Leading role of state as a regulator of crypto currency

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Abstract This paper tackles the novel issues of possibility and feasibility of financial regulation of the crypto currency. At the same time, this research is also aimed at justifying the possibility and necessity of introducing state regulation over the crypto currency circulation. The state should act the leader who foresees the new trends and act accordingly to minimize the threats and risk stemming from them.
The paper uses a toolkit of state financial regulation with features of using electronic currencies. An approach is proposed for creating a crypto-currency security based on the main fraudulent schemes used in the practice of circulation of electronic currencies. Our own presented approach can be claimed by state regulation bodies in the sphere of financial circulation and also by banks in case of detection of suspicious transactions. The approach and the methodology developed in this paper make it possible to estimate the volume of movements of electronic currencies in any given country as well as to identify the spheres of their investment. Our results will also enable the policy-makers and relevant stakeholders to effectively protect owners of crypto currency from fraudulent transactions which increase the security of their crypto-currency wallets.

1 Introduction

Several years ago, analytical companies working in financial markets, highlighted the active growth of the value of the crypto currency. Increasing relevance of this payment electronic system allowed users to think about buying a new type of currency (Lubyanskiy 2017). During a short period of time this form of the variety of money showed undeniable advantages compared to traditional means of payment (Paulík et al. 2015; Moyseyenko and Ryvak 2016; or Gavurova et al. 2017). Currently, much attention is paid to the state of the global financial system (Sopilnyk 2018; or Teresienė 2018). The current exchange rate of the ruble, relative to the major hard currencies (dollar, euro, etc.) is steadily falling, and people in the world, including Russian citizens, turn their eyes to the crypto currency: bitcoin and its other digital varieties (Kuzmin et al. 2015; Kunitsyna et al. 2018; or Fetisova 2018).

The active use of the decentralized payment system allowed the subjects of financial relations to avoid the traditional problems arising in any banking system (Maramygin et al. 2018). Using the crypto currency, legal entities and individuals could, for example:

- avoid numerous bureaucratic delays;
- significantly reduce the costs of overcharging commissions and other charges;
- significantly reduce the negative impact of both external and internal factors on the position of electronic currency (see Cummings 2017).

Thus, the transition to digital currencies was deemed expedient by most of the major international companies. Many well-known corporations began to use the digital currency, noting its numerous advantages over conventional means of payment. As you know, the Internet now offers many stories about fraud faced by the network users when investing in digital currencies and their savings loss (Radovic et al. 2017; or Mackevičius et al. 2018).

Consequently, there are serious problems with ensuring the protection of holders of digital currencies, which are connected with the fact that the modern virtual market of crypto-currency is open, decentralized and is not regulated in any way (Mostenska 2015). Therefore, due to the decentralization of digital currencies, no state or interstate body has been established to provide adequate protection for users of digital currencies. The aspiration of the authorities, including Russian, to take the crypto currency under strict control is not surprising (Drozd et al. 2018). However, the implementation of the idea of state regulation in practice causes doubts among experts for the following reasons: First, the 'crypto-currency emission' occurs in the process of mining and is performed on computers or specially created computing facilities, or mining farms belonging to ordinary users or to all kinds of commercial firms. Consequently, to somehow regulate mining, it is necessary to have access to these devices, and not only in the territory of their own state. In addition, if 'emission control' is understood as the authorities' desire to collect taxes from miners, it is unclear how the state will be able to identify or calculate the revenues received by the miners.

Second, at the present time it is an unreal task to track the turnover of crypto-currency between its owners. As the crypto-currency users' wallets are a sequence of characters in a branched chain of files, it is only possible to identify the real owner if the owner him(her) self-reports about his/her electronic wallet (Shapiro 2018).

Third, there is only one relatively simple possibility to track the movement of the crypto currency – its exchange for the usual fiat (fiduciary) currency. Most often, the network user who purchases crypto currency for rubles or dollars, transfers money to the seller of electronic currency at his/her bank account, and then waits for the seller to transfer the crypto currency into the electronic wallet. At the same time, a bank that does not see (not control) the movement of the crypto currency, does not know the financial meaning of the operation for transferring fiat money between customers (Maramygin et al. 2018).

If, for reasons of their own security, anonymous sellers of crypto-currencies will use their bank account in a country where banking secrecy is strictly observed, and the turnover of crypto-currency is not prohibited (for example, Switzerland), then the Russian controlling bodies will have virtually no real opportunity to establish the identity of this seller.

2 Purpose, materials, methods and objects of research

The main mission of the crypto-currency is to reduce the risks of using electronic currencies by their owners and restore the confidence of citizens after negative examples related to the loss of Soviet deposits, the default of 1998, endless inflation processes. At the same time, a crypto-currency wallet in the state system will not be anonymous, which might not be suitable for everyone.

The maximum correlation of these two mutually exclusive processes will create a reliable financial system, attractive both for users and state regulation bodies in this area, and reduce the likelihood of fraudulent transactions when buying and selling crypto currency.

Crypto currency is one of the types of digital currency that is created, protected and controlled by special cryptographic methods (Sikorski et al. 2017). Crypto currency is a payment unit, money that cannot be counterfeited, because a crypto currency is a code, an encrypted record in a digital data bank, copies of which are constantly synchronized in different computers in different parts of the world. At the same time, there are many fraudulent transactions related to the e-currency withdrawal and deception of its owners.

Despite the powerful progress in economic globalization, the world financial system is still very fragmented, and only its individual players get a real chance to influence at least something. Consequently, the block has a good potential for consolidation and, apparently, even the standardization of the main financial markets. It is known that various private companies and regulators have already begun to implement blocking technology in their business models. One of the current problems of the world economy is the slowdown in economic growth. Insufficient economic growth is one of the most serious problems that can exacerbate problems in other areas of activity that the world is constantly facing (Lisin et al. 2015).

Therefore, various international organizations recognize the problem of reducing and slowing economic growth. So, the United Nations report begins with the title "*the global economy remains entangled into a long period of slow growt*h". In addition, the report emphasizes: "*the factors underlying the protracted economic downturn tend to reinforce each other, due to the close links between demand and investment, trade and productivity*" (United Nations 2017).

A study by the World Bank states: "*in recent years, long-term funding has attracted increased attention from legislators, researchers and other stakeholders in the financial sector*". At the same time, the lack of long-term financing "*further exacerbated the situation of existing vulnerabilities and increased the impact of long-term financial problems, in particular for infrastructure*" World Bank (2018).

In addition, a study conducted by the Organization for Economic Cooperation and Development also notes that "*long-term investments play a key role in promoting growth and creating jobs*." It also points out that "*long-term investments are necessary for growth, and their financing faces serious problems that require active involvement of corporate investors*" – private companies should participate even more actively in solving problems related to shortage of long-term financing (OECD 2018).

Moreover, the Institute of International Finance (2013) in its report "Structural Challenges to the Developing Market Growth" graphically demonstrates and justifies all the possible consequences of the shortage of long-term financing: "*the inability to maintain a strong growth of the economy threatens that expectations of the growing middle class, in particular, will be deceived, which can increase social tension, as it was recently observed in Turkey and Brazil*" (Institute of International Finance 2013).

At the same time, social tension, as you know, quickly develops into all sorts of conflicts, which aggravates the problem. G30, an advisory group on international economic and monetary issues, conducted an objective study to determine the four basic principles that affect the lack of long-term finance. These are the conclusions which the group summarized:

- The financial system should direct the savings of citizens and companies to a real possibility of financing with a long period of their return, in order to meet the growing investment needs of the world and national economy;
- Long-term financing should be provided by individuals and legal entities with attractive long-term prospects;
- A wide range of financial instruments should be available to support long-term investments;
- An effective international financial system should ensure economic growth through stable long-term financing flows, supported by transparent and effective global regulation.

Therefore, blocking technology and its active promotion through uneven growth in the prices of crypto-currencies can help the world financial system, solve its main problem – shortage of long-term financing, and ensure the subsequent global economic growth.

3 Results and discussions

It is known that the transition to financial accounting through the exchange of bitcoins has a significant negative side. The most dangerous is an effectively operating network of cyber-fraud. Criminals mislead and deceive many Internet users who make simple financial transactions with crypto currency and send money to personal deposits. Since bitcoin fraud is rampant, the amount of the damage caused to users has begun to be measured by hundreds of millions of dollars over the past four years (Serfbitcoin 2018).

Recently, law enforcement officers have begun to detect cases of bitcoin-scams of a particularly large size. One of the directions of state control and participation may be crowdfunding, since it is in this area that fraud concerning virtual currencies can occur.

One of the main conditions of crowdfunding is openness, however, Internet scams have entered this sphere of business. Initially, the recipients must collect a certain amount of money for expenses, which they later plan to cover with the help of others and indicate the amount. Therefore, the amount of money collected for a specific period of time should always be open to all donors. In this case, the most important and exhaustive condition is that the collected funds should be used for the goal specified in the project.

It is the control of the ultimate goal on the part of the state that can become a kind of protector against cyber-fraud. In the United States, the state control structures (SEC and CFTC) have the task of regulating the internal crypto-currency market (Mining Cryptocurrency 2018).

At the same time, there were warnings about the output of the activity of the crypto-currency markets beyond the state borders and US jurisdiction. What creates conditions for cross-border movements of financial assets without the knowledge of investors, this does not allow the SEC, CFTC and other regulators to suppress the activities of unscrupulous participants in the financial market.

In order to protect investors, the SEC and the CFTC place warnings, newsletters and statements about the risks of ICO and investing in crypto currency. In addition, there is a risk of loss of investment and confidential information due to software hacking the online shopping platforms and individual wallets. More than 10% of the funds (almost 400 million US dollars) received during the ICO were stolen as a result of hacker attacks. Cyber-fraudsters use the situation prevailing in the crypto-currency market, and create false ICOs. The role of the state is to identify false ICOs, warning the network users, potential investors, suppressing their activities. Cyber-fraudsters mainly use the following types of deception of network users:

- Fraud with crypto-currencies. False ICO;
- Deception with crypto-currency wallets;
- Cheating with electronic mailings;
- Non-real crypto-currencies exchange stock.

For example, in September 2017, a new cyber unit was created in the United States, which focused on crimes related to distributed database technology and ICO, as well as the spread of false information through electronic and social networks, the seizure of brokerage accounts, and their hacking to obtain confidential information. The cyber unit functions in cooperation with the distributed database technology group, which was established in November 2013 (Mining Cryptocurrency 2018).

In early 2016, several users of the Reddit resource lost several bitcoins after they invested them into a fake web site disguised as a popular exchange platform ShapeShift.io. This site was very similar to the original one, but it had the only difference - a letter was missed in its address, which was quite difficult for an inexperienced user to notice. As soon as this information was received by ShapeShift, the company's specialists immediately posted a press release on the network, which acted as a warning to other users of the network exchanger (Calo and Rosenblat 2017).

By creating an exact copy of popular platforms, cyber-fraudsters ‘catch’ logins and passwords of gullible network users, or extract money from wallets of inattentive ‘investors.’ Numerous fraudulent sites are often found in Google advertising. Consequently, law enforcement officials who deal with cybercrime should dump and suppress the activities of such fake websites, thereby implementing an indirect but effective control over the movement of the crypto currency.

The employees should pay attention to whether the site address is correctly written, and whether the connection is protected by an SSL certificate, publishing this information on the network for users of electronic wallets. After all, many owners of electronic money use a variety of online wallets to store the available crypto currency. Usually the owners of online purses become victims of cyber-fraudsters.

On July 25, 2017, the SEC published a report on the investigation about ICO DAO tokens. The Commission concluded that DAO tokens are securities, and should be governed by relevant federal laws. The report also stated that companies using distributed database technology or issuing securities based on blocking technology are required to register with the SEC proposals and sales of these securities. Tokens that show a profit potential, therefore, contain all the signs of securities. They are purchased with the expectation of a potential increase in their value, with the possibility of making a profit both by reselling them in the secondary market, and in order to profit from tokens based on the efforts of other market participants, which are key and distinctive features of the securities.

In the Russian Federation, this aspect is not settled, which leaves wide scope for norm-setting. As international practice shows, the issues of controlling the movement of the crypto currency will become tougher, as more and more new restrictions are introduced every day in this direction. This process will continue until the ICO turns into a stable and reliable financial mechanism with the least possible fraudulent schemes for deceiving investors. It is assumed that in the future, tokens on smart contracts will be able to seriously compete with shares and bonds in the usual sense.

It is known that at present when buying shares or bonds there are many intermediaries, a clearing center, a broker, a depository, etc., and when buying tokens, this intermediary series is minimized, which increases their profitability and is attractive to potential investors.

Crypto currency is now a kind of investment method and is more suitable for venture investment. Therefore, many large investors enter the ICO or the crypto currency, usually in the long. For them, the current exchange rate or the crypto-currency jump is practically not important, they invest their savings for the future. The next, most attractive use of crypto currency is money laundering or payment of doubtful services (transactions) in darknet. Many large financiers use crypto currency as offshore or hedge funds. Therefore, some of their funds are not stored in the bank accounts of other countries, but in their own crypto-currency wallets.

4 Conclusions

The lack of a reliable regulatory framework for international financial flows through electronic currencies poses a serious threat, both for regional and global financial structures. Banks and managers of financial assets may lose potential customers in the nearest future, making the entire global financial system even more fragmented.

Consequently, decentralization is the only global goal facing open-ended detachments. However, the lack of an adequate and understandable regulatory framework, as well as stable and strong leadership, can lead to unforeseen failures in the financial market. Therefore, the decentralization of the international financial system is inevitable, but this process must take place in accordance with the mutual interests of all directly and indirectly interested parties to ensure a smooth and painless transition.

The rapid growth of various crypto-currencies has attracted the attention of government agencies for several reasons. Illegal, and often criminal financial flows, serious credit risks, as well as the default risk associated with ICO, various schemes for tax evasion are just a few of the problems that States are potentially facing because of the rapid growth of their crypto-currency assets. Leaders of the states around the world are beginning to understand that it is more expedient to join the crypto-currencies trend than to try to combat it in every possible way. In addition, the stimulation of international financial flows for the purpose of global economic growth is one of the main problems of the leaders of most countries in the world.

According to the World Economic Forum (WEF), some progress has been made in using block and Distributed ledger technology (DLT). WEF studies have shown that approximately 80% of banks can initiate funding for DLT-based projects in 2018, with more than 90% of central banks participating in DLT applications around the world. In addition, the International Monetary Fund introduced a new concept of the central bank's digital currency (CBDC) which could solve the problem of coordination with respect to new virtual currencies and thereby stimulate technological innovation.

The OECD adopted the Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting with the participation of 70 ministers and other representatives of a higher level who signed the agreements. Thus, the OECD took another important step against tax avoidance strategies that irrationally apply tax agreements for the artificial transfer of capital to places with low taxes or their absence.

Besides, companies that are especially small and do not have effective access to traditional financial markets will benefit from new technologies to raise funds to create and finance their operations, which will allow these companies to be more competitive both domestically and abroad. These technological innovations can provide new financial opportunities to investors, but their realization is fully possible only when they are implemented in accordance with the current legislation.

Thus, state control and efficient alignment of relations in the field of electronic currency regulation will help eliminate numerous fraudulent schemes, improve the investment climate and expand the taxable base.

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