



LEGAL AND ECONOMIC ANALYSIS OF THE CRYPTOCURRENCIES IMPACT ON THE FINANCIAL SYSTEM STABILITY¹

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Innovative technologies and the emergence of virtual communities create new types of transactions and the accounting methods that go beyond the current state of knowledge in economics and existing legal solutions. These virtual communities create and distribute their own medium of payment for the exchange of goods and services, thereby providing a means of payment, in which emissions or circulation central monetary authorities are not involved. The reasons behind the emergence of cryptocurrencies are not only the shortcomings of the traditional currency system which was unable to face numerous crises, but also the development of the Internet for which cryptocurrencies can prove to be a better suited form of money. Unfortunately they stir much legal controversy with the effect that their users are exposed to significant legal and economic risk.

Keywords: Cryptocurrency, Bitcoin, Financial stability.

Introduction

The question of how cryptocurrencies operate is an entirely new scientific issue not only nationally but also internationally. In current literature, in the fields of both economics and law sciences, there are no monographs exploring the essence of and the operational mechanisms of electronic means of payment based on cryptographic solutions. Yet, the progress of civilization and especially the development of virtual communities built on new technologies have been generating new forms of transactions and methods of their settlement, going far beyond the existing knowledge and legal framework. Therefore the aim of this paper is to present the essence of cryptocurrencies from the economic and legal perspective.

1. Legal Aspects of Crypto-Currencies

Cryptocurrencies must be classified as private money, and within this group as the so-called community currency. In most countries it is legal to make payments in cryptocurrencies (or broadly speaking, to use

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them), i.e. it is not prohibited by law to make such payments². Obviously, crypto-currencies are not recognized as legal tender and cannot be qualified as electronic money within the meaning of Directive 2009/110/EC³. Crypto-currency cannot be seen as a type of virtual currency, because they are too different from each other, in particular, in the case of cryptocurrency, as opposed to virtual money, there is no issuer. Despite this, in practice and in doctrine, the concept of virtual currency generally also includes crypto-currencies, first of all Bitcoin, and sometimes a distinction between centralized and decentralized virtual currencies is made.

Unfortunately, cryptocurrencies raise numerous legal issues with the effect that their users are exposed to a significant legal risk. The first and basic issue is to establish the legal nature of cryptocurrency (generally three methods of legal regulation can be distinguished – civil law, administrative law, and criminal law). In the first place one should discuss and determine whether cryptocurrency should be perceived uniformly within the framework of each of the methods of the legal regulation. Such uniform understanding may not be straightforward because of the specific interpretation of certain provisions where linguistic interpretation is preferred, as is the case, for example, for tax law or criminal law.

The essence of the cryptocurrency system is a unique ledger of transactions. This is called a blockchain. In the Bitcoin system, there is nothing which would correspond to legal tender currency, which is specific to cash. The “wallets” of the users of cryptocurrency system store only the information (links) indicating where, in the individual blocks, the transaction confirmation can be found. There is no “movement” between the wallet of one Bitcoin “holder” (or a holder of any other cryptocurrency) to the so-called wallet of the next Bitcoin “holder” – the only thing that changes are the links (indicators of the place in the blocks).

Thus the cryptocurrencies (e.g. Bitcoins or Litecoins), defined individually (e.g. 1 BTC), and not as a system, are only records in the ledger, i.e. the blockchain. These records represent a subjective value. For convenience, the concept of monetary unit understood as an abstract measure of value can be applied to these records. From the point of view of civil law, the crypto-currencies can be seen as a “measure of value other than money”, unless the parties to the agreement have stipulated that the amount of the benefit will be determined according to the agreed measure of value, i.e. a specific cryptocurrency.⁴ This approach corresponds to the perception of cryptocurrency as an abstract measure of value, that is the monetary unit. In addition, the cryptocurrency (when considered individually) should be recognized as a property right and a type of property. This property right is represented by a record in the ledger, i.e. the blockchain. Provision of loans in cryptocurrency may raise some controversy. A separate, yet important in social terms, is the issue of consumer protection, which becomes obvious even with a perfunctory examination of the operational practices of the entrepreneurs operating in the cryptocurrency system. We should consider whether to subject cryptocurrencies to legal regulation governing payment services. Whereas in the case of payments using a payment account there is a relatively clear division of responsibilities between the payment service user and provider, as set out in the provisions of the PSD Directive⁵ and the provisions of national law of the EU Member States, for transactions using cryptocurrency, since there is no entity running the cryptocurrency system, such division does not exist at all and the users bear the entire responsibility for correctly conducting transactions on the basis of general rules of civil law. Under the current state of law, while making cryptocurrency transactions, it is not possible to apply the PSD Directive (and, as a result, no Member States’ provisions implementing the Directive) because this type of transactions falls outside both material and personal scope of the

²Regulation of Bitcoin in Selected Jurisdictions, January 2014, published on <http://www.loc.gov/law/help/bitcoin-survey/regulation-of-bitcoin.pdf>

³ Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (OJ L 267 of 10.10.2009 as amended).

⁴ K. Zacharzewski, *Bitcoin as a matter of private law relations*, Law Monitor 2014, No. 21, p. 1132.

⁵ Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC, 2006/48/EC and repealing Directive 97/5/EC (OJ EU L 319 of 5.12.2007 as amended)

Directive. What is more, it appears that the application, even if only partial or “corresponding to”, of the PSD Directive (or actually a new PSD2 Directive⁶) may present big problems difficult to overcome, if only because there is no entity in the cryptocurrency system equivalent to the payment services provider.

The similarity of the blockchain to a payment account (and also to a bank account used for payment transactions) is not accidental, as it is the consequence of the deeply set ideological assumptions embedded in cryptocurrency schemes (the creation of a payment system that would be an alternative to official systems based on accounts held by the banks). Doubtless the main objective of the cryptocurrency system is to enable one to make payments for goods and services; however, the blockchain also serves to “collect” abstract value, that is monetary units of a particular crypto-currency. Within the value of a particular cryptocurrency, the system also has a depositary function. And perhaps this, and not merely making payments, represents a truly revolutionary aspect the crypto-currency brings to modern times – it “turns on its head” our understanding of the deposit-taking activity, which is after all the very nature of banking. Banks have a monopoly on this activity (another issue is to what extent this monopoly can currently be justified and maintained), which is demonstrated by the fact that only an entity capable of meeting the requirements prescribed by law can run deposit-taking activity, otherwise it is punishable under criminal law.

It is interesting that although payment accounts and blockchain have similar functions and application, only the activity run on the basis of payment accounts is subject to state supervision. It seems that the decentralization of cryptocurrency system makes it impossible for such a supervision to be conducted over the entire system – simply because there is no single entity “running” the system. However, some entities which are important for the system such as professional users of cryptocurrency – first of all the so called cryptocurrency exchanges – could be subject to this kind of supervision. Experience shows that the exchanges generate the highest risk of property loss by other cryptocurrency users.

It is commonly agreed in literature that money, being legal tender, fulfills four basic functions: measure of value, medium of circulation, means of payment and store of value. From the point of view of economics, a thing capable of fulfilling all these four functions would be regarded as money, no matter what its legal nature. Nevertheless, a means of payment that is “commonly accepted” would still be an important issue⁷.

From the social (or even psychological) perspective money is what people recognize as money. In other words, this is something which they view (an entirely subjective belief) as serving as the measure of value, fulfilling the function of circulation and that of the store of value. This has important economic relevance and ultimately legal relevance constituting the primary reason for the state to build a special institutional and legal structure in which central bank plays a dominant role in order to convince the state’s population that the legal tender issued by its central bank is trustworthy. Public confidence in legal tender enables it to fulfill the above functions; still, the obligation itself to accept legal tender by creditors is not enough to build such confidence. However, the public (society) can hardly have greater confidence in private money (e.g. crypto-currency) than in legal tender (unless cryptocurrency is recognized as legal tender by the state). This comes as a consequence of the fact that one of the elements of the state’s sovereignty is its monopoly on making decisions as to what is “the commonly accepted” money on its territory in the already mentioned functional and economic terms.

From this point of view two kinds of private money systems can be distinguished – the systems limited at their very outset and those seeking to become commonly recognized. The first ones are characterized in that their very nature does not allow them to become wide-spread for they are either limited territorially (e.g. local (currency) money) or only to one game or web portal (e.g. virtual money), or they are restricted legally and functionally (e.g. regulated electronic money). In addition, they have low

⁶ A proposal for a Directive of the European Parliament and of the Council on payment services in the internal market amending Directives 2002/65/EC, 2013/36/EU and 2009/110/EC and repealing 2007/64/EC (COM/2013/0547 final).

⁷ R. M. Lastra, *International Financial and Monetary Law*, Oxford 2015, pp. 12 – 13.

or hardly any capitalization compared to the currency which is legal tender (e.g. in 2013 in the UK the value of local currency (local money), Bristol Pound was only GBP 250.000 and was used by one million people, and for Brixton Pound the values were respectively GBP 100.000 and GBP 300.000)⁸. The second kind of systems, on the other hand, aspire by definition to become wide-spread and their creators declare, within the framework of a particular ideology, to replace or eliminate the means of payment issued by central banks (as is the case for cryptocurrencies, and for Bitcoin in particular).

In their very nature, the private money systems which are limited by definition, such as local money or virtual currency are very unlikely to become a threat to the monopoly of central banks. In particular, they can neither affect the monetary stability, first of all owing to its low capitalization, nor the financial market stability⁹. Cryptocurrencies, on the other hand, present a wholly different matter. The cryptocurrency system is by definition of global nature (trans-territorial or trans-national) with everyone being able to use it to purchase any goods and services (including the virtual ones as well as the illegal ones). Although presently (in 2015) the cryptocurrencies have not yet become of a “common” nature, owing to their relatively low capitalization, and nobody knows whether they ever will (the already mentioned issue of trust is crucial here), it seems that now is the time to launch expansive studies in the field of legal regulations on the central bank’s monopoly over money issuance in the context of the development of cryptocurrencies.

A separate issue, at the borderlines of the methods of legal regulations, mainly administrative and criminal law, is the prevention of using cryptocurrencies for money laundering and financing terrorism. It appears that cryptocurrencies are better suited for this objective than cash.

Cryptocurrencies are being used for money laundering because they provide considerable anonymity (yet not full anonymity), especially when used together with the TOR system. Further to that, they are global, easy to store and at the same time very difficult to be accessed to by unauthorized persons (e.g. law enforcement agency), since it is possible to use sophisticated encryption methods, the so called “wallets”.

Bitcoins are a favorable means of payment for hackers. On the black market (more precisely Deep Web or Darknet) they are used to pay for drugs, pornography, counterfeited documents as well as weapons and ammunition¹⁰.

A natural leaning of tax law to literal interpretation and the prohibition of a broader and unfavorable to taxpayers interpretation along with the innovative and unprecedented technological structure of cryptocurrencies bring about a set of issues *de lege lata* difficult to be solved as regards the application of tax law. In the main, this involves the application of provisions pertaining to value added tax (VAT as well as income taxes). For instance, it concerns the fundamental issue which is the qualification under the VAT rules of transferring cryptocurrency to another party. Such action can be considered either as the provision of services or simply as the payments made with use of means of payment other than legal tender. While the first approach is undoubtedly more convenient for tax authorities because it is closer to linguistic interpretation, the second one reflects better the function of crypto-currencies and the purpose of their use, in general. That is why it should be assumed that the “payment” made in cryptocurrency leads to debt relief, provided that it is agreed by the parties in the contract. Undoubtedly, the judicial decisions will play here an important role, and in particular, the decisions of the Court of Justice of the European Union.

2. Economic Aspects of Crypto-Currencies

In the economic aspect the references to the idea behind the emergence of virtual currency can be found in various strands of the economic theory. The concept of virtual currency can for the most part be found

⁸ M. Naqvi, J. Southgate, *Banknotes, local currencies and central bank objectives*, Bank of England Quarterly Bulletin. 2013 4th Quarter, Vol. 53 Issue 4, p. 6.

⁹ European Central Bank, *Virtual currency schemes*, October 2012, pp. 37-39.

¹⁰ See M. C. Van Hout, T. Bingham, *Silk Road, the virtual drug marketplace: A single case study of user experiences*, International Journal of Drug Policy 2013, Vol. 24, Issue 5, p. 385–391,

in the views represented by the exponents of the Austrian School of Economics¹¹, which focused on business cycles and the theory of money. They believed that currency interventions were the cause of the occurrence of business cycles. Excessive expansion of credit triggered by fractional reserve banking leads to increased money supply and artificially low interest rates. Entrepreneurs see it as a signal and make decisions which are frequently at odds with consumers' preferences, thus giving rise to a crisis. According to the Austrian School, the remedy for the monetary authorities' having far too much discretion over money manipulation is the abandonment of the fractional reserve banking system and return to the gold standard, which would, as a consequence, lead to smoothing business cycles¹².

In this context, Friedrich Hayek's publication¹³ provides a significant contribution to the theory of money, where the author advocates the removal of the states' monopoly over the issuance of money. He further suggests that commercial banks as private entities should have the right to issue non-interest-bearing certificates based on their own trademarks. These certificates would be open to competition and offered at variable exchange rates. Certificates with stable exchange rates would drive the weaker and less stable ones out of circulation. As a result, that would allow for the creation of an effective system in which only stable currency would operate (as Hayek saw it, certificates).

The above proposals were reflected in the scheme of the BTC virtual money. This money is perceived as a good starting point to end the central banks' monopoly over the issuance of money. Simultaneously, the BTC scheme is to act as counterbalance to the current money based on the fractional reserve banking while at the same time it draws on the old gold standard.

Furthermore, an important reason behind the emergence of cryptocurrencies was the wish to create a system allowing for quick and cheap transactions, having no need for a third party. The idea behind this solution is, however, not entirely new. It draws on the concept of e-money by D. Chaum¹⁴ from 1982, later on developed in a number of studies¹⁵. The innovation the cryptocurrencies introduced is the solution to the problem of double-spending. The standard solution – used by traditional payment systems of real economies – involves trusted third parties, e.g. a bank which verifies the correctness of transactions made. The cryptocurrency trade is based on the peer-to-peer network (P2P) used for example in a file exchange protocol. All transactions conducted by the users are made public and their verification is carried out by the system's users themselves.

The set of issues on how cryptocurrencies operate is still a recent phenomenon which, so far, has not in fact been described in literature. Moreover, the available publications usually focus on technological, cryptographic or legal aspects¹⁶, omitting the economic strand. The first and more comprehensive study on the economic effects of the development of cryptocurrencies was the report by European Central Bank titled "Virtual Currency Schemes"¹⁷, published in October. Although the paper was concerned with a wider phenomenon of virtual currency, (cryptocurrency being just one type), still, it provided important findings on potential effects of the distribution of the means of payment at issue, as will be explained further in this paper.

The development of cryptocurrencies marks its beginning with the launch of Bitcoin as a virtual currency created in 2008 by a programmer (or a group of programmers) hidden under the pseudonym Satoshi Nakamoto. The concept of the currency was presented in an article under the title "Bitcoin: Bitcoin: A Peer-to-Peer Electronic Cash System" [Nakamoto 2008], with the system itself being put into

¹¹ The most significant representatives Eugene Böhm Bawerk, Ludwig von Mises, Friedrich A. Hayek,

¹² E. Chrabonszczewska, *Bitcoin – New global virtual currency?* International Journal of Management and Economics, 40/2013, p. 50-71

¹³ F. Hayek, *Denationalisation of Money*, 3rd ed., The Institute for Economic Affairs, London 1990, pp. 124–126

¹⁴ Barber S., Boyen X., Shi E., Uzun E., *Bitter to better — How to make Bitcoin a better currency*, [in:] *Financial Cryptography and Data Security*, A.D. Keromytis, Springer, Berlin-Heidelberg 2012, pp. 399-414, Chaum D., *Blind signatures for untraceable payments*, [in:] *Advances in Cryptology — Proceedings of CRYPTO' 82*, Plenum Press, New York 1983. p. 199-203

¹⁵ Nakamoto S., *Bitcoin: A Peer-to-Peer Electronic Cash System*, 2008, <http://bitcoin.org/bitcoin.pdf>

¹⁶ Ron D., Shamir A., *Quantitative analysis of the full Bitcoin transaction graph*, 2012, eprint.iacr.org/2012/584.pdf

¹⁷ European Central Bank, *Virtual currency schemes*, October 2012, pp. 37

operation on 3 January 2009. Despite having no official classification under the ISO 4217, the abbreviation BTC is often used in business transactions and publications – not unlike the three lettered symbols used for denoting standard currencies¹⁸.

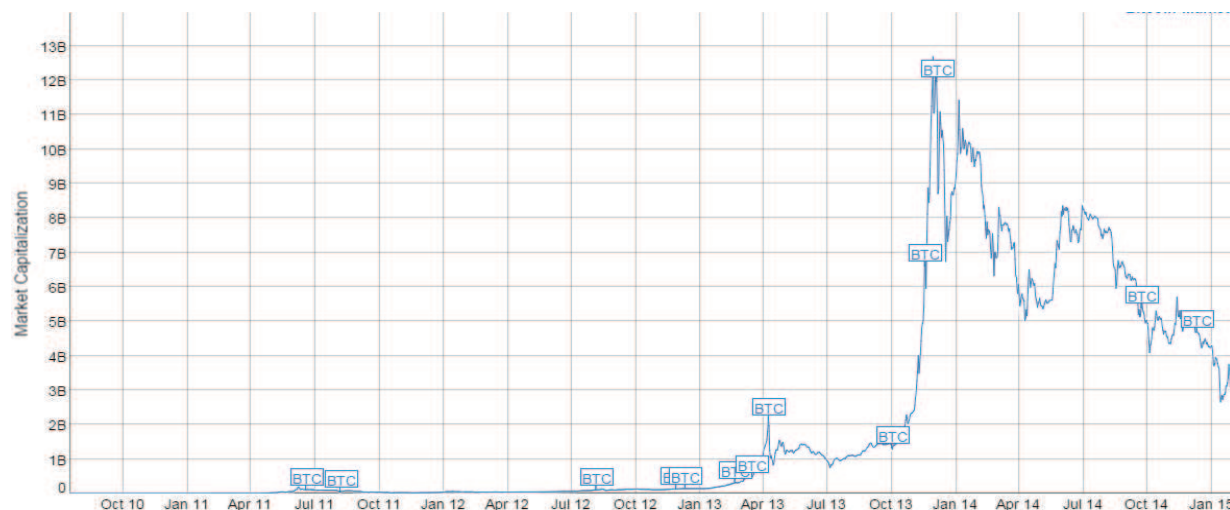


Figure 1. Bitcoin market capitalization 2010-2015 (in bln \$)
 Source: <https://bitinfocharts.com/comparison/marketcap-btc.html>

From the moment of its price being listed in the US dollar the capitalization of BTC has risen multiply, although it went through considerable crises in the meantime (Figure 5). As recently as 2012 the BTC capitalization was only USD 25 million. Afterwards there was a period of rapid growth which lasted until the end of November 2013, when the Bitcoin exchange rate was above 1000 USD/BTC, which meant that the market value of the currencies in circulation was almost USD 13 billion. A period of systematic fall in exchange rates followed, which became characteristic for Bitcoin in subsequent years. Currently i.e. at the moment of conducting these studies (January 2015), the price was 270 BTC/USD, which meant that the capitalization was at the level of USD 3,7 billion. Thus, the dynamics are still considerable, compared to the beginnings of BTC, yet it should not be difficult to assess that the market value of Bitcoins in circulation is incomparably smaller than traditional currencies, which is, after all, similar to the number of transactions made.

Despite all this, Bitcoin continues to remain the most popular and most widespread cryptocurrency. Nevertheless, several hundred other cryptocurrencies have emerged alongside. Figure 2 presents the list of the most important cryptocurrencies.

The table shows that there are substantial differences even among the main cryptocurrencies in terms of capitalization, market price and the average amount of transactions made using a particular cryptocurrency. It should also be noted that there are some technical differences. For example, Litecoin is slightly different than Bitcoin in the way it is encrypted, occasionally different when it comes to creating new units and with respect to the maximum amount of units forecasted for the circulation (84 million compared to 21 million for Bitcoin). The fact, however, remains that in economic terms the nature and effects of the cryptocurrencies listed are very similar. Even though certain cryptocurrencies were created as a sort of a social media joke, they are still in operation today such as for example DogeCoin founded by Jackson Palmer, an employee at Adobe company. He made a joke on Twitter saying that he was going to invest in DogeCoin. Having received encouraging replies to do so, he eventually decided to purchase a domain DogeCoin.com and started up the project website. Billy Markus, who had just been

¹⁸ M. Polasik, A. Piotrowska, R. Kotkowski *Virtual currency Bitcoin from the perspective of internet bidder, preliminary analysis*, Financial science 4(17)/2013, pp. 132

thinking about creating his own cryptocurrency, came across this site. The two gentlemen got in touch and agreed to launch DogeCoin. The users of the Reddit service liked the idea very much and DogeCoin is currently very popular there as a form of payment making¹⁹. Under the service, there is, among others, DogeMarket, where people offer real objects to be paid for in DogeCoin currency.

CRYPTOCURRENCY	CAPITALIZATION (USD)	NUMBER OF UNITS	PRICE (USD)	THE AVERAGE DAILY VOLUME OF TRANSACTIONS
Bitcoin	3 248 150 354	13 856 924	234,4063	87 762
Litecoin	65 862 047	36 711 317	1,7941	4 918
Dogecoin	13 636 105	98 314 507 096	0,0001	29 629
Darkcoin	12 691 259	5 148 615	2,4650	2 226
Paycoin	9 523 477	13 527 479	0,7040	2 319
Peercoin	8 247 704	22 104 347	0,3731	428
Namecoin	4 949 713	10 652 782	0,4646	3 154
Blackcoin	1 210 886	74 792 780	0,0162	5 269
Novacoin	722 837	1 089 387	0,6635	248
Quarkcoin	546 247	248 689 352	0,0022	612

Figure 2. Characteristics of the main cryptocurrencies

Source: Own elaboration with the use of data on <https://bitinfocharts.com/> as at December 31, 2014

	BTC/USD	BTC/EUR	EUR/USD	S&P Index	XAU/USD	CL.F/USD
Daily statistics						
average rate of return	0,70%	0,72%	-0,01%	0,06%	0,00%	-0,02%
standard deviation	7,41%	7,40%	0,58%	0,97%	1,11%	1,52%
min.	-44,33%	-43,61%	-2,54%	-6,90%	-9,24%	-8,79%
max	54,04%	53,94%	2,07%	4,63%	3,97%	6,56%
range (max-min)	98,36%	97,55%	4,60%	11,53%	13,21%	15,36%
Monthly statistics						
average rate of return	15,11%	15,39%	-0,28%	1,18%	0,05%	-0,41%
standard deviation	44,62%	44,13%	2,94%	3,46%	5,50%	7,35%
min.	-49,85%	-50,05%	-7,17%	-7,45%	-11,70%	-20,43%
max	170,08%	170,11%	7,15%	10,23%	11,64%	17,14%
range (max-min)	219,93%	220,16%	14,32%	17,68%	23,33%	37,57%

Figure 3. Statistical analysis of Bitcoin quotes compared to other financial instruments

Source: Own elaboration

¹⁹ <http://www.businessinsider.com/what-is-dogecoin-2013-12?op=1>

The dynamic increase in the number of cryptocurrencies in circulation does not change the fact that while carrying out the economic analysis of the cryptocurrencies usage, Bitcoin, being the most widespread in public awareness, appears the most reliable. The subject of the studies was the most common cryptocurrency, Bitcoin. The volatility of Bitcoin rates compared to the traditional currencies and other financial instruments was analyzed. Also, the rates of return and the risk related to the investment in cryptocurrencies was taken into account.

The BTC convertibility into other currencies is unrestricted, which allows for freedom with respect to making international payments. In the study, the BTC rates were compared to other currencies, such as USD or EUR. The results were compared to other traditional financial instruments, such as S&P index, EUR/USD as well as gold rates(XAU/USD) or oil prices (CL.F/USD).

The analysis clearly suggests that the BTC rates are much more volatile as compared to other financial instruments. This is demonstrated not only by the gap between the daily or monthly minimum and maximum rate of return, but first of all by the higher standard deviation indicating higher BTC investment risk. It should be highlighted that as regards the setting and regulating the BTC exchange rates, there are no clearly formulated rules. The exchange rate is set on exchange platforms on a market-driven basis, with no interference from any supervisory body. This, in turn, leads to a high volatility of rates. Also, there is no mechanism limiting the exchange rate risk and preventing currency speculations. The shifts presented in the table indicate that deviations are much higher on a monthly than daily basis.

The higher volatility of the BTC rates implies the need for exploring the dependencies between the rates of return on the financial instruments at issue. The analysis was conducted using the daily changes.

Correlation	BTC USD	BTC EUR	EUR USD	S&P Index	XAU/USD	CL.F/USD
BTC USD	1					
BTC EUR	0,996	1				
EUR USD	0,069	0,000	1			
S&P Index	0,071	0,046	0,411	1		
XAU/USD	0,023	0,002	0,246	0,044	1	
CL.F/USD	0,056	0,035	0,316	0,411	0,241	1

Data for the period 2010-2015

Figure 4. The correlation matrix of daily rates of returns
Source: Own elaboration

The findings show that there is a very low, or actually no dependency between the BTC rates and the changes in the rates of return for other financial instruments. On the other hand, the correlation between the currency pairs which take into account BTC is very high. The same can be said about other cryptocurrencies, not presented in this paper, whose correlation with the BTC rate is very high. This proves that the financial market does not currently recognize cryptocurrencies as independent instruments, but rather a common basket of currencies which are linked with one another..

High volatility of cryptocurrencies can be a factor that is likely to hamper trust in the usage of this means of payment, especially in the medium to long term. Against this backdrop, it is worth pointing out the most important conclusions made in the report of the European Central Bank, already mentioned here,

on the subject of cryptocurrencies. The report suggests that the cryptocurrency schemes may be created as alternative to current currencies. It refers in particular to Bitcoin, which is meant to be free of faults typical for today's money, where the supply is controlled by one institution in which the entire monetary power is concentrated. Nevertheless, the risks created by the development of virtual currencies present a considerable problem. The impact of this new phenomenon on the stability of prices is limited because it does not affect directly the money supply. This is also the case as regards the impact the cryptocurrencies have on the stability of payment and financial systems which can still be considered little. The main reason for this is the fact that there are no strong ties linking virtual worlds with the real economy. Still, under extreme circumstances it may happen that cryptocurrencies would drive the "real" money out of circulation. If cryptocurrency was to replace cash and non-cash money, the balance sheet of central bank would shrink, which, in turn, would affect its ability to conduct monetary policy. Furthermore, measuring the supply of money would also become more difficult. Yet, in the first place, looking from the users' point of view, cryptocurrencies generate numerous risks. They are unstable by definition, the payment systems which operate in the virtual world are exposed to distortions, and the uncertainty as to their legal status may have other unforeseen ramifications.

Comparing the above considerations with the studies conducted it can be argued that the emergency and development of the cryptocurrency phenomenon should be treated as the next stage in the development of money. However, a widespread introduction of cryptocurrencies would entail a completely new approach towards the concept of money and its present functions, in particular those which are related to its official circulation. The dissemination would involve the risk to the stability of the price system, payment system or central banks' loss of reputation. Besides, the thinness of the cryptocurrency market is one of the reasons behind the rapid fluctuations of the exchange rate. This means that this money cannot constitute a form of capital accumulation, as the risk of uncontrolled fluctuations of the exchange rate is too high.

Summary

It follows from the above considerations that cryptocurrencies, of which Bitcoin is a particular example being the most widespread currency of this kind, are not the answer to escaping various kinds of risk involved in the circulation of cash. Unstable exchange rate and legal risk related to the usage of the new currency are not easily avoided. On the other hand, the fact remains that the innovative nature of the way cryptocurrencies are created, as well as the idea to remove them from the state's controlling their circulation is gaining supporters, which should be viewed not only as a social phenomenon, but also as a process which, if widespread, may have substantial economic consequences.

Whether or not the dissemination of cryptocurrencies will continue with cryptocurrencies becoming potential competitors for money, not unlike in the case of other currencies in the history of money, will be decided by public confidence. In order to strengthen this confidence, legal changes regulating the general framework under which cryptocurrencies are used are necessary. This should be seen as *sine qua non* requirement for cryptocurrencies to be able to leave the mostly unofficial circulation of present times.