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## **THE NATURE OF BITCOIN AND SOME PRACTICAL ASPECTS OF ITS USE BY BUSINESS**

### **Abstract:**

Cryptocurrencies have become very popular in past few years. At recent time Bitcoin holds a dominant position on cryptocurrency markets. Lots of economists, programmers, bloggers, even lawyers call Bitcoin "money of the future" or "a pure means of payment". But is Bitcoin and cryptocurrencies the money in the classic meaning of this phenomenon? Economic theory identifies money through the role that it plays in society, but can Bitcoin fulfill these functions? This paper discusses the nature of Bitcoin from the economic and legal perspective.

Despite all controversies Bitcoin is used in business. Bitcoins and their use are a very actual issue, especially with a high popularity and high cost of Bitcoins. The paper covers the issue of legal status of Bitcoin and how can it be used in business activity, including examination of both advantages, such as "free advertisement", simplicity, and other and disadvantages, such as security risks, uncertainty in a legal status, etc. Because of very different approaches to regulation of Bitcoin in different national jurisdictions, therefore this paper is interested in a comparative analysis of a regulation of Bitcoin's legal status in different national jurisdictions.

### **Keywords:**

Bitcoin, business, legal status, virtual currency

## Introduction

Business dictionary defines currency as “tokens used as money in a country. In addition to the metal coins and paper bank notes, modern currency also includes checks drawn on bank accounts, money orders, travelers’ checks”. According to The US Code of Federal Regulations currency is “the coin and paper money of the United States or any other country that is designated as legal tender and that circulates and is customarily used and accepted as a medium of exchange in the country of issuance”. Numbers of forms of money existed in the world. Karl Marx (1867) considered three forms of money: gold, paper and credit money. The first of these forms connects money directly to commodities and their metamorphosis. The second corresponds to the inverted way that commodity circulation appears. Credit money is “the money of capitalism” but its connection to commodity circulation is hidden.

Along with the changes of society the ideas about money have been changing. At the dawn of civilization wheat, beads, etc. were used by people as tokens of exchange. This type of money is called “commodity money”. Later merchants had started to use coins made of gold, silver and brass. First banknotes were invented in China during the 11<sup>th</sup> century (Daniel R. Headrick, 2009). At first banknote was just a type of negotiable instrument known as a promissory note, made by a bank, payable to the bearer on demand.

Nowadays the money supply of a country consists of currency (banknotes and coins) and, depending on the particular definition used, one or more types of bank money (Boyle, 2006). Banknotes and coins are considered as so-called fiat money – currency, which derives its value from government regulation or law and do not have intrinsic value (N. Gregory Mankiw, 2014). The “fiat money” has a similar meaning with a “legal tender” – a medium of payment recognized by a legal system and has to be accepted as payment and therefore is valid for fulfillment of a financial obligation (Greco, 2001). Namely, USD, EURO, Russian ruble and Japanese yen are both fiat money and legal tender. Bank money (or demand deposits) is a claim against financial institutions that can be used for the purchase of goods and services. In many cases today terms currency and fiat money (and even term “money”) can be used interchangeably – they do not have intrinsic value and are used and accepted as payment due to legal regulations.

During the modern age, people do not only use banknotes, coins, bills of exchange, bank money, but also digital currency. Digital currency can mean both a digital representation of virtual currency and e-money (a digital representation of fiat money and a digital transfer mechanism for fiat money) and thus is often used interchangeably with the term “virtual currency”. But virtual currency, unlike e-money, operates with the invented units of account without status of legal tender.

There are many definitions of virtual currencies. European Bank in 2012 defined virtual currency as “a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific

virtual community" (ECB, 2012). In 2013 The Financial Crimes Enforcement Network (FinCen) defined virtual currency as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency" (FinCen, 2013). In 2014 the European Banking Authority gave the definition of the virtual currency as "a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically" (EBA, 2014).

Academics usually classify virtual currencies by "currency flow" into 3 main categories:

1. Closed virtual currencies. These currencies have no connection with the real world economy. The most common examples – in-game gold of World of Warcraft or EveOnline credits. This in-game money cannot be exchanged on real currency. I do not mention a black market of gold or credits intentionally, because it is not a part of research.
2. Virtual currencies with currency flow into one direction or with unidirectional flow. Users can buy this currency for real money, but then cannot exchange it on real currency. For instance, user can buy "gold" in browser game Travian using fiat money. But user cannot exchange this "gold" on real currency.
3. Convertible virtual currency or virtual currency with bidirectional flow. This type of currency could be bought and sold for fiat currency. For example, Second Life Linden Dollars could be exchanged on real currency.

First and second types of virtual currencies definitely cannot be considered as currency at all because they don't have a market or application outside of gaming platforms (or social networks), cannot be converted into fiat currency and may not be redeemable for real—world goods, services, etc. The third type is more complicated type of virtual currency due to its possibility to be exchanged on real currency.

Another classification of virtual currencies is into centralized virtual currencies that have a "centralized repository", similar to a central bank, and a "central administrator" (FinCen, 2013), and decentralized virtual currencies. A decentralized virtual currency was defined by FinCen as a "currency (1) that has no central repository and no single administrator, and (2) that persons may obtain by their own computing or manufacturing effort" (FinCen, 2013). Bitcoin is considered as decentralized virtual currency by authorities and researchers (Jerry Brito, 2013). But can Bitcoin, the brightest representative of virtual currencies, be treated as money?

## The Nature of Bitcoin

Besides being the virtual currency Bitcoin is cryptocurrency. Cryptocurrency is a medium of exchange, which uses cryptography to secure the transactions and to control the creation of new units. Among of all cryptocurrencies – such as Litecoin, Ripple, Darkcoin, Peercoin – Bitcoin is the most successful and controversial virtual

currency and now is holding a dominant position on the cryptocurrency market. Bitcoin is the decentralized virtual currency with bidirectional flow, which uses cryptography to secure transactions and to control the creation of new units. Bitcoin is based on a peer-to-peer network (like torrents) and does not have a central clearing house, nor are there any financial or other institutions, which involved in the Bitcoin transactions, so all transactions are performed between users directly.

There is no central authority in charge of Bitcoins creation and distribution. The process of distribution of the supply of Bitcoins inside a Bitcoin network without any centralized authority is called "mining". Mining is the process of adding transaction records to Bitcoin's public ledger of past transactions. There are no physical Bitcoins, only records of Bitcoin transactions. Bitcoin transactions are bundled up into pieces of data called blocks. These blocks are linked together in such a way that each one proves that the block before it was valid – this technology is called the "Block chain". The block chain serves to record and confirm transactions to the rest of the network as having taken place. Every node (an active electronic device that is attached to the network) in a decentralized cryptocurrency system has at least a partial copy of the block chain. Bitcoin nodes use the block chain to distinguish legitimate Bitcoin transactions and to prevent re-spending of coins that have already been spent elsewhere. If a user will look at his transaction list in Bitcoin client or wallet, he will see there a string "Block Confirmations: 6+" or something like that. It means that the block containing that transaction is currently 6 or more blocks back from the current block. This technology is important because the more blocks away this transaction is, the more work it would take for an imaginary hacker to go back in time and change or forge it. And the more blocks are adding to the block chain the harder to hack the Bitcoin network.

Many people (economists, programmers, bloggers, lawyers, etc) call Bitcoin "money of the future" or "a pure means of payment" (Advocate General Kokott). But is Bitcoin the money? Economic theory identifies money through the role that it plays in society. William Stanley Jevons (1876) highlighted four main functions of money: a medium of exchange; a common measure of value; a standard of value and a store of value. Karl Marx in fundamental work Capital: Critique of Political Economy (1867) pointed out five main functions of money: the universal measure of value; the medium of circulation; the means of payment; the means of accumulation; the world money (the universal money). Other academics argue that money takes on four functions: medium of exchange; unit of account (measure of value); store of value; standard of deferred payment (Colin Dearborn Campbell, 1978). ECB highlighted 3 functions of money: medium of exchange; unit of account; store of value.

So the 5 main functions of money are:

1. Medium of exchange;
2. Measure of value;
3. Store of value;
4. Standard of deferred payment;

## 5. World money.

But can Bitcoin fulfill these functions and so be considered as the currency?

### *Bitcoin as a Medium of Exchange*

The primary function of money is to act as the medium of exchange so all people could use money to buy and sell goods without any additional complications. At the dawn of civilization there was no such thing as money. People had to exchange goods on goods. Situation where the supplier of good A is a demander of good B and vice versa is called "double coincidence" of wants (Ostroy and Starr, 1990). Barter economy without money had some inconveniences such as complexity of exchanges or improbability of coincidence between persons wanting and persons possessing. Money as the medium of exchange has eliminated this inconveniences, because everyone is willing to accept money in payment for their goods. And when money becomes legal tender sellers are obliged to accept this money in exchange for their goods and services. With money trading became easier, more efficient and there is no need for double coincidence of wants. Money circulates in an economy and helps to subdivide and distribute goods, services, real estate and "lubricates" the action of exchange (Jevons, 1876). Moreover money is the most liquid asset.

Bitcoin, on the other hand, is not legal tender in any country. So sellers do not obliged to accept Bitcoin as payment. Moreover not all sellers want to accept Bitcoins as payment. With Bitcoin there has to be the double coincidence of wants, because if person A doesn't need or want Bitcoins, he won't accept them from person B who wants, for instance, to buy a pair of shoes. Unlike fiat money Bitcoin has purchasing power only if participants agree that it has purchasing power. So Bitcoin can be used only as a contractual mean of exchange, when there is an agreement between buyer and seller in order to accept it as a mean of payment. Therefore Bitcoin cannot fully perform as the medium of exchange in the modern society. Bitcoins are used between enthusiasts and inside small societies. Also Bitcoin is less liquid compared to the real money (fiat currencies).

### *Bitcoin as a Universal Measure of Value*

In the barter economy it was difficult to decide how much volume of goods should be given in exchange of a given quantity of other goods. Goods or items that can serve as the ideal measure of value will be selected by custom or by the government (or both) as money. Money is used as the common "benchmark" or unit of account to designate the prices of goods. It means that money is functioning as the measuring unit for prices, and so prices of goods are stated in terms of certain monetary unit, so that all exchanges will be calculated in selected money. Also money can indicate a measure of the relative value of goods.

Bitcoin demonstrates a different situation. Bitcoins are not pegged to any real currency like dollar, euro, etc. Bitcoins are goods, and their price is determined by supply and demand on the global market. Private Company Financial Intelligence (PrivCo) estimates that 80% of Bitcoins are turned into US dollars and 20% are held in inventory by processors. All prices within selected country are stated in the national legal tender, but can be stated in Bitcoins considering its market value. So it cannot fulfill the function of a universal measure of value and cannot perform as the reliable measure of value.

### *Bitcoin as a Store of Value*

People store their wealth in money, because money's value can be retained over time. Storing money is one way of postponing the satisfaction obtained from using or consuming goods until a later time. Fiat money is assumed to be perfectly stable in real value during non-hyperinflationary conditions. Only one problem with storing money is that prices changes over time and money becomes less effective as the store of value.

Bitcoin is not reliable store of value. Bitcoin is very volatile and has very significant price fluctuations. For instance, on November 2013 Bitcoin price was around \$1200, but during December 2013 Bitcoin price dropped down to around \$700 - \$800 per unit. And during 2015 the price of Bitcoin was between \$300 – 500 per unit. Investments in Bitcoins are considered as high-risk investments because of its price fluctuations. It is hard to argue that Bitcoin is an adequate mean of accumulation of money. It is more like a gambling. Although the general trend in Bitcoin's value has been higher, economists see it as a potential bubble that would pop if the investors and speculators will lose interest in trading and making money on this virtual currency. Given the volatility of Bitcoin's price, it does not make sense to use it as a daily currency, unlike fiat currency.

### *Bitcoin as a Standard of Deferred Payment*

Not many authors highlight this function. This function of money developed right after money became a universal measure of value and a medium of exchange. Business cannot advance far before people begin to borrow and lend, and different debts are contracted. Every person making a contract by which he will receive something at the future will prefer to receive performance in a commodity likely to be as valuable then as now. And this commodity will usually be the national money as it could be exchanged for many other commodities without additional complications. Money as a standard of deferred payment is used as a measure for specifying future payments for current purchases. If money is the standard for current prices, then money is also the standard for future payments. And if inflation is, for example, 5 percent per year, then deferred payments need to be adjusted for the resulting decrease of money value.

There is not a single Bitcoin loan or a long-term contract, based on Bitcoins. Moreover, it is not reasonable to any party to conclude a long-term contract in Bitcoins due to its high volatility.

### *Bitcoin as the World money*

In the international market “world money” is the money that transacted without borders between countries. Such money serves as the universal mean of payment. In the 17th and 18th centuries, the use of silver Spanish dollars or "pieces of eight" spread from the Spanish territories in the Americas westwards to Asia and eastwards to Europe forming the first worldwide currency (Ray Woodcock, 2009). Before 1944, the world reference currency was the United Kingdom's pound sterling (Catherine R. Schenk, 2009). And now USD and EURO are being considered as the world money. Bitcoin, despite possibility of transaction without borders between countries, could not be considered as the “world money”, because it is not legal tender in any country and for many other reasons like: immaturity of the Bitcoin market, high volatility of Bitcoin, not widely acceptance by sellers (less than 1% of all transactions are made in Bitcoins).

Therefore Bitcoin and other virtual currencies cannot be considered as money in the “classic” meaning of this phenomenon. And when we use term “virtual currency” or “cryptocurrency” it does not mean that we think about this “currency” as currency and money in economic or a legal meaning of these terms. But not all agree with this statement. In the case US v Faiella US District Judge Jed Rakoff has ruled that Bitcoin is money: ““money” in ordinary parlance means “something generally accepted as a medium of exchange, a measure of value, or a means of payment.” Bitcoin clearly qualifies as “money” or “funds” under these plain meaning definitions.” In the case US v Ross William Ulbricht Judge Katherine Forrest has rejected the argument that Bitcoin is not money, saying: “Bitcoins carry value – that is their purpose and function – and act as a medium of exchange. Bitcoins may be exchanged for legal tender, be it US dollars, euro, or some other currency. Accordingly, [the defense’s] argument fails.” Japan decided to treat Bitcoin as a commodity, and in Germany it is recognized as “private money”. In the case Skatteverket v David Hedqvist European Court ruled that Bitcoin transactions are exempt from VAT under the provision concerning transactions relating to “currency, bank notes and coins used as legal tender”.

However Bitcoin is not recognized as legal tender in any country. So there is no unity in determination of a legal nature of Bitcoin across countries. I suggest that Bitcoin should be treated as a commodity rather than as money. Commodity Futures Trading Commission (CFTC) of the USA has ruled that Bitcoins are scarce digital commodities that enable parties to transmit messages over a network that serves as a universal public ledger. Bitcoins fall within the definition of “commodity” under the Commodity Exchange Act such that derivatives contracts that reference Bitcoins are subject to regulation by the CFTC (Houman B. Shadab, 2014). But Bitcoin should be considered

not as the physical commodity since it does not exist in the real world outside the Internet, but as the digital or virtual commodity as the CFTC proposed. Like commodities, Bitcoin's price depends on supply and demand; Bitcoin as any commodity is volatile, although much higher than usual commodities. As commodities like oil, gas, coal, etc are exposed to geopolitical risks, Bitcoin exposed to such risks too – after it was banned in China, Bitcoin price became much lower. As all commodities Bitcoin has such attribute as liquidity. Thus Bitcoin is the digital representation of value, virtual commodity, which is not attached to any fiat currency, is issued by users and is accepted by natural or legal persons as a means of payment considering its value on commodity market.

But despite all of above-mentioned, can business use Bitcoins? Can it be accepted by business as a mean of payment? The answer is yes. Bitcoin operates at a global level and can be used as a medium of exchange for many kinds of transactions. Moreover, since 2012 many major sites, such as WordPress, OKCupid, Overstock.com, even Microsoft in 2014 have started to accept Bitcoins as payment. First Bitcoin ATM-like machine has been installed in Canada in 2013. And as of June 2015 there are more than 400 Bitcoin ATM-like machines in the world. In number of cities like New York or Los Angeles grocery stores accepting Bitcoins have been created. On March 24, 2015 Bitcoins for the first time have been used to incorporate a legal person in Italy. "Bertani incorporated Oraclize Srl" with a capital contribution of 45 Bitcoins has been registered by Public Notary Giacomo Pieraccini.

The procedure of exchanging Bitcoins for goods is more complicated than using fiat money. First of all, the user has to receive Bitcoins through mining or other way (like buying it on the market). Then this Bitcoin appears in the public ledger indicating the ownership of this Bitcoin to particular user, owner of the private key. Bitcoins have the volatile market value, and so all prices, which are stated in Bitcoins, actually set in national currency with respect to cost of Bitcoin in this currency. For instance, if Bitcoin costs 100 USD on a global market, and selected goods cost 50 USD, the merchant will indicate the price of his goods in Bitcoins as 0.5 BTC. After the merchant has set the prices in Bitcoins, the owner of Bitcoins sends his Bitcoins to the merchant's wallet and he in return gives him selected goods.

## **Bitcoins in Business**

Bitcoin has advantages over traditional currency, but also has some disadvantages. Both advantages and disadvantages must be taken into account when any owner of a business makes a decision to use or not to use Bitcoins. Bitcoins can benefit first of all small businesses with its advantages.

### *Advantages of Bitcoin*

Bitcoin transactions, like usual bank transactions, do not require the physical presence of a pair and a payee for transaction be accomplished. According to the “An introduction to electronic money Issues” (David G.Hayers, 1996) paper, the cost of an electronic payment system would range from one-third to one-half of a paper payment system. Bitcoins require using of specific software to operate with – this software is called “Bitcoin wallet”, which is simply a file containing randomly generated numbers that are treated as the public-private key pair for the future Bitcoin transactions. Bitcoin-based transactions offer very low transaction costs, because all payments performed directly between users with very low transaction fees. In most cases, fees are not strictly required but they are recommended for faster confirmation of transactions. So, Bitcoin transactions are carried out much faster and more cheaply than transactions involved traditional means of payment. It is definitely an advantage of Bitcoins. Bitcoin also creates new opportunities for “microtransactions” below \$1 – with Bitcoin it is possible to send small amount of money at a reasonable low cost.

In order to start using Bitcoins, users need to download the free open-source software or register an online wallet. Users do not need a bank or PayPal account or a credit card to make payments using Bitcoins – all they need is an internet connection. Seller does not need to acquire an additional hardware, such as payment terminals. Moreover, Bitcoin both domestic and international transactions are faster than PayPal or bank transactions. And, what is very important, Bitcoin network takes out the middleman from financial transaction between users. Bitcoin is transferred to the next owner when the next owner gives a public key and the previous owner uses his private key to publish a record into the public ledger announcing the ownership of his Bitcoins has changed and now they belong to the new public key owner. No banks back Bitcoin and Bitcoin transactions, so there are no any interest rates on the Bitcoins stored in the wallet and no storage costs. In this sense Bitcoin transactions are very similar to the usual cash transactions and leave no so-called “paper trail” and leave practically untraceable “digital trail”, despite of automatic recording of all Bitcoin transaction in the block chain.

Exchanging of currencies in an international trade usually imposes an additional cost on transaction. Bitcoin helps to avoid these costs because it is designed to be used transnational via the Internet. Buyer does not need to exchange his Bitcoins on dollars or Euros to buy from seller. He just needs to send his Bitcoins according to prices set by seller.

Due to Bitcoin’s technological nature is impossible to counterfeit it by double-spending. This became possible because block chain technology keeps records of all Bitcoin transactions have ever been made. All of the Bitcoins hacks were made not against Bitcoins or its transactions, but against exchanges, owners of wallets or internet-based accounts. Moreover, Bitcoin accounts cannot be arrested and transactions cannot be suspended. This is definitely a good point to start using Bitcoins.

When a merchant decides to use Bitcoin, his business will appear on the Bitcoin sites, and, the most important – on a special virtual map like Coinmap. So the Bitcoin owners will know where to find a merchant who accepts Bitcoins. So it is a free advertisement for the business owner. Moreover, Bitcoins help to expand market horizons for business, especially in online trade and services.

Because of limited quantity of Bitcoins it's highly unlikely that this currency would be affected by inflation. But is 21 million of Bitcoins enough to operate in the world? One Bitcoin can be divided on subunits up to  $10^{-8}$  – one hundred millionth of a Bitcoin. That fraction is called a “Satoshi”, in honor of the “father” of Bitcoins. By allowing currency to be divided to the smaller fractions, buyers and sellers have greater flexibility in sales and bartering. But it could cause the rise of Bitcoin's price, and, eventually, cause a deflation effect.

### *Disadvantages of Bitcoin*

Uncertainty in the legal status makes a usage of Bitcoins very complicated, especially for business. For instance, according to the IRS paper, for federal tax purposes virtual currency is treated as a property (IRS, 2014). In courts Bitcoin is treated as money. In some countries Bitcoin usage is banned. On December 3, 2013 The People's Bank of China, Ministry of Industry and Information Technology, China Banking Regulatory Commission, China Securities Regulatory Commission and China Insurance Regulatory Commission issued “Notice on Precautions Against the Risks of Bitcoins”. According to this notice banks and payment institutions in China are prohibited from using Bitcoins. According to Notice 2 of this paper, it is required that, at this stage, financial and payment institutions may not use Bitcoin pricing for products or services, may not buy or sell Bitcoins, may not act as a central counterparty in Bitcoin trading, may not offer insurance products associated with Bitcoin, may not provide direct or indirect Bitcoin-related services to customers, including: registering, trading, settling, clearing or other services; accepting Bitcoin or use of Bitcoin as a clearing tool; trading Bitcoin with CNY or foreign currencies; storing, escrowing, and mortgaging in Bitcoin; issuing Bitcoin-related financial products; and using Bitcoin as a means of investment for trusts and funds. The Central bank of the Russian Federation considers Bitcoins as “money surrogates”. And of course, Bitcoin is not considered as legal tender in any country. This makes the using of Bitcoins very complicated and in some countries illegal. The lack of a legal framework poses additional problems – they are subject to credit, operational and liquidity risks.

To start using Bitcoins, the business owner must learn first how to accept Bitcoins and arrange some training for stuff. As mentioned above, Bitcoin system requires using the specific software to operate with transactions. Each owner of the currency has a pair of keys – public and private. These keys are saved on PC in the file, and the loss or the deletion of this file would mean only one thing – all Bitcoins associated with this wallet are lost and they cannot be restored. If user uses the online Bitcoin wallet it is

vulnerable to hackers. So users face the risk of losing their money if they do not implement and adequate antivirus and back-up measures. And if users are using online-based wallets their wallets can be compromised much easier than PC-based wallets. If a corporate computer was hacked, Bitcoins could not be restored, returned or refunded.

Bitcoins do not leave the paper trail. And in absence of the paper and visible digital trail it is hard for business owner to decide, how to integrate this transactions into business and how to keep record of transactions.

Bitcoin price is very volatile. With high volatility comes the risk of financial loss. Seller could sell his goods at much lower price or buyer could buy them for much higher. It could happen if in one minute Bitcoin cost was \$500 per unit and in the next minute - \$100 per unit or vice versa. Also with respect to the price fluctuation, pricing of merchandise is hard. Business must update prices almost every day (or even an hour) to stay on top of the fluctuating exchange rates of the Bitcoin. Of course, the usage of Bitcoins can be very profitable for business because of mentioned high volatility.

The tax treatment can be complicated, when any business accepts Bitcoins as payment or uses them in any other way. Bitcoin transactions are not currently monitored by any government agency and it could make reporting your income difficult. To correctly claim income in tax declaration, business owner has to convert Bitcoins into national currency. Bitcoins price fluctuations can make reporting business income even more complicated, because value difference at the moment of sale and at the moment of reporting could be more than \$500 per unit.

Identification of a buyer or a seller is very complicated due to an anonymous nature of Bitcoin transactions. All signed transactions are sent to the network, which means that all transactions are public, although no information is given regarding the involved parties and subject matter of a deal. The full record of every user and an every Bitcoin is preserved in the publicity available ledger. Therefore, some consider the Bitcoin system not anonymous, but "pseudonymous" (Marcin Szczepański, 2014). But with all necessary measures like using a one-time e-mail and a public wi-fi it is possible to stay anonymous. It is worth to be mentioned, that a Bitcoin wallet looks like a bunch of numbers, such as 1JArS6jzE3AJ9sZ3aFij1BdTfuFGgN86hA<sup>1</sup>, and nobody can tell for sure who it belongs to. So for seller it is somewhat hard to identify the actual sender of the money. There is also a problem with determination of Bitcoin's ownership, because Bitcoins are consisting of an entry on the public ledger (block chain) and the owner of particular Bitcoin is a possessor of a secret number – mentioned before "private key". So there are no official records of ownership of a particular Bitcoin or a Bitcoin wallet.

Bitcoin transactions are final, unlike the credit card charges or PayPal transactions, which can be disputed. Definitely it would sound as an advantage of Bitcoin system, because merchants are protected from charge-back frauds, but finality of transactions

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<sup>1</sup> This is a nonexistent wallet number

leads to many other problems. Bitcoin has problems with customer protections, so that could deter a lot of customers away from merchants that use only or primarily Bitcoins in their business. Also these kinds of situations are an open window for different kinds of fraud. If sender made a mistake in Bitcoin wallet number of recipient – it's highly unlikely that an owner will be able to recover the funds, because by sending them to nonexistent wallet the owner will make them simply disappear. They will not actually disappear – they just will be waiting for creation of wallet with exactly the same digits. Due to irrevocable transactions, if user's Bitcoin account had been compromised, payments could be sent to a random account where they will be exchanged for cash. Users cannot reverse such transaction due to finality and their untraceable nature.

Security threats should cause concern with respect to business usage of Bitcons. For example on June 2011, a hacker compromised a user's account with about 400 000 BTC (approximately \$9 million at spoken time). This had caused a major drop of the value of one Bitcoin from \$17.50 to \$0.01 in a few hours. Bitcoin exchange can be compromised too, like on January 5, 2015, when Bitstamp exchange has been hacked and \$5M worth of Bitcoins has been stolen. As a result, the price of Bitcoin on Bitstamp was down about 15 percent to \$267 per Bitcoin. And since Bitcoin is outside the banking system and is not backed by any central authority, Bitcoin owners cannot recover any of their losses because Bitcoins are not covered by deposit insurance.

Academics criticize Bitcoin because it has neither intrinsically valuable, like gold, nor roots in a commodity expressing a certain purchasing power (Jon Matonis, 2011).

The benefit of using Bitcoin depends on the number of other users. Merchant adoption is crucial to creating a vibrant ecosystem around Bitcoin. If only few merchants are accepting Bitcoins, the benefits to households to use Bitcoins are very low. And if a very few consumers are using Bitcoins, merchants have little incentive to accept the digital cash. According to "The economics of digital currencies" paper it is estimated that there are less than £60 million worth of Bitcoins circulating within the UK economy, which represents less than 0.1% of sterling notes and coins and only 0.003% of broad money balances. The authors have estimated that as few as 20,000 people in the United Kingdom currently hold any Bitcoins, and that as few as 300 transactions may be conducted by those people per day (Robleh Ali, 2014). Also it is impossible to use Bitcoins in absence of internet-connection.

With respect to the nature of Bitcoin and its controversies, I want to emphasize that recently it has been linked to money laundering, financing of terrorism and other criminal schemes, for example, in the Silk Road case. Sometimes authorities point on Bitcoin's potential for becoming a good monetary alternative for drug dealing, human trafficking and money laundering as a result of the high degree of anonymity. The Electronic Frontier Foundation has decided to not accept donations in Bitoins anymore. They considered that "Bitcoin raises untested legal concerns related to

securities law, the Stamp Payment Act, tax evasion, consumer protection and money laundering, among others".<sup>1</sup>

## Conclusion

For Bitcoin as the digital representation of value, virtual commodity, which is not attached to any fiat currency, is issued by users and is accepted by natural or legal persons as a means of payment considering its value on commodity market, the last five years of existence have been full of events – from spike of prices to hacked exchange markets. Bitcoin cannot perform functions of a currency like fiat money. Bitcoin is a high volatile and immature digital commodity with many security threats, lack of regulation and uncertainty in its legal status. And when we use term “virtual currency” or “cryptocurrency” it does not mean that we think about this “currency” as currency and money in economic or a legal meaning of these terms.

Future of Bitcoins is unclear – if Bitcoin will not catch on or will become less popular than another cryptocurrency, it can eventually become useless and “Bitcoin bubble” will pop.

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