

UDC 336.7, 330.322

JEL Classification Code: E22

V. Rysin

Lviv Polytechnic National University, Ukraine, Doctor, Professor

E-mail: vitalii.v.rysin@lpnu.ua

ORCID ID: 0000-0002-2883-4563

M. Rysin

Lviv Polytechnic National University, Ukraine, PhD, Associate Professor

E-mail: mariia.v.rysin@lpnu.ua

ORCID ID: 0000-0002-1176-5688

VULNERABILITY OF VIRTUAL ASSETS TO ILLICIT FINANCIAL FLOWS

Abstract. Over the last few years, virtual assets have become more widespread in the market, which has manifested itself both in the growth of transactions with them and in the rapid growth of the capitalization of the cryptocurrency market. The international community and individual governments have introduced regulations for the virtual asset market, but the degree of transparency remains low. This poses risks of using virtual assets as a tool for various schemes of money laundering or terrorist financing. The purpose of the article is to identify potential vulnerabilities of virtual currencies to the impact of shadow cash flows, as well as to assess existing approaches to regulating their circulation and prevent the use of these assets for money laundering purposes. The article highlights the standards developed in world practice for determining the legal status of virtual currencies and their state regulation, assesses the process of introducing regulation of the circulation of virtual assets in Ukraine. Imperfect regulation and insufficient experience in market monitoring lead to the vulnerability of virtual assets to their use in the movement of illicit cash flows, in particular in the schemes of money laundering. The authors identified some other vulnerabilities in virtual currencies, including the possibility of their use for financial fraud, tax evasion, instability of virtual currencies, limited control over their circulation, as well as the low level of protection of the rights of market participants. Overcoming these vulnerabilities requires a combination of public and private sector efforts, which should be aimed at creating safeguards for criminal capital to enter the

virtual asset market, as well as to ensure market transparency and protect the interests of participants from potential losses and possible fraud. The virtual asset market is an innovative and promising segment of the financial market, so we consider the important task of its effective regulation to stimulate legal transactions and clearly separate them from illegal transactions.

Key words: virtual assets, virtual currencies, cryptocurrency, risks, vulnerability, illicit financial flows, regulation, financial market.

Introduction

In the 21st century, we may observe the rapid development of innovative technologies, which has an impact on the economic and financial systems of different countries. One of the financial innovations is the emergence of virtual digital currency. At the present moment, there is no exact definition of virtual currency and its functions. Moreover, in some countries, there is no legal regulation or determination of the legal status of virtual currencies. Because virtual currencies can be used to legalize (launder) proceeds of crime, terrorist financing, and tax evasion, the Financial Action Task Force (FATF) warns of a threat to national security. Recommendation 15 highlights, that financial institutions have to identify and evaluate the money laundering or terrorist financing risks. Those risks may emerge due to the

evolution of financial products and business practices, in particular those that provide the newest methods of distribution, and the application of new technologies for both existing and promising products and services. Therefore, virtual asset service providers should be regulated for anti-money laundering and counter-terrorist financing matters, which require licensing and registration, as well as the implementation of effective monitoring and compliance systems [FATF, 2020]. These requirements of the FATF were considered in the process of adoption of the new Law of Ukraine “On Prevention and Counteraction to Legalization (Laundering) of Proceeds from Crime, Financing of Terrorism and Financing of the Proliferation of Weapons of Mass Destruction”, which entered into force in April 2020 [Verkhovna Rada of Ukraine, 2019]. However, at present, the requirements of this law cannot be fully met, as there is no basic law defining the status of virtual assets and the status of service providers related to the circulation of virtual assets. This situation determines the semi-shadow functioning of the market, which may result in a violation of FATF requirements and Ukraine's blacklisting of this organization.

Given the intense increase of illicit cash flows nowadays due to the high level of shadow economy and corruption, the probability of virtual assets use in these financial flows circulation can be assessed as extremely high. Therefore, there is a need to evaluate the vulnerability of virtual assets to money laundering/terrorist financing risks.

Literature review

The lack of the regulatory focus of theoretical and empirical research on cryptocurrencies has been highlighted in the early foundational papers in the field [Dwyer, 2015]. Recent systematic analyses of cryptocurrency-related academic sources still concede that the existing literature, particularly on regulatory issues, is rather limited, inconclusive, and immature [Corbet et al., 2019].

To discuss the impact of regulation on cryptocurrency value one should understand to which extent government action can influence the blockchain payment systems in the first place. As cryptocurrencies implement various security solutions to make transaction tracking and the association between physical, legal, and digital

persons prohibitively hard, the question of whether state regulation can if desired so, effectively restrain blockchain payment systems is a valid and a non-trivial topic to investigate. It is also a relevant issue given the fact that while regulation is a predominantly national matter, cryptocurrencies are necessarily exterritorial [Auer and Claessens, 2018]. Besides, the balance between law and regulation of the cryptocurrency market is also important to keep up with the staggering worldwide growth in the usage of virtual currencies [Trautman, 2018].

Theoretical approaches to defining the essence of virtual currency and analysis of illicit flows into digital currency services have been described by Fanusie & Robinson [Fanusie & Robinson, 2018]. There is plenty of research concerning the role of virtual currencies in the modern payment system. Virtual currencies are considered as different from traditional currencies and electronic money, and main innovations related to the development of virtual currency are interconnected with two key aspects: the asset-aspect and payment-aspect [Kochergin, 2017]. To understand how virtual assets could be used in the informal economy it is necessary to investigate links between technology and illicit financial flows [Tropina, 2016].

The determinants of implementation of the efficient regulation approach to the cryptocurrencies' transactions and the ways of legislative base formation in Ukraine are described in the authors' earlier papers [Rysin, 2018].

The purpose of the article

The main purposes are to identify potential vulnerabilities of virtual currencies to shadow cash flows, as well as to assess existing approaches to regulating their circulation and preventing the use of these assets for money laundering purposes. The objectives of the article are to determine the impact of illicit financial flows on the virtual assets market, compare the approaches to state regulation of virtual currencies, and find the prevention mechanisms to the penetration of criminal proceeds into the virtual assets market.

Results

The world economy is developing rapidly, there is a transformation of its key principles of operation, as well as objective laws of development, which in turn transforms it into a qualitatively new type of economy based on innovation, intellectual property, information, knowledge, and digitalization of society. In terms of the technological method of making payments, digital currencies are convenient and cheap. That is why today millions of people around the world use virtual currencies as a means of payment, which serves as an additional incentive for the development of payment systems. At present, there are two points of view in the financial system regarding this innovation. On the one hand, virtual currencies will promote the development of payment systems, and on the other hand – their use may pose risks of illegal transactions, terrorist financing in the hands of criminal elements, which seek to evade regulatory control and sanctions. This issue requires clarification of possible risks of virtual assets using in illicit schemes.

Legal regulation of transactions with virtual currencies in EU law is seen as the implementation of a policy to combat money laundering. In June of 2018, the European Parliament and Council published an updated version of the anti-money laundering directive, known as AMLD5 [European Parliament, 2018]. Due to the new requirements, all cryptocurrency exchanges and wallet keepers in Europe have to introduce a relevant know-your-customer (KYC) policy. In addition, these institutions must be registered with local regulators, they are obliged to oversee all the transactions and to report suspicious activity to the relevant bodies. Moreover, national authorities, involving tax collectors, will have a right to require information from the crypto exchanges about users and their transactions [Acheson, 2019]. At the same time, a detailed analysis of the provisions of the AMLD5 shows that they do not cover the activities of a significant proportion of key players in the crypto market, leaving weak points in the combat against money laundering, terrorist financing, and tax evasion. Such institutions should include crypto miners, coin offerors, exchanges that are not custodian wallet providers, hardware and software wallet providers, trading platforms, etc. In general, EU

member states implement legal regulation of cryptocurrency business by introducing AMLD5 norms.

Ukraine nowadays belongs to the countries with a large number of virtual currency users. Therefore, the issue of regulating transactions with virtual assets for our country is extremely relevant. Without proper regulation, those assets risk becoming a virtual haven for the financial transactions of criminals and terrorists.

In Ukraine, the determination of the legal status of virtual currencies, as well as the taxation of transactions with them have repeatedly tried to settle. Some bills did not receive the support of the parliament, finally, in December 2020 the Parliament adopted in the first reading the Law “On Virtual Assets” [The Ministry of Digital Transformation of Ukraine, 2020]. It should be noted that it contains a number of fairly progressive provisions regarding the identification and separation of pure cryptocurrency from that involved in money laundering or terrorist financing operations. In addition, there are prerequisites for the legal protection of users of virtual assets and market participants, which will reduce the risks for business in the field of cryptocurrency, in particular, to protect it from fraud and pressure from law enforcement agencies. In our opinion, the creation of a proper regulatory environment and transparent rules of the game in the market of virtual assets is a prerequisite for attracting investment and stable operation of financial institutions. Establishing rules for the taxation of transactions with cryptocurrencies will create opportunities for the legalization of capital currently circulating in the market, and will be an important factor in the development of one of the most innovative segments of the financial market.

The active distribution of virtual assets necessitates the study of their impact on economic processes. This impact has both positive and negative aspects. The advantages are the speed of transactions, low costs, technical security, anonymity, as well as the ability to make cross-border transfers. At the same time, due to imperfect regulation and insufficient experience in market monitoring, it is necessary to state the vulnerabilities of virtual assets to their use in the movement of

shadow cash flows, in particular in criminal money laundering schemes.

Overall, virtual assets can be used by criminal structures to remove dirty money from its source. An approximate scheme of such operations is shown in Fig. 1.

Assessing the specifics of the use of virtual assets in money laundering schemes, it should be noted that such tools currently generate several risks for the national anti-money laundering and anti-terrorist financing system, as well as for many financial market participants. Understanding the

nature of such risks and identifying the vulnerabilities of virtual assets is an important prerequisite for the application of regulations and the creation of transparent and clear rules of the market. Altogether, the vulnerabilities of virtual assets are related to the possibility of their use for financial fraud, money laundering, tax evasion. Simultaneously, attention should be paid to the instability of virtual currencies, limited control over their circulation, as well as the low level of protection of the rights of market participants (Fig. 2).

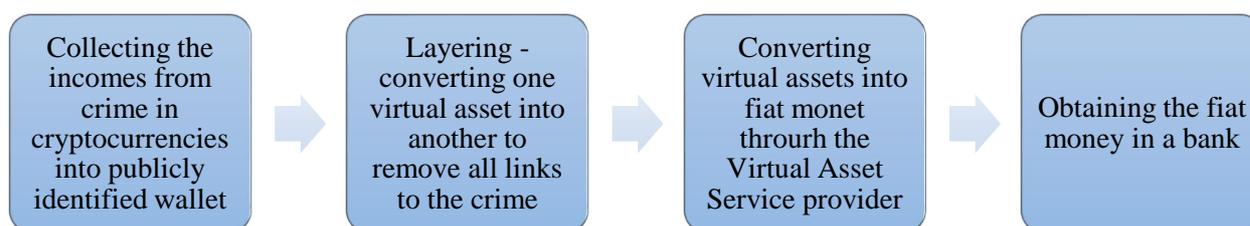


Fig. 1. Scheme of using virtual assets in money laundering operations

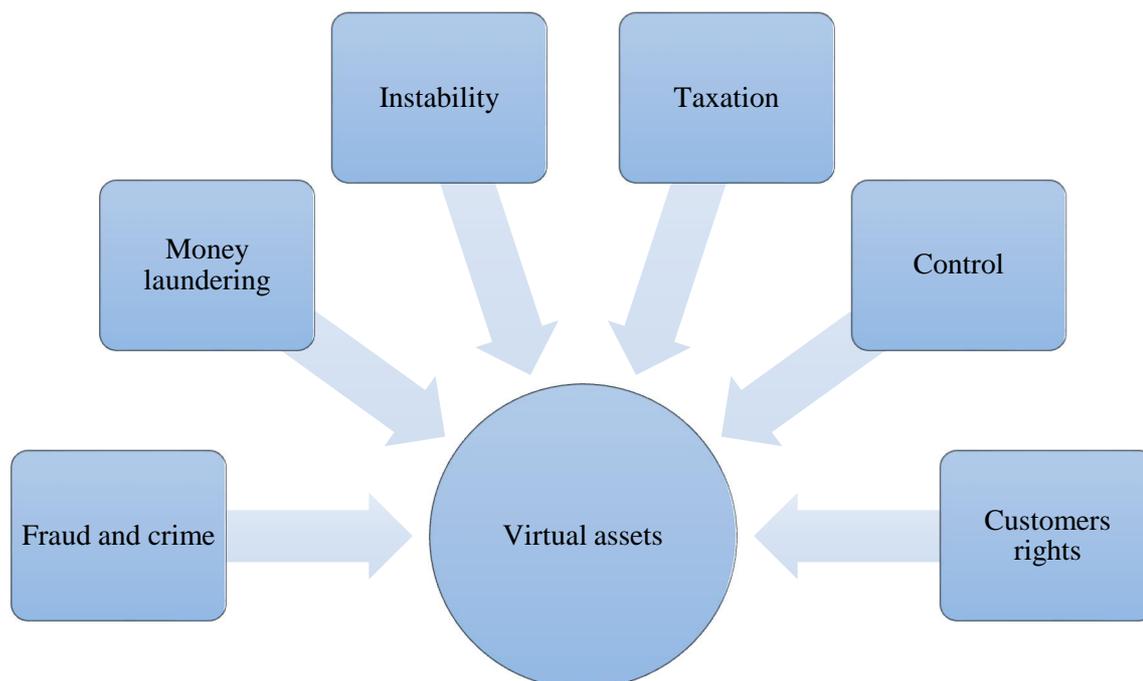


Fig. 2. The vulnerability of virtual assets

The risks of fraud and cybercrime are key to virtual currencies. Due to their specifics, the probability of using cryptocurrencies for fraudulent schemes or creating financial pyramids is quite high. In the context of cybercrime, virtual currencies

have become one of the most popular tools for hackers to use to anonymously receive payments and make payments. For example, in 2017 the “Wannacy” ransomware attack held thousands of computer systems hostage until the victims paid

hackers a ransom in bitcoin. The cost of the attack went far beyond the ransom payments, it resulted in an estimated USD 8 billion in damages to hospitals, banks and businesses across the world [FATF, 2021].

The issue of money laundering and terrorist financing has traditionally been associated with the expansion of the scope of virtual assets. Virtual currencies, having an anonymous and cross-border nature, can be used to conceal the illegal origin or true purpose of funds, used in the stages of stratification and integration of criminal proceeds into the official economy. The possibility of using virtual assets to avoid sanctions imposed by international organizations or individual countries, as well as the acquisition and trade in illicit goods and weapons, nor should be ruled out. The implementation of anti-money laundering policies in the field of virtual assets is difficult due to the limited opportunities for proper verification of users, as well as the identification of the list of market participants that fall under the control measures. Along with that, it is essential to clearly identify the measures of influence that could be applied by the competent authority in the field of supervision. The FATF estimates that the most significant risks of money laundering/terrorist financing are concentrated at the intersection of virtual and fiat money, which necessitates the regulation of virtual currency exchanges, including compliance by service providers with customer identification and notification of suspicious transactions [FATF, 2019]. At the same time, the FATF recommendations do not provide specific guidance on how to regulate transactions using virtual currencies to purchase and pay for goods or services. To our mind, regulation cannot be overly tight, as virtual currencies give the user freedom of choice and stimulate international payment activity. However, these currencies can also be used to buy and sell illegal (prohibited) goods/services, cybercrime, avoid sanctions, money laundering, and terrorist financing, which requires increased application of existing procedures for controlling the circulation of financial instruments.

It is noteworthy that virtual currencies are not easily adaptable to regulatory models. The

procedure of their issuance and circulation practically eliminates the role of the central intermediary (issuer or regulatory center). In such circumstances, it is appropriate to find the object of regulatory policy – whether it is a virtual currency user, Virtual Asset Service Providers, or another member of the system. Simultaneously, it is currently difficult to predict how global the changes caused by the spread of the use of virtual currencies may become for the financial market.

The issue of the impact of the virtual assets market on financial stability is not in the spotlight today, given the relatively small share of cryptocurrency transactions in the overall structure of global financial market operations. Researchers generally do not consider virtual assets as a source of systemic risk for the financial sector, due to the limited connection of these assets with the traditional financial system. However, the capitalization of the cryptocurrency market is growing rapidly (Fig. 3), more and more countries recognize virtual assets as financial instruments, so there is every reason to predict the growing role of these assets in the financial market.

As of March 1, 2021, the capitalization of the cryptocurrency market exceeded 1.5 trillion US dollars. Undoubtedly, the market is volatile and is influenced by speculative factors, but to ignore its impact on the processes taking place in the financial market in modern conditions is unjustified.

For individual owners and users, virtual currencies can be the source of financial risks. The development of relationships and the wider use of virtual currencies can be a trigger for risks for individual private owners, which may ultimately extend to the entire financial sector.

According to experts, there is a straight relationship between the grade of the shadow economy and the spread of transactions with virtual currencies. This fact is typical for Ukraine as well. Therefore, the deteriorating situation in the cryptocurrency market may lead to imbalances and the spread of crises in the country's financial market. This further confirms the need to create effective regulatory mechanisms in the virtual asset market.

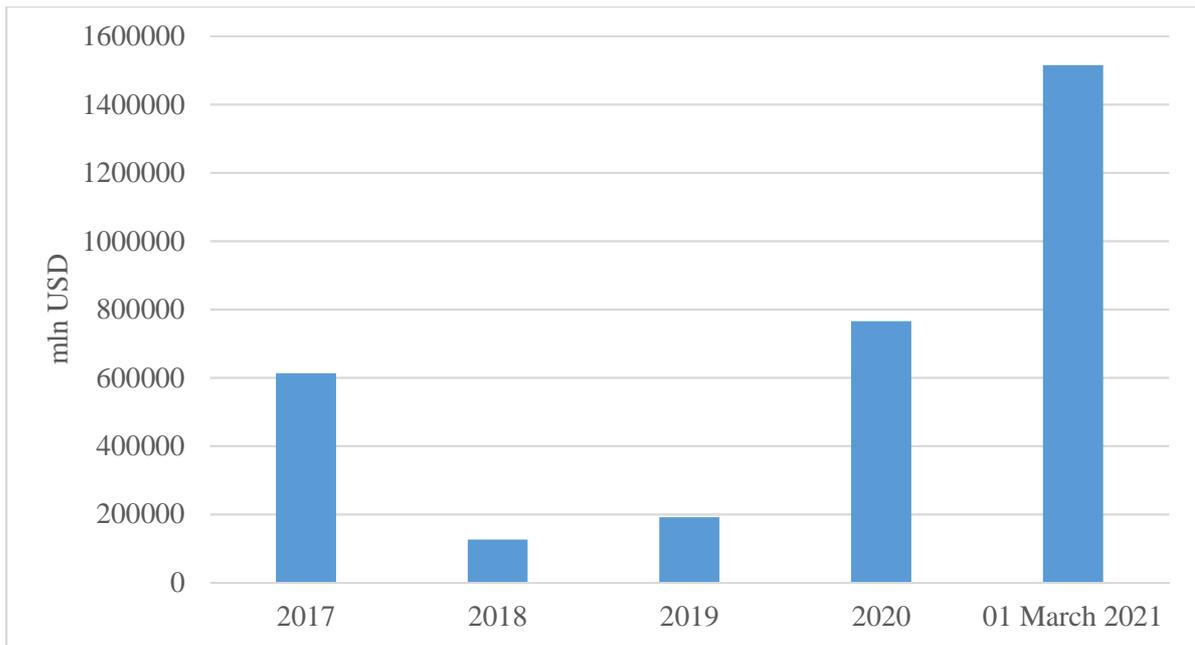


Fig. 3. Global cryptocurrency market capitalization

Data: Coinmarketcap, 2021

The development of such mechanisms is complicated by the virtual status of assets and the cross-border nature of transactions with them. The norms and rules of individual countries have significant differences, which reduces the effectiveness of international cooperation. Therefore, the issue of regulating the circulation of virtual assets has long been the subject of consideration by many international institutions, such as FATF, the United Nations Office on Drugs and Crime (UNODC), The Committee on Payments and Market Infrastructures (CPMI), OECD, European Banking Authority (EBA).

Most countries around the world that regulate transactions with virtual assets have developed their own approaches to the taxation of such transactions. However, it should be stressed that the risk of tax evasion is quite high, as participants in transactions with virtual assets do not disclose their identification data, and transactions can often be cross-border. Accordingly, there is a problem with developing effective measures to ensure compliance with tax requirements. Moreover, such measures should take into account the specifics of transactions with virtual assets, provide effective mechanisms to control the volume of such transactions, the procedure for identifying beneficiaries.

The opaque nature of virtual currencies is a factor that complicates the control of the schemes used, the collection of information, obtaining statistics, monitoring the direction of financial flows. Virtual currencies can be used quite effectively to avoid currency restrictions in countries where such restrictions are imposed. Virtual currency transactions do not involve cross-border transfers using traditional payment systems, so the use of standard methods of currency control will not be effective. On the one hand, it eliminates barriers to capital movements and creates equal possibilities for different market participants, and on the other hand, it creates opportunities to avoid control over the sources of capital. Market participants could purchase currency on the Internet, use it for quasi-currency transactions or make capital transfers for amounts much larger than allowed by regulations of individual countries.

Another vulnerability of virtual assets is the low level of consumer protection. As the virtual foreign exchange market is not sufficiently transparent, it is impossible to have certain guarantees for participants. Errors and inaccuracies that occur in transactions cannot be corrected or canceled. As a result, it is quite difficult for market participants to prove their ownership of assets in the event of controversial situations.

Conclusions and prospects for future research

Virtual currencies are the latest innovative financial tool that gives users a lot of significant benefits. Such benefits include both reducing the cost of transactions and reducing the time to complete them. Due to the absence of any barriers to market access, the volume of trading in virtual currencies and the number of participants in trading operations is growing rapidly. At the same time, the issuance and use of these currencies are often out of reach for regulatory policy, given what has become a challenge for government financial market regulators. The functioning of virtual assets outside the official financial system makes it difficult to determine their real impact on the economic processes of an individual country and the global market. Given the specific nature of virtual assets, they have a high level of vulnerability to use as a tool for money laundering and terrorist financing. This vulnerability is largely due to the lack or imperfection of regulatory procedures for transactions with this type of asset in a number of countries.

The findings concerning the approaches to crypto markets regulation are mixed. It is undoubtedly that regulators should give more attention to the risk appearing in cryptocurrency transactions. This means that regulating authorities should define the periodicity and intensity of assessments according to the level of money laundering/terrorist financing risks and prioritize the probable areas of upper risk. At the same time, the important issue of such activity is to separate criminal (or illegal) transactions from legal ones to not interfere the digital currency development.

To our mind, cybercrime law enforcement should acquire the technological expertise to combat the illicit use of cryptocurrencies, and regulators should understand the risks posed by this emerging class of more anonymous digital financial assets. Financial institutions need to focus their anti-money laundering procedures on the money flows generated by crypto exchanges, as well as provide efficient transaction monitoring to identify behavior that indicates money laundering/terrorist financing schemes.

The assessment of the vulnerabilities of virtual assets showed that, in addition to the risks of their use for money laundering, financial fraud,

or tax evasion, attention should also be paid to the instability of virtual currencies, limited control over their circulation, and low protection of market participants. Overcoming these vulnerabilities requires a combination of public and private sector efforts. The virtual asset market is likely to remain volatile in the medium-term perspective and will attract a large number of small investors. Due to the lack of sufficient information on the state of the market and experience in trading financial assets, the risks of loss of investment by such investors should be considered quite high. Therefore, an important task is to ensure market transparency and create certain guarantee mechanisms to protect the interests of participants from potential losses and possible fraud. Further research into the functioning of virtual assets may involve developing these mechanisms and finding ways to reduce the risks of using cryptocurrencies to move shadow cash flows.

References

1. FATF (2020). *International standards on combating money laundering and the financing of terrorism & proliferation. The FATF recommendations, available at <https://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%202012.pdf>*
2. Verkhovna Rada of Ukraine (2019). *The Law of Ukraine "On Prevention and Counteraction to Legalization (Laundering) of Proceeds from Crime, Financing of Terrorism and Financing of the Proliferation of Weapons of Mass Destruction", available at <https://zakon.rada.gov.ua/laws/show/361-20#Text>*
3. Dwyer, G. (2015). *The economics of Bitcoin and similar private digital currencies. J. Financ. Stab.* 17 (2), 81–91.
4. Corbet, S., Lucey, B., Urquhart, A., Yarovaya, L. (2019). *Cryptocurrencies as a financial asset: a systematic analysis. Int. Rev. Financ. Anal.* 62 (1), 182–199.
5. Auer, R., Claessens, S. (2018). *Regulating cryptocurrencies: assessing market reactions. BIS Quarterly Review September.*
6. Fanusie, Y., Robinson, T. (2018). *Bitcoin laundering: an analysis of illicit flows into digital currency services. Center on Sanctions and Illicit Finance memorandum, January.*
7. Trautman, L. J. (2018). *Bitcoin, Virtual Currencies, and the Struggle of Law and Regulation to Keep Pace, Marquette Law Review, 102, 2, available at:*

- <https://scholarship.law.marquette.edu/mulr/vol102/iss2/5>
8. Kochergin, D. A. (2017). *The roles of virtual currencies in the modern payment system*, DOI: 10.21638/11701/spbu05.2017.107
 9. Tropina, T. (2016). *Do Digital Technologies Facilitate Illicit Financial Flows?* World Bank, Washington, DC, available at <https://openknowledge.worldbank.org/handle/10986/23803>
 10. Rysin, V., Rysin, M. and Fedyuk, I. (2018). *Legal status of cryptocurrency as a financial instrument*”, *Efektivna ekonomika*, vol. 11, available at: <http://www.economy.nayka.com.ua/?op=1&z=6647> DOI: 10.32702/2307-2105-2018.11.7
European Parliament (2018). *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*, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L0843>
 12. Acheson, N. (2019). *The Hidden Effects of Crypto Money Laundering Rules*, available at <https://www.coindesk.com/the-hidden-effects-of-crypto-money-laundering-rules>
 13. *The official site of The Ministry of Digital Transformation of Ukraine (2020). Debunk the myths about the law “On virtual assets”*, available at: <https://thedigital.gov.ua/news/rozyvinchuemo-mifi-pro-zakonoproekt-pro-virtualni-aktivi>
 14. FATF (2021). *How can criminals misuse virtual assets?* Available at [https://www.fatf-gafi.org/publications/virtualassets/documents/virtual-assets.html?hf=10&b=0&s=desc\(fatf_releasedate\)](https://www.fatf-gafi.org/publications/virtualassets/documents/virtual-assets.html?hf=10&b=0&s=desc(fatf_releasedate))
 15. FATF (2019). *Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers*, available at <https://www.fatf-gafi.org/media/fatf/documents/recommendations/RBA-VA-VASPs.pdf>
 16. CoinMarketCap (2021). *Global Cryptocurrency Charts*, available at <https://coinmarketcap.com/charts/>