the emergence of virtual money, research has focused specifically on improving the technological limits of the Bitcoin protocol: while this approach has its merits, it has not added a relevant contribution to the adoption of virtual currencies in the economy. Respectively future research should focus more on the need to improve the usefulness of such currencies, as the transition from paper money to digital currency is inevitable.

5. Conclusion

Digital currency has an enormous potential to satisfy population needs in a financial-monetary system that in this way will become more accessible, faster and less expensive. In the form that virtual currencies exist nowadays, they are still very volatile, which involve risks and uncertainty, but evolving them into a safer form of money is only a matter of time. In such circumstances the active involvement of the authorities becomes vital, which together with the private community sector must find the best opportunities to use digital payment platforms in order to achieve benefits for both governments and the population. These currencies provide an unlimited source of reducing operational costs at all levels of an economy, a source of spectacular innovations development, a possibility of increasing financial inclusion of the population as well.

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