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***Financial and Banking Services Market***

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**GLOBAL CRYPTOCURRENCY  
AS PROSPECTS FOR WORLD  
MONETARY SYSTEM****Abstract**

The cryptocurrency is a phenomenon of a modern payment system, however it is still unclear whether it is a new kind of currency at all. Most often, there are claims that this is just a financial pyramid. However, such statements do not explain the nature of cryptocurrency. In fact, from technical point of view, the cryptocurrency is simply a data chain, in which the first link contains information about its origin («mining»), and all subsequent ones – on the transition from one owner to another. This means that in the economic sense the cryptocurrency is the «bill of exchange», which is accompanied by a number of «transfer inscriptions» – «endorsements.» Nevertheless, banknotes are simple banker's bills of exchange too. Therefore, cryptocurrency could become a new global currency if several specific requirements were fulfilled.

**Key words:**

Bitcoin, cryptocurrency, de-stuffation, electronic money, global currency.

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JEL: E40, 42, 58.

## 1. Introduction

Several years ago, a new technology has provided the world with a new product, which was paid little attention – the cryptocurrency. It is a type of digital asset (*intellectual product*) and it was proposed to be used as a medium of exchange. Security of transactions in cryptocurrency is guaranteed by cryptography. The same crypto mechanism secures its transactions and controls the creation of additional «currency units» (so called – «*mining*»). It is worth mentioning that at first the emergence of cryptocurrency garnered little attention from the economists, but interested U.S. special services, because the Obama administration was concerned that the unknown creator of bitcoin might be an agent of Russia or China and that Bitcoin might be weaponized against the U.S. in the future (Muse, August 26, 2017).

Since the most popular of cryptocurrencies – the *bitcoin* – was first described in October 2008 in the so-called «Bitcoin's White Paper» written by its creator(s) under the pseudonym Satoshi Nakamoto (Satoshi Nakamoto Bitcoin; 8 p., electronic resource) a huge amount of comments and analyses regarding this phenomena have been published. Most of them were published last year when the bitcoin price skyrocketed. In fact, due to this authors have mostly paid attention to investment prospects of bitcoin and other cryptocurrencies as new financial instruments with decentralized control, as opposed to the centralized electronic money and central banking systems. Therefore, it is quite easy to find thoughts on bitcoin investment of world-known private investors like W. Buffett (Warren Buffett, January 11, 2018, electronic resource) or top-managers of prominent banks such as JP Morgan Chase (Bitcoin is a fraud that will blow up; September, 13, 2017, electronic resource), Deutsche Bank (Macaskill on markets: Bitcoin greed will overcome, December 21, 2017). Central banks (Virtual currency schemes, October 2012, 53 p.) and their associations (Digital currencies, November, 2015, 21 p.) usually disclose more wide-scale analyses (Lagarde, September 29, 2017, electronic resource), which not only focus on market price dynamics, but also on the legal status of cryptocurrency. Of course, number of analysts and academicians also has prepared special research papers (Hileman, Rauchs, 2017, 114 p.) (Bech, Garratt, September 2017, pp.55-70) and books (Pagliery, 2014, 256 p.) (Tarasov, Popov, 2018, 98 c.) on this subject.

Nevertheless, many questions regarding the real nature of cryptocurrency and its place in the monetary system still exist.

## 2. Cryptocurrency and Global Money

### 2.1. De-stuffation of Money

As it is commonly known, commodity money represented an abstract value in circulation because they themselves had a specific value, embodied in a corresponding amount of monetary metal – a full-fledged coin. At the same time, over the long history of currency circulation, one of the main trends was the reduction of real value, in comparison with the amount of value they represented in circulation. This was reflected in the widespread debasement of coinage practice – that is, the coinage of coins with less actual monetary metal content than was officially proclaimed.

However, all these examples show that, in principle (within reason – that is, without releasing excessive amounts of money into circulation and creating hyperinflation), the circulation of a defective (non-full value) coin is possible. The logical conclusion of understanding this principle was the emergence of paper money, which officially had a significantly lower value than was presented in circulation. This process of «*depreciumization*» (from Latin – *precium* – «value») has taken place for many centuries and has been successfully completed by emergence of electronic money.

It may be better to say that it has found its continuation in the next trend, characterized by the disappearance of the material basis of monetary units in circulation that turn invisible and inconspicuous electronic impulses. As a result, the society invented the use of electronic bank cards and various systems of computer and mobile banking (from home banking to non-contact payments based on «cloud technologies»). However, the idea of credit cards is by no means new. As early as 1888, a Boston journalist E. Bellamy, in his socialist-style utopian novel *Looking Backward*, describing the world of 2000, imagined a mechanism of international payments: «An American credit card, (...) is just as good in Europe as American gold used to be, and on precisely the same condition, namely, that it be exchanged into the currency of the country you are traveling in. An American in Berlin takes his credit card to the local office of the international council, and receives in exchange for the whole or part of it a German credit card, the amount being charged against the United States in favor of Germany on the international account» (Bellamy, 49).

In reality this process has also begun quite a long time ago (taking into account the current pace of development): in the early 80's of the last century it was clear even in the relatively isolated parts of the world, namely in the Soviet Union. Of course, this process did not even starts in the USSR, although a well-known

Ukrainian scientist-mathematician Prof. V. M. Glushkov, Director of Institute of Cybernetics in Kyiv, created the theoretical basis for it. In general, his ideas consisted of creating a nationwide automated system, which would be a means for cashless redistribution of the aggregated national product. From economic point of view, it was another Bellamy-like socialist utopia, but from a technical point of view, electronic units of accounting that would be used in this case would, in fact, fulfill the functions of «electronic money». Unfortunately, the implementation of the idea was constantly put on the bottom of the pile: first, precisely because of its excessive ideological orientation (which was not supported by Soviet Prime Minister A. Kosygin, who opposed the non-realistic transition to non-cash commodity exchange), and then – due to the lack of funds (spent on military support for socialist ideology). Meanwhile, the electronic money transfer system was introduced in the United States in 1978. At about the same time, French journalist R. Moreno put forward the idea of a bank smart card. However, it took a few more years before the now familiar electronic chip card began to enter the daily life. The era of «electronic money» has started.

As a young academician in those days, I have proposed to call the new phenomenon a «*de-stuffation*» of money, referring to the disappearance of monetary function bearers in any form of substance (Sharov, pp. 85–93). In general, the term «dematerialization» was more sonorous, but I was stopped by the dogma of dialectical materialism regarding materiality of whole existing world around us. That time I was forced to refuse this «politically incorrect term» but now – when the creation of artificial intelligence from the field of science fiction has already begun to turn into reality – the dematerialization of money could become (and perhaps already has) the next stage in the evolution of money. Thus, the next logical stage of this general process of «disappearance of the monetary units» may be their real «dematerialization» or «rationalization» (from lat. *ratio*-mind). Therefore, **Dematerialization of Money** means, turning it into a simple «impression» of one's rights («assets») and obligations («liabilities»), which arises in the artificial brain. In other words, monetary units could be merely imaginary units that would move between «accounts of owners» as a result of «calculations in mind.» Not human, but an artificial one. Thus, one could assume the emergence of «smart money» in the future.

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## 2.2. Cryptocurrency and Money Functions

For the time being, electronic money is inherently a form of credit money. However, the appearance of «cryptocurrencies» changes the situation fundamentally. Blockchain (as the basis of crypto-currency) from the technical point of view is just a database for recording and storing transaction data. «We define an electronic coin as a chain of digital signatures. Each owner transfers the coin to the next by digitally signing a hash of the previous transaction and the public key of the next owner and adding these to the end of the coin. A payee can verify the signatures to check up the chain of ownership» (Muse, August 26, 2017; Satoshi Nakamoto Bitcoin, electronic resource). Therefore, cryptocurrency is simply a data chain, in which the first link contains information about its origin («mining»), and all subsequent – on the transition from one owner to another. That means in its economic essence **the cryptocurrency is the «bill of exchange»** (ital. – *tratta*), which is accompanied by a number of «transfer inscriptions» – «endorsements.»

Unlike in the case of banknotes, the basis for the issuance of cryptocurrencies is not commodity or credit transactions (exchange of values), but a certain logical program («mind game»): «...the first transaction in a block is a special transaction that starts a new coin owned by the creator of the block». Thus, «an electronic payment system based on cryptographic proof instead of trust» is established. Still, does the evolution of the essence also lead to the appearance of «smart money»? Let's not rush to conclusions.

Yes, the cryptocurrency is, in fact, indestructible and impossible to falsify. It is easily divisible into parts and transportable (inside the global network). Just like gold, it seems quite simple, except for one thing – it does not shine. I mean the fact that for gold that radiance was very important: it was the presence of this physical quality (in contrast to platinum, for example) that created a steady high demand for the «yellow metal» as a decoration to emphasize wealth, power and high social status. This enabled gold to gain a monopoly position among other products playing the role of the medium of exchange.

However, the lack of a natural high demand for cryptocurrency puts in doubt the very possibility of attributing it to the category of commodity medium of exchange. While the refusal to accept the gold coin left its owner an alternative to sell or use it as a consumer product of the same value, what is the alternative to the owner of the bitcoin that he purchased for \$ 10,000, if tomorrow the demand for it disappears, shrinks or becomes more complicated (i.e. it would exist theoretically, but remain inaccessible to this very holder of the «expensive toy»)? The consumer value of the bitcoin itself is negligible. It is possible, of course, to recall that modern credit money (even more so, existing also in electronic form) is also worthless. However, the difference is that there is a clearly identified issuer be-

hind them – the central bank and a whole state. Of course, there are also debacles with them, but these, as people say, are two completely different things: loss of confidence for a clearly identified and responsible issuer, and «disappearance from the screen» of an unknown source of the «mind game.» In the first case, the process develops slowly (for years) and is reflected in the exchange rate of the corresponding currency. In the second one, everything can happen instantly and without any apparent reasons, which could have enabled taking preventive measures.

The monetary essence of the cryptocurrency also does not appear in the performance of monetary functions. Simply saying, ***none of the five classical functions of money are fulfilled by crypto-currencies.***

First of all, **the cryptocurrency is not a measure of value**: that is, the price of goods is not expressed in them. This is caused by two interrelated reasons. First, cryptocurrency itself has no value: either internal (as metal money), nor representative – due to the total value of goods that are in circulation. The latter is precisely because some people are inclined to consider this the main advantage of cryptocurrency – a strictly limited amount of their issue, which has nothing to do with the real needs of the economy in money). Secondly, the price of cryptocurrency (largely influenced by crypto-limited emission) is constantly changing and this fact makes them unusable as a measure of value. (Just as the length could not be measured by a meter if the standard was constantly compressed and expanded under the influence of temperature).

In this regard we can say, that use of cryptocurrency is similar to the so-called «*conventional units*» (the common Russian abbreviation – «U.E.»), which were used in the post-Soviet countries in the times of hyperinflation to give reference for some commodity prices. In fact, this meant «US dollar» (since the official use of foreign currency was prohibited). The payment was, of course, carried out in local currency at the current market rate, as it actually happens with the bitcoin.

Furthermore, no matter how much the crypto marketers try pretend single cases (in the scale of global Internet commerce) of «payment» for goods and services in cryptocurrency are a «victory»; **this can not be called currency circulation**. First, because of the negligible size of such payments. Secondly, from the quality point of view, such payments are linked to services, associated with the circulation of cryptocurrency itself. (Something like «lives» that could be «earned» and «resold» in some virtual «shooters» games). One of my colleagues recently compared crypto-currencies with Pokémon. Quite a good comparison: both ones exist in a virtual world in which one could chase after them, not caring about solving real problems, especially if you personally have none.

When bitcoin fans announced the rise in circulation (for instance, like in December 2017 when the bitcoin was proclaimed as «6<sup>th</sup> Largest Currency in Circulation») they actually used the figure about circulation in inter-currency trade

not «goods-currency» one. It means that in fact **bitcoin is treated as a kind of commodity, not money.**

Nevertheless, the main problem of the cryptocurrency as a payment system is the processing speed of transactions. For example, Visa handles 60,000 transactions per second, bitcoin – only 7 (simply – seven). This is just over 0.01 percent of the Visa indicator. Of course, one could say that Bitcoin payment system could be developed, however at the moment bitcoin mining takes as much electricity as the whole Ireland generates. Improving to Visa level would require half of the world's electricity consumption.

The modest usage volumes of cryptocurrency as a means of payment, for the currency, the price of which are rapidly growing is easily explained by the very rapidly growing price. After all, the value of a monetary unit should not be increasing, but stable. Otherwise, in a week the buyer will kick himself, feeling like a loser who paid double. Therefore, he will not pay in the future. However, most importantly, in all cases the sellers conducted these transactions through banks in compliance with the requirements of the national financial legislation. They transfer national currency to their own accounts, not bitcoins. This currency (dollar, euro or Ukrainian *hryvnia*) they had previously acquired on the exchange for their bitcoins. That is, as we noted above, the cryptocurrency only played the role of a check or a bill of exchange, for which you can get the real money.

Accordingly, cryptocurrency does not fulfill the role of a means of payment, because even if it was received for the purposes of crowd-funding or other forms of investment (which are also mainly related to the development of the cryptocurrency projects themselves), it must be «cashed out» for subsequent payment of necessary goods and services in dollars, euro ... or in hryvnia.

Many experts believe that the function of treasury formation (store of value) is undoubtedly fulfilled by criptos. However, let me remind you that the store of value from a monetary point of view is not just the accumulation of values such as gems, precious metals and other things that do not lose their value, for example, pieces of art. **Store of value is important for monetary mechanism because it serves as the driving and diversion channel for money circulation.** That is regulators of the amount of *money* in circulation. However, something could become money only by performing the previous three functions – and that is something cryptocurrency doesn't do. Actually, this has already been explained by P. Krugman, Nobel Prize winner, who said: «To be successful, money must be both a medium of exchange and a reasonably stable store of value. And it remains completely unclear why BitCoin should be a stable store of value» [15].

Finally, the function of world money – meaning money «transcends national conforms» – would seem to be directly intended for a cosmopolitan cryptocurrency. Then again, due to the lack of its own internal value or the issuer in charge of the final payment, the **cryptocurrency is forced to act as just an in-**

**termediary in these final payments, which are mainly carried out in dollars.** Yes, dollar bills (or electronic records on accounts) also do not have internal value. But their market value is supported by the opportunity to purchase goods and services produced by the world's largest economy, invest in debt securities of the most reliable lender, buy real estate in the most attractive corners of the world ... All those things that unknown issuers of bitcoins could not provide.

### **2.3. Looking Forward to a Brave New World of Money**

Why does cryptocurrency attract the increasing number of its fans today?

One of the most popular direction of bitcoin payments for goods is a payment for narcotic- and psychotropic-containing medicines, the purchase of which, in the usual way, requires a special recipe. This bypass turns out to be simpler, and cheaper. At the same time, both sides (the seller and the buyer) remain unknown. That is, users of bitcoin are attracted to the opportunity of operating outside the public control. «*There's the rub!*» Here is the answer clearly to dot i's and cross t's: we are dealing with a new financial instrument in electronic form that allows to bypass the national and international requirements of currency, payment, investment, tax and other financial legislation, including measures to combat money laundering and the financing of terrorism. This does not mean that every «miner» or simply holder of a cryptocurrency is bound to violate any law (although, automatically, it violates the existing requirements of currency and tax legislation in those countries where – as, for example, in Ukraine – they are still quite rigid). The main thing is that they all take part in someone else's game, the real rules of which they are not even aware of.

In our specific case, domestic experts point to various «underlying» reasons for the emergence of cryptocurrencies: from the desire to sell more powerful computers for «mining» (the demand for which recently fell due to the universalization of miniature gadgets) to London's position as a global financial center being shaken by Brexit. Aside from them one could point out the growing role of China, (the computers of which are used in the main «mining centers») and the intensified struggle against offshore tax havens, which makes «virtual offshores» the most attractive ones for real «cryptocurrency tycoons». Therefore, there are from one to five percent of population who really interested in the collapse of the public financial control. (These are not necessarily financial frauds and corrupt officials, but also those who are focused on outsourcing earnings on the WorldNet, evasion of taxation of off-shore and overseas earnings etc.). It seems that they do not think about what such currency liberalization and virtualization will bring to the rest of the citizens.

However, seeing as bitcoin's price continues to follow Moore's law even cryptocurrency fans have to consider whether the cryptocurrency system is a fi-



nancial pyramid. As the experts admit, it is not the classical «Ponzi scheme» since increasing payments for bitcoins are not financed at the expense of acquiring them in the future. Nevertheless, certain elements of fraud are present, since the increase of bitcoin price is not conditioned by real economic processes, but is based on speculation and artificial market rush. Something like this has happened more than once in history. A typical example is the so-called «tulip crash». To remind you, in the XVII century, Europe, especially Holland and France, embraced «*tulipomania*»: the price of the tubers of this flower grew exponentially; some tulips of a rare color were worth a stylish mansion. Everything broke off on the same day, when there were doubts at the commodity exchange about the infinity of price growth. Figuratively speaking, someone shouted: «the king is naked!» and the market immediately collapsed. In truth, this warning bell is already ringing: «The cryptocurrency is a fraud. (...) It's worse than tulip bulbs. It won't end well» – said JPMorgan Chase CEO Jamie Dimon (Elkins, 7 December, 2017).

This resembles the situation with thimble riggers: everyone knows perfectly well that this is pure swindle, but there are always those who hope to outwit the rogues.

Nevertheless, supporters of cryptocurrencies demand the state give them the right to open operations with it. Strictly speaking, no one took away such a right, as everything that is not forbidden is allowed. But there are several legal aspects that still need to be clarified. First of all, it concerns the «currency status»: if bitcoin and its analogs are currencies (monetary units), then transactions with them fall under the currency legislation (according to which in most of countries only its national currency is a legal tender). On this issue, there is a clear consensus in the world: no one anywhere recognizes «cryptocurrencies» as real currencies. And even when you see headlines in the mass-media about the fact that «bitcoin was recognized» in some country (!), a careful reading of the text reveals that it is actually about the permission to trade bitcoins on specialized commodity exchanges, like it happened, for example, in the United States. Moreover, in accordance with the current legislation, the Chicago Mercantile Exchange did not require such permission, but it decided to hedge it and applied to the relevant regulatory bodies. The answer sounded like this: please do trade at your own risk, in dollars, and with the appropriate taxation (including profits, which are formed from the exchange rate differences).

There were times when one could find information published in mass media that Sweden and/or Japan recognized bitcoin as a real currency. However, if one analyzed specific documents and decisions it became clear that it is just an overnight hoax. Cecilia Skingsley, Swedish central bank deputy governor, clear stated it in Davos: «In my view, cryptocurrencies, bitcoin and the others — the way I've seen them so far — they don't meet the criteria to be called money. They can be called an asset, fine, but they are not a very good version of money because it's not a very stable store of value where they fluctuate a lot. And it's

not a very efficient medium of exchange because you don't buy your groceries with bitcoin» (Browne, January, 26, 2018).

In March 2017, Japan passed a bill to revise portions of the Banking Act, one of which includes wording on virtual currency and is being tentatively called the «Virtual Currency Act.» Some media wrote that the Virtual Currency Act gives bitcoin legal tender status in Japan. But in truth, the Act defines Bitcoin and other virtual currency as a form of payment method, not a legally-recognized currency or legal tender (Guidance note on the Japanese virtual currency legislation and overview on registration requirement thereunder, July 4, 2017). At last, Belarus was proclaimed as first post-Soviet state to recognize bitcoin (Bitcoin and mining of cryptocurrencies are legalized in Belarus, December 22, 2017). And again simple reading of the Presidential Decree «On Development of Digital Economy» gives one understanding that President Lukashenko of Belarus just recognized legality to mine as well as to buy and purchase the cryptocurrency (called in the Decree – «tokens») for Belarusian rubles and foreign currencies, not to use it as means of payments for goods and services. What is more, most of such transactions may be done only by residents of the so-called High Technology Park (a variation of a free trade zone).

Thus, states and central banks still treat the cryptocurrency with suspicion. At the same time, one cannot be sure the situation will not drastically change in the future. It explains the growing interest of academicians, bankers and politicians to cryptocurrency. However, if I were one of the «crypto-anarchists» dreaming of a «global holiday of disobedience,» I would not be very happy about the development of new technologies. As you know, the head of the IMF Christina Lagarde, speaking at the end of September 2017 at a conference in London, called on bankers to pay more attention to the cryptocurrency (Lagarde, September 29, 2017). At the same time, she warned that some countries with weak institutions and unstable national currencies instead of adopting the currency of another country—such as the U.S. dollar—might see a growing use of virtual currencies. She called it «dollarization 2.0».

Some of the enthusiasts even regarded this statement as «recognition of the cryptocurrency» by the International Monetary Fund. In fact, this appeal is because two years earlier Christine Lagarde suggested we do not pay attention to the pesky bitcoins. Now the advice is for central banks not to recognize cryptocurrency, but to examine the block chain technology carefully.

How could it be useful for money issuing banks? Actually, it allows issuing traditional national currencies in such a way that their further movement, **each money transition in new central banks from one owner to another becomes transparent and even controlled**. Considering that with modern technologies, it is not difficult to make every bill «tagged» with a bar code. Therefore, the dream about complete anonymity of transactions looks less likely than the prospect of being always «watched» by the «Big Brother». Sweden and China have already announced their wish to issue their own «cryptocurrency». Of course, if such

«currency» were issued by central bank, it would not be a «crypto» at all (by definition). It would be «*fiat blockchain money*» based on the cryptocurrency idea.

As the analysis of the evolution of the previous money types shows, this process is characterized by a constant confrontation between the market (which creates every new kind of money) and the state (which attempts to «nationalize» its issuance). Loud statements about the need to «take control» over the process of cryptocurrencies issuing («mining»), which come from various statesmen, indicate that such a confrontation could not be avoided in this case too. Obviously, **the new global economy really requires fundamentally new money**. However, there are already different contenders for this position: collective currencies, «world currency», «transnational currency», and now – «cryptocurrency». Currently it is impossible to determine which one will be the real new «global money» unequivocally. Nevertheless, the process of its genesis (*chrimatogenes* – from Greek χρήματα – «money») has already begun. In this regard, the cryptocurrency development process, of course, should not be left without attention of analysts and bankers.

### 3. Conclusions

Thus, the appearance of the cryptocurrency is a logical next step in the development of money – both in form (electronic money) and in its essence (virtual money). In their unity, the cryptocurrency represents a new kind of money – «smart money»: generated by the market as an alternative to fiat money.

At the same time, central banks are aware of the existential threat posed by issuers («miners») of cryptocurrencies and therefore endeavor to create their own «cryptos». In any case, central banks of several countries – from Sweden and China, to Belarus and Ukraine – have already announced such plans. Of course, in fact, it is not about real cryptocurrency (which by definition could not be issued by a central bank), but about electronic money based on the blockchain technology.

Thus, one could expect that new competitor for the role of global money (in addition to the dollar, yuan or SDR) will appear in the near future – «*fiat blockchain money*» issued by central banks. It is possible that the issuer of such money will be the world's central bank – for example, the IMF.

Such money will combine (supra)national control for money supply and control of its movement (which will assist in successfully combating money laundering, terrorist financing and tax evasion). There will be a brave new world with such money.

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The article was received on February 8, 2018.