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The Legal Issues of Blockchain in Financial Relations

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Introduction

The relevance of the topic. Blockchain technology is a paramount system that became the very reason for new Hi-tech businesses which are concentrated around cryptocurrencies, however other ways of use will be described in this paper. This research provides reasoning for regulative stress on specific areas of blockchain use.

Blockchain became famous due to Bitcoin – the first cryptocurrency functioning on blockchain[1]. According to its creator it must serve as a safe alternative to traditional payment systems like Visa and MasterCard[2]. In practice it became a powerful tool for criminals[3]. Difficulty of financial crime prevention is complicated. Lawmakers are slow in adjustment to new technologies, because it requires a basic understanding of blockchain.

Importance of cryptocurrencies is highlighted by the fact that G20 countries are discussing regulation of it[4]. The result of which is that international standards were provided by Financial Action Task Force[5]. Moreover, first regulation within the EU that concerned blockchain was devoted to cryptocurrencies[6]. International and EU standards provide a basic framework but the implementation practice is very different. That is why approaches of particular countries worth comparison.

Despite the fact that blockchain regulation is a new area there are many approaches to regulation none of which has an absolute advantage over others. Based on this fact, comparison of regulation can clarify which approach is the most appropriate for which country. Typically, the only right approach does not exist, hence advantages and disadvantages will be presented.

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[1] DARLINGTON, J. III, *The Future of Bitcoin: Mapping the Global Adoption of World's Largest Cryptocurrency Through Benefit Analysis*. Knoxville: University of Tennessee Honors Thesis Projects, 2014, p.1-4.

[2] NAKAMOTO, S. *Bitcoin: A Peer-to-Peer Electronic Cash System*[interactive]. [reviewed in 27 October 2019.]. Available at: < https://bitcoin.org/bitcoin.pdf>.

[3] LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use. *Iowa Law Review*, 2019, Vol. 104, p. 928-954.

[4] *G20 Summit*[online]. [reviewed in 27 October 2019.]. Available at: < https://ec.europa.eu/newsroom/fisma/item-detail.cfm?item_id=656330&utm_source=fisma_newsroom&utm_medium=Website&utm_campaign=fisma&utm_content=G%20Summit%20&lang=en>.

[5] Virtual Currencies Key Definitions and Potential AML/CFT Risks [Report]. 2014 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.

[6] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU//OJ L 156, 19.6.2018. *The Official Journal of the EU*.

Aim. The thesis aims to determine which aspects of blockchain technology deserve regulation and which approaches to regulation are beneficial. Legal statues and issues concerning its regulation will be covered and accompanied by legal acts of particular countries.

Tasks and objectives. In order to reach the coherent result of the research three objectives are included: (1) an analyses of legal issues accruing in different spheres of blockchain application; (2) analyses theoretical legal issues of cryptocurrency regulation; (3) analyses of legal regulation issues for cryptocurrencies and corresponding relations.

Subject. The research will briefly go through financial relations where blockchain technology is applied to determine weak spots. Blockchain solves old issues but at the same time it creates new. The problems of the code influence the law. The research will illustrate crucial problems that will valid for all spheres where blockchain technology will be applied.

The research will also provide a historical review of money and it will explain how concept of money evolved into cryptocurrency. Without historical analyses it will impossible to understand how cryptocurrency must be regulated. During this analysis competing theoretical approaches to regulation will be provided in order to understand how different groups see the perspective regulation.

This paper will focus on legislation and doctrinal sources of the EU, the US and Belarus. The other jurisdictions will also receive some observation because without them search for issues will not be complete.

The reason to choose these jurisdictions is that both EU and USA use multiple legal systems[7] that provide different solutions in question. The reason to choose Belarus is that this country provides the most elaborated approach that not only completely regulates the sphere but does it on the completely new set of laws[8].

Methods. Deductive, historical and comparative methods were used when writing this thesis. Deductive method was used to demine which areas of financial regulation are complicated the most and which deserve more attention. Historical method was used with the aim to build the connection between the past and the future of the blockchain based

[7] ELIAS, S.; LEVINKIND, S. *Legal Research: How to Find & Understand The* Law, 2005. Berkeley: Nolo, p. 104.

[8] *V Belarusi polnostiyu uregulirovali kriptu.* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< https://dev.by/news/crypto-in-belarus?fbclid=IwAR1FCmA8L9GoG8f0o-orbWBgvpbrDGm1LEToEAccl_ogLWWZ3r6RJi72rjc>.

cryptocurrency regulation. Comparative method is used to compare different doctrines concerning cryptocurrencies and legal regulation of blockchain based sphere.

Originality. Blockchain is still not reviewed enough by legal scholars due to its multidisciplinary nature. Without IT and economics the understanding of the topic is too narrow. The economics is important because blockchain based cryptocurrency technology concept derives its origin from ideas of Austrian School of Economics[9] and Libertarianism[10]. IT is vital when it comes to critical analyses of regulation, without knowledge of it many significant issues may remain unseen. Moreover, the percentage of monographs devoted to this topic is still low, that brings to the fact that blockchain deserves more attention. Researches are not attempting to systemize all issues and cover only a limited number of them. This paper will be unique due to its wide scope.

The other rare thing is stress on cryptocurrencies origin and its modern state. Usually this aspect is not covered at all or limited to the description of ideas of Satoshi Nakamoto[11]. The knowledge of it can prevent over regulation in cases where it is not needed, because some blockchain based currencies are not popular[12] while others are used for criminal activities[13].

The most important sources. The most relevant primary source used in this paper is 'Blockchain and the Law. The Rule of Code' written by Primavera De Filippi and Aaron Wright (2018)[14]. This book provides one of the most elaborated analyses of blockchain written today. Information about cryptocurrencies is largely taken from 'Cryptocurrencies and blockchain' study prepared by Dr. Robby Houben and Alexander Snyers[15].

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[9] European Central Bank. *Virtual Currency Schemes* [Report]. 2012, p.22 [reviewed in 27 October 2019.]. Available at: < https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.

[10] *Libertarianism* [encyclopedia]. [reviewed in 27 October 2019]. Available at: < https://www.britannica.com/topic/libertarianism-politics/Historical-origins>.

[11] NAKAMOTO, S. *Bitcoin: A Peer-to-Peer Electronic Cash System*[interactive]. [reviewed in 27 October 2019.]. Available at: < https://bitcoin.org/bitcoin.pdf >.

[12] HOUBEN, R.; SNYERS, A. European Parliament. *Cryptocurrencies and blockchain* [study]. 2018, p.19 [reviewed in 27 October 2019.]. Available at:http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

[13] Virtual Currencies Key Definitions and Potential AML/CFT Risks [Report]. 2014 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.

[14] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018.

[15] HOUBEN, R.; SNYERS, A. European Parliament. *Cryptocurrencies and blockchain* [study]. 2018, p.19 [reviewed in 27 October 2019.]. Available at:http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

Legal sources include: Financial Action Task Force recommendations[16], EU anti-money laundering directive[17], US Securities and Exchange Commission (SEC) opinions and practice, Belarusian laws of Hi-tech Park[18].

[16] Virtual Currencies Key Definitions and Potential AML/CFT Risks [Report]. 2014 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.

[17] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU//OJ L 156, 19.6.2018. *The Official Journal of the EU*.

[18] *V Belarusi polnostiyu uregulirovali kriptu.* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< https://dev.by/news/crypto-in-belarus?fbclid=IwAR1FCmA8L9GoG8f0o-orbWBgvpbrDGm1LEToEAccl_ogLWWZ3r6RJi72rjc>.

Part 1. Challenges for application of blockchain technology in financial relations

1.1. The essence of blockchain

Blockchain is the technology that allows creating a stable system for making a transparent anonymous record of different data[19] resistant to change[20]. Within the area of finance this technology is used for creation of anonymous transactions that are verified automatically by the system.

In order to make transaction users must download determined software in order to manage their transactions[21]. Users can interact with each other by mail or other means or use special intermediaries that include currency exchanges, banks and virtual currency exchanges.

The blockchain based system does not allow chargebacks[22], which entails an absolute irreversibility of all operations conducted via blockchain.

The blockchain drew a significant attention the result of which is that it is used in many sectors within the area of finance. Blockchain technology for financial purposes use can be divided into three areas. The first area is the area of cryptocurrencies, second applies to contracts and the third goes beyond the financial area[23].

1.2. Cryptocurrencies

Bitcoin enabled parties anonymously and without central mediator create financial transactions. Among its advantages are the absence of geographical boundaries for transactions[24], anonymity and solving of double-spending problem. Impact of Bitcoin is the most significant implication since regulators do not have a single approach to it. Anonymity of technology raises question of fight against criminal groups that use cryptocurrencies solely as an untraceable transaction tool for their activities.

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[19] Kaplanov, N. Nerdy Money: Bitcoin, the Private Digital Currency, and the Case Against its Regulation. *Loyola Consumer Law Review*, 2012, Vol. 25, p. 114-119.

[20] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018, p. 33

[21] *Choose Your Bitcoin Wallet, Bitcoin Project* [online]. [reviewed in 16 December 2019.]. Available at: <https://www.telegraph.co.uk/finance/businessclub/money/11174013/The-history-of-money-from-barter-to-bitcoin.html>.

[22] GRINBERG, R. Bitcoin: An Innovative Digital Currency. *Hastings Science & Technology Law Journal*, 2011, Vol. 4, p. 160-181.

[23] ALEXANDER, S.; SCOTT, T. *How Bitcoin Will Bring About a Legal Practice Revolution*[online]. 2014 [reviewed in 16 December 2019.]. Available at: <http://www.trippscott.com/newsroom/6-how-bitcoin-will-bring-about-a-legal-practice-revolution>.

[24] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018, p. 63.

By far this technology is the most benevolent for illegal trade. Examples of this use include well known cases of Liberty Reserve, Silk Road and Western Express International[25].

Liberty Reserve money transmitter used its own cryptocurrency – Liberty Dollars – to make credit card frauds, computer hacking, drug trafficking and child pornography. Users of Liberty used fake identities and names to interact with each other through third-party exchangers located in several countries with soft AML[26] regime.

Second pivotal case concerning cryptocurrencies is the case of Silk Road website that was used to sell drugs, weapons and other illegal goods and services[27]. It primarily operated on the territory of the US and generated revenue of approximately 1.2 billion USD. Anonymity was achieved by use of both Bitcoin and additional tool – Tor Anonymiser. Tor is the network of computers that conceals the original IP address by wrapping the transaction through different computers around the world. The purchase scheme included the following steps: user buys Bitcoins through an intermediary, sends them to Bitcoin address controlled by Silk Road, Silk Road sends money to the escrow account, Silk Road sends money to the vendors Bitcoin address. Additionally, Silk Road used complex dummy transactions what made almost impossible to connect transactions with the real persons behind them. It is clear from the foregoing that not only cryptocurrencies make implications for law enforcement. There are numerous other technological instruments that together with blockchain can avoid the law.

First two examples were devoted to purely criminal schemes. The last example illustrates that activities of criminal groups can be based on legal entities without suspicious reputation. A criminal group called Western Express Cybercrime was conducting virtual theft activities against credit card owners via Western Express International, Inc., located in New York[28]. Nonetheless, members of the criminal groups were located in the diverse locations while New York company was used for money laundering. This example truly justifies cryptocurrency exchangers as one of the regulatory objectives.

[25] Virtual Currencies Key Definitions and Potential AML/CFT Risks [Report]. 2014 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.
[26] Anti-money Laundering.
[27] Ibid.
[28] Ibid.

Among the greatest issues of cryptocurrencies is the fact that they do not have a certain legal status while possessing features of securities[29], Investment/Asset[30], property[31] and currency[32]. That entails lack of opportunity to densely regulate this area. Moreover, severe regulation can significantly minimize or completely exclude potential benefits.

Regulators came to several approaches for regulation of cryptocurrencies. These approaches are founded on complex system of laws and recommendations. Analysis of different regulations in this field deserves a durable attention, hence it will be compared and analyzed them in a separate part.

1.3. Issues of smart contracts

Smart contract is a contract based on blockchain technology. Some cryptocurrencies platforms such as Ethereum allow users to make smart contracts on their basis[33]. As a cryptocurrencies smart contracts offered an alternative execution mechanism that has regulatory issues. Concept of trustless transactions based on blockchain technology can be found in both cryptocurrencies and smart contracts. Smart contracts can be used as a supportive measure in financial relations.

In order to conclude a smart contract there are several requirements. First, parties must negotiate the terms until reach a "meeting of the minds[34]. Then smart contract is triggered by the transaction. After that parties must reach certain results characterized by the contract.

Smart contracts are code based. If something was incorporated in the agreement there is no way to exclude it[35]. It causes hardship or irreversibility of a contract. In practice mistakes in contractual relations appear even if both contractual parties are professional. An autonomous nature abstains contractual parties from changes, however that does not preclude the court from taking the decision on matters described in the contract. That arises the question of the necessity of smart contracts. Minor mistakes in the code can be costly and time-consuming when it comes to the court procedures. The result of which is that human

[29] LITWACK, S. Bitcoin, Currency or Fool's Gold?: A Comparative Analysis of the Legal Classification of Bitcoin. *Loyola Consumer Law Review*, 2014, Vol. 29, p. 309-348.
[30] Ibid.
[31] *IRS Virtual Currency Guidance* [notice]. [reviewed in 16 December 2019.]. Available at: <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.
[32] LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use. *Iowa Law Review*, 2019, Vol. 104, p. 928-954.
[33] BUTHERIN, V, *A next Generation Smart Contract & Decentralized Application Platform* [White Paper]. [reviewed in 16 December 2019.]. Available at: <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.
[34] CHOI, S.; GULATI, M. Contract as Statute. *Michigan Law Review*, 2006, Vol. 104, p. 1129-1173.
[35] WERBACH, K.; CORNELL, N. Contracts Ex Machina. *Duke Law Journal*, 2017, Vol. 67, p. 102-169.

factor potentially nullifies benevolence of smart contracts. In contrast minor mistakes can be fixed and contract can be executed in classical contractual relations.

Moreover smart contracts are not legally binding if there is no specific regulation[36]. Smart contracts serve as a tool that supports execution of the agreement because it excludes the need in several actions of contractors, however it excludes opportunity to reverse it[37]. That means that smart contract may include provisions that violate existing laws and it will still be executed. Another issue concerns corresponding court disputes the result of which is that the court will not take into account the existence of the smart contract. Notwithstanding, there are regulators that already provided a specific regulation. The Nevada statute gives a definition of a smart contract: "a contract stored as an electronic record pursuant to chapter 719 of NRS which is verified by the use of a blockchain.[38]" That allows courts to recognize smart contracts as evidence in the court and makes them legally enforceable. Hence, doubtful nature of a new type of contracts can be solved by a proper special definition.

However, doctrinal issues are not limited to definition, Hardship of regulation is caused by the way of solving contractual legal issues. Currently doctrine is devoted to solve legal issues that arise after the contract was breached[39] that is incompatible with smart contracts idea to create unreachable contracts. Parties to a contract that use blockchain have to be aware of technological nuances before they conclude a smart contract. If smart contract is treated in the same way as classic contract the contract will have a priority over standard legal provisions.

Blockchain based contract must be translated into understandable language for both parties in order to prevent mistakes[40]. The significance of this procedure is underlined by the fact that smart contracts cannot offer any solutions if the information was inaccurate. Smart contracts, despite their name and applied technological advances, are primitive when it comes to complex legal relations. Smart contract can be used to support relations execution. For example counteragents have a long-term delivery contract of goods between a warehouse and shop. Small deliveries are supported by smart contracts that concluded for which

[36] FULMER, N. Exploring the legal Issues of Blockchain Applications. *Akron Law Review*, 2019, Vol. 52, p. 162-187.
[37] Ibid.
[38] Ibid.
[39] Ibid.
[40] MILLER, B, *Smart Contracts and the Role of Lawyers (Part 3) - About Lawyering Transactions on Blockchains* [online]. [reviewed in 16 December 2019.]. Available at: <http://biglawkm.com/2016/10/25/smartcontracts-and-the-role-of-lawyers-part-3-about-lawyering-transactions-on-blockchains/ [https://perm a.cc/FCV5-SG8P>.

individual case. General contract covers relations as a whole what provides some place for maneuvers. In this example half of relations will be smart-contract based and half of them will be dependent solely on actions of parties.

Simplicity of smart contracts causes criminalization of transactions use. There are proven experiments that tell how blockchain can be used to pay for assassination of a public politician[41]. Parties seeking to murder a public person can make an anonymous offer, transfer digital currency to an escrow account managed by smart contract. Then, interested party can confirm the offer via sending a digital signed letter with the information about assassination. Smart contract verifies whether conditions are fulfilled by the analyses of a certain newspaper. After the assassination is confirmed the bounty is send to the assassins account automatically. The example of assassination contract illustrates that any provisions that contravene public morale and public order can be included in contractual provisions. Governments can limit the use of blockchain transactions by preparing an allowed list of standardized smart contracts. Such measures cannot prevent criminal use of this technology, however they can minimize conclusion of unfair smart contracts among ordinary consumers.

In contrast with unfair and criminal provisions smart contracts have another significant issue. Complex contractual relations such as concepts of "good faith" and "best efforts" are incompatible with smart contracts. These concepts provide contractual parties an opportunity to set some provisions in a vague way. Ambiguity can prevent parties from arguing in the court, they can resolve the issue efficiently by simple personal negotiations[42].

In practice ordinary legal agreements may include warranties and representations[43]. Based on these provisions contracting parties affirm ownership interests, agree to keep confidential information or inform about the conformity with the law. Smart contracts are unable to include such provisions.

Restrictions of smart contracts are not limited to some provisions. Anonymity, that was announced as a benefit can be illuminated by the fact all actions performed are visible for

[41] JUELS, A.; KOSBA, A.; and SHI, E. The Ring of Gyges: Investigating the Future of Criminal Smart Contracts. From *ACM SIGSAC Conference on Computer and Communications Security*. New York: ACM, 2016, p. 283-295.
[42] TRAINTIS, G. The Efficiency of Vague Contract Terms: A response to the Schwartz-Scott Theory of U.C.C. Article 2. *Louisiana Law Review*, 2002, Vol. 62, p. 1065-1079.
[43] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018, p. 77.

members of a public ledger. In contrast, when parties are concluding a standard contract they can preserve their privacy[44].

Blockchain technology has a significant number of disadvantages. That does not change the fact that it will be used in the future even more. People tend to trust the technology more than other people. This phenomenon is called 'automation bias'[45]. The result of which is that people easily believe in information in the internet. Consumers easily entrust their credit card information to internet websites and online shops owners of which they do not know. That justifies the idea that smart contracts can be used to abuse automation bias. Based on their autonomy ordinary people may decide that it secures contractual relations better than ordinary contract does.

To sum up, smart contracts challenges are limited to the level of blockchain technology development. That entails lack of necessity for further deeper analyses of question. It is clear that further analyses will entail solely to minor observations caused by limitations of the technology itself.

1.4. Taxation issues

Blockchain can be used for the purpose of taxation in two ways. First option is to use blockchain in order to support tax collection. Within this sphere blockchain works in exactly the same way as it works with cryptocurrencies and smart contracts. Blockchain is the technology that is perfect for storing the information. Meanwhile it is weak when it comes to mistakes that appear because of human behavior. This chapter will be devoted to the issues that concern taxation of cryptocurrencies. This topic is much more sophisticated and deserves extra attention.

Among the greatest issues concerning blockchain appears when we are asking the question how it should be taxed. The USA takes the view that in different situations Bitcoin can be granted a different statues for tax collection purposes. In 2014, Internal Revenue Service that controls collection of taxes on federal level[46], recognized cryptocurrencies as property[47]. In case of Reid and Michell Abner Espinoza Bitcoin was qualified as money that

[44] Ibid, p.83.
[45] GOLDSMITH, J.; WU, T. *Who Controls the Internet? Illusion of a Borderless World.* Oxford: Oxford University Press, 2006, p.70.
[46] *The Agency, its Mission and Statutory Authority* [online]. 2019 [reviewed in 16 December 2019.]. Available at: < https://www.irs.gov/about-irs/the-agency-its-mission-and-statutory-authority>.
[47] *IRS Virtual Currency Guidance* [notice]. [reviewed in 16 December 2019.]. Available at: <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

was used for money laundering[48]. Defense was using the argument that Bitcoin is not money and according to the official position of Internal Revenue Service Bitcoin possesses property status. Criminals were buying Bitcoins on the website localbitcoins.com with the intention to buy them for real money during face-to-face meetings. After that criminals were buying stolen credit cards in exchange for Bitcoins. This chain of actions could be a pure example of money laundering actions if there were real money. Meanwhile it illustrates that depending on situation cryptocurrency must be treated properly in order to prevent crimes.

There are three different taxable events when Bitcoin can become a subject of taxation: receipt from mining, sale of investment, use as a currency[49]. The answer whether cryptocurrency must be taxed in these three cases must be given by each jurisdiction separately. It can directly influence the way how many cryptocurrency investments will come to the country.

Without data about contracting parties state entities can supervise the balance of Bitcoin account, but it will be unable to discern the user's identity[50]. This problem will not arise if the currency is not anonymous and is centralized. Blockchain allows creating completely controlled currencies, however Bitcoin and other currencies that have a certain level of anonymity are the source of concern.

Example of Tor illustrates that state institutions can eliminate individual entities, while they are incapable to deal with a threat on global level. It is clear from the foregoing that if users have a strong intention to hide their transactions from taxation that will be possible. However that does not mean that taxation is not possible. If users have comfortable system through which they can interact with their cryptocurrency – make transactions and pay taxes, this issue can be minimized to a number of criminals that will inevitably abuse the system.

In conclusion of this chapter it is important to point out that issues within taxation are analogous to issues that were described in the chapter about smart contracts. These limitations are limitations of the technology. Accordingly we must draw our attention on ambiguity of legal statues cryptocurrencies. The most rational solution is to give cryptocurrency a flexible regime that allows taxing it as different objects of law because a

[48] Circuit Court of the Eleventh Judicial Circuit in and for Miami-Dade Country, Florida. *22 July 2016. Order Granting Defendant's Motion to Dismiss the Information, State v. Espinoza, No. F14–2923, at 7 (Fla. Cir. Ct. dismissed July 22, 2016).*

[49] FULMER, N. Exploring the legal Issues of Blockchain Applications. *Akron Law Review*, 2019, Vol. 52, p. 162-187.

[50] *Protect Your Privacy, Bitcoin* [online]. [reviewed in 16 December 2019.]. Available at: <https://bitcoin.org/en/protect-your-privacy>.

sole way regulation of this complex technology may not be efficient. Second significant question that law makers must solve is *when* cryptocurrency must be taxed. The answer on which depends on the attitude to limit or encourage cryptocurrency investments.

1.5. Issues of smart securities and derivatives

Blockchain technology possesses high risks associated with securities and derivatives. The issue emerges because of decentralized nature of the technology. A wide adoption of this technology has a potential to restore a previous financial system that existed prior to a massive stock explosion followed after World War II[51] and the Great Recession[52]. Until these events the most established regulation practice was relied on market self-regulation. There was therefore no regulation to prevent the economy from crisis. The centralization introduced clearinghouses in order to prevent the risks and improve liquidity of transactions. In contrast blockchain eliminate a middle man and entails issues that were eliminate long before.

Another issue appears on the ground that financial products that are based on blockchain can avoid existing regulation. The rules of code allow creating an investment project that will not be regulated by law because it functions solely on code and smart contracts. As is stated in the chapter devoted to smart contracts, if special regulation is not adopted smart contracts are grey zone of regulation. In case of investments the beneficiaries of smart securities will not get any guaranties that they can use in the court room.

Within the sphere of financial derivatives a peculiar example of law abuse can be found in binary options area. Binary options are intended to predict a likelihood of particular events such as price of the stock in the future. Abusive practices can turn financial derivatives into financial gambling the result of which is falling out of the scope of regulation because any open source project based on smart contracts project is not a subject of law[53].

Concluding an overview of securities and derivatives it is important to point out that smart securities and derivatives are out of the scope of current regulation. There is no entity to claim liable. This issue can be solved by the adoption of a special regulation that will include names of new subjects of law combined with the prescribed rights and obligations. The description of new subject must be based on factual basis as far as participants of

[51] SCHROEDER, J. Bitcoin and the Uniform Commercial Code. *University of Miami Business Law Review*, 2015, Vol. 24, p. 1-79.
[52] KUMMER, S.; PAULETTO, C. *The History of Derivatives: A Few Milestones* [lecture]. 2012 [reviewed in 16 December 2019.]. Available at: <https://www.coindesk.com/dark-markets-grow-bigger-bolder-year-since-silk-road-bust>.
[53] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018, p. 103-104.

investment projects do not register their undertaking, regulator should take into account types of undertaken activities that allow covering them by legal provisions.

On the ground of the overview of legal challenges within financial sphere we found that there are several spheres where blockchain causes issues: cryptocurrencies, smart contracts, taxation, securities and derivatives. There are other ways to utilize blockchain technology but they are lacking legal issues at all or inherit problems that emerge due to imperfection of technology. The last case falls out of the scope of a legal research because it is the question of applicable code rather than applicable law.

Based on this part, dedication of the remaining parts of the research to the cryptocurrencies and corresponding issues will be appropriate because their use is diverse and requires special attention due to existence of different approaches to regulation. Second pivotal area is the area of investments because it also provoked both regulation and discussion.

Part 2. Theoretical challenges for legal regulation of cryptocurrencies

Before discussing approaches for cryptocurrency regulation It is important to determine their relation to money and other virtual currencies. The main issue for regulator is the nature of cryptocurrency. There are many cases when other objects are used as money that does not constitute an automatic application of a special regulation, hence the objective of this part is to explain how this technology emerged and what connection it has to money. This research also focuses on validation of sums and specific issues that are caused by these technologies.

2.1.Historical evolution of the concept of money

Money is rather a concept than part of material world. Regulation of it requires understanding of the evolution of money perception.

History of money starts about 2200 BC[54]. In that moment the concept of money was based on the commodity features of money. In order to use a certain item as means of payment contracting parties must reach an agreement. It is clear from the foregoing at that time centralized monetary policy did not exist. If a person needed to buy something the result of arrangement was always unpredictable. Here is an example of unpredictability of a market price. Farmer has apples and he is intended to purchase a knife. Local blacksmith accepts one hundred apples for a knife. His will is determined by the fact that he has his own apple three hence the value of apples is decreased for him. In such circumstances traders are requiring a fare means of exchange.

There is there for different societies started to use different resources: gold, silver, amber and even ordinary stones. The concept of money was evolving and in 600BC the new concept was elaborated, it was the concept of coin based money was established[55]. Coins represented a state or a particular ruler authority. Quality of coins was judged not only by the issuing state but by the number of rare materials used for manufacturing. In medieval silver and gold were the most common metals incorporated in coins. Those two materials were great symbols of prosperity. However, nominal value of these materials was a pure project of human mind. Gold and silver are valid only because people believe in their valuable nature. Example of which is Copper Panic of 1789 when American states simple banned copper

[54] European Central Bank. *Virtual Currency Schims* [Report]. 2012, p.9 [reviewed in 27 October 2019.]. Available at: < https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.

[55] BURN-CALLANDER, R. *The history of money: from barter to Bitcoin* [journal]. [reviewed in 27 October 2019.]. Available at: <https://www.telegraph.co.uk/finance/businessclub/money/11174013/The-history-of-money-from-barter-to-bitcoin.html >.

coins coming from the UK[56]. That caused enormous 430% inflation of copper coins because state intuitions blocked use of currency. The lost trust among the society becomes worthless.

The other significant issue with commodity money is that it is a movable property that can be easily stolen. Commodity money is an item whose value comes from its commodity feature, in particular from materials and functions that it has[57]. In such circumstances transportation becomes a significant issue. It is slow and vulnerable to the theft. One unfair act was enough to disturb or eliminate an international deal or damage the economy of entire country. It is impossible to equip a military expedition prepared to combat mini armies for each and every transaction. Therefore in XVIII century people come to the concept of commodity-backed money[58]. Commodity-backed money is a promise of a state that in exchange for a promise it provides a piece of precious metals. It raised portability significantly and allowed individuals to make a much larger transactions. Another significant advantage is that it was much easier to restore. It dramatically minimized threat of any acts of God. States obtained an opportunity to print new papers while precious metals were kept in a well preserved place.

The money evolved from a physical material combined with the idea that just medium of exchange can exist. Today money is a number connected to the economic power of state[59]. Furthermore, today there is much less necessity to have a physical appearance. The vast majority of money has no physical form. It is only 8 per cent that physically exist[60]. They are numbers on bank accounts. In conclusion it is vital to point out today is the age of "semi-virtual currencies". New technologies allowed us to perform multiple tasks. It is possible to sign contracts, make orders, buy goods and services and make international transactions only using apps on our mobile phone without involving printed banknotes.

[56] ARMSTRONG M. When Fiat was the Solution: The Panic of 1789 [reviewed in 27 October 2019.]. Available at: < https://armstrongeconomics.files.wordpress.com/2012/01/armstrongeconomics-fiat-solution-010512.pdf>.

[57] ARTHUR, S., SHEFFRIN, S. *Economics: Principles in action*. New Jersey: Pearson Prentice Hall, 2003.

[58] European Central Bank. *Virtual Currency Schemes* [Report]. 2012, p.9 [reviewed in 27 October 2019.]. Available at: < https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.

[59] ARMSTRONG M. *When Fiat was the Solution: The Panic of 1789* [online]. [reviewed in 27 October 2019.]. Available at: < https://armstrongeconomics.files.wordpress.com/2012/01/armstrongeconomics-fiat-solution-010512.pdf>.

[60] POPPER, N.; GATES, G.; ALMUKHTAR, S. *Will Cash Desappear?* New York Times [journal]. [reviewed in 27 October 2019]. Available at: < https://www.nytimes.com/interactive/2017/11/14/business/dealbook/cashless-economy.html > .

This new money policy provoked some economists to become an opposition from economist's theories**.** The most famous is called an Austrian school of economics[61]. According to Eugen Böhm Ritter von Bawerk, Ludwig von Mises and Friedrich A. Hayek today's economy is too much dependent on state intervention. This strong influence causes massive inflation and business exacerbation. Austrians think that business cycles are sources of a powerful thread that comes from monetary innervations crucial element of which is a fractional-reserve banking system[62]. When states create money they use fractional-reserve banking system. It is a system created to support future development. Banks support only a part of their activities by real money that is ready for withdrawal. Bank is obliged to keep only a certain amount of money, the rest goes to its customer's disposal. For example: There is a customer A, he brings 1 thousand Euros to the bank. The bank is obliged to keep 10% as a reserve. This bank is allowed to spread 900 Euro among other customers B, C and D. If all costumers will come together it can lead to dreadful consequences. Notable example of such a disaster was Great Depression, which was the greatest crisis in the history of the US. The main issue was extreme and unrealistic consumption. People were investing and buying too much. Almost everyone had at least some shares. When the fall started clients were demanding banks to give them the real money back. This is exactly where current system breaks up. Austrian School suggests coming back to gold-based money system. However, some of them suggest going further. Friedrich A. Hayek in his work 'Denationalization of Money' suggests that governments should give up their monopoly in currency making sphere[63]. Hayek thinks that all banks should be allowed to issue certificates that can be used as money. These certificates must be protected by trademark law. After registrations and issuance certificates are at absolute disposal of the market will. The strongest certificates will survive the weakest. Natural selection will determine which currencies must live. As a result the economy obtains an efficient system where only stable currencies exist.

[61] European Central Bank. *Virtual Currency Schemes* [Report]. 2012, p.22 [reviewed in 27 October 2019.]. Available at: < https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.
[62] ABDULAH, A. *Stabilising fractional reserve banking* [interactive]. [reviewed in 27 October 2019.]. Available at:< https://www.academia.edu/35859512/Stabilising_fractional_reserve_banking >.
[63] ROTHBARD, M. *Man, Economy, and State with Power and Market.* Munich: Ludwig von Mises Institute, 2009.

2.2.History of development of cryptocurrency

That were ideas of twentieth century that will unlikely become successful in 21 century. There is no chance that states will abandon their monetary policy and give it to the market, because rule of free market causes unpredictable consequences for the economy. From the other hand modern companies and internet economy became a strong power[64]. That is why introduction of new elements to the economy is inevitable. One of these elements is a cryptocurrency which is also referred as 'virtual currency'. It is a product of opposition to traditional economy that has connection to ideas of Austrian school of economics, nevertheless has its own distinct elements. It is important to review how the technology was developing because it is important for understanding of the main topic of this research. It provides some basic understanding of the functioning of cryptocurrencies and introduces some advantages of it.

Cryptocurrency is a product of unification of private money idea and cryptographic technology. The history of cryptocurrencies starts in 1976 when cryptographers invited public-private key cryptography which is an essential technology used for the functioning of Bitcoin[65]. Cryptography is a technology that provides a secure key distribution of information. When provider sends some information to the receiver it is coded by impenetrable code. As soon as it arrives the message is decoded if the receiver has a special key. The main issue here is the necessity prearrange the key by provider and receiver in advance. While the new technology is tend to be safe, other ways of sending messages cannot be qualified at the same level. That was the most significant gap in the defense of early cryptography. Public-private key cryptography eliminates the necessity to exchange a key in advance. Public-private cryptography does exchange automatically without intervention of individuals.

Next pivotal step that approximated creation of Bitcoin is creation of peer-to-peer networks. It established networks that were decentralized from central server. In this network each user acts as supplier and consumer at the same time. The very first example of this technology was Napster. Napster is a website that connected different users for the purpose of sharing their music. As a result it Copyright owners filed a lawsuit against the company

[64] BEHRANG, R., et al. *Consumer Power: A Comparison of the Old Economy and the Internet Economy.* Journal of Consumer Policy, 2006, Vol. 29, p. 3-36.
[65] HAYEK, F. *Denationalization of Money – the argument Refined.* London: The institute of Economic Affairs, 1990.

that created Napster[66]. Napster project was eliminated but the technology received a widespread popularity and continued developing.

P2P and cryptography became a source of inspiration for groups called Cyberpunks[67]. Founders of this movement were Eric Hughes, Timothy C. May and John Gilmore. Cyberpunks are arguing that new advanced technologies are causing an enormous threat for personal liberty. States and global corporations become aware of too much information about individuals' life. They promote cryptographic research because it fosters increase of privacy in relations between individuals. They believe it is regulate relations based on safe code mechanism that avoids control of personal data. According to cryptographer David Chaum, founder of International Cryptographic Research criticizes current system[68], society will create such a system where people have to change the course of activity due to mass surveillance and excessive data control.

The first virtual currency that was intended to change the situation was DigiCash introduced in 1994[69]. It had a serious limitation. It was based on client-server model. This required a direct involvement of the company into transactions and validation all transactions.

It was imperfect early experiment that could not satisfy Cyberpunks. In order to eliminate a double spending problem and make a purely decentralized currency Bitcoin was created in 2008. It is able to solve two over mentioned problems. It was created for the purpose of making anonymous payments. The Bitcoin was by the most inconvenient technology for daily transactions because of its low speed. In October 2011 Litecoin was launched. It possesses two major differences in comparison with Bitcoin. Litecoin is entirely faster and supply. Furthermore Litecoin supply limit estimates 84 million coins compared with 21 million supply of Bitcoin. It is clear from the foregoing that is more easily accepted as a means of payment. The number online merchants that accept it continue constantly growing[70]. Cryptocurrency industry continued attracting new investments the result of which

[66] United States Court of Appeals for the Ninth Circuit. 2001. A&M Records, Inc. v. Napster, Inc.
[67] HUGHES E. Cyberpunks's Manifesto [webpage]. [reviewed in 27 October 2019.]. Available at: <https:/www.activism.net/cyberpunk/manifesto.html>.
[68] CHAUM, D. Security without Identification : transaction systems to make big brother obsolete. From *Communications of the ACM*, 1985, Vol. 28, p.1030-1044.
[69] HOUBEN, R.; SNYERS, A. European Parliament. *Cryptocurrencies and blockchain* [study]. 2018, p.19 [reviewed in 27 October 2019.]. Available at:http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.
[70] Ibid, p.38.

is creation of Ripple that became the first cryptocurrency developed by a commercial entity and it was developed to serve enterprises[71]. The new approach truly justified cooperation with the law. If Bitcoin and Litecoin were anonymous open source projects is solely created for commercial purposes there is there for no contradiction to comply with the law. Ripple is the first cryptocurrency that obtained New York "Bitlicence"[72]. On the rules drawn by Bitcoin cryptocurrencies are anonymous, however some researchers think that Bitcoin and resembled projects are not anonymous[73]. There is no need to deny the fact that truly anonymous cryptocurrencies exist. In January 2014 the first truly anonymous cryptocurrency – Dash – was created[74]. It introduced a mixing technology that obscures origin of user's funds. In April 2014 the next anonymous cryptocurrency – Monero – was created. The main feature of this project is that it creates randomly generated addresses for each transaction[75]. In July 2014 Stelar platform was created. Unlike previous projects it was created in order to fight poverty. Stellar users use a special cryptocurrency called Lumen to operate transactions that include money. Stellar's Lumen coins were completely premined and were distributed for free. How effective Stellar in helping people with a low financial condition is a good question. Its influence is not significant because it only decreases the costs of transaction, however the fact that cryptocurrency can act in the interest of ordinary people is a good sign that proves that the threshold of cryptocurrency use has a potential to grow. In July 2015 a completely new cryptocurrency was launched, it was called Ethereum. Ethereum functions as a platform for smart contracts and as a means of exchange. In practice it is either frequently mentioned as the second most famous cryptocurrency[76]. In 2016 IOTA was launched. It puts aside transaction costs. Transactions in IOTA are completely free of charge. Impact today is not significant. Researcher Cf.L. Tennant takes a positive view on this cryptocurrency, he reckons that IOTA will become popular in the future[77]. IOTA concept complies better with

[71] Ibid.
[72] Ibid, p.35.
[73] MEIKLEJOHN, S.; et al. A Fistful of Bitcoins: Charactirizing Payments among Men with No Names. From *Proceedings of the 2013 conference on Internet measurement conference*, 2013, p.127-140.
[74] European Parliament. *Cryptocurrencies and blockchain* [study]. 2018, p.48 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.
[75] Ibid, p.46.
[76] MAUME, M.; FROMBERGER, M. Regulation of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Laws, From *Chicago Journal of International Law*, 2019, p. 550.
[77] TENNAT L. *Improving the Anonymity of the IOTA Cryptocurrency* [interactive]. [reviewed in 27 October 2019.]. Available

of crucial concepts behind Bitcoin, which is depreciation of transaction fees. Entirely different project NEO was launched in June 2017. It uses its own cryptocurrency GAS for transactions payment. GAS is produced automatically by NEO. The main purpose of NEO is to make digital economy where there is no necessity to know your contractual party. In August 2017 Bitcoin evolved into Bitcoin Cash[78]. However, Bitcoin continues to exist, there is therefore relevance of discussion about original Bitcoin. Furthermore Bitcoin is still the most popular cryptocurrency[79]. All possessors of Bitcoin received Bitcoin Cash after that it was mined separately. Appearance of new free of charge currencies and their increased speed can be the reason of creation of Bitcoin cash. Bitcoin updates technical characteristics of original Bitcoin. It becomes by far the most a good medium of exchange cryptocurrency.

Here were introduced all the most vital cryptocurrencies. The result of which is that they can be used in order to regulate them more than one type of regulation. Cryptocurrencies may fall under regulation of money and assets. Bitcoin and Ethereum are used as a means of exchange and securities. Moreover, the example of Bitcoin Cash demonstrates that it is a must because it can be used as money and as far it remains unregulated it will a grey area crimes concerning activities with money. Cryptocurrency evolves and depending on the new features and functions a specific regulation must be introduced. In the interest of this research the review of legal will be provided regulation in the third part.

2.3.Debates about regulation of cryptocurrencies

Whether cryptocurrency should be regulated is a subject of a discussion. There are two groups acting in the interest of blockchain use. These are Libertarians[80] and the abovementioned Cyberpunks. Libertarianism is a modern political movement started by Robert Nozick. Both groups share anarchistic point of view. They claim that reforms undertaken by modern governments are not unsuccessful and state cannot serve in the best interest of people. Both groups insist on benevolence of social agreement that will lead to a common good for the society. These ideas are similar to the ideas of classic Liberalism of

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at:<https://assets.ctfassets.net/r1dr6vzfxhev/6StLLAy9b26eyUG8SGQqeu/e30c20f91e77e54d88b7644658912c7d/Improving_the_Anonymity_of_the_IOTA_Cryptocurrency.pdf>.

[78] European Parliament. *Cryptocurrencies and blockchain* [study]. 2018, p.37 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

[79] *Cryptocurrency Market Capitalizations* [data base]. [reviewed in 27 October 2019]. Available at: < https://www.barchart.com/crypto/market-capitalizations>.

[80]*Libertarianism* [encyclopedia]. [reviewed in 27 October 2019]. Available at: < https://www.britannica.com/topic/libertarianism-politics/Historical-origins>.

John Locke[81]. Meanwhile, there is a significant difference. Libertarians want to eliminate the influence of the state in order to dispose it. Libertarians are advocating a free market and state that a pure market mechanism and human cooperation can solve global problems better than states. Among Cyberpunks and Libertarians are no contradictions, despite the fact that opinions can vary. That does not change the fact that goals of these movements can be achieved by use of cryptographic technology. Therefore it appears that application of any legal provisions will be not accepted. The code is the law by itself[82].

These ideas are opposed by supporters of formalistic approach. For the purposes of this research opponents will be called formalists. Formalists are any supporters of classic rule of law system. Members do not believe that the code itself can regulate existing relations.

European Banking Authority (EBA) takes a highly skeptical approach towards cryptocurrencies[83]. It disputes the necessity of the technology and constitutes that achievements of cryptocurrencies can be achieved by modernization of legal regulation.

European Central Bank (ECB) states that cryptocurrencies use is limited hence there is no ground for tailor-made legislation[84]. The skeptical approach of ECB abstains cryptocurrencies from becoming a second currency or an official currency of the EU. As a result objective to compete with the real money becomes impossible. Moreover, a limited uses implies that it has no potential to fall under definition of money.

Jean–Luc Verhelst, co-founder of the blockchain community HIVE Brussels and a member of the EU Blockchain Observatory and Forum, drown our attention to the fact that cryptocurrencies have an extreme amount of volatility what collides with the function of store of value[85]. In practice a high amount of cryptocurrency users can be minor traders. They are far from ideals to change the society; they are simply abusing market mechanism to obtain profits.

[81] The end of law is to preserve and enlarge freedom. From *The Politics Book*, London: DK,2013, p.104-109.
[82] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018, p. 193-202.
[83] EBA Opinion on "virtual currencies", *Official Journal*, 2014-07-04.
[84] European Parliament. *Virtual currency schemes – a further analysis*[study]. 2015, p.24 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.
[85] DEMEYER, M. *Blockchain technology and smart contracts from a financial law perspective:* Masther thesis. Social Sciences, Law (01S). Ghent: Ghent University, 2018*:*

The adoption of cross-border transactions via cryptocurrency is problematic because it causes problems with a choice of jurisdiction[86]. Philipp Paech's research affiliated with The London School of Economics and Political Science writes that network participants may incur higher costs to mitigate entailed risks, defeating an advantage of decreased total transaction cost. Paech's opinion corresponds with the law practice and contradicts Cyberpunks. Cyberpunks wanted to use code as a law to illuminate all legal issues. In practice blockchain based technologies may have a limited usage, nonetheless they provoked enough attention and that is why it has to comply with the law. There are legal opinions, regulation and judgments that will be observed further. Cryptocurrencies cannot avoid the law because code, as any human creation, has unavoidable mistakes. Even if it is possible to invent programs that write other programs they will include mistakes that will cause legal disputes.

In conclusion of the discussion, it is important to point out that the idea of legal positivists approach has higher chances to prevail. Cryptographic technological advances are the sources of a grand abuse of law. Criminals already started to use it for criminal purposes. Hence it is reasonable to expect more legal regulation concerning the technology.

Today creation of a grand payment transaction is not impossible without banks. Moreover, banks are encouraging people by cash backs and loyalty programs. That is why more and more people prefer to pay via cards instead of real currencies. That gives an enormous amount of information about individual preferences and habits. That is why there exists an opposition. Today there is no real reason why cryptocurrencies will stop developing. As it was mentioned before cryptocurrencies are also called virtual currencies. It is a fair term for them, however there are other types of virtual currencies. They will overviewed in brief. Knowledge of some them is crucial for the research because they are based on Blockchain technology. The rest gives an understanding of virtual economy and proves once again that question whether virtual currency can be used as a currency is determined by the human will.

[86] ATHANASSIOU, P. *Impact of digital innovation on the processing of electronic payments and contracting*: *an overview of legal risks.* [interactive]. 2017 [reviewed in 27 October 2019.]. Available at:< https://www.ecb.europa.eu/pub/pdf/scplps/ecb.lwp16.en.pdf?344b9327fec917bd7a8fd70864a94f6e >.

2.4.Perspective of application of money regulation to virtual currencies

After the advent of Bitcoin in 2014 serious financial institutions such as European Central Bank[87] and European Court of Justice[88] paid their attention to virtual community. Virtual currencies existed long before this period. Today it is clear that they have a significant influence and they deserve an exploring. Hence, exploring of how virtual currencies are connected with real currencies is reasonable.

In addition we will provide a comparison with cryptocurrencies.

A unified approach on money definition does not exist. Some jurisdiction does not provide this definition at all. The economists offer four features that define money:

1) **Medium of exchange**[89] – can be treaded directly to any other commodity.
2) **Store of value**[90] – can preserve value during continues amount of time.
3) **Measurement of Value (Unit of account)**[91] - provides a fixed price for all goods and services.

Economic theory does not mention one vital feature that is important for the legal research, currency must be officially recognized by the state. **Legitimacy** will be the fourth feature.

First type of virtual currency worth exploring is **loyalty points**. With them users can buy goods and services. Sometimes these points can be spent on something completely distinct what has no connection with goods and services that helped to earn these points. Cryptocurrency supporters may argue that Bitcoin has no relation to LPs. Bitcoin is presumed to be created for universal acceptance and wide usage but they are mistaken. Bitcoin acceptance is limited. It is hard to find trader who is ready to accept highly volatile capital. Of course, there are exceptions like Microsoft, KFC Canada, several branches of

[87] European Parliament. *Virtual currency schemes – a further analysis*[study]. 2015 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf> .

[88] European Court of Justice. 22 October 2015. Decision *Skatteverket v David Hedqvis Case C-403/03*, EU: C:2015:718.

[89] SZE, A. *Functions and Characteristics of Money*. [essay]. 2017 [reviewed in 27 October 2019.]. Available at:< https://www.ukessays.com/essays/economics/functions-characteristics-money-6335.php >.

[90] Ibid.

[91] BULLARD, J. *The Economic Lowdown Podcast Series*. [lecture]. [reviewed in 27 October 2019.]. Available at:< http://www.stlouisfed.org/education_resources/economic-lowdown-podcast-series/functions-of-money/>.

Subway and etc[92]. Hence it remains a local story of virtual world. The same is true for loyalty programs.

Loyalty programs are widespread today. Companies like Aeroflot, Starbucks, Amazon, Apple, AliExpress and Nintendo establish a high protection for their points. They gourd them at the same level of security as financial asset because they can be spent on free flights, nights in hotels, upgrade of loyalty statues, that gives extra points, goods and services and charity support. Some people trade them unofficially and raise extra money on hidden market.

There is there for are common and distinct features between real currencies and loyalty points hence stress will be made on features of LP and list them.

Features of loyalty points:

- issued by the company

- can be used as a medium of exchange for a limited number of purposes determined by the company

- cannot be partially used as a unit of account.

- cannot be used as a store of value

Next part of the world of virtual currencies is virtual money that is used in virtual games. **Virtual game currencies** are also referred as "micro transactions" by gamers. Many of them provide only access to in game content such as: items for game characters, skills, extra game levels and opportunities to progress faster within the game. Many people consider this game a significant part of their life and they spend an enormous amount of the real currency to purchase a virtual one.

Virtual game currencies can be classified as:

Closed - currencies that can be used only to purchase in-game content. They cannot be used in any other way. The only one correlation with an outside economy is a hidden black market where users sell their accounts for the real money. Example: Fortnite V-Bucks.

Open - currencies that can be converted into real money. Example: Second Life Linden Dollars.

Semi-closed – game allows to spent in-game currency for extra game subscription. Subscription is a monthly payment that allows user to play the game. The main difference

[92] *Who Accepts Bitcoin as Payment?* [interactive]. [reviewed in 27 October 2019.]. Available at: < https://99bitcoins.com/bitcoin/who-accepts/>.

between closed and semi-closed is that they allow users to pay for the real life services, that are limited to the game itself. Example: World of Warcraft Gold.

Looking at covered features of virtual game currencies it was found out that game currencies also share features of **unit of account and medium of exchange** partially. Among virtual currencies was found an example that can partially satisfy the third rule – recognition by the state, hence a durable attention will be paid on them.

Short overview of other types of virtual currencies brings us to the description of **Bitcoin**. It has a special place in the world of cryptocurrencies. It was first and it is still the most popular cryptocurrency. Somebody who calls himself Satoshi Nakamoto dropped off his creation to the world web. The main intention was to create an autonomous anonymous fast and independent system that serves as an alternative to fiat money. This project had an ambitious plan behind however this plan did not work in practice. Features of Bitcoin analysis will test how original ideas were implemented in practice.

This is how Bitcoin looks according to his creator[93]:

Independent. The cryptocurrency is not issued by any government or central banks. It was made to be regulated by the market only. Central bank cannot intervene by fixing a certain price or "printing" extra virtual coins.

Anonymous. It can be produced by unknown people all around the world. Everyone can transfer it via virtual wallet to another wallet and stay not identified. That can be beneficial for those who want to stay secret and keep some privacy.

Cryptocurrency can be used as means of exchange. That means that cryptocurrency can be used as a money.

Incorruptible system. Bitcoin is protected by the code and unreachable for cyber-attacks thread.

Solves double-spending problem. The same digital currency can be spent more than once. That does not happen with Bitcoin. All information within the network is unique. That completely excludes issues with double-spending.

Despite the theory, this concept is only partially true. Bitcoin is not independent. Firstly, it has high amount volatility and it is vulnerable to market manipulations. It makes impossible to use Bitcoin as universal means of payment. Secondly, despite all the efforts to

[93] NAKAMOTO, S. *Bitcoin: A Peer-to-Peer Electronic Cash System*, p.1 [interactive]. [reviewed in 27 October 2019.]. Available at: < https://bitcoin.org/bitcoin.pdf >.

make Bitcoin anonymous it reached this goal only partially[94]. All members of Bitcoin blockchain can see what other users are doing. They interact with each other on the basis of chain that contains all the information about transactions conducted by every user. Practice showed that fake identities of users can be traced[95]. That makes Bitcoin a pseudo-unanimous cryptocurrency.

Taking into consideration stated earlier, cryptocurrencies by far the most satisfying virtual currency within legal meaning. They are used as medium of exchange and unit of account that has an unlimited potential in this area. Other virtual currencies are limited by boundaries of their companies and community of their users. Cryptocurrencies are depending on the market and state regulators. However, the main feature that separates cryptocurrencies and that all of them share is blockchain technology. Bitcoin and altcoins are diverse. They act in the different interests. The most successful cryptocurrencies offer their services differently and are often in contradiction with the concept of Bitcoin. Looking for the law it is the most proper to use a separate definition for cryptocurrencies that will include technical characteristics.

2.5.Ways of validation of cryptocurrency and their issues

Blockchain trustless is based on the verification mechanism that keeps. Despite the fact that there is always the same technology backing cryptocurrency, there are different types of verification. They serve as a legitimation mechanism that confirms transactions of all users.

Proof of work (PoW)

Proof of Work is the process during which participants of network solve a riddle in order to produce new coins. This process is referred as mining[96]. Mining process utilizes two resources – electricity and computing power. Hence Proof of Work is not only protection mechanism, it is a resource base support of value. In our point of view there are two vulnerable groups whose rights can be easily affected: owners of cryptocurrencies and miners.

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[94] European Parliament. *Virtual currency schemes – a further analysis*[study]. 2015, p.33 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf> .

[95] MEIKLEJOHN, S; et al. A Fistful of Bitcoins: Characterizing Payments among Men with No Names. From *Proceedings of the 2013 Conference on Internet Measurment*. New York: Association for Computing Machinery, 2013, p. 127-140.

[96] *Distributed Ledger Technology (DLT) and Blockchain* [online]. [reviewed in 27 October 2019.]. Available at: < https://eprint.iacr.org/2018/1105.pdf>.

Owners of cryptocurrencies are vulnerable to monopolization of 51 percent of active cryptocurrency[97]. 51 percent attack is especially valid for truly anonymous types of cryptocurrencies. Anonymity makes it impossible to identify the balance of power among cryptocurrency users. If a group of people will combine its power, it can rewrite the code for its own benefit. In practice, there are examples where such attacks took place[98].

Another significant issue comes from the fact that cryptocurrency can be lost and factually destroyed with the storing device. It therefore appears that there are two ways that can solve this issue. First is an introduction of customer protection requirements on centralized cryptocurrencies that are controlled by the legal entity. The issuer will have to restore the amount of cryptocurrency that was lost by the accident. Second approach is an introduction of obligatory store of cryptocurrency in intermediary account. By intermediary currency exchanges, virtual wallets and banks, are implied.

Proof of Stake (PoS)

In Proof of Stake system utilizes a significantly different approach. In order to validate transaction by the fact of ownership[99]. During the process of forging validator of transaction proves his ownership over coins in his possession. The system gives a priority to the person that owns more cryptocurrency coins, this person will have a decisive role.

This algorithm is an example of change of law by code. Proof of Stake is protected by 51 percent attack and prevents monopolization. However, there are still questions that are not answered. Whether is it possible to rely on position of an accidently chosen individual? It seems that developers of new system relying on the fact the person that owns more coins will act in the best interest of all. Due diligence requirement must be applied to individuals who possess the biggest stake. Due diligence requirement will be applied in the EU for all transactions in the EU according to the latest version of EU anti-money laundering directive[100]. In practice it is only possible to apply due diligence to the companies that are issuing cryptocurrencies. They can become obliged entities under the conditions on the

[97] MUHAMMAD, S.; JEFFREY, S.; LAURENT, N. *Exploring the Attack Surface of Blockchain: A Systematic Overview*, p.1 [interactive]. [reviewed in 27 October 2019.]. Available at: < https://eprint.iacr.org/2018/1105.pdf>.
[98] Ibid.
[99] GANESH C., ORLANDI C., TSCHUDI D. *Proof-of-Stake Protocols for Privacy-Aware Blockchains* [interactive]. [reviewed in 27 October 2019.]. Available at: < https://eprint.iacr.org/2018/1105.pdf>.
[100] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU, Official Journal, 2018.

ground that they can collect the information about their users. The issue arises when the issuer does not have such information due to absolute anonymity. Currencies with no central regulator are falling out of the scope of possible regulation.

In order to summarize this part, it must be stated that the main theoretical issue of application of regulation to cryptocurrencies is their distinct nature. Cryptocurrencies are based on blockchain technology, however they must offer a unique features to be successful. The result of which is that it is impossible to regulate cryptocurrencies simply by applying money regulation to them. Cryptocurrency is a sue generis object that may possess features of money, securities and shares.

Part 3. Approaches and spheres of cryptocurrency regulation and corresponding issues

The aim of this part is to cover three primary areas of cryptocurrency regulation based on examples of particular jurisdictions. In this part different approaches will be summarised and the analyses of benefits and issues will be given.

3.1. Legal statues of cryptocurrencies

Legal statues of cryptocurrencies raise a significant number of issues. Certainty of legal statue provides which laws from which areas must be applied, issues of taxation, rules of consumer protection. At first the EU and the US regulation will be examined: both have multiple jurisdictions, hence their experience can have similarities and differences that worth comparison based on the nature of both subjects.

3.1.1. Legal statues in the EU

The first attempt to identify cryptocurrency belongs to the European Banking Authority. In 2014 it published an opinion on "virtual currencies". This institution is skeptical about the necessity of cryptocurrencies[101]. It takes the view that cryptocurrencies provide a small number of benefits such as reduced transaction costs and enhanced transaction speed is achievable without blockchain. However, it can consume a significant amount of time when the same benefits will be available for ordinary operations within EU. The EU takes the view that further development of EU legislature can do it much better. Opinion includes similar definitions of participants that must be regulated and risks primarily.

Identification of nature of cryptocurrencies and definition of the most important participants of relationships has a vital importance because after years of existence, cryptocurrencies continue challenging legal regulation. In order to approach further it is necessary to know all participants. This knowledge can help to map transaction schemes. Here is why first legal documents are investigating participants and transaction schemes so precisely. European Banking Authority takes the same approach towards analyses of cryptocurrencies as Financial Action Task Force. Financial Action Task Force is an intergovernmental organization that was founded at the initiative of G7. The main purpose of this organization is to provide recommendations for combating money laundering and

[101] *EBA Opinion on 'virtual currencies'* [opinion]. 2014 [reviewed in 07 December 2019.]. Available at:< https://eba.europa.eu/sites/default/documents/files/documents/10180/657547/81409b94-4222-45d7-ba3b-7deb5863ab57/EBA-Op-2014-08%20Opinion%20on%20Virtual%20Currencies.pdf?retry=1>.

terrorism financing. Its recommendations are recognized at international level as a standard[102]. In addition it gives a brief overview of virtual currencies. Both organizations admit its significance and consider emergency of cryptocurrencies as a result of natural grow of virtual world. That is why they have a tendency to add non-blockchain based things that are also called virtual currencies.

European Banking Authority defines cryptocurrencies as a part of virtual currencies[103]. According to it virtual currency is: "a digital representation of value that is neither issued by a central bank or public authority nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of exchange and can be transferred, stored or traded electronically." European Banking Authority is attempting to identify other features of virtual currencies, however these features are strongly related to Bitcoin, while are not taking into account other cryptocurrencies. In addition it provides a definition of mining that is not valid, some virtual currencies are premined and there is no need to use powerful hardware (example: NEO). Some currencies cannot be qualified as a medium of exchange because they have other goals (example: Stellar XLM) and there are cryptocurrencies that have central administrator (example: Ripple).

European Banking Authority provides much more definitions than Financial Action Task Force. European Banking Authority definitions cover the vast majority of virtual currencies relation that can influence the market. A significant number of mentioned entities became subjects of the first virtual currency regulations, while some of them are still lacking regulation. Before the research will go further and describe particularities of regulation, it is vital to cover what was not regulated. Miners and Inventors are staying without regulation. There are frauds when users were helped to find the best way to invest in cryptocurrencies and in one day they disappeared with all money of users. This problem can be solved if the provider of information stores crypto assets of users because it makes him a subject of the current EU regulation. However there are manipulations in news that have a significant impact on the industry.

[102]An introduction to the FATF and its work [brochure]. 2010 [reviewed in 07 December 2019.]. Available at:<https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/Introduction%20to%20the%20FATF.pdf >.

[103] *EBA Opinion on 'virtual currencies'* [opinion]. 2014 [reviewed in 07 December 2019.]. Available at:< https://eba.europa.eu/sites/default/documents/files/documents/10180/657547/81409b94-4222-45d7-ba3b-7deb5863ab57/EBA-Op-2014-08%20Opinion%20on%20Virtual%20Currencies.pdf?retry=1>.

The first rules that were published by a lawmaking institution that belongs to the EU Court of Justice. CJEU made a respond on the preliminary ruling request from the Supreme Administrative Court of Sweden[104]. The situation concerned a use of Bitcoin for commercial transactions. It was ambiguous whether Bitcoin is a subject of a value-added tax. In addition, the nature of Bitcoin and cryptocurrency itself was unclear.

The Court compares Bitcoin to traditional currencies and says that it is not a subject of VAT. It says that: " 'bitcoin' virtual currency with bidirectional flow, which will be exchanged for traditional currencies." It includes the following features to determine the Bitcoin:

- non-tangible property,
- a subject of financial transactions,
- a means of payment,
- an exempt from VAT,
- not a deposit account

The Court recognizes that today banks no longer have monopoly within the sphere. Bitcoin allows its possessors to make transactions without participation of a bank, because the blockchain platform allows working autonomously. In practice, Bitcoin is not an effective payment system. It is much slower than traditional Visa and MasterCard. It makes it ineffective for day-to-day transactions. However, it can be used as a virtual wallet. Bitcoin is an efficient platform for storing and collecting of assets anonymously.

The regulation of the EU Member States cannot be avoided because they can introduce extra regulation in the area. Hence, it is reasonable to provide some examples where lawmaker goes beyond EU standards.

United Kingdom

The UK utilize an advanced investment-friendly approach by giving it almost currency statues[105], however formation of cryptocurrency legal statues is still in the progress of development. Current legal foundation is based on Her Majesty's Revenue and Customs Department opinion[106]. The Revenue and Customs Department is responsible for tax

[104] LITWACK, S. Bitcoin: Currency of Fool's Gold?: A Comparative Analysis of The Legal Classification of Bitcoin, *Temple International and Comparative Law Journal*, 2015, vol. 29, p. 309-348.
[105] Ibid.
[106] Ibid.

collection in the UK[107]. Pursuing the purpose of obtaining new investments, the department excluded a vast amount of operations from trading, mining[108]. The mere fact that the country taxes cryptocurrencies as the currency does change the fact it is not the real currency and cannot be used as a universal means of payment within the territory of a country.

Germany

Some sources define cryptocurrency as electronic money that is why statements provided by the Federal Financial Supervisory Authority of Germany drew our attention. Federal institution clarifies that virtual currency statues cannot be equivalent to the statues of e-money if e-money is an electronic equivalent of cash[109]. Germany is not a sole country that excluded virtual currencies out of the scope e-money regulation. The Netherlands did the same[110].

Instead, in Germany cryptocurrency is defined as a form of private money[111]: "function of private means of payment in barter transactions, as well as any other substitute currency used by virtue of private-law agreements as a means of payment in multilateral settlement accounts." As a result it can be taxed under German law.

Sweden

Sweden introduces the most stringent requirements for cryptocurrencies compared with other EU member states. Sweden classifies them as capital investment object[112] and subject of AML laws what entails an obligation for anyone who is engaged in financial activities to comply with all AML requirements without exception[113]. So far Swedish regime is similar to strict licensing that applies New York. In both cases operators of cryptocurrencies must obtain a mandatory registration from state authorities.

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[107] *About us* [online]. [reviewed in 07 December 2019.]. Available at:< https://www.gov.uk/government/organisations/hm-revenue-customs/about#responsibilities>.

[108] *Revenue and Customs Brief 9* [Policy paper]. 2014 [reviewed in 07 December 2019.]. Available at:<https://www.gov.uk/government/publications/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies >.

[109] CLINCH, M. *Bitcoin recognized by Germany as "private money* [Policy paper]. 2013 [reviewed in 07 December 2019.]. Available at:< http://www.cnbc.com/id/100971898>.

[110] RAMASATRY, A. *Is Bitcoin Money? Lawmakers, Regulators and Judges Don't Agree, Verdict* [online]. 2014 [reviewed in 07 December 2019.]. Available at:< https://verdict.justia.com/2014/09/09/bitcoin-money>.

[111] Ibid.

[112] SVENSSON, T.; WIKSTROM, C. *Lending and Taking Security in Sweden: Overview, practical law* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< http://us.practicallaw.com/5-511-8148>.

[113] LITWACK, S. Bitcoin: Currency of Fool's Gold?: A Comparative Analysis of The Legal Classification of Bitcoin, *Temple International and Comparative Law Journal*, 2015, vol. 29, p. 309-348.

[113] LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use, *Iowa Law Review*, 2019, vol. 927, p.927-955.

3.1.2. Legal statues in the USA

Federal level

The regulation of legal status of cryptocurrencies is quite limited on federal level. It is limited to the official guideline of The Financial Crimes Enforcement Network[114]. According to the Network, cryptocurrency is: "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency." This definition is rather trivial and does not clarify a solid foundation. Statues of a soft law regulators give the burden of regulation to the state level. The result of which is that competition for best conditions enjoyed be cryptocurrency investors may take place in the nearest future. Nonetheless, lack of certain statues such: foreign currency, commodity or security excludes potential income. Furthermore, lack of a certainty makes it hard to understand how to pay taxes properly and in which cases.

State level

The US did not prescribe to establish mandatory rules concerning cryptocurrencies that is why there is a number states that remain silent concerning the issue. It must be admitted that review of all regulations is not necessary. These most vivid examples will be covered in this thesis.

During this research it was hilted that cryptocurrency cannot serve as a real currency. In this regard giving it legal status of currency looks inappropriate. However, this idea is not shared by all lawmaking institutions. US District Court in Texas stated that Bitcoin is a currency[115]. The court reasoning is based on the fact that Bitcoin is factually used as a currency but accepted only by a limited number of businesses[116]. This approach can become a grand source of abuse. Some enterprises can decide to use cryptocurrency as an alternative for salaries for employees. This kind of alternative can vanish after a stock market drop. Furthermore, contractual parties can use it for the purpose of unjust enrichment. The contract can be concluded with the expectation that the price of cryptocurrency will remain the same or will significantly grow. Lack of experience can mislead expectations of weaker party. In

[114] Guidance (FIN-2013-G001). Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies, supra note 15, *fincen.gov*, 2013, FIN-2013-G001.

[115] United States District Court. Eastern Destrict of Texas Sherman Division. *31 January 2014. civil case UAB „ The United States Securities and Exchange Commission" v. Shavers, No. 4:13-CV-416, 2014 WL 4652121, at 1-2.*

[116] BARRON, B. *Embattled Bitcoin Dealer Can't Deny It Is Currency* [online]. Courthouse News Service, 2013 [reviewed in 07 December 2019.]. Available at:< http://www.courthousenews.com/2013 /08/06/60044.htm >.

the best interest of consumer protection cryptocurrency should be as a currency only for certain cases as AML.

The other approach is taken by Californian authorities that prohibited using bitcoin as an alternative currency[117]. After the time has passed the opinion has changed and cryptocurrencies were allowed to use. Notably, there is a high possibility that allowance happened because cryptocurrencies are used as a form of political protest by some political groups[118]. This case tells that allowance of cryptocurrency is not only an issue of criminal and financial law, it is an issue of human rights as well, the result of which is that total prohibition of cryptocurrencies may contravene principles of law that exist in democracies.

Comparing two approaches the following can be stated: the EU provides a much better overview than the US on federal level. It sets clear that cryptocurrency can be taxed and that it can serve as a means of payment. Besides, cryptocurrency activities must be regarded as financial activities. In contrast, the sole regulation of cryptocurrencies statues in the US can explain that cryptocurrencies can be related to the sphere of financial law, the rest of explanation is up to the state's authorities. If the country does not provide a solid legal basis, it must define which old laws must be applied to the currency. Otherwise cryptocurrency relations may harm individuals and enterprises that participate in relationships because they stay without guaranties. Moreover, state loses potential opportunity to raise capitals.

3.1.3. Legal statues in other jurisdictions

It is clear from the foregoing that regulation of legal statues is a must, however these countries do not create an entirely new set of rules. In contrast Belarus provides one of the most developed regulations concerning virtual currencies *per se*, while it stays ignorant to defining of legal statues through definition. In situations where regulation of the currency relations is well developed there is no need to provide any additional definitions or references to previously existed regulation. Belarusian law on cryptocurrencies and connected relations

[117] BROWN, E., et al. California *Legislature 2013 – 2014*. Los Angeles: Legislative Bill Room, 2014
[118] COHEN, B. *California Bill to Legalize Bitcoin* [online]. Bitcoin Magazine, 2014 [reviewed in 07 December 2019.]. Available at:< https://bitcoinmagazine.com/articles/california-bill-legalize-bitcoin-1392336284 >.

includes separate laws about: anti-money laundering[119], regulation of exchangers[120] and ICO regulation[121].

Some countries may prefer a stringent approach which was chosen by Chinese authorities. In China it is defined as a virtual commodity[122]. So far as cryptocurrencies are not classified for market circulation purposes[123], all institutions will be abstained from any operations concerning cryptocurrencies.

In order to apply its restrictive policy China shut down three biggest cryptocurrency exchangers[124]. Such restrictive behavior should be considered as an inappropriate. It can force people, who are benefiting from the industry, to go to dark market. That will inevitably happen because cryptocurrency industry is growing[125]. Moreover, China is the home country of special video cards that were designed for production of cryptocurrency[126] and does it more efficiently than standard tools.

Another example of prohibition approach regulation is when authorities consider cryptocurrencies as the real currency. That was done by Russian Federation that prohibited any current and potential use of cryptocurrency based on the fact that: "official currency is the ruble, and introduction of all other monetary units and money substitutes are prohibited"[127]. This approach does not exclude that cryptocurrency exchangers can still

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[119] *Polozenie o trebovaniyah k pravilam vnutrennego kontrolya rezidentov Parka visokih tehnologiy* [legal act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/AML-rus.pdf>.

[120] *Pravila osushestvleniya deyatelnosti operatora obmena kriptovalut* [legal act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/Exchanger-rus.pdf>.

[121] *Pravila osushestvleniya deyatelnosti operatora kriptoplatformi* [legal act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/CryptoExchange_rus.pdf>.

[122] LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use, *Iowa Law Review*, 2019, Vol 927, p.927-955.

[123] COULTER, J. *Beware of the baneful Bitcoin bug* [online]. 2013 [reviewed in 07 December 2019.]. Available at:< http://usa.chinadaily.com.cn/epaper/2013-11/29/content_17140806.htm>.

[124] BOVSIRD, C. *Bitcoin Trades Sideways as Investors Look to China, Forbes* [online]. 2017 [reviewed in 07 December 2019.]. Available at:< https://www.forbes.com/sites/cbovaird/2017/09/24/bitcoin-trades-sideways-as-investors-look-to-china.>.

[125] *Global $850+ Billion Cryptocurrency Market to 2024: Growing Usage of Cryptocurrency in Trading, Remittance and Payment* [online]. 2019 [reviewed in 07 December 2019.]. Available at:< https://www.prnewswire.com/news-releases/global-850-billion-cryptocurrency-market-to-2024-growing-usage-of-cryptocurrency-in-trading-remittance-and-payment-300910798.html>.

[126]HUANG, Z. *A company that sold 300,000 bitcoin mining rigs last year is seeking the largest crypto IPO ever* [online]. QUARTZ, 2018 [reviewed in 07 December 2019.]. Available at:< https://qz.com/1279152/chinese-bitcoin-mining-equipment-maker-canaan-creative-is-seeking-to-raise-up-to-1-billion-in-a-hong-kong-ipo/>.

[127] Verhovniy Sud Rossiyskoy Federacii. 7 July 2015. *Postanovleniye Plenuma Verhovnogo Suda Rossiyskoy Federacii ot 7 iyulya 2015 goda N 32 "O sudebnoy praktike po delam o legalizacii (otmivanii) deneznih sredstv ili inogo imushestva, priobretennih prestupnim putem, i o priobretenii ili sbite imushestva, zavedomo dobitogo prestupnim putem". N 1.*

operate within the territory of a country; moreover cryptocurrency can be freely purchased on the websites registered abroad.

Despite the fact that blockchain regulation is a completely new sphere of law, there are different approaches towards regulation already existing. During the analysis of existing laws of different states, four approaches for regulation of cryptocurrencies were discovered.

The first one is **"defensive approach"**. It is characterized by moderate amendments to old laws. Supporters of this approach accept that prohibition of cryptocurrencies can turn into more significant negative consequences rather than creation of solid legal background that will allow creating cryptocurrencies market. This approach is common for the most developed countries such as: the USA and Western European countries. They are a vital target for money laundering activities due to stringent regulation.

"Offensive approach" to regulation is found in New York[128]. It adopted strict license regulation without which cryptocurrencies cannot operate within the territory of the jurisdiction.

"Investment friendly approach" is common for those jurisdictions that are seeking new investors. Representatives of this group are not homogeneous. This group includes both developed and developing countries. Their methods include: flexible taxation, special provisions for ICO and completely new laws to stimulate new businesses to register in their territory. In some cases cryptocurrencies have official statues of a medium of exchange, a unit of account, or a store of value. These countries include: Germany[129], Japan[130], Estonia[131], Belarus[132] and others.

"Approach of prohibition" is one of options. From lawmaker's point of view it is the easiest approach. This approach includes total prohibition of use of cryptocurrencies. China[133], Russia[134] and Iceland[135] followed this approach.

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[128] ALKADRI, S. Defining and regulating cryptocurrency: fake internet money or legitimate medium of exchange? *Duke Law. & Tech. Duke University Press*, 2018, Vol. 88, p. 71-98.

[129]LITWACK, S. Bitcoin: Currency of Fool's Gold?: A Comparative Analysis of The Legal Classification of Bitcoin, *Temple International and Comparative Law Journal*, 2015, vol. 29, p. 309-348.

[130] LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use, *Iowa Law Review*, 2019, vol. 927, p.927-955.

[131] DEWEY, J. Blockchain & Cryptocurrency Regulation [study]. 2018 [reviewed in 07 December 2019.]. Available at:< https://www.acc.com/sites/default/files/resources/vl/membersonly/Article/1489775_1.pdf>.

[132] *V Belarusi polnostiyu uregulirovali kriptu.* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< https://dev.by/news/crypto-in-belarus?fbclid=IwAR1FCmA8L9GoG8f0o-orbWBgvpbrDGm1LEToEAccl_ogLWWZ3r6RJi72rjc>.

[133] GUADAMUZ, A.; MARSDEN, C. Blockchains and Bitcoin: Regulatory responses to cryptocurrencies, *First Monday*, 2015, vol. 20, p.

[134] Ibid.

Concluding, it must be highlighted that state that it is possible to give different legal statues to the cryptocurrencies. That fact entails the possibility to tax cryptocurrency and use it partially as the real money for making payments. Proper regulation can make more stringent rules that will make potential investors uninterested or provoke new high technological projects to settle their business. Jurisdictions that decided to prohibit cryptocurrencies completely will not benefit from this regulation because they are traded internationally via internet. Simple prohibition is not sufficient that is why it is more productive to give cryptocurrency a certain legal status that will allow applying criminal laws and procedures against maleficent users of the network.

3.2. Anti-money laundering (AML)

Anti-money laundering policy is a vital of law that concerns cryptocurrencies. The chapter will start from the regulation common for defensive approach. A legal foundation of this approach is based on provisions that were recommended by international organization Financial Action Task Force on Money Laundering.[136]

In June 2014 Financial Action Task Force published a report called Virtual Currencies Key Definitions and Potential AML/CFT Risks[137]. This document introduces a common set of definitions and gives an overview of the most famous examples when cryptocurrencies were used for criminal activities. This sub-chapter will focus on definitions while risks will be discussed in a separate sub-chapter.

At first the document explains that Virtual Currency is "a digital representation of value that can be digitally traded and functions as a medium of exchange; and/or a unit of account; and/or a store of value, but does not have legal tender status (i.e., when tendered to a creditor, is a valid and legal offer of payment) in any jurisdiction. It is not issued nor guaranteed by any jurisdiction, and fulfills the above functions only by agreement within the community of users of the virtual currency"[138].

This definition is also valid for cryptocurrency. Financial Action Task Force makes a difference between virtual currency and cryptocurrency. According to Task Force cryptocurrency is a type of virtual currencies. Examples of virtual currencies were presented

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[135] LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use, *Iowa Law Review*, 2019, Vol 927, p.927-955.

[136] *Who we are* [online]. [reviewed in 07 December 2019.]. Available at:< http://www.fatf-gafi.org/about/ >.

[137] Virtual Currencies Key Definitions and Potential AML/CFT Risks [Report]. 2014 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.

[138] Ibid., p. 4.

in the first chapter. They are not necessarily functioning on blockchain technology that is why they do not deserve extra attention in this research. Moreover, in a presented report there is no reference to serious risks and frauds accrued with other types of cryptocurrencies.

Next important definition provided by Task Force is a definition of cryptocurrency itself. It is quite massive and concerned too much about Bitcoin and technology. However, Bitcoin is just one type of cryptocurrencies. In order to succeed others had to invent new features. Task Force writes about miners and mining, while there are premined currencies. It is highly unlikely that this definition will find much support among national legislators.

Other significant definitions include definitions of tools for extra anonymization and virtual currency system participants such as: altcoins, anonymiser, dark wallet, an exchanger, user, etc.

This is all what report suggests to know about relations with blockchain based virtual currencies. In the end it says that this list is not exhaustive. It can be stated that these definitions have a crucial role for combating money laundering. According to Primavera De Filippi and Aaron Wright from Harvard Law School the best approach is not to fight and pursue each individual separately[139]. They suggest applying regulation to intermediaries such as virtual currency wallets and exchangers or service providers. Cryptocurrencies may be seen as a powerful tool to avoid regulation, as the Internet was at the very beginning, when it was regarded by the mass audience as an absolutely anonymous space where individuals had an absolute freedom. The whole internet system is complicated but it is extremely dependent on intermediaries. Internet comes to users through independent service providers that are easily identifiable and vulnerable to the law[140]. Today the law is applied in the internet relations to the same extent it is applied in the real life relations. Cryptocurrency as the thing traded via platforms that have a particular address and legal responsibility can be controlled by regulation to intermediaries, despite all the odds of cyberpunks.

These ideas can be found in the next Financial Action Task Force regulation. In June 2015 Task Force published Guidance for a risk-based approach[141]. Previous document was

[139] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018, p. 176-177.
[140]ZITTRAIN, J. Internet Points of Control, *Boston College Law Review*, 2003, Vol. 44, p. 653-688.
[141] *Guidance for risk-based approach, Virtual currencies, FATF* [Report]. 2015 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Guidance-RBA-Virtual-Currencies.pdf>.

devoted to the definitions. Guidance is concerned about particular measures against money laundering.

First of all it recommends regulating exchange platforms if they allow using virtual currency or prohibiting for the purpose of security protection, customer protection or preservation of stability of the economy[142]. However, the last approach should not abstain national authorities from AML actions against virtual currency. There is a high possibility that after prohibition of virtual currency its market will go to illegal market where it will continue to exist. Hence, countries must take an active role in identifying and sanctioning of all hidden virtual currency providers under its jurisdiction.

Next recommendation of Task Force concerns national law provisions. It provides several criteria that national legislator should take into account: regulation of specific cryptocurrencies should depend on their products and services function and provide for similar treatment of similar virtual currencies. *Task Force* also recommends applying licenses for services that change, store and exchange cryptocurrencies[143]. It is especially important because cryptocurrency exchangers are working within a cross border dimension. They are not stick to one particular jurisdiction, which means that countries must cooperate and provide a homogenous regulation.

Task Force recommends establishing several rules about domestic and cross-border wire transfers. 'Wire transfer' means any transaction conducted through financial institution, by electronic means with a view to making an amount of funds available to a beneficiary person. Financial authorities of countries must track the information about beneficiary and originator. Countries can adopt an extra threshold for cryptocurrency transactions that does not exceed 1000 USD/EUR. If transactions do not have appropriate information about beneficiary and originator national authorities must take appropriate measures to prevent money laundering risks.

Another significant novelty is an extension of customer due diligence requirements when cryptocurrency exchangers establish business relations or carry occasional transactions[144]. Without it cryptocurrency sphere will be extremely vulnerable against frauds.

[142] Ibid., p. 9.
[143] Ibid., p. 10.
[144] Ibid., p. 12.

The result of legal novelties is that Task Force establishes a *minimum minimorum* of rules for preventing money laundering. Task Force recommendation will be acquired by national regulators and become an international standard.

3.2.1. Anti-money laundering in EU

With the time criminal groups abused anonymity of cryptocurrencies[145]. It became an extremely popular among terroristic groups in the EU. Krišjānis Kariņš and Judith Sargentini in the official EU Parliament press release blame cryptocurrencies because it was used for the maleficent purposes. With a proper regulation the financial system can become cleaner. Members of the parliament are intended to uncover corporate identities and find out who is behind anonymous accounts.

It resulted in further steps towards the EU regulation. The new amendment to the Anti-money laundering directive[146] of 2018 was adopted in order to fix the most significant issues with criminal use of cryptocurrencies by terrorists and white collars. According to the directive, platforms like crypto wallets and websites that deal with exchange of currencies are obliged to store and collect the information about their users. Cryptocurrency wallets are virtual apps developed for using for storing and changing cryptocurrencies. Currency exchange websites became liable for their operations with cryptocurrencies. Their sole purpose does not live within the sphere. They also work with traditional currencies.

Both types of platforms must pay an extra attention to the suspicious activities and prepare special reports. According to the directive transaction is suspicious if:

- if it is complex,
- sum of transaction is an extremely high,
- actions of contractual parties rising suspicion,
- transaction lacks obvious commercial or lawful purpose.

Intermediaries are obliged to identify both clients and beneficiaries. Now users cannot use their fake nicknames, only true names will work.

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[145] *Anti-money laundering: MEPs vote to shed light on the true owners of companies* [online]. European Parliament Press Releases, 2018 [reviewed in 07 December 2019.]. Available at:< http://www.europarl.europa.eu/news/en/press-room/20180411IPR01527/anti-money-laundering-meps-vote-to-shed-light-on-the-true-owners-of-companies.>.

[146] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU//OJ L 156, 19.6.2018. *The Official Journal of the EU*, p. 43–74.

Receivers of transaction got an extra protection. The Directive stresses that a participant of relations that concern cryptocurrencies should behave himself according to the principal of good will. In addition the Directive decreases required sum for application of the principal from 250 to 150 euro. All together it should improve the standards of behavior. Consumers will benefit from honest exchangers and make a cryptocurrency market less offensive for non-professional traders.

The Directive entitles the Commission to observe and gather the information about reforms within cryptocurrency sphere. It can demand states to prepare reports about upcoming legislative novels. Moreover, the Commission can prepare special reports by itself. According to the Directive it has powers to prepare special lists of countries that are not reliable. Transactions that are coming from them need an extra caution.

The Directive gives a qualification for cryptocurrencies. It does not compare virtual currencies with the real currencies but distinguish them. It is "a digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency, and does not possess a legal status of currency or money, but is accepted by natural or legal persons, as a means of exchange, and which can be transferred, stored and traded electronically." What means that the Directive applies freedom of capital to cryptocurrencies. That completely rejects understatement of cryptocurrency as currency and transforms it into a virtual asset that artificially becomes a subject of AML regulation, the original purpose of which was to regulate money transactions only.

In order to understand new technology better the Commission started several new projects. Pursuing better understanding it organized the EU Blockchain Observatory and Forum[147]. This is a project for studding and spreading the knowledge about the blockchain technology. Moreover, 22 countries signed Declaration for European Blockchain Partnership[148]. The participants are going to cooperate in the field of regulation and the use of technology for the creation of a Digital Single Market.

[147] YAKUBOWSKI, M. *Europe Takes Serious Steps Toward Blockchain Adoption* [online]. Cointelegraph, 2018 [reviewed in 07 December 2019.]. Available at:< https://cointelegraph.com/news/europe-takes-serious-steps-towards-blockchain-adoption>.

[148] *European countries join Blockchain Partnership* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< https://ec.europa.eu/digital-single-market/en/news/european-countries-join-blockchain-partnership >.

3.2.2. Anti-money laundering in the US

The US is a country of multiple legal systems.[149] American legal system is split into two parts: Federal level and state level. First paramount step was achieved on federal level by The Financial Crimes Enforcement Network in 2013. The Financial Crimes Enforcement Network is a bureau of the United States Department of the Treasure the main purpose of which is to combat money laundering and terrorist financing inside and outside of the United States[150]. On federal level, according to Bank Secrecy Act, all money service businesses are obliged to register with the department of treasury[151]. In addition, The Financial Crimes Enforcement Network suggests making "exchangers" and "administrators" subjects of regulation. Exchangers, in this context, mean individuals or commercial entities that exchange VC for fiat money, funds or other VCs. This is quite similar to what was recommended to do by Financial Action Task Force and the EU[152]. The other subject has some novelty. Administrator is an individual or legal entity that is engaged in the process of issuing virtual currency and can redeem such a currency. Going back to the original concept of Satoshi Nakamoto cryptocurrency cannot have an administrator, albeit while defining participants in legal terms there is always an administrator. Based on the type of cryptocurrency the administrator can be an ordinary individual who has the right to issue (mine) new coin and change the rules of functioning of cryptocurrency if he has enough supporters or coins. Bitcoin is a perfect example of such system of administration. Another type is the system where there is just one central administrator. Entity that has a sole authority to issue and change the rules of VC will be an administrator. Such system is applied by Ripple.

In 2014 The Financial Crimes Enforcement Network issued extra regulation that became a part BSA regulation[153]. Central place within this regulation has The Bank Secrecy Act of 1970[154]. The main purpose of this act is to oblige American institutions to keep

[149] ELIAS, S.; LEVINKIND, S. *Legal Research: How to Find & Understand The* Law, 2005. Berkeley: Nolo, p. 104.
[150] *What We Do* [online]. [reviewed in 07 December 2019.]. Available at:< https://www.fincen.gov/what-we-do/>.
[151] KIVIAT, T. Beyond Bitcoin: Issues in Regulating Blockchain Transactions. *Duke Law Journal,* 2015, Vol. 65, p. 569-608.
[152] We can notice that despite de jure recommendatory nature of Financial Action Task Force its recommendations are implemented in many jurisdictions.
[153] FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code*. Massachusetts: Harvard University Press, 2018, p. 591-594.
[154] MELTZER, P. Keeping Drug Money from Reaching the Wash Cycle: A Guide to the Bank Secrecy Act. *Banking Law Journal,* 1991, Vol. 108(3), p. 230-255.

records of cash purchases of negotiable instruments that may be related with money laundering. It went beyond the common standards that was mentioned earlier. The Financial Crimes Enforcement Network brought five new significant rules. Any blockchain transaction should be qualified as a virtual currency transaction, even if it is not financial, and if it is performed by exchanger or administrator. Sometimes users of cryptocurrencies don't have any financial nature; still they may require some cryptocurrency. Ethereum smart contracts, for example, require coins to execute contractual actions. The new regulation states that miners are not money transmitters if they use virtual currency for personal goods and services. Hence miners are not subjects of BSA's record requirements. Legal entity that does mining cannot be qualified as money transmitter in certain cases: when money is spent for goods and services, to pay debts, to make distribution to owners, to purchase fiat or virtual currency. Next rule states that company is an exchanger if it acts as a broker by matching two simultaneous offsetting transactions and/or as a dealer by making transaction on its own account. Next exemption concerns those merchants and service providers that only accept Bitcoin as a convenience to customer. In this case they are not determined as money transmitters. The last exception devoted to entities that act as "payment processor to facilitate the purchase of goods or service through a clearance and settlement system by agreement with the creditor or seller."[155] To succeed with filling these exception entities must operate through clearance and settlement systems that admit BSA-regulated financial institutions.

In order to do so The Financial Crimes Enforcement Network created a special test[156]. This test includes the following:

1) An entity providing the services must facilitate the purchase of goods and services or payment of related bills.

2) Entity must operate through clearance-and-settlement system that admit financial institutions regulated under the BSA.

3) Service provided must be covered by a formal agreement between parties.

4) The entity's agreement must be at a minimum with the seller or creditor that provided the goods or services and receives the funds.

[155] Code of Federal Regulations (annual edition). U.S. Government Publishing Office , 2011- 06-01, No. 33-1014, AE 2.106/3:31/

[156] KIVIAT, T. Beyond Bitcoin: Issues in Regulating Blockchain Transactions. *Duke Law Journal,* 2015, Vol. 65, p. 569-608.

In 2015 The Financial Crimes Enforcement Network applied settlement agreement mechanism to Ripple Labs[157]. Ripple Labs violated several requirements of the Bank Secrecy Act by acting as a money selling business while it completely ignored registration required for these activities and did not undertake any steps to implement American AML policy.

The Financial Crimes Enforcement Network director commented on this situation that[158]: "Virtual currency exchangers must bring products to market that comply with our anti-money laundering laws," "Innovation is laudable but only as long as it does not unreasonably expose our financial system to tech-smart criminals eager to abuse the latest and most complex products."

It is clear from the foregoing that federal system provides an efficient mechanism for combating AML when the exchange and trade are organized by legal entities and companies are not taking any technical efforts to hide their operations. In order to prevent criminal situations the rules must be more restrictive. That is why a more detailed information on AML in New York will be provided, since New York provides truly distinct licensing solutions for better compliance.

AML in New York

The first state that took the initiative to create licensing regime to cryptocurrencies is New York. This licensing regime was named "BitLicense.[159]" BitLicense obliges an approved cryptocurrency business to have a qualified Chief Information Security officer, prepare in a written form AML policies and disaster recovery procedures. BitLicense allows cryptocurrency and related businesses to operate in New York. Virtual currency businesses is a vide area[160] that covers all businesses that work with receiving, storing, buying, selling, exchange, controlling cryptocurrencies. This list does not include development of new types of cryptocurrencies and situations when cryptocurrency is used for percussing of gods and services or making investments. The requirements include paying application fee of $ 5,000,

[157]*FinCEN Fines Ripple Labs Inc. in First Civil Enforcement Action Against a Virtual Currency Exchanger* [release]. 2015 [reviewed in 07 December 2019.]. Available at:< https://www.fincen.gov/sites/default/files/2016-08/20150505.pdf>.

[158] Ibid

[159] ALKADRI, S. Defining and regulating cryptocurrency: fake internet money or legitimate medium of exchange? *Duke Law. & Tech. Duke University Press*, 2018, Vol. 88, p. 71-98.

[160] Elizabeth P., et al. *New York Department of Financial Services Issues Amended Cybersecurity Regulations Affecting Financial Institutions, Insurers and Other Covered Entities* [online]. 2017 [reviewed in 07 December 2019.]. Available at:<https://www.willkie.com/~/media/Files/Publications/2017/01/New_York_Department_of_Financial_Services_Issues_Amended_Cybersecurity_Regulations.pdf>.

consent to state examination, post a surety bond, establishment of AML and cyber security mandatory rules.[161]

The market reacted by a swift outflow of money from the economy of New York. Only few businesses obtained BitLicenses.[162] The New York approach cannot be universal because it does not solve many issues of cryptocurrencies, especially those that are corresponding with creation of new cryptocurrencies. Instead, it only allows a privileged group of currencies to operate officially. That entails that new cryptocurrencies will choose a more liberal jurisdiction for the start up.

3.2.3. Anti-money laundering in Belarus

AML laws concerning cryptocurrencies in Belarus establish a set of rules for residents of Hi-tech Park. Hi-tech Park is special area created for technological enrichment of Belarus[163]. Registration in this area has a formal character, the enterprise of the resident can be located in any city within the territory of this country. The registration makes this business a subject of a separate set of rules valid solely for the residents of the Park. The moment when the resident becomes a subject of AML act begins after conclusion of a contract with a Hi-tech Park. The enterprise can deal with already existing cryptocurrencies or it can be created for the development of a completely new currency. All cryptocurrency businesses must obtain the registration that includes provision of documents concerning identity of the entity[164].

The AML act sets three types of cryptocurrency control: preliminary, current, subsequent. The preliminary control includes analyses of data of the resident. At this stage the level of risk is given that decides how often and precise further checks will be. During current control high risk operations of the resident are overviewed on the basis of preliminary control results. On the stage of subsequent control authorities analyze continuous operations that possess a suspicious nature.

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[161] ALKADRI, S. Defining and Regulating Cryptocurrency: Fake Internet Money or Legitimate Medium of Exchange? *Duke Law. & Tech*, 2018, Vol. 71

[162] CASTILLO, M. *Bitcoin Exchange Coinbase Receives New York BitLicense* [online]. Coinbase, 2017 [reviewed in 07 December 2019.]. Available at:< https://www.coindesk.com/bitcoin-exchange-coinbase-receives-bitlicense/>.

[163] *Obshie svedeniya o PVT* [online]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/topic-about_htp/>.

[164] *Polozenie o trebovaniyah k pravilam vnutrennego kontrolya rezidentov Parka visokih tehnologiy* [Legal Act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/topic-about_htp/>.

One peculiar thing about the act that control operations is that it includes not analyses of data but also educational activities. The authorities must check the novelties that anti-money laundering and bring them to residents through special trainings.

Residents obtain of three risk categories based on their country of origin, behavior and reputation. The risk category ranges from low to high. The rules drawn dawn by Belarusian law may have a similarity with other rules that evaluate the amount of risk. By far the most common practice regulates risks from law to high, however Belarusian law takes into account both cryptocurrency transactions and activities with ICO tokens what covers all risky activities can be made via blockchain technology.

The act sets extra requirements for education of executives of cryptocurrency companies. They must have a legal diploma or diploma within the field of economics. Meanwhile, Belarus authorities do not make a strong emphasis solely on education. Executives have durable qualification if they at least three years of experience within one of mentioned fields.

In total, it can be stated that Belarus pursues two objectives at the same time. It engages foreign investment and establishes its tight control over cryptocurrencies in particular. State authorities will have fewer issues with the implementation of law if it is specially designed for cryptocurrency. In such circumstances Belarusian regulation looks more benevolent for cryptocurrency business.

Summing up regulation within AML, there are several approaches. **"*Global de minimis* approach"** is a set of minimal rules provided by Financial Action Task Force that prescribes all cryptocurrency related platforms to store the information about their users and comply with AML rules. Minimal standards cover legal businesses but illegal companies still have many technical tools at their disposal that can avoid this regulation. This approach is presented by the EU and the US.

"License wall approach" is a set of rules that allows only a very limited number of already existing cryptocurrencies to conduct business activities. This approach can protect investors but has a higher demand for cyber-crime prevention specialists. Cryptocurrency criminals are international and as far as just one territory has this type of regulation the whole system of cryptocurrency trade is open for criminal activities. Example of License wall approach is New York.

"Balanced License approach". This regime is more elaborated than simple licensing because it creates both special climate for new currencies and tightens regulation for cryptocurrency businesses. It is remarkable because it has a little relation to other laws, it provides a *sue generis* rules. Balanced description is based on laws of Belarus.

3.3. Regulation of ICO

Popularity of Bitcoin encouraged other developers to present their own cryptocurrencies that are commonly referred as 'altcoins'[165]. Altcoin is other type of cryptocurrencies distinct from original Bitcoin code and based on the blockchain technology.

Before a new type of altcoin is developed creators publish white papers with the purpose to find investors. The process is called ICO (Initial Coin Offering). It may sound similar to IPO (Initial Public Offering) but in fact the two should be distinguished one from another[166].

ICO usually asks to invest other cryptocurrencies instead of real money. They use something trustworthy such as Ethereum, second most popular Virtual currency[167], or Bitcoin. In exchange ICO gives coins to its patrons. These coins will be exchanged for a certain amount of cryptocurrency or company incomes when the project will be launched. Unlike IPO, investors in ICO do not obtain the right to rule the company. They just get an advertised virtual product, if it is not an act of fraud, of course. However, regulators are working in this field and first rules concerning ICO already exist. All legislators are discussing how to fight against increased money laundering risks caused by anonymous and pseudo-anonymous financial projects, still they remain a highly risky undertaking. That is why the vast majority of Altcoins is a virtual scam made with one purpose only – to steal money of investors[168].

The bright sight of ICO is that they gave a green light to new projects such as Ethereum, Ripple, Monero, Cardano, Stellar and etc.

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[165] European Parliament. *Cryptocurrencies and blockchain*, p.29 [study] 2018 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

[166] *Similarities and differences between ICOs vs. IPOs vs. crowd funding*, p.10-13 [interactive]. [reviewed in 27 October 2019.]. Available at: < https://www2.deloitte.com/content/dam/Deloitte/de/Documents/Innovation/ICOs-the-new-IPOs.pdf >

[167] *Cryptocurrency Market Capitalizations* [data base]. [reviewed in 27 October 2019]. Available at: < https://www.barchart.com/crypto/market-capitalizations >.

[168] LIEBAU, D.; Schueffel, P. Crypto-Currencies and ICOs: Are They Scams? *SSRN Electronic Journal, 2019*.

3.3.1. Regulation of ICO in the EU

A remarkable example of soft law was presented by practice of European Securities and Markets Authority. European Securities and Markets Authority role is to work on securities regulation. It published several papers in 2017 that gives first and the only comment about ICO regulation that exist in EU today.

European Securities and Markets Authority introduces the idea ICO is already under the scope of EU regulation[169]. It claims that if virtual tokens can be qualified as financial instruments the EU law can be applied and if the technological side of new token does not allow to do so it will be completely unregulated. European Securities and Markets Authority mentions Markets in Financial Instruments Directive. Markets in Financial Instruments Directive is advised to apply to such cases as placing, dealing in or advising on financial instruments. According to Philipp Maume and Mathias Fromberger tokens can be called "transferable security" pursuant to Article 4(1)(44) MiFiD-2[170]. ICOs also have to comply with Alternative Investment Fund Managers Directive. If ICO scheme is identifiable as an alternative investment fund AIFMD will be applied.

European Securities and Markets Authority attempt to make regulation clearer has two significant drawbacks. First, it doesn't add anything new to make the sphere of ICO safer. That fact proves two extra statement that were published European Securities and Markets Authority[171] and warning published together with EBA and European Insurance and Occupational Pensions Authority[172]. They warn all investors about many dangers caused by participation in ICO. Second, statements do not have a direct implementation feature.

3.3.2. Regulation of ICO in the USA

The USA regulates ICO in a similar way that EU does. It is trying to use legal presumptions and apply already existing regulation. Decisive role here belongs to US Securities and Exchange Commission (SEC) that supervise the investment sphere[173]. It made a ruling

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[169] FinTech Action plan: For a more competitive and innovative European financial sector, *Official Journal of the EU*, COM/2018/0109 final.

[170] MAUME, P.; FROMBERGER, M. Regulation of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Laws. *Chicago Journal of International Law*:2019, Vol. 19, p.572.

[171] FinTech Action plan: For a more competitive and innovative European financial sector, *Official Journal of the EU*, COM/2018/0109 final.

[172] *ESMA, EBA and EIOPA warn consumers on the risks of Virtual* Currencies [online]. Available at:< https://eiopa.europa.eu/Publications/Other%20Documents/Virtual%20Currencies%20Warning.pdf >.

[173] *What We Do* [online]. [reviewed in 07 December 2019.]. Available at:< https://www.sec.gov/Article/whatwedo.html>.

against German company Slock.it, which operated the IPO entitled 'DAO'[174]. DAO token had similarity with two types of securities at the same time. The main question was: whether it is possible to apply the term investment contract? If the answer is positive, that means USA security laws must be applied in this case.

In order to understand whether there is an investment contract relations SEC applied the *Howey* test established by the US Supreme Court[175]. This test is comprised of four questions:

1) Is there a money investment?

2) Is there a common enterprise? Otherwise it should be called it a presence of a common goal of investors.

3) Is there a reasonable expectation of profit? Reasonable means that any average person could expect such a result.

4) Is there a profit derived from the managerial efforts of others?

The applied approach is known as "substance over form"[176]. The main idea is that the information provided is not conceived *per se*, but executives focus on the outcome of the transaction. As a result, SEC found out that all four are relevant to DAO coins. According to American law **investment of money** includes, but is not limited to currency only. In *International Brotherhood of Teamsters v. Daniel* employer's compulsory pension plan was counted as an investment because employees provided their labor in exchange for social benefits[177]. Even the time of a qualified worker can be significant unit hence cryptocurrencies that possess enough value can be investment when it comes to ICO.

Another pivotal case is in *Majors v. South Carolina Securities*[178]. In this case the Court points out that the main substance of the feature of investment is the necessity to suffer financial lose. Since ICO projects gain profits when somebody purchases ICO tokens via cryptocurrency or other tokens, the affair will be considered an investment.

In present case tokens are able to comply with the definition of investment of money because investment of other tokens is a contribution of value thus it is an investment of money. Here coins are recognized as money for the purpose of regulation. One of the main

[174] Report of Investigation Pursuant to Section 21(a) of the U.S. Securities Exchange Act of 1934: The DAO. *www.sec.gov*, 2017-07-25, No. 81207.
[175] Supreme Court of the United States. *27 May 1946. SEC v. W.J. Howey Co., No. 843.*
[176] Supreme Court of the United States. *16 June 1975. Inc. v. Forman, No. 74-157.*
[177] Supreme Court of the United States. *16 January 1979. Teamsters v. Daniel. No. 77-753.*
[178] Supreme Court of the United States. *23 April 2007. Majors v. S.C. Sec. Comm'n, No. 26317.*

issues of ICO is that the use of other cryptocurrencies for creation of new cryptocurrencies became a common practice. In order to solve it the law must preserve it same as traditional forms of investment.

Common enterprise was hard to prove due to the fact that DAO investors had little control over decisions of the entity[179]; the vast executive power over decisions was taken not by people investing in the project rather by the entity itself. DAO ICO in this case can be viewed as a building construction project. Investors in construction typically are not involved in taking decisions. They have an option to provide a required sum or stay ignorant. However, it is impossible to decline that investment in immovable property is not an investment. There is the case *Endico v. Fonte* that follows this logic where the court stated that little involvement in the process does not always mean an absence of a common enterprise[180].

It must be pointed out that the element of control is not an essential for common enterprise in the USA because ICO creators can use other models to hide from the regulation. ICO project can be based on combination of an open source model of development with anonymity of participants. This way of reasoning can be found in Continental Marketing Corp[181]. The Court ruled that if the investor: "is one of providing capital with the hopes of a favorable return then it begins to take on the appearance of an investment contract notwithstanding the fact that there may be more than one party or other than a principal party and his agent on the other end of the transaction or transactions."

Proving of **expectations of profit** can be complicated by common practice of ICO, when people purchase an ICO token at its early stages of development and purchasers of tokens cannot factually have them. They pay for the future possibility to obtain tokens when the project was launched. Because tokens incorporate features and marketing efforts that emphasized the potential for profits they can be securities under USA law[182].

What is peculiar is that the court did not specify is there a **profit derived from the managerial efforts of others** in detail. It is reasonable to presume that ICO relations inherit this feature automatically.

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[179] MENDELSON, M. From Initial Coin Offerings to Security Tokens: A U.S. Federal Securities Law Analysis, Standford Technology Law Review, 2019, Vol. 52, p. 81-82

[180] United States District Court, S.D. New York. *24 April 2007. Endico v. Fonte, No. 07 Civ. 2398(LAK).*

[181] Supreme Court of the United States. *22 November 1943. SEC v. C. M. Joiner Leasing Corp., No. 24*

[182] *Public Statement: Statement on Cryptocurrencies and Initial Coin Offerings* [online]. 2017 [reviewed in 07 December 2019.]. Available at:< https://perma.cc/GGW8-ZKZM>.

In the end it is important to point out that SEC entitled US institutions to apply American law to ICO subjects that are located outside of the US border. This seems the only possibility to control ICO, because of issues deriving from anonymity of participants. It remains unknown whether the law must be applied. Even if there is an agreement regarding application of a certain rule. That is why the most rational approach is to apply regulation in the same way it is applied to cryptocurrency. Lawmakers should put their stress on soft dots such as legal entities. They have an official registration and a certain group of people behind the project. However, the answer is not as simple when it comes to completely anonymous projects that exist only within the internet and their true identities stay unclassified. In this case ICO stays a grey area of blockchain regulation. There are two ways how to eliminate this problem. First one is technical and the second approach is legal.

3.3.3. Regulation of ICO in Belarus

In comparison with EU and USA regulation ICO regulation in Belarus makes stress on protection of consumers. It is not concerned about numbers makes stress on the quality of resident venture companies what can be observed though all requirements to ICO projects.

In order to obtain an official registration the ICO must fulfill certain requirements that include: concrete beneficiaries, information about property of beneficiaries, absence of fraudulent activities during first three years of Hi-tech park residence, share capital 500 thousand Belarusian rubbles for entities that have a purpose to develop ICO only and 2 million for those who conduct other activities and internet website[183]. In the interest of consumer protection Belarusian lawmaker establishes requirements that eliminate anonymity and make creators responsible not solely on moral basis but on financial basis. Based on these rules ICO becomes a professional commercial entity liable for its activities. The regulation can reduce many potential developers because it requires a solid financial background.

Belarusian law adds requirements to qualification of executive staff of ICO companies. The most peculiar are requirements for Chief Accountant. It demands to have higher economic education, proven knowledge of international standards, 3 years of experience as a Deputy Head of the Organization for Financial Affairs; 3 years requirement is applied to Head of Security. Experience requirements exclude from cryptocurrency markets projects

[183] *Polozenie o trebovaniyah, kotorim dolzni sootvetstvovat' otdelnie zayaviteli dlya regestracii ih v kachestve residentov Parka visokih tekhnologiy* [Legal Act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/Applicants_requirements_rus.pdf>.

that are designed solely by experienced sale managers. It seems reasonable to extend this rule for all other jurisdictions that want to establish licensing in the sphere. Unfortunately, today licensing is rare and established for the purposes of AML regulation, here is why Belarus is a good example for other legislators.

In addition, those who apply for registration of ICO are obliged to prepare a local act that will include provisions about the role and how this role must deal with risks that emerge within the sphere: volatility of the market, default on creditors, reputation risks and legal compliance risks. Moreover, creators of ICO are obliged to have software enabling to track token manipulations.

For token trading platforms the regulation obliges to have local rules such as: rules on restriction of trade, execution of obligations, use of virtual wallets.

The regulation itself does not provide a proper compliance with the law that is lawmaker entitles leading global companies to prepare reports about compliance with the regulation. This list includes four companies: PricewaterhouseCoopers, Deloitte Touche Tohmatsu, Ernst & Young, KPMG. In addition, the report can be provided by their subsidiaries or daughter companies.

It is reasonable to say that Belarusian law can be compared with a stringent licensing rules applied in the New York. There is a common defensive intention between the two systems. Both legal systems establish licensing rules that vastly limit the number of potential participants. The lawmaker makes stress on revealing of identities of cryptocurrency creators otherwise the registration and their activities are not possible. However, there are major differences. New York is concerned solely about already existing cryptocurrency companies. Belarus is engaging new projects to settle in its special economic zone. This underling is much harder because it fights against appearance of scum projects.

Concluding this chapter it is important to cover benevolent and malevolent aspects of existing ICO regulation approaches. Unfortunately, each of them has issues. Toady lawmakers did not find a perfect set of rules.

Technical approach to regulation of anonymous ICO is to trace identities of creators and apply to them a responsibility as they were a legal entity. The main disadvantage of this approach is the requirement to have both technology and people who can conduct such an operation because there are a lot of ways to hide identity with the help of different tools. In the present research this approach is adopted on the EU level and USA.

Legal restrictive approach of anonymous ICO regulation is to oblige all ICO project to register as a company and provides a corresponding package of rights and obligations. Hire requirements can prevent new remarkable projects from creation, while protect consumers from fraud full projects, solely designed by sales managers and unprofessional. Unregistered ICOs will be illegal and prosecuted in such jurisdictions. It can cause an issue where all ICO projects that want to stay anonymous will form an illegal hidden market. Meanwhile, it stays unclear how many people will risk their capital if anonymous ICO will be officially claimed an illegal activity. In this research this approach is represented by Belarus.

In conclusion of the last part it must be noted that perfect regulation of cryptocurrencies does not exist. Even if countries use an extremely restrictive regime, the possibility to avoid them still remains. Depending on the necessities of country it can choose a proper approach and at least define platforms that are safe for investors. However, total ban of cryptocurrency is unacceptable because it does not solve any issues, while provokes an illegal trade. Several jurisdictions apply strict licensing rules for professional cryptocurrency businesses. It can be the best approach, based on the information provided earlier, cryptocurrency market has a lot of products that are not accepted widely, hence licensing can prevent future frauds because the market is not interested in new products.

CONCLUSIONS

1. The number of blockchain issues can vary from sphere of application. Common issues include: 1) irreversibility of blockchain supported actions; 2) blockchain requires extra technical knowledge from users; 3) without regulation blockchain supported actions are not recognized by law; 4) anonymity of parties encourages criminal activities.

The vast majority of issues have a technical nature rather than legal. However, this list is not exhaustive when it comes to cryptocurrencies. They raise extra questions because of ambiguity of their statues and severe as a tool for criminals. Their issues are more legal then problems accruing with other types of technology implementation. In this context, issues of cryptocurrencies are covered the most in this paper.

2. One of the most vivid theoretical issues of blockchain based cryptocurrencies related to the name of the subject. Cryptocurrencies cannot be qualified as the real currencies but they have some features the real money and they are result of their evolution.

Cryptocurrency has an intention to limit monopoly of a state to print its own money. That is why some groups such as Libertarians and Cyberpunks are opposing any regulation. These ideas will not find implementation because state authorities will establish regulation in order to cover grey areas of law created by cryptocurrency oriented businesses.

The most appropriate regulation should take into account the way how cryptocurrency is used. In cases where money laundering arises or cryptocurrency is used as an investment, a separate set of rules must be applied. In addition the research provides a brief description of different cryptocurrencies that result in the necessity to take into account their features for regulative purposes. The flexible technology must receive a flexible legal regime.

3. Several distinct approaches were discovered during the research. The least appropriate is an “approach of prohibition” because it does not solve any issues and creates the foundation for illegal trade.

“Defensive approach” is characterized by intention to regulate blockchain based cryptocurrencies by preexisting rules. It has no capacity to solve all issues but limits money laundering practices. Moreover, it can help to pay taxes for cryptocurrency activities and establish due diligence requirements for transactions. The other side is criminals still have technical tools helping to avoid this regulation. However, this approach does not regulate ICO sufficiently and this area remains to be an extremely risky.

“Offensive approach” does not allow undertaking any cryptocurrency business without licensing. This approach restricts creation of new cryptocurrencies and significantly decreases the number of corresponding investments.

“Investment friendly approach” is the most elaborated. Countries supporting this approach establish a new set of laws that cover cryptocurrency associated businesses. This approach has potential to solve all possible issues that arise with cryptocurrencies. It is beneficial because it sets licensing requirements for new blockchain startups and provides guarantees for non-professional participants of relations. Stringent requirements exclude fraudulent projects from national market.

LIST OF REFERENCES

Legal acts:

1. *IRS Virtual Currency Guidance* [notice]. [reviewed in 16 December 2019.]. Available at: <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

2. Guidance (FIN-2013-G001). Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies, supra note 15, *fincen.gov*, 2013, FIN-2013-G001.

3. Code of Federal Regulations (annual edition). U.S. Government Publishing Office , 2011- 06-01, No. 33-1014, AE 2.106/3:31/

4. *FinCEN Fines Ripple Labs Inc. in First Civil Enforcement Action Against a Virtual Currency Exchanger* [release]. 2015 [reviewed in 07 December 2019.]. Available at:< https://www.fincen.gov/sites/default/files/2016-08/20150505.pdf>.

5. Report of Investigation Pursuant to Section 21(a) of the U.S. Securities Exchange Act of 1934: The DAO. *www.sec.gov*, 2017-07-25, No. 81207.

6. *Правила осуществления деятельности оператора обмена криптовалют* [legal act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/Exchanger-rus.pdf>.

7. *Положение о требованиях, которым должны соответствовать отдельные заявители для регистрации их в качестве резидентов Парка высоких технологий* [Legal Act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/Applicants_requirements_rus.pdf>.

International legal acts:

8. Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU//OJ L 156, 19.6.2018. *The Official Journal of the EU.*

9. FinTech Action plan: For a more competitive and innovative European financial sector, *Official Journal of the EU*, COM/2018/0109 final.

10. *ESMA, EBA and EIOPA warn consumers on the risks of Virtual* Currencies [online]. Available at:< https://eiopa.europa.eu/Publications/Other%20Documents/Virtual%20Currencies%20Warning.pdf>.

11. EBA Opinion on “virtual currencies”, *Official Journal*, 2014-07-04.

Special literature:

12. ARTHUR, S., SHEFFRIN, S. *Economics: Principles in action.* New Jersey: Pearson Prentice Hall, 2003.

13. ARMSTRONG M. *When Fiat was the Solution: The Panic of 1789* [Report]. [reviewed in 27 October 2019.]. Available at: < https://armstrongeconomics.files.wordpress.com/2012/01/armstrongeconomics-fiat-solution-010512.pdf>.

14. BUTHERIN, V, *A next Generation Smart Contract & Decentralized Application Platform* [White Paper]. [reviewed in 16 December 2019.]. Available at: <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

15. BROWN, E., et al. California *Legislature 2013 – 2014*. Los Angales: Legislative Bill Room, 2014.

16. DARLINGTON, J. III, *The Future of Bitcoin: Mapping the Global Adoption of World’s Largest Cryptocurrency Through Benefit Analysis*. Knoxville: University of Tennessee Honors Thesis Projects, 2014.

17. DEMEYER, M. *Blockchain technology and smart contracts from a financial law perspective:* Masther thesis. Social Sciences, Law (01S). Ghent: Ghent University, 2018*:*

18. ELIAS, S.; LEVINKIND, S. *Legal Research: How to Find & Understand The* Law, 2005. Berkeley: Nolo.

19. FILIPPI, P.; WRIGHT, A. *Blockchain and the Law: The Rule of Code.* Massachusetts: Harvard University Press, 2018.

20. HAYEK, F. *Denationalization of Money – the argument Refined.* London: The institute of Economic Affairs, 1990.

21. GOLDSMITH, J.; WU, T. *Who Controls the Internet? Illusion of a Borderless World.* Oxford: Oxford University Press, 2006.

22. MUHAMMAD, S.; JEFFREY, S.; LAURENT, N. *Exploring the Attack Surface of Blockchain: A Systematic Overview* [interactive]. [reviewed in 27 October 2019.]. Available at: < https://eprint.iacr.org/2018/1105.pdf>.

23. NAKAMOTO, S. *Bitcoin: A Peer-to-Peer Electronic Cash System*[interactive]. [reviewed in 27 October 2019.]. Available at: < https://bitcoin.org/bitcoin.pdf>.

24. ROTHBARD, M. *Man, Economy, and State with Power and Market.* Munich: Ludwig von Mises Institute, 2009.

25. The end of law is to preserve and enlarge freedom. From *The Politics Book*, London: DK, 2013, p.104-109.

Journal articles:

26. ALKADRI, S. Defining and regulating cryptocurrency: fake internet money or legitimate medium of exchange? *Duke Law. & Tech. Duke University Press*, 2018, Vol. 88, p. 71-98.

27. BEHRANG, R., et al. *Consumer Power: A Comparison of the Old Economy and the Internet Economy.* Journal of Consumer Policy, 2006, Vol. 29, p. 3-36.

28. CHAUM, D. Security without Identification : transaction systems to make big brother obsolete. From *Communications of the ACM*, 1985, Vol. 28, p.1030-1044.

29. CHOI, S.; GULATI, M. Contract as Statute. *Michigan Law Review*, 2006, Vol. 104, p. 1129-1173.

30. FULMER, N. Exploring the legal Issues of Blockchain Applications. *Akron Law Review*, 2019, Vol. 52, p. 162-187.

31. GRINBERG, R. Bitcoin: An Innovative Digital Currency. *Hastings Science & Technology Law Journal*, 2011, Vol. 4, p. 160-181.

32. GUADAMUZ, A.; MARSDEN, C. Blockchains and Bitcoin: Regulatory responses to cryptocurrencies, *First Monday*, 2015, vol. 20, p.

33. JUELS, A.; KOSBA, A.; and SHI, E. The Ring of Gyges: Investigating the Future of Criminal Smart Contracts. From *ACM SIGSAC Conference on Computer and Communications Security*. New York: ACM, 2016, p. 283-295.

34. Kaplanov, N. Nerdy Money: Bitcoin, the Private Digital Currency, and the Case Against its Regulation. *Loyola Consumer Law Review*, 2012, Vol. 25, p. 114-119.

35. KIVIAT, T. Beyond Bitcoin: Issues in Regulating Blockchain Transactions. *Duke Law Journal*, 2015, Vol. 65, p. 569-608.

36. LITWACK, S. Bitcoin, Currency or Fool's Gold?: A Comparative Analysis of the Legal Classification of Bitcoin. *Loyola Consumer Law Review*, 2014, Vol. 29, p. 309-348.

37. LOVELL, A. Avoiding Liability: Changing the Regulatory Structure of Cryptocurrencies to Better Ensure Legal Use. *Iowa Law Review*, 2019, Vol. 104, p. 928-954.

38. LIEBAU, D.; Schueffel, P. Crypto-Currencies and ICOs: Are They Scams? *SSRN Electronic Journal, 2019*.

39. MEIKLEJOHN, S.; et al. A Fistful of Bitcoins: Charactirizing Payments among Men with No Names. From *Proceedings of the 2013 conference on Internet measurement conference*, 2013, p.127-140.

40. MAUME, M.; FROMBERGER, M. Regulation of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Laws, From *Chicago Journal of International Law*, 2019, p. 550.

41. MELTZER, P. Keeping Drug Money from Reaching the Wash Cycle: A Guide to the Bank Secrecy Act. *Banking Law Journal*, 1991, Vol. 108(3), p. 230-255.

42. MENDELSON, M. From Initial Coin Offerengs to Security Tokens: A U.S. Federal Securities Law Analysis, Standford Technology Law Review, 2019, Vol. 52, p. 81-82

43. SCHROEDER, J. Bitcoin and the Uniform Commercial Code. *University of Miami Business Law Review*, 2015, Vol. 24, p. 1-79.

44. TRAINTIS, G. The Efficiency of Vague Contract Terms: A response to the Schwartz-Scott Theory of
45. U.C.C. Article 2. *Louisiana Law Review*, 2002, Vol. 62, p. 1065-1079.

46. WERBACH, K.; CORNELL, N. Contracts Ex Machina. *Duke Law Journal*, 2017, Vol. 67, p. 102-169.

47. ZITTRAIN, J. Internet Points of Control, *Boston College Law Review*, 2003, Vol. 44, p. 653-688.

International reports and studies:

48. European Central Bank. *Virtual Currency Schemes* [Report]. 2012 [reviewed in 27 October 2019.]. Available at: < https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.

49. European Parliament. *Cryptocurrencies and blockchain* [study]. 2018 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

50. European Parliament. *Virtual currency schemes – a further analysis*[study]. 2015 [reviewed in 27 October 2019.]. Available at:<http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

51. Elizabeth P., et al. *New York Department of Financial Services Issues Amended Cybersecurity Regulations Affecting Financial Institutions, Insurers and Other Covered Entities* [online]. 2017 [reviewed in 07 December 2019.]. Available at:<https://www.willkie.com/~/media/Files/Publications/2017/01/New_York_Department_of_Financial_Services_Issues_Amended_Cybersecurity_Regulations.pdf>.

52. *Guidance for risk-based approach, Virtual currencies, FATF* [Report]. 2015 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Guidance-RBA-Virtual-Currencies.pdf>.

53. HOUBEN, R.; SNYERS, A. European Parliament. *Cryptocurrencies and blockchain* [study]. 2018, p.19 [reviewed in 27 October 2019.]. Available at:http://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>.

54. *Virtual Currencies Key Definitions and Potential AML/CFT Risks* [Report]. 2014 [reviewed in 07 December 2019.]. Available at:< https://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf>.

Court judgments:

55. European Court of Justice. 22 October 2015. Decision *Skatteverket v David Hedqvis Case C-403/03*, EU: C:2015:718.

56. Supreme Court of the United States. *27 May 1946. SEC v. W.J. Howey Co., No. 843.*

57. Supreme Court of the United States. *16 June 1975. Inc. v. Forman, No. 74-157.*

58. Supreme Court of the United States. *16 January 1979. Teamsters v. Daniel. No. 77-753.*

59. Supreme Court of the United States. *23 April 2007. Majors v. S.C. Sec. Comm'n, No. 26317.*

60. Supreme Court of the United States. *22 November 1943. SEC v. C. M. Joiner Leasing Corp., No. 24*

61. United States Court of Appeals for the Ninth Circuit. 2001. A&M Records, Inc. v. Napster, Inc.

62. Circuit Court of the Eleventh Judicial Circuit in and for Miami-Dade Country, Florida. *22 July 2016. Order Granting Defendant's Motion to Dismiss the Information, State v. Espinoza, No. F14–2923, at 7 (Fla. Cir. Ct. dismissed July 22, 2016).*

63. United States District Court, S.D. New York. *24 April 2007. Endico v. Fonte, No. 07 Civ. 2398(LAK).*

64. United States District Court. Eastern Destrict of Texas Sherman Division. *31 January 2014. civil case UAB „ The United States Securities and Exchange Commission" v. Shavers, No. 4:13-CV-416, 2014 WL 4652121, at 1-2.*

65. Верховный Суд Российской Федерации. 7 July 2015. *Постановление Пленума Верховного Суда Российской Федерации от 7 июля 2015 года N 32 "О судебной практике по делам о легализации (отмывании) денежных средств или иного имущества, приобретенных преступным путем, и о приобретении или сбыте имущества, заведомо добытого преступным путем". N 1.*

Other sources:

66. *About us* [online]. [reviewed in 07 December 2019.]. Available at:< https://www.gov.uk/government/organisations/hm-revenue-customs/about#responsibilities>.

67. An introduction to the FATF and its work [brochure]. 2010 [reviewed in 07 December 2019.]. Available at:<https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/Introduction%20to%20the%20FATF.pdf >.

68. ABDULAH, A. *Stabilising fractional reserve banking* [interactive]. [reviewed in 27 October 2019.]. Available at:< https://www.academia.edu/35859512/Stabilising_fractional_reserve_banking >.

69. ALEXANDER, S.; SCOTT, T. *How Bitcoin Will Bring About a Legal Practice Revolution*[online]. 2014 [reviewed in 16 December 2019.]. Available at: <http://www.trippscott.com/newsroom/6-how-bitcoin-will-bring-about-a-legal-practice-revolution>.

70. ATHANASSIOU, P. *Impact of digital innovation on the processing of electronic payments and contracting*: *an overview of legal risks.* [interactive]. 2017 [reviewed in 27 October 2019.]. Available at:< https://www.ecb.europa.eu/pub/pdf/scplps/ecb.lwp16.en.pdf?344b9327fec917bd7a8fd70864a94f6e >.

71. *Anti-money laundering: MEPs vote to shed light on the true owners of companies* [online]. European Parliament Press Releases, 2018 [reviewed in 07 December 2019.]. Available at:< http://www.europarl.europa.eu/news/en/press-room/20180411IPR01527/anti-money-laundering-meps-vote-to-shed-light-on-the-true-owners-of-companies.>.

72. BURN-CALLANDER, R. *The history of money: from barter to Bitcoin* [journal]. [reviewed in 27 October 2019.]. Available at:

<https://www.telegraph.co.uk/finance/businessclub/money/11174013/The-history-of-money-from-barter-to-bitcoin.html >.

73. BULLARD, J. *The Economic Lowdown Podcast Series*. [lecture]. [reviewed in 27 October 2019.]. Available at:< http://www.stlouisfed.org/education_resources/economic-lowdown-podcast-series/functions-of-money/>.

74. *Cryptocurrency Market Capitalizations* [data base]. [reviewed in 27 October 2019]. Available at: < https://www.barchart.com/crypto/market-capitalizations>.

75. BARRON, B. *Embattled Bitcoin Dealer Can't Deny It Is Currency* [online]. Courthouse News Service, 2013 [reviewed in 07 December 2019.]. Available at:< http://www.courthousenews.com/2013 /08/06/60044.htm>.

76. BOVSIRD, C. *Bitcoin Trades Sideways as Investors Look to China, Forbes* [online]. 2017 [reviewed in 07 December 2019.]. Available at:< https://www.forbes.com/sites/cbovaird/2017/09/24/bitcoin-trades-sideways-as-investors-look-to-china.>.

77. *Choose Your Bitcoin Wallet, Bitcoin Project* [online]. [reviewed in 16 December 2019.]. Available at: <https://www.telegraph.co.uk/finance/businessclub/money/11174013/The-history-of-money-from-barter-to-bitcoin.html>.

78. CLINCH, M. *Bitcoin recognized by Germany as "private money* [Policy paper]. 2013 [reviewed in 07 December 2019.]. Available at:< http://www.cnbc.com/id/100971898>.

79. COHEN, B. *California Bill to Legalize Bitcoin* [online]. Bitcoin Magazine, 2014 [reviewed in 07 December 2019.]. Available at:< https://bitcoinmagazine.com/articles/california-bill-legalize-bitcoin-1392336284 >.

80. COULTER, J. *Beware of the baneful Bitcoin bug* [online]. 2013 [reviewed in 07 December 2019.]. Available at:< http://usa.chinadaily.com.cn/epaper/2013-11/29/content_17140806.htm>.

81. CASTILLO, M. *Bitcoin Exchange Coinbase Receives New York BitLicense* [online]. Coinbase, 2017 [reviewed in 07 December 2019.]. Available at:< https://www.coindesk.com/bitcoin-exchange-coinbase-receives-bitlicense/>.

82. *Similarities and differences between ICOs vs. IPOs vs. crowd funding*, p.10-13 [interactive]. [reviewed in 27 October 2019.]. Available at: < https://www2.deloitte.com/content/dam/Deloitte/de/Documents/Innovation/ICOs-the-new-IPOs.pdf >

83. *Cryptocurrency Market Capitalizations* [data base]. [reviewed in 27 October 2019]. Available at: < https://www.barchart.com/crypto/market-capitalizations >.

84. *Distributed Ledger Technology (DLT) and Blockchain* [online]. [reviewed in 27 October 2019.]. Available at: < https://eprint.iacr.org/2018/1105.pdf>.

85. DEWEY, J. Blockchain & Cryptocurrency Regulation [study]. 2018 [reviewed in 07 December 2019.]. Available at:< https://www.acc.com/sites/default/files/resources/vl/membersonly/Article/1489775_1.pdf>.

86. *European countries join Blockchain Partnership* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< https://ec.europa.eu/digital-single-market/en/news/european-countries-join-blockchain-partnership >.

87. *G20 Summit*[online]. [reviewed in 27 October 2019.]. Available at: < https://ec.europa.eu/newsroom/fisma/item-detail.cfm?item_id=656330&utm_source=fisma_newsroom&utm_medium=Website&utm_campaign=fisma&utm_content=G%20Summit%20&lang=en>.

88. GANESH C., ORLANDI C., TSCHUDI D. *Proof-of-Stake Protocols for Privacy-Aware* Blockchains [interactive]. [reviewed in 27 October 2019.]. Available at: < https://eprint.iacr.org/2018/1105.pdf>.

89. *Global $850+ Billion Cryptocurrency Market to 2024: Growing Usage of Cryptocurrency in Trading, Remittance and Payment* [online]. 2019 [reviewed in 07 December 2019.]. Available at:< https://www.prnewswire.com/news-releases/global-850-billion-cryptocurrency-market-to-2024-growing-usage-of-cryptocurrency-in-trading-remittance-and-payment-300910798.html>.

90. HUANG, Z. *A company that sold 300,000 bitcoin mining rigs last year is seeking the largest crypto IPO ever* [online]. QUARTZ, 2018 [reviewed in 07 December 2019.]. Available at:< https://qz.com/1279152/chinese-bitcoin-mining-equipment-maker-canaan-creative-is-seeking-to-raise-up-to-1-billion-in-a-hong-kong-ipo/>.

91. KUMMER, S.; PAULETTO, C. *The History of Derivatives: A Few Milestones* [lecture]. 2012 [reviewed in 16 December 2019.]. Available at: <https://www.coindesk.com/dark-markets-grow-bigger-bolder-year-since-silk-road-bust>.

92. *Libertarianism* [encyclopedia]. [reviewed in 27 October 2019]. Available at: < https://www.britannica.com/topic/libertarianism-politics/Historical-origins>.

93. MILLER, B, *Smart Contracts and the Role of Lawyers (Part 3) - About Lawyering Transactions on Blockchains* [online]. [reviewed in 16 December 2019.]. Available at: <http://biglawkm.com/2016/10/25/smartcontracts-and-the-role-of-lawyers-part-3-about-lawyering-transactions-on-blockchains/ [https://perm a.cc/FCV5-SG8P>.

94. POPPER, N.; GATES, G.; ALMUKHTAR, S. *Will Cash Desappear?* New York Times [journal]. [reviewed in 27 October 2019]. Available at: <

https://www.nytimes.com/interactive/2017/11/14/business/dealbook/cashless-economy.html > .

95. *Protect Your Privacy, Bitcoin* [online]. [reviewed in 16 December 2019.]. Available at: <https://bitcoin.org/en/protect-your-privacy>.

96. *Revenue and Customs Brief 9* [Policy paper]. 2014 [reviewed in 07 December 2019.]. Available at:<https://www.gov.uk/government/publications/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies >.

97. *Public Statement: Statement on Cryptocurrencies and Initial Coin Offerings* [online]. 2017 [reviewed in 07 December 2019.]. Available at:< https://perma.cc/GGW8-ZKZM>.

98. RAMASATRY, A. *Is Bitcoin Money? Lawmakers, Regulators and Judges Don't Agree, Verdict* [online]. 2014 [reviewed in 07 December 2019.]. Available at:< https://verdict.justia.com/2014/09/09/bitcoin-money>.

99. SZE, A. *Functions and Characteristics of Money*.[essay]. 2017 [reviewed in 27 October 2019.]. Available at:< https://www.ukessays.com/essays/economics/functions-characteristics-money-6335.php>.

100. SVENSSON, T.; WIKSTROM, C. *Lending and Taking Security in Sweden: Overview, practical law* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< http://us.practicallaw.com/5-511-8148>.

101. *The Agency, its Mission and Statutory Authority* [online]. 2019 [reviewed in 16 December 2019.]. Available at: < https://www.irs.gov/about-irs/the-agency-its-mission-and-statutory-authority>.

102. TENNAT L. *Improving the Anonymity of the IOTA Cryptocurrency* [interactive]. [reviewed in 27 October 2019.]. Available at:<https://assets.ctfassets.net/r1dr6vzfxhev/6StLLAy9b26eyUG8SGQqeu/e30c20f91e77e54d88b7644658912c7d/Improving_the_Anonymity_of_the_IOTA_Cryptocurrency.pdf>.

103. *V Belarusi polnostiyu uregulirovali kriptu.* [online]. 2018 [reviewed in 07 December 2019.]. Available at:< https://dev.by/news/crypto-in-belarus?fbclid=IwAR1FCmA8L9GoG8f0o-orbWBgvpbrDGm1LEToEAccl_ogLWWZ3r6RJi72rjc>.

104. *Who Accepts Bitcoin as Payment?* [interactive]. [reviewed in 27 October 2019.]. Available at: < https://99bitcoins.com/bitcoin/who-accepts/>.

105. *Who we are* [online]. [reviewed in 07 December 2019.]. Available at:< http://www.fatf-gafi.org/about/ >.

106. *What We Do* [online]. [reviewed in 07 December 2019.]. Available at:< https://www.fincen.gov/what-we-do/>.

107. *What We Do* [online]. [reviewed in 07 December 2019.]. Available at:< https://www.sec.gov/Article/whatwedo.html>.

108. YAKUBOWSKI, M. *Europe Takes Serious Steps Toward Blockchain Adoption* [online]. Cointelegraph, 2018 [reviewed in 07 December 2019.]. Available at:< https://cointelegraph.com/news/europe-takes-serious-steps-towards-blockchain-adoption>.

109. *Общие сведения о ПВТ* [online]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/topic-about_htp/>.

110. *Положение о требованиях к правилам внутреннего контроля резидентов Парка высоких технологий* [legal act]. [reviewed in 07 December 2019.]. Available at:< http://www.park.by/content/docs/Regulations-on-Crypto/AML-rus.pdf>.

SUMMARY

Blockchain is a paramount invention that challenges the law. The master thesis attempts to determine vulnerable areas of law and comes to the conclusion that blockchain issues within financial area are vastly limited to limitations of the code. However, this is not valid for blockchain based cryptocurrencies. That is why two parts of the research are focusing on theoretical and practical legal issues of cryptocurrency regulation. The research goes through a brief history of money and provides a theoretical basis for cryptocurrency regulation. Despite the fact that some groups are opposing regulation, it will continue growing with the growth of significance of the market. Than the research provides a critical analyzes of existing regulation. For the purpose of the research three different legal systems were chosen to define approaches of regulation. These systems are: the EU, the USA and Belarus. Other countries were also presented. The EU and the USA have a multiple legal systems, that resulted in different solutions to regulation of the same subjects. As a result of observation four approaches were formed, none of which is absolute. The most sophisticated and beneficial approach is to create a separate set of rules that will cover all cryptocurrency businesses. This approach was called “investment friendly approach”. The “defensive approach” and “offensive approach” are better then total prohibition of cryptocurrencies, which is the last approach. However they satisfy interests of all participants of relations and high skill rudiments for cryptocurrency users. There are still place for frauds and manipulation that can be avoided by “investment friendly approach”.