

# VIRTUAL CURRENCIES AND CRYPTOCURRENCIES IN UKRAINE: TRENDS IN THEIR INTRODUCTION

A. VIKTORIIA SHUMKOVA <sup>a</sup>

*<sup>a</sup> Department of Statistics, AGD and Marketing,  
Faculty of Economics and Management,  
Sumy National Agrarian University, Ukraine  
Email: vik\_shumkova@ukr.net*

## ABSTRACT

Against the backdrop of intensification of the globalization processes, there is a growing interest in the use of money that would meet the needs of the time, that is, electronic money and virtual currencies. As to the attitude of many Ukrainian scientists towards the issue of the existence of virtual currencies, it is very different. There is no one united mind about the essence of the concept of virtual currencies. Someone say that it is financial innovation which will save payment system of the world, and on the other side it could be the instrument of money laundering and terrorist financing. In the article the author explores the essence of the virtual currency. Also in the article you can see the rating of cryptocurrencies and learn about top 10 virtual currencies in terms of capitalization. The goal of this study is to analyze the problems of using virtual currency in Ukraine, to determine the prospects for its development in the country and the possibility of developing its own virtual currency. In the article you can see the classification of the virtual currency and comparing of their distinctive features. The author defines the state of the crypto market in Ukraine and the trends of its development in the world. For example, Ukraine is in the top 10 countries in the world by the number of virtual currency users, and daily trading volumes using hryvnia reach 1.9 million US dollars. In the article you should learn about the main stages in the development and establishment of Ukrainian cryptocurrency which called Karbo. The creators of Karbo presents it like is a decentralized peer-to-peer exchange network and stable exchange medium, designed to be used by customers and merchants as private Internet money that respects and protects their privacy. They think that in future Karbo will be a national electronic exchange tool not only in Ukraine, but in the world. In the article the author tell about the legal status of virtual and cryptocurrencies in Ukraine. It should be noted that the financial regulator states that cryptocurrency is not subject to the regulation of currency legislation and carries a lot of risks not only for it owners, but to the economy of the country at all. The result of this study is highlighting the risks of cryptocurrency in Ukrainian market and finding opportunities to cover such risks.

**Keywords:** virtual currency, cryptocurrency, stock exchange, crypto market, Karbo.

## **1. INTRODUCTION**

Against the backdrop of intensification of the globalization processes, there is a growing interest in the use of money that would meet the needs of the time, that is, electronic money and virtual currencies. Global financial crises, the development of financial technologies and changes in consumer preferences regarding enhancing mobility, convenience, speed, availability, security and reduction in cost of services and information visualization have contributed to the emergence of virtual communities with the creation and distribution of their own currency and retail payment systems.

As to the attitude of many Ukrainian scientists towards the issue of the existence of virtual currencies, it is as follows. Virtual currencies, on the one hand, is a financial innovation that would contribute to the development of payment systems both at the national and global levels and, on the other, could become the instrument of money laundering and terrorist financing in the hands of criminal elements. This is the relevance of the chosen topic.

The goal of this study is to analyze the problems of using virtual currency in Ukraine, to determine the prospects for its development in the country and the possibility of developing its own virtual currency.

## **2. THE DIFFERENCE BETWEEN VIRTUAL CURRENCY AND REAL MONEY**

Virtual currency differs from real money, which has the form of the coins and paper money of the country, and is its legal means of payment and widely used and accepted as a medium of exchange in the country of issue. Virtual currency is also different from electronic money, which is a digital means of expressing real money, and used for electronic transfer of the reflected real currency value and acts as a legal means of payment. Virtual currency is essentially the currency that operates transparently, is freely distributed not through the banking system, shows no depreciation, has reliable protection against counterfeiting, and can be used not only as a measure of value and a means of payment, but also as an investment vehicle. This is confirmed by the creation and successful operation of virtual currency exchanges, investment projects and infrastructure elements. (Karcheva, Nikitchuk, 2015)

Virtual currency or cryptocurrency may not be compared with electronic money for a number of reasons:

- cryptocurrency does not determine any debt obligations of its owner or issuer;
- there is no single emission center or central administrator in the cryptocurrency system;
- payments can be made on an anonymous basis within a certain cryptocurrency system, which for payers and recipients of cryptocurrency means a complete lack of control on the part of any third parties, including government authorities;
- the process of creating new types of cryptocurrencies or increasing the volume of cryptocurrency within one cryptocurrency system is possible. (MacDonald, Allen, Potts, 2016)

## **3. CRYPTOCURRENCY IN THE WORLD AND RATINGS OF THEIR RELIABILITY**

Many people in Ukraine and the world as a whole usually identify the concept of virtual currency and cryptocurrency with Bitcoin as the first and most famous of these currencies, although more than 800 different virtual currencies, over 80 of which are direct clones of Bitcoin, turn round at exchanges. CoinMarketCap indicates the availability of 1640 virtual currencies and the operation of 11,168 markets.

It should be noted that the number of virtual currencies - Bitcoin clones or currencies created on the basis of Bitcoin is annually increasing. Thus, 19 such cryptocurrencies appeared in 2017. According to forecasts, in the current year 2018, there may be more than 50 such currencies that could significantly reduce the cost of Bitcoin (more than 10%). It bears reminding that on August 1, 2017, Bitcoin was divided into two separate currencies - Bitcoin (Original) and Bitcoin Cash due to the fact that the developers of cryptocurrency could not resolve differences of the software. The most successful of

these two currencies is Bitcoin Cash. Nowadays, its capitalization is 18 billion US dollars. The top 10 virtual currencies in terms of capitalization for the entire period of their existence are shown in Fig.1. (Ofitsiyni sait informatsiinoho ahentstva Bitcoincharts, 2018)

#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	Bitcoin	\$127 322 587 213	\$7 455,87	\$4 477 740 000	17 076 825 BTC	-0,75%	
2	Ethereum	\$58 840 384 862	\$589,08	\$1 742 920 000	99 885 050 ETH	-0,29%	
3	Ripple	\$25 944 691 781	\$0,661154	\$396 093 000	39 241 525 848 XRP *	1,62%	
4	Bitcoin Cash	\$18 376 082 914	\$1 070,44	\$636 797 000	17 166 850 BCH	-3,45%	
5	EOS	\$12 198 386 887	\$13,61	\$1 326 960 000	896 149 492 EOS *	0,62%	
6	Litecoin	\$6 693 234 906	\$117,75	\$274 347 000	56 845 173 LTC	-1,55%	
7	Cardano	\$5 384 767 353	\$0,207689	\$102 130 000	25 927 070 538 ADA *	-3,03%	
8	Stellar	\$5 313 375 293	\$0,285970	\$46 290 200	18 580 184 261 XLM *	-1,83%	
9	IOTA	\$4 695 432 712	\$1,69	\$80 237 200	2 779 530 283 MIOTA *	-2,17%	
10	TRON	\$3 843 562 284	\$0,058459	\$190 053 000	65 748 111 645 TRX *	-0,53%	

Figure 1. The top 10 virtual currencies in terms of capitalization (print screen)

At fig.2 you can see percentage of total market capitalization of virtual currencies since 2013. (Ofitsiyni sait informatsiinoho ahentstva Bitcoincharts, 2018)

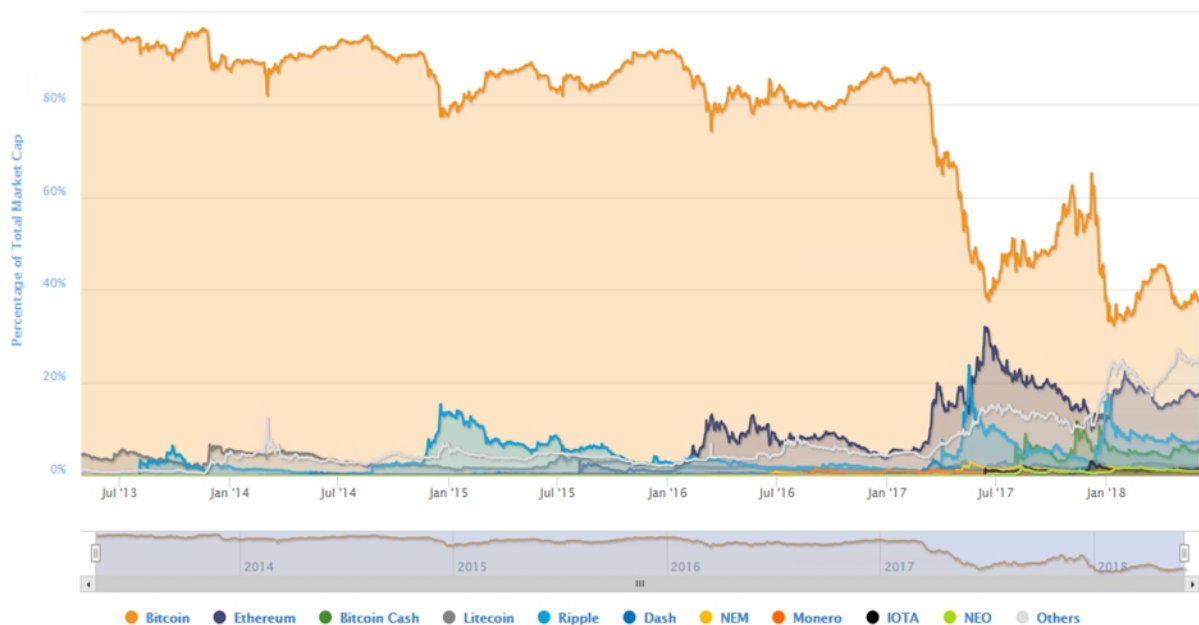


Figure 2. Percentage of total market capitalization of virtual currencies (print screen)

As you can see from fig.2 in 2018 the amounts capitalized virtual currencies compared to 2013

decreased. Instead, we can see a variety of such capitalized virtual currencies and it is good for the market of such type of currency.

It should be noted that the financial rating agency Weiss Ratings published the rating of 93 cryptocurrencies in May this year. The company has evaluated them by two criteria: technology and distribution, as well as risk/reward ratio.

The researchers argue that the results have been obtained with the use of a complex algorithm rather than the arithmetic mean of these criteria.

Weiss Ratings has assigned the A - E grades to cryptocurrencies, where A is the highest and E is the lowest grade.

None of the rating participants has received an A grade.

The best indicator, a B grade, has been received by the three cryptocurrencies -Cardano, EOS and Decred.

The ranking further contains the currencies with the grade of B-. This category includes Bitcoin, Ethereum, Ripple, Stellar, TRON. (Reyting kryptovalyut: bitkoin ne popal v troyku liderov, 2018)

Here are the indicators of cryptocurrencies with the capitalization of 5 billion USD and above (table 1).

Table 1

Highest rated cryptocurrencies  
(with 5 billion USD or more in market cap)

Cryptocurrency	Overall Weiss Rating*	Technology and adoption*	Investment risk and reward*
Bitcoin	B-	B	D+
Cardano	B	A-	D+
EOS	B	A-	C-
Ethereum	B-	B	C-
Ripple	B-	B+	D+
Stellar	B-	B	C-
TRON	B-	B-	C-

\* A = excellent; B = good; C = fear; D = weak; E = very weak

And here is a list of the worst ranking cryptocurrencies, the capitalization of which exceeds 100 million USD (table 2).

Table 2

Lowest rated cryptocurrencies  
(with 100 million USD or more in market cap)

Cryptocurrency	Overall Weiss Rating*	Technology and adoption*	Investment risk and reward*
Bitcoin Gold	D	C-	E+
Bitcoin Private	D-	C-	E-
Electroneum	E+	E+	E
ReddCoin	D+	D	C-

\* A = excellent; B = good; C = fear; D = weak; E = very weak

#### 4. CRYPTOCURRENCY IN UKRAINE AND UKRAINIAN EXCHANGE CRYPTOCURRENCY

Ukraine is in the top 10 countries in the world by the number of virtual currency users, and daily trading volumes using hryvnia reach 1.9 million USD. This is stated in the announcement made by the Better Regulation Delivery Office (BRDO).

A cryptocurrency is changed into hryvnia by the three exchanges in Ukraine: Exmo, Kuna, BTC TRADE UA. Daily trading volumes on them using the national currency are as follows: Exmo

Exchange - 1,275 million USD, Kuna – 403,000 USD, BTC TRADE UA - 232,000 USD.

For all those wishing to become an investor in virtual currencies, the representatives of the Kuna Exchange have developed a simple mechanism of operation at the stock exchange:

1. Go directly to the Kuna website, pass verification, and create an account.
2. Transfer money from the card to one's own account, to the deposit account on the exchange. It is possible, for example, to transfer money in hryvnia from PryvatBank. This bank provides for a certain merchant account, to which one can transfer money just as one can buy tickets to the cinema. But there are other ways to pay for the purchase of bitcoin. The next step is to place an order to buy a certain amount of bitcoins or other virtual currency, and wait for someone to execute this order.
3. Create a wallet outside the exchange. (Ukraina u TOP-4 krain shchodo obsiahu rynku Bitcoin: eksperty poiasnyly, chomu tse pohano, 2018)

The BRDO notes that in 2017-2018, the companies of Ukrainian origin created 25 cryptocurrencies, and the volume of funds raised through ICO amounted to more than 99 million USD. At the same time, the volume of mining in Ukraine exceeds 100 million USD a year, and the volume of the Bitcoin market has reached 2.5 billion USD, that is, about 2.5% of GDP.

With regard to the above mentioned, experts see a direct correlation between the level of the shadow economy and an interest in cryptocurrency. Thus, Russia (5% of GDP), New Zealand (4% of GDP) and Nigeria (3.5% of GDP) are located next to Ukraine. In addition, it was Ukraine where the purchase of real estate was made with the use of virtual currency for the first time in the world. (Carnes B., 2017)

## **5. VIRTUAL CURRENCY OF UKRAINE**

Ukraine has also created its own virtual currency – Karbo. According to the information of creators of this virtual currency, Karbo is a decentralized peer-to-peer exchange network and stable exchange medium, designed to be used by customers and merchants as private Internet money that respects and protects their privacy. It does not have centralized management or issuer and ensures privacy and anonymity of transactions without intermediaries and regulators. For mining expensive specialized equipment (ASIC) is not required.

The name “Karbo” is derived from Ukrainian word “Karbovanets”, which comes from an ancient way of recording settlements or debts by marking wooden stick called “tally stick” or “tally” with a system of notches that was very popular in the Mediaeval Europe from Antiquity up to the first decades of XX century. The stick would be split in half, down its length from one end to the other. The debtor would retain half, called the “foil”. The creditor would retain the other half, called the “stock”. Because wooden stick has natural and distinctive irregularities, the two halves would match only each other providing simple and effective protection against forgery. The way medieval tally sticks system worked resembles how blockchain works. Hence comes the name “Karbovanets” and its shortened version “Karbo”. (Ofitsiinyi sait kryptovaliuty Karbo, 2018)

Karbo is based on principles of the Austrian school of economics which emphasizes the spontaneous organizing power of the price mechanism and holds that the complexity of subjective human choices makes mathematical modeling of the evolving market practically impossible.

In the figure 3 there is an example of Karbo Wallet that you can opened and worked with. (Ofitsiinyi sait kryptovaliuty Karbo, 2018)

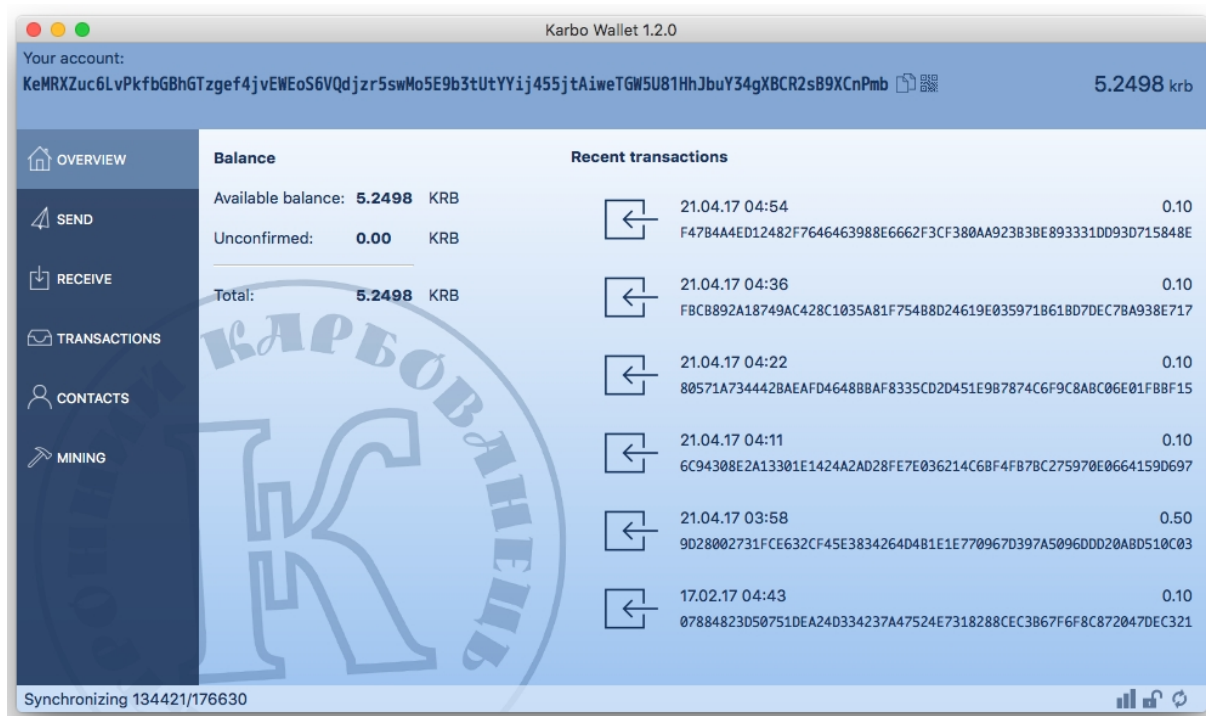


Figure 3. Karbo Wallet (print screen)

The main stages in the development and establishment of Karbo as a national electronic exchange tool are:

30/05/2016 - the project was launching and wallets for Windows and Linux, as well as the Command-line suite were creating;

22/06/2016 - first official faucet was launched and everyone got opportunity to get first free trial Karbo;

- 1) 05/07/2016 – Karbo listed at Cryptopia exchange;
- 2) 28/08/2016 - Cyrillic-supported software elements in file and folder names were launching;
- 3) 28/09/2016 - Mac OS wallet was creating;
- 4) 07/10/2016 - Karbo listed at Livecoin.net;
- 5) 23/12/2016 – Company introduced karbowanec: URI scheme support that is important usability improvement which allows to request and make payments conveniently;
- 6) 02/04/2017 - Karbo listed on Ukrainian exchange BTC Trade UA. A free payment gateway karbo.club with plugins for online stores created;
- 7) 13/02/2018 - first Web-wallet karbo.me was creating.

It is also important to notice about specification of Karbo:

1. Ticker: KRB
2. Symbol: ⑆ – Ka with vertical stroke, it is a letter of the Cyrillic script. Its form is derived from the Cyrillic letter Ka (К к) by the addition of a stroke through the short horizontal bar in the centre of the letter.
3. Proof-of-work algorithm: CryptoNight
4. Block time: 240 seconds
5. Difficulty: retarget each block
6. Block reward: slight decrease every block according to formula:
7.  $BaseReward = (MSupply - A)/218$
8. where MSupply is the number of atomic units and 'A' is amount of already generated coins
9. Divisible up to: 1012 atomic units (up to 12 decimal places)
10. Emission: infinite, initial supply – 10,000,000,000,000,000 atomic units, or 10 million krb.

11. Tail emission: ~1.2% of initial supply per year, minimal block reward: 1 krb.
12. Karbo value – 1 KRB = 0.294 USD (information for July 2018) (Ofitsiynyi sait kryptovaliuty Karbo, 2018)

On the figure 4 you can see dependence of the volumes of Karbon emission and amount of reward you can get by mining.

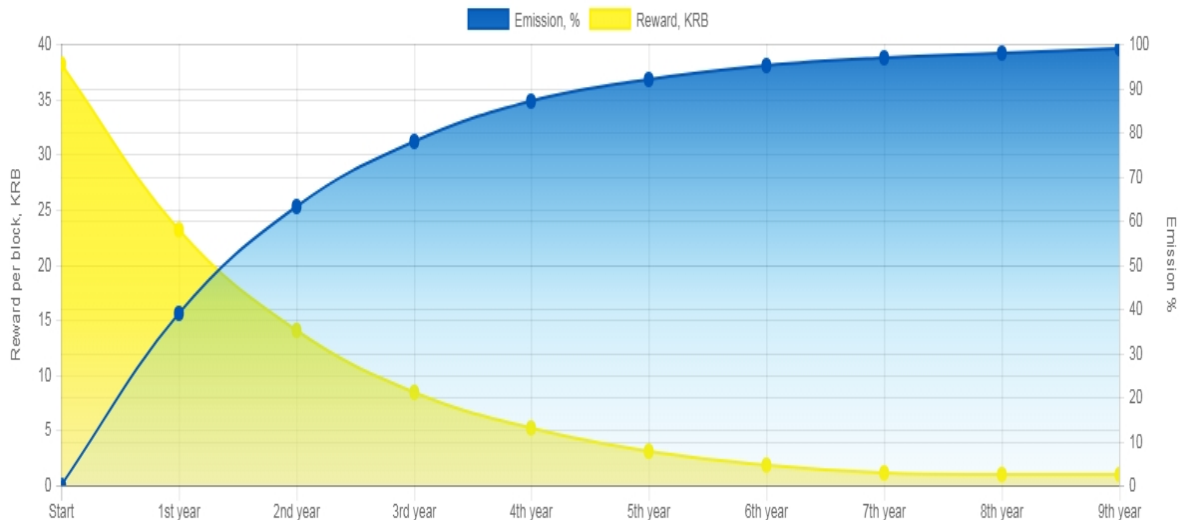


Figure 4. Karbo emission and reward (print screen)

As you can see from this figure after the reward for the block decreases to 1 krb. (97% of the initial emissions), it will remain constant. In the latest year of emission you can get only minimal volumes of Karbo.

## 6. THE LEGAL STATUS OF CRYPTOCURRENCY IN UKRAINE

In Ukraine, the legal status of virtual and cryptocurrencies remains uncertain. The financial regulator represented by the NBU states that cryptocurrency is not subject to the regulation of currency legislation for a number of reasons, namely:

- it is not subject to the regulation of electronic money circulation and use as the means of payment (does not exist in the form of banknotes, coins, records in bank accounts, it may not be recognized as money);
- cryptocurrency is not bound to currency of either country of the world (may not be a legal means of payment of another state or currency value);
- is neither issued by the bank and nor a monetary obligation of a certain person, therefore it may not be recognized as electronic money;
- is not subject to civil law relations regarding the regulation of activities with securities;
- has neither standard form with relevant details, nor monetary symbol. (Cesarano, 2018)

In addition, the NBU believes that any financial transactions involving cryptocurrencies, as well as the funds received from transactions with cryptocurrency, may not be considered as “clean”, given the provisions of the Law of Ukraine “On Preventing and Combating Legalization (Laundering) of Income Obtained in an Unlawful Way, Terrorism Financing and Financing of Proliferation of Weapons of Mass Destruction” No.1702-VII dated October 14, 2014, in particular Article 10, on the basis of which the subject of the primary financial monitoring shall, or is entitled to, refuse to carry out such financial transaction, when it is impossible to identify the sources of funds, as well as to

sufficiently identify the parties to the financial transaction. (Walton, 2018)

The first step to regulate the relations related to the circulation of cryptocurrencies in Ukraine has been the draft Law “On Turnover of Cryptocurrencies in Ukraine” No. 7183, by which the attempts to define the concept of cryptocurrency and to establish the general principles for the use of such currency have been made. In accordance with this draft law, cryptocurrency is the object of ownership, and transactions with it may be carried out based on the general provisions of an exchange agreement. So far, the two bills, which relate to the legal status and circulation of cryptocurrencies, have been registered in the Verkhovna Rada:

- Draft Law of Ukraine dated October 10, 2017 No. 7183-1 “On Stimulation of the Market of Cryptocurrencies and Their Derivatives in Ukraine” (Author of the legislative initiative S. Rybalka);
- Draft Law of Ukraine dated October 06, 2017 No. 7183 “On Circulation of Cryptocurrency in Ukraine” (Authors of legislative initiative: I. Efremova, L. Denisova, I. Kotvitskyi, I. Rybak, S. Voitsekhovska).

The National Bank of Ukraine notes that the activities related to the transactions of buying, selling, exchanging and converting into cryptocurrencies bear a great deal of risks.

These risks include, but are not limited to:

- the possibility of losing funds due to theft (for example, as a result of cyber-attacks on cryptocurrency exchange platforms);
- lack of guarantees of return of invested funds in cryptocurrencies (not guaranteed by the Deposit Insurance Fund of individuals);
- the possibility of fraud (funds can be used to build financial pyramids. The only available form of protection may be criminal proceedings. Due to the uncertain status of cryptocurrencies, governmental institutions for consumer protection in Ukraine will not have legal grounds to help investors and users);
- the complexity of using conventional methods to assess the market value of assets in cryptocurrencies;
- significant price fluctuations of cryptocurrencies, and related risks;
- lack of infrastructure (not generally accepted in trade and service networks. They are neither a legal means of payment nor a currency).

## **7. CONCLUSIONS**

With the constant improvement of IT-technologies, proper cryptographic protection, legislative regulation, improvement in the infrastructure of the new type of money, taking into account the dynamics of growth in rates and the overall capitalization, cryptocurrencies will occupy an increasingly prominent place in the life of Ukrainians. This requires the implementation of the measures aimed at promoting, introducing the legal guides for business and individuals, stimulating the emergence of a liquid market (for example, hryvnia-bitcoin), the establishment of an IT-school for systematization of knowledge on the technical aspects of cryptocurrencies, especially the methods of protection.

## **8. REFERENCES**

1. Carnes B. (2017) Ukraine Is Silently Leading A Digital Currency Revolution. Retrieved from: <https://www.forbes.com/sites/realspin/2017/03/20/ukraine-is-silently-leading-a-digital-currency-revolution/#26c49ac6465c> (accessed 07/06/2018)
2. Cesarano F. (2018). Money and Monetary Systems. Retrieved from: <http://books.google.com.ua/books?id=JEZYgAj4uTsC&pg=PA124&dq=Keynes+%2B+%22fiduciary>



+money%22&hl=ru&ei=iWLITiaOGMaSOvLzjPAI&sa=X&oi=book\_result&ct=result&redir\_esc=y#v=onepage&q=Keynes%20%2B%20%22fiduciary%20money%22&f=false (accessed 12/06/2018)

3. Karcheva, G. T., & Nikitchuk, S. M. (2015). Virtualni innovatsiini valiuty yak valiuti maibutnoho. [Virtual currency innovations as the currency of the future] *Finansovyi prostir*, 2(18), 24–30. Retrieved from: <http://fp.cibs.ubs.edu.ua/files/1502/15kgtviv.pdf> (accessed 15/07/2018)

4. MacDonald, T. J., Allen, D., & Potts, J. (2016). Blockchains and the Boundaries of Self-Organized Economies: Predictions for the Future of Banking. Retrieved from: <http://ssrn.com/abstract=2749514> (accessed 20/07/2018)

5. Ofitsiinyi sait informatsiinoho ahentstva Bitcoincharts (2018) [Official site of the news agency Bitcoincharts] Retrieved from: <http://bitcoincharts.com/charts/mtgoxUSD#tgSzm1g10zm2g25zv> (accessed 19/07/2018)

6. Ofitsiinyi sait kryptovaliuty Karbo (2018) [The official site of cryptocurrency Karbo] Retrieved from: <https://karbo.io> (21/07/2018)

7. Reyting kryptovalyut: bitkoin ne popal v troyku liderov (2018). [Rating of cryptocurrencies: Bitcoin is not ranked in the top three] Retrieved from: <https://ain.ua/2018/05/31/rejting-kryptovalyut-weiss> (accessed 14/07/2018)

8. Ukraina u TOP-4 krain shchodo obsiahu rynku Bitcoin: eksperty poiasnyly, chomu tse pohano (2018). [Ukraine in TOP-4 countries on the volume of the Bitcoin market: experts explained why this is bad] Retrieved from: [https://24tv.ua/ukrayina\\_tag1119](https://24tv.ua/ukrayina_tag1119) (accessed 11/06/2018)

9. Walton, J. B. (2018). Cryptocurrency Public Policy Analysis. Retrieved from: <https://ssrn.com/abstract=2708302> (accessed 03/07/2018)