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## THE FORMATION OF THE CRYPTOCURRENCY MARKET IN THE REPUBLIC OF KAZAKHSTAN: OPPORTUNITIES AND THREATS FROM THE POINT OF VIEW OF ECONOMIC SECURITY

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### Abstract

The study of cryptocurrency as an economic tool has been the focus of attention of states and the international community over the past ten years. Many economists and government officials are very skeptical about the use of cryptocurrency by business entities. Using the anonymity of transactions carried out via the Internet the criminal world, on the contrary, conduct illegal transactions, for example, engage in money laundering, finance terrorism and extremism, promote the development of marketing channels for drugs and psychotropic substances.

This kind of research is one of the first for the Republic of Kazakhstan. In this research, the authors tried to identify the potential opportunities and threats to the development of the cryptocurrency market in the context of combating money laundering and the financing of terrorism. Based on the analysis of international practices in the field of cryptocurrency market regulation, as well as the expert interviewing conducted by the authors, 2 main problems of cryptocurrency market development in Kazakhstan are identified. Firstly, the security problems of using cryptocurrency in the context of technical support, secondly, the lack of regulatory infrastructure for the development of the crypto currency market in the Republic of Kazakhstan.

Finally, the authors come to the conclusion that the Republic of Kazakhstan is currently not ready to develop the cryptocurrency market, since there are a number of organizational and legal issues. Nevertheless, the authors are convinced that Kazakhstan should be part of the global crypto market and should be actively involved in the development, implementation and regulation of the cryptocurrency market

**Keywords:** Cryptocurrency, cybercrime, money laundering, cybersecurity, National Bank

**JEL Classification:** G23, O17, Q38

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### Introduction

The implementation and use of cryptocurrencies which is sometimes called virtual currencies, in the Republic of Kazakhstan is at the revival stage. This relates to the lack of institutional framework, legal support, insufficient human resources, as well as technical and financial capabilities, which slow down the process of large-scale discussion and implementation of cryptocurrencies in the Republic of Kazakhstan.

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However, the above circumstances can be an impetus for the development of the cryptocurrency market in the Republic of Kazakhstan (Kazakhstan). Firstly, the globalization of economic markets implies the creation of competitive advantages in all sectors of the economy, secondly, over the past quarter century, the world community, including Kazakhstan, is shaking one after another by the consequences of financial crises, which increase a mistrust of financial institutions, international and national currencies. As a result, society is forced to seek an alternative to real money. In this regard, the active development and discussion of cryptocurrency is becoming popular among business entities in many countries around the world.

In the meantime, the question arises: what tool will the cryptocurrency be used for? Will it be a means of payment or an asset? Jin Shin notes in his research (Jin Shin, 2017) that 54,2% of the working-age population invested in cryptocurrency in order to increase their well-being. In Germany, digital currency (Bitcoin) is positioned as an independent asset (Stiegler, Singer, Wiesener, 2018). According to Cvetkova (Cvetkova, 2018), a cryptocurrency may become part of a market economy in the future. Meanwhile, the Bank for International Settlements published the Report of the Committee on Payments and Market Infrastructure (2015), which states that “digital currency” is used by individuals as payment for committing illegal actions. This, in turn, causes concern from law enforcement agencies and financial intelligence units, since the requirements of laws on anti-money laundering and combating the financing of terrorism are not met.

### **Literature review**

For the first time in history, digital currencies appeared in the late 1980s. The idea was to optimize the mode of operation of gas stations and truckers at night. Thus, in the Netherlands, the idea of introducing digital currencies in the service sector, gas stations and its customers. According to scientists, the use of cryptocurrency as a means of payment solved in parallel the problems of theft, robbery and murder at night (Biscontini, 2017, Lansky, 2018).

Innovations in any field of activity are associated with certain risks, the risks of implementation, use, acceptance / non-acceptance by society, and the emergence of cryptocurrencies as a separate object of study is not an exception. For example, Nicholas Weaver (Weaver, 2018, p. 20) highlighted four main risks associated with cryptocurrencies in the following areas: technical, economic, social, and also systemic risks for a cryptocurrency ecosystem. At the same time, he notes that “If the cryptocurrency succeeds, we can expect a significant increase in criminal throughput” (Weaver N., 2018, p. 24).

According to research (Genkin D., Papadopoulos D. & Papamantou C. 2018, p. 88), increasing user privacy can cause problems such as user involvement in the illegal activities of various cryptographic ransomware. These actions, in turn, may lead to a tightening of state regulation of cryptocurrency transactions.

On the one hand, the emergence of cryptocurrency, as a result of scientific and technological progress, implies a reduction in transaction costs of economic entities, an increase in cashless payments, and finally, comfort and customer-oriented population. On the other hand, the use of cryptocurrency or virtual currency in the financial system entails certain risks of fraud, cybercrime, money laundering and the financing of terrorism.

The founding institution prescribing international standards in the field of Anti-Money Laundering and Combating the Financing of Terrorism - FATF, is concerned with the problems of crimes and cybercrime caused by the use of virtual currencies. The FATF believes that it is necessary to regulate the cryptocurrency market, in terms of compliance with the law in the field of Anti-Money Laundering and Combating the Financing of

Terrorism. In this regards, the FATF published two reports on virtual currencies of 2014\* and 2015†. The 2014 FATF report points out possible risks in the field of Anti-Money Laundering and Combating the Financing of Terrorism (AML / CFT). Bitcoin addresses, which are a kind of accounts, do not contain the names and surnames of clients. When conducting the transactions in decentralized systems, there is no need to carry out customer due diligence measures. The greatest vulnerability is the possibility of participants in decentralized systems to carry out transactions with countries included in the FATF blacklist.

Batoyev and Semenchuk note the frequent cases of using the cryptocurrency market in fraudulent schemes (Batoyev, Semenchuk, 2017). According to the authors, the strength of the cryptocurrency for the underworld is the speed and anonymity of the transactions. This is also a weak point and a threat to law enforcement agencies conducting investigations of money laundering and terrorist financing crimes.

Thus, the sphere of influence and the scale of use of transactions with virtual currencies / cryptocurrencies are irreversible. Governments, central banks of the states and FATF are unanimous about the need to cover the sphere of cryptocurrency, due to the growing threat of money laundering and terrorist financing. In its Report to the G20 finance ministers and central bank governors (2018), the FATF confirmed its readiness and commitment to AML / CFT policy and the extension of this regime to the areas of activity related to virtual currencies. A decision was made on the need to make changes to the FATF standards and to regulate the sphere of virtual currencies by the states of the world.

#### **Regulation of cryptocurrencies in different states**

While the FATF and G20 platforms are making statements about the need to regulate the scope of cryptocurrencies and the possibility of extending the AML / CFT regime, some states have already begun to take action. As shown in Table No. 1 “Overview of the states taking measures to extend the AML / CFT regime to virtual currency transactions”, the amendments to the Basic Laws on combating money laundering have been adopted at the legislative level in Canada, Hong Kong and Switzerland. Central banks of China, France, Italy, Russia, and the Republic of South Africa issued recommendation letters for financial organizations on the need to comply with the requirements of the AML / CFT Law and to send suspicious transactions reports to the financial intelligence unit. In Singapore, it is expected to make changes to the legislation, which provides for the intermediaries on the sale and exchange of virtual currencies for fiat to be obliged to carry out customer due diligence measures.

**Table No. 1 “Overview of the states taking measures to extend the AML / CFT regime to virtual currency transactions”**

State	Regulatory measures
Canada	2014. Amendments to the Anti-Money Laundering and Combating the Financing of Terrorism (AML / CFT) legislation.
Hong Kong	Amendments to the AML / CFT legislation
Singapore	Draft amendments to the AML / CFT legislation
Switzerland	2014. Political statement that the requirements of the Anti-Money Laundering and Combating the Financing of Terrorism Act are extended to individuals engaged in commerce and virtual currency was adopted.
Great Britain	Since 2014, comprehensive work is underway to identify the zones of threats and vulnerabilities in the state.

\* FATF report Virtual Currencies Key Definitions and Potential AML/CFT Risks

† Guidance for risk-based approach virtual currencies

USA	2011. Amendments were made to the Law on Banking Activities and the concept of “money transfer services” was expanded
China	2013. At the level of recommendation letters for financial institutions
France	2014. At the level of explanatory activities, two reports were issued.
Italy	2015. At the level of recommendation letters for financial institutions
Russia	2014. At the level of recommendation letters for financial institutions
South Africa	At the level of recommendation letters for financial institutions

Note. Compiled by the authors based on the FATF Guidelines for the Application of Risk-Based Approach.

### **The concept of cryptocurrency**

#### **What is a cryptocurrency market?**

The cryptocurrency market is a virtual platform where the purchase, sale and exchange of cryptocurrency or virtual currency is carried out. In their studies conducted for the period from 2013 to 2017 (ElBahrawy, Alessandretti, Kandler, Pastor-Satorras, Baronchelli, 2017) note that the cryptocurrency market was formed gradually. Firstly, there was a Bitcoin, then other types of currencies began to appear, some of which are bitcoin clones themselves. In 2017, there were more than 1,500 types of currency types in the cryptocurrency market, but more than 1/3 of these currencies are actively in demand and supply. Scientists note that the total number of users reached 6 million users with a total market capitalization for May 2017 of about 91 billion US dollars.

#### **On measures taken by Kazakhstan to regulate cryptocurrency**

The issues of possible regulation of the cryptocurrency market in Kazakhstan have been discussed for the past 5 years. Thus, the National Bank of Kazakhstan believes that a detailed research of international experience is necessary and there is no need to be hurry with the development of the draft law. At the same time, the National Bank conducts an active preventive policy and issued two recommendation letters for financial organizations. The first is that the National Bank warns the population about the risks in cooperation with companies that use cryptocurrency as an investment (2017). According to the second letter the financial regulator prohibits financial institutions of the state to carry out illegal transactions, which include cryptocurrency transactions (2018).

According to experts' assessments, the Kazakhstani cryptocurrency market is approximately \$ 20-25 million (Butin, 2017), which is 0.015% of Kazakhstan's GDP. According to official data of the National Bank of Kazakhstan, the money supply (M3) in 2017 is 19,456.0 billion tenge, the share of cash (M0) in the total share of money supply is 10%. The estimated share of cryptocurrency in the total volume of M3 and M0 will be 0.04% and 0.42%, respectively. The market share of cryptocurrency in Kazakhstan is not significant, it is occupying only 0.04% of the total share of M3, thereby not representing a real threat to the financial sector and economy. Nevertheless, a number of questions arise that require reflection and scientific research. What are the threats and opportunities in Kazakhstan for the development of the cryptocurrency market? How can the legal field be constructed to regulate cryptocurrency? Answers to these and other questions are relevant not only for Kazakhstan, but also for many states of the world.

In Kazakhstan, there is no concept of “cryptocurrency” or “virtual currency” at the legislative level. To make a decision on the introduction of regulation of cryptocurrency by the state, it is necessary to determine its purpose. Will it be an independent asset like in Germany, or a currency like in Sweden or USA? There is no state authority responsible for regulating and controlling cryptocurrency transactions in the country.

Despite this, private electronic currency is being created in Kazakhstan, which will operate on the territory of the Astana International Financial Center (Financial Center). In

accordance with the Rules for the operation of financial services on the territory of the Financial Center there will be an exchange where the purchase, sale and exchange of private electronic currencies for fiat money or another private electronic currency will take place.

In order to comply with FATF international standards and prevent illegal transactions with virtual currencies, the Financial Center and state agencies are developing a draft Law “On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Digital Regulation” (hereinafter - the Draft Law). According to the Draft Law, it is proposed to define the term “private electronic currency” or (private electronic money). At the same time, private electronic currency will be used exclusively between individuals and organizations registered as members of the Financial Center.

In addition, there is a joint order between the Financial Center and the Ministry of Finance, which states that all participants of the Financial Center must comply with national AML / CFT legislation, and the financial intelligence unit must conduct awareness-raising activities among the participants of the Financial Center. However, the participants of the Center de facto are not subjects of financial monitoring to which the requirements of the AML / CFT legislation would apply.

In Kazakhstan, attempts are being made to regulate the sphere of cryptocurrency, but this process is fragmented and applicable to a separate category of subjects within the same location.

#### **Vulnerabilities of the Kazakhstan market from the point of view of cybersecurity**

Kazakhstan is one of the most vulnerable countries in the field of cybersecurity in cyberspace. The basis for such conclusions is the national cyber security index of 2018 (National Cyber Security Index 2018), where Kazakhstan took the 84th position out of 100. Thus, Kazakhstan is ahead only of Tajikistan and Turkmenistan, and is inferior to Estonia, Lithuania, Latvia, Georgia, Russia, Ukraine, Belarus, Moldova, and Uzbekistan (Rikk, 2018). This indicator shows that Kazakhstan needs to take appropriate measures to increase the level of cyber security in the state.

In addition, approximately 90% of offenses in Kazakhstan occur under part two of Article 190 of the Criminal Code, “fraud committed by deception or abuse of the trust of an information system user”, as well as article 188 of the Criminal Code of the Republic of Kazakhstan, “theft committed by unlawful access to information system or changes in information transmitted over telecommunications networks” (2018).

In October 2018, the Resolution of the Board of the National Bank of Kazastan approved the Cybersecurity Strategy of the Financial Sector of the Republic of Kazakhstan for 2018-2022 (2018). This document was developed in order to effectively ensure cybersecurity in the financial sector of the Republic of Kazakhstan, and it was focuses on the cybersecurity of information exchange between participants in the financial sector.

Thus, taking into account the current situation in Kazakhstan’s cyberspace in the field of security, it is hard to imagine the development of a crypto currency in the near future.

#### **Research Methodology**

The purpose of this research is to: determine the degree of regulation of cryptocurrency in various jurisdictions in order to comply with the FATF International Standards and identify regulatory problems in Kazakhstan.

In conducting this research, the authors carried out a literature review indicating that the development of cryptocurrency in the state should be viewed from two perspectives: cryptocurrency is a financial asset that increases future wealth, and cryptocurrency is a threat to the state's economy caused by its use for criminal purposes.

The second research method was expert interviewing. The interview was attended by experts in the field of economics and finance, representatives of state and special bodies, as

well as independent experts in the field of combating money laundering and terrorist financing. The total number of respondents was 10 people. Expert interviews and questionnaires were conducted for 2 months from February to March 2019 directly with each respondent. During the interview, it was revealed that none of the 10 respondents did not use cryptocurrency in the course of their activities, explaining that the transactions with cryptocurrency are illegal in the territory of the Republic of Kazakhstan.

### **Results and discussions**

Below are summarized interview results:

So, R. 1 notes that "...we cannot ignore many changes - this is market demand. However, it should be noted that for Kazakhstan, first of all, it is necessary to raise the level of cyber security. In order to promote cryptocurrency, Kazakhstan must have a prepared regulatory and technical, managerial and organizational base and only after that think about the introduction and development of cryptocurrency in the country".

Representatives of special and law enforcement bodies adhere to the absolutely opposite opinion.

R. 2 "The cryptocurrency market is actively developing in Kazakhstan, especially in Almaty and Astana, which is primarily due to the fact that Almaty is historically considered as the financial center of Kazakhstan and Astana, since it is the capital of our country, where active and young people are willing to develop and adopt the latest innovations in any field of activity. However, despite a certain prevalence of the cryptocurrency market, there is no crypto-exchange in Kazakhstan. Existing crypto exchangers provide their services via such messengers and applications as Telegramm, olx.kz".

R. 3 believes that "...the development of the cryptocurrency market should be accompanied by state regulation. From an economic point of view, it is advisable for the state to see the dynamics of development of this market, especially in terms of its influence on the total money supply. Moreover, speaking of the cryptocurrency market development in Kazakhstan, it is necessary first of all to provide the necessary number of professional personnel able to understand, promote and, if necessary, take into account possible risks and threats entailing transactions with cryptocurrency".

R. 4 and 5 are convinced that "...the cryptocurrency market is unequivocally necessary to be developed in Kazakhstan. But for this you should create the following. Firstly, to create the Blockchain Institute with good powers, good funding, with the assistance of the best international experts to develop strategic approaches for the actions of state bodies, the development of regulatory documents and vectors of technological development. Today there is no platform in Kazakhstan that could unite experts, scientists involved in the research of blockchain and cryptocurrency issues".

R. 6 believes that "...there are big risks of involving the young population aged 20 to 25 in the cryptoindustry and using them to commit fraudulent transactions, taking advantage of their illiteracy in the field of cryptocurrency".

Meanwhile, R. 7 and 8, are convinced that "The cryptocurrency market must develop in Kazakhstan and there must be appropriate regulation by the states. At the same time, control and supervision in the field of cryptocurrency should not be carried out by one state agency. An integrated approach is needed, i.e. one state body is responsible for accounting and control of participants in the cryptographic market, the second state body provides the technical infrastructure, the third state body provides human resources ...".

Summarizing the results of interviewing, we believe that today Kazakhstan is not ready for an adequate formation of a cryptocurrency market in the country.

### Conclusions and recommendations

The processes that occur in the world are already irreversible because of the achievements of high technology. The real reasoning about the need or absence of the need to regulate the cryptocurrency market in terms of ensuring compliance with FATF standards is a temporary process.

State regulation of cryptocurrency is a political decision, while the technical, financial and organizational part is the components. We believe that a low cybersecurity index in Kazakhstan's cyberspace suggests a high probability of hacker attacks, as well as cyber-attacks related to money laundering and terrorist financing.

The recommendations of this research will be:

1. Definition of the concept of "cryptocurrency" or "virtual currency" at the legislative level with the research of the issue of its security.
2. The National Bank, in conjunction with other state bodies, should determine the area of responsibility of each state body. International experience and the results of expert interviewing shows that the integrated approach in the field of regulation and supervision of transactions with cryptocurrency is required.
3. State bodies should conduct active explanatory work among the population using the opportunities of social networks about the possible risks of performing fraudulent transactions using cryptocurrency.
4. At the same time it is necessary to attract foreign experts in the field of cybersecurity to train highly qualified specialists of Kazakhstan.

The authors do not exclude that this research may be a prerequisite for further research, study and analysis of the cryptocurrency market in Kazakhstan.

### References

- Batoev V., Semenchuk V. 2017, «The use of cryptocurrency in criminal activity: the problem of countering» Proceedings of the Academy of Management of the Ministry of Internal Affairs of Russia 2 (42). – P.9-15 [online] Available at: <<https://cyberleninka.ru/article/n/ispolzovanie-kriptoalyuty-v-prestupnoy-deyatelnosti-problemy-protivodeystviya>>, [Accessed 12 December 2018].
- Biscontin T. Lansky, Cryptocurrency. Salem Press Encyclopedia of Science. 2017. [online] Available at: <<https://ezproxy.nu.edu.kz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=125600117&site=eds-live&scope=site>>, [Accessed 21 January 2019].
- Butin E. Why in Kazakhstan create the Blockchain Association and cryptocurrencies. 2017. Available at: <<https://kapital.kz/finance/64610/zachem-v-rk-sozdayut-associaciyu-blokchejna-i-kriptoalyut.html>> [Accessed 21 November 2018].
- Cvetkova, 2018. Cryptocurrencies legal regulation, «BRICS LAW JOURNAL», VolumeV(2018) Issue 2 [online] Available at: <<https://www.bricslawjournal.com/jour/article/view/156/118>>, [Accessed 5 January 2019].
- A. ElBahrawy , L. Alessandretti , A. Kandler , R. Pastor-Satorras and A. Baronchelli 2017. «Evolutionary dynamics of the cryptocurrency market», Royal Society Open Science 4(10). P.2. Available at: <https://royalsocietypublishing.org/doi/pdf/10.1098/rsos.170623>, [Accessed 9 March 2019].
- FATF Report to the G20 Finance Ministers and Central Bank Governors. 2018. Available at: <[http://www.fatf-gafi.org/media/fatf/documents/FATF-G20%20FM%20\\_CBG.pdf](http://www.fatf-gafi.org/media/fatf/documents/FATF-G20%20FM%20_CBG.pdf)>, [Accessed 1 March 2019].
- Genkin, D, Papadopoulos, D & Papamanthou, C 2018, 'Privacy in Decentralized Cryptocurrencies', Communications of the ACM, vol. 61, no. 6, pp. 78–88, Available at:

- <<https://ezproxy.nu.edu.kz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=129988388&site=eds-live&scope=site>>. [Accessed 21 January 2019].  
Official site of the National Bank of the Republic of Kazakhstan. Announcement. 2017 Available at:  
<[https://nationalbank.kz/cont/%D0%98%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%86%D0%B8%D0%BE%D0%BD%D0%BD%D0%BE%D0%B5%20%D1%81%D0%BE%D0%BE%D0%B1%D1%89%D0%B5%D0%BD%D0%B8%D0%B5\\_%D0%BA%D1%80%D0%B8%D0%BF%D1%82%D0%BE%D0%B2%D0%B0%D0%BB%D1%8E%D1%82%D1%8B\\_16012017\\_%D1%80%D1%83%D1%81%D1%81.pdf](https://nationalbank.kz/cont/%D0%98%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%86%D0%B8%D0%BE%D0%BD%D0%BD%D0%BE%D0%B5%20%D1%81%D0%BE%D0%BE%D0%B1%D1%89%D0%B5%D0%BD%D0%B8%D0%B5_%D0%BA%D1%80%D0%B8%D0%BF%D1%82%D0%BE%D0%B2%D0%B0%D0%BB%D1%8E%D1%82%D1%8B_16012017_%D1%80%D1%83%D1%81%D1%81.pdf)> [Accessed 15 December 2018].
- Official site of the National Bank of the Republic of Kazakhstan. Announcement. 2018 Available at:  
<[https://nationalbank.kz/cont/%D0%98%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%86%D0%B8%D0%BE%D0%BD%D0%BD%D0%BE%D0%B5%20%D1%81%D0%BE%D0%BE%D0%B1%D1%89%D0%B5%D0%BD%D0%B8%D0%B5\\_%D0%BA%D1%80%D0%B8%D0%BF%D1%82%D0%BE%D0%B2%D0%B0%D0%BB%D1%8E%D1%82%D1%8B\\_%20%D1%80%D1%83%D1%81.pdf](https://nationalbank.kz/cont/%D0%98%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%86%D0%B8%D0%BE%D0%BD%D0%BD%D0%BE%D0%B5%20%D1%81%D0%BE%D0%BE%D0%B1%D1%89%D0%B5%D0%BD%D0%B8%D0%B5_%D0%BA%D1%80%D0%B8%D0%BF%D1%82%D0%BE%D0%B2%D0%B0%D0%BB%D1%8E%D1%82%D1%8B_%20%D1%80%D1%83%D1%81.pdf)> Accessed 15 December 2018].
- Official site of the National Bank of the Republic of Kazakhstan. Monetary base and aggregates of broad money supply. 2017. Available at:  
<[https://www.nationalbank.kz/?finalDate=5.01.2017&finalDate2=25.12.2017&dates=%D0%92%D1%8B%D0%B2%D0%B5%D1%81%D1%82%D0%B8+%D0%B8%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%86%D0%B8%D1%8E&tab\\_id=18&lang=rus&docid=289&switch=russian](https://www.nationalbank.kz/?finalDate=5.01.2017&finalDate2=25.12.2017&dates=%D0%92%D1%8B%D0%B2%D0%B5%D1%81%D1%82%D0%B8+%D0%B8%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%86%D0%B8%D1%8E&tab_id=18&lang=rus&docid=289&switch=russian)> [Accessed 23 November 2018].
- Official site of the National Bank of the Republic of Kazakhstan. Available at:  
<<https://nationalbank.kz/?docid=3550&switch=russian>> [Accessed 23 November 2018].
- Report of Digital currencies, 2015/ Committee on Payments and Market Infrastructures, Bank of International Settlements. [online] Available at:  
<<https://www.bis.org/cpmi/publ/d137.pdf>>, [Accessed 20 March 2019].
- R. Rikk, National Cyber Security Index 2018, p. 1-35, 2018. Available at:  
<[https://ega.ee/wp-content/uploads/2018/05/ncsi\\_digital\\_smaller.pdf](https://ega.ee/wp-content/uploads/2018/05/ncsi_digital_smaller.pdf)> [Accessed 27 March 2019].
- J. Shin, Korjin@dankook. Regulation of Cryptocurrency in Korea. International Conference on Future Information & Communication Engineering (ICFICE), [s. l.], v. 10, n. 1, p. 145–149, 2018. Available at:  
<<https://ezproxy.nu.edu.kz/login?url=https://ezproxy.nu.edu.kz:2358/login.aspx?direct=true&db=aps&AN=130974953&site=eds-live&scope=site>> [Accessed 27 March 2019].
- Weaver, N 2018, 'Risks of Cryptocurrencies: Considering the inherent risks of cryptocurrency ecosystems', Communications of the ACM, vol. 61, no. 6, pp. 20–24. Available at:  
<<https://ezproxy.nu.edu.kz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=129988377&site=eds-live&scope=site>>, [Accessed 21 January 2019].
- Stiegler T, Singer K. and Wiesener A. U. 2018. Investment trend in digital currencies-the current state of fiscal treatment of bitcoin investments in Germany, Proceedings of 4-th Basiq International conference "New Trends in Sustainable Business and Consumption" 31 May - 3 June 2018, Heidelberg, Germany, pp. 90-96 [online] Available at: < <http://conference.ase.ro/pdf/BASIQ%202018-%20Volume.pdf>>, [Accessed 20 March 2019].