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PATTERNS OF FINANCIAL CRIMES USING CRYPTOCURRENCIES

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ABSTRACT

The cryptocurrency market is rapidly gaining momentum and is becoming an alternative financial platform to the traditional financial trading market. Currently, cryptocurrency is of particular interest to criminals to make illegal profits, such as money laundering, terrorist financing, financing the proliferation of weapons of mass destruction, corruption. The main purpose of the study is to identify information signs that indicate the implementation of illegal financial transactions using cryptocurrencies. Empirical (observation, description) and theoretical (grouping, synthesis, abstraction) research methods were used for this research. According to the results of the study, it is established that the signs of illegal transactions with cryptocurrency are: non-transparent cryptocurrency contracts; encrypted cryptocurrency transactions; impersonal transactions; fragmented systematic transactions into marginal, limited amounts to avoid identification; transactions that do not comply with the approved transaction protocols; currency exchange transactions by unidentified traders; confusing cryptocurrency to other forms of electronic funds in order to withdraw such funds in cash. The authors of the article identify the main agents in the cryptocurrency economy (centralized and decentralized cryptocurrency exchanges, token issuers, distribution services, gaming services, cryptocurrency wallets). The paper describes software products for the identification of illegal cryptocurrency transactions. The results of the study are of practical value to national regulators in strengthening financial stability and combating illegal financial transactions. management of financial institutions to improve the system of counteraction to illegal financial transactions using payment cards, namely the creation of separate bodies for analysis and regulation of fraud in the banking sector, strengthening responsibility for fraud at the legislative level, establishing a single authentication standard for customers, development of open banking.

Keywords: fraud, payment instruments, bank cards, financial crimes

JEL Classification: F65, G11, G41

INTRODUCTION

The rapid development of science and technology is contributing to the rapid changes in the modern financial market associated with the renewal and innovation of financial technologies. And since today financial technologies are tightly integrated into all aspects of public life at various levels, it further encourages the invention of relevant tools to meet the growing needs of the financial market.

Recently, the latest financial technology - cryptocurrency - has become especially widespread in the financial market. The use of cryptocurrency contributes to the transformation of the financial market, the growth of the digital economy, increase the efficiency of the allocation of financial resources. The cryptocurrency market is becoming an alternative financial platform to the traditional financial trading market. But the rapid development of the cryptocurrency market has its significant shortcomings: the regulatory framework of cryptocurrency is not yet sufficiently formed, which is of particular interest to criminals in order to make illegal profits, the use of cryptocurrency as a significant tool for financial crimes such as money laundering, terrorist financing, financing the proliferation of weapons of mass destruction, corruption. As a result, the search for new methods of counteracting and combating fraudulent money-laundering operations with

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cryptocurrency, which are based on the identification, analysis, and prediction of signs of illegal transactions and schemes using cryptocurrency, is becoming increasingly important.

LITERATURE REVIEW

The concepts, features, functions, factors, factors, signs, problems, participants in cryptocurrency transactions are revealed in the works of a number of scientists, namely: Zhao L. [1] describes the functions, impact and problems of cryptocurrency in the context of financial technology; Liu RHF, Ren H., Liu S., Jiang X. [2] describe key agents in the cryptocurrency economy; Bailey AM, Rettler B., and Warmke K. [3] define the philosophy, policy and economic circulation of cryptocurrency; Lopez-Martin K., Benito Muela S. and Argedas R. [4] reveal the effectiveness of cryptocurrency markets; Huck IV, Maningham A., Chupradit S., Suksatan W. and Huo K. [5] study risk management in the cryptocurrency market; Mahdavi-Damgani B., Fraser R., Howell, J., and Haldorsson J.S. [6] describe the features of cryptocurrency sectorization through clustering and web scraping; Fang F., Ventre K., Basios M., Cantan L., Martinez-Rego D., Wu F., Lee L. [7] highlight the latest trends in cryptocurrency trading; etc.

The economic and legal nature of working with cryptocurrency in different countries has significant differences, which are described in the materials of modern scholars: Bziker Z. [8] on the status of cryptocurrency in Morocco; Vijaya G. [9] on the role of cryptocurrency in the Central Bank of Indonesia; Riley J. [10] on the current state of cryptocurrency regulation in China and its impact around the world; Ukvesee F. O. [11] on the specifics of working with cryptocurrency in Nigeria and South Africa; Delva Benavides J. E., and Torres Amaya F. E. [12] on the legal, tax, and accounting processing of cryptocurrencies in Mexico; etc.

An important issue that modern economists have begun to raise concerns the problem of illegal cryptocurrency transactions. Thus, Ngiyem H., Murik G., Morstatter F. and Ferrara E. [13] describe the detection of fraud in cryptocurrency transactions based on the use of market and social signals; Taichmann F. M. J., Falker M. [14] study the use of cryptocurrency as a means of financial crime; Huang S. [16] highlights the relationship between cryptocurrency and crime; Kolesnikova K., Mezentseva O., Mukataev T. [17] analyze transactions with cryptocurrency to detect illegal transactions; Dupuis D. and Gleason K. [18] study the problem of money laundering with cryptocurrency; Trotze A., Camps J., Akartuna E.A., Hetzel F.J., Kleinberg B., Davis T., Johnson S.D. [19] investigate the relationship between cryptocurrency and future financial crimes; Ren B. and Lucy B. [20] show the difference between clean and dirty cryptocurrency markets; Akartuna EA, Johnson SD, and Thornton A. [20] reveal the features of preventing the risks of money laundering and terrorist financing through cryptocurrencies; Lucy BM, Vin SA, Yarovaya L., and Wang Yu [21] propose a new index of cryptocurrency uncertainty for analysis; etc.

RESULTS

In today's global financial environment, new types of illegal cryptocurrency transactions are emerging. The most common trends in the use of cryptocurrency for illegal activities include the following: the use of cryptocurrencies without the legal status of such financial transactions; expansion of the types of cryptocurrencies used in illegal financial transactions; improving the existing technological characteristics and specifications of certain, successfully used by criminals remote Internet services of the financial market of psychotropic drugs, narcotics, products of other illegal activities; development of cryptocurrency conversion services, as well as cash withdrawal of fiat funds; expanding the use of anonymous financial transactions through cryptocurrencies; increase the volume of money laundering through financial transactions with the help of programs-mixers; conducting financial cryptocurrencies through poorly controlled offshore; illegal professional activities - administration and coordination of several unrelated services by one person at the same time, guarantee of crypto-agreements, mediation in movement of goods and cryptocurrency circulation, cultivation and sale of drug-containing plants for cryptocurrency, placement of illegal cryptocurrency ads on asphalt roads; purchase and sale for cryptocurrency equipment and chemical designers for the manufacture of narcotic drugs; implementation of virtual financial transactions on gambling sites; crimes of encroachment on cryptocurrency ownership through the use of counterfeit electronic cryptocurrencies, copy sites, duplicate sites, fraudulent online investment projects.

In turn, key agents in the cryptocurrency economy are singled out: centralized cryptocurrency exchanges (cryptocurrency exchanges without direct participation of the exchange, where system users can buy and sell various cryptocurrencies for fiat funds, other types of cryptocurrencies; and seller), decentralized cryptocurrency exchanges (cryptocurrency exchanges with direct participation of the exchange, where system users can buy and sell various cryptocurrencies for fiat funds,

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other types of cryptocurrencies), cryptocurrency wallets (provides online cryptocurrency banking) , issuers of tokens (provide initial addresses of outgoing offers), distribution services (determine addresses that promote the free circulation of tokens among users of cryptocurrency as advertising), game services (provide addresses used for gambling), etc.

Illegal transactions with cryptocurrency are characterized by certain information features, which are classified depending on the types of such features. Thus, depending on the nature of transactions, the signs of illegal transactions with cryptocurrency are: non-transparent cryptocurrency contracts; encrypted cryptocurrency transactions; impersonal transactions; fragmented systematic transactions into marginal, limited amounts to avoid identification; transactions that do not comply with the approved transaction protocols; currency exchange transactions by unidentified traders; confusing cryptocurrency to other forms of electronic funds in order to withdraw such funds in cash; etc.

According to the ways, signs of illegal cryptocurrency transactions may be the following: use and combination of offshore accounts; operations through hybrid exchanges; transactions with an electronic wallet with a direct link to the market, with the ownership of the original person; accountable hub wallets in case of cyclical and frequent crossing or convergence of their transactions; "Surfing", ie creating a second additional account for transactions; fake trading platforms; cryptocurrency scams; cloud mining; phishing; extortion viruses; clones of cryptocurrency wallets; investment schemes; fraud with additional involvement of exchangers; fake hands; donation schemes; financial pyramids; counterfeit cryptocurrency; fraudulent funds; blackmail and extortion; etc.

According to money laundering tools, the signs of illegal cryptocurrency transactions are the following: use of toggles (cryptocurrency laundering tool mainly in cryptocurrencies bitcoin, lightcoin, etherium, which involves mixing services of different websites (clean, transparent and darknet), thus disrupting the transaction between wallets, mixing the legal circulation of cryptocurrency with illegal, with the subsequent withdrawal of cash through transfers of international payment systems); over-the-counter (brokering) transactions (Bitstocks, Kraken, Genesis Trading, etc.) - with a significantly limited possibility of money laundering, because in this case there is a banking relationship, and laundering could be before the agreement with the broker; two persons involving cash of unknown origin or to be used for illegal purposes, the use of confidential coins (anonymous coins with a hidden source, amount and purpose, such as Monero, Dash, Zcash, etc.), transactions on decentralized exchanges (anonymous markets, represented by a distributed registry of programs that allow users to conduct transactions using cryptocurrencies without the participation of centralized intermediary organizations in the trade or storage of cryptocurrency); direct retail purchases using cryptocurrency (purchase of cryptocurrency products, etc.); mining as a decoration ityya (directing illegal funds to the legal profitable business, payment of taxes necessary for doing business, with the subsequent expenditure of purified funds; ie mixing illegal funds with legal ones); etc..

Warning signs of illegal cryptocurrency transactions include: offering free money; promise of unreasonably high high-risk income; lack of description and details of the proposed agreement.

According to the cyber fraud sectors, the signs of illegal cryptocurrency transactions are the use of new types of digital currencies to launder illegal funds; illegal ways of selling psychoactive substances, illicit drugs, narcotic drugs; illegal sale of prohibited content; illegal sale of illegal and criminal services; encroachment on cryptocurrency ownership.

Depending on the types of goods and services purchased or sold in cryptocurrency, the signs of illegal transactions with cryptocurrency are: transactions related to the criminal use of personal information; trade-in forged papers and documents; trafficking in illicit drugs; operations on trade in goods and services of prohibited industries, including narcotic drugs and psychotropic drugs; etc.

Illegal operations on Internet shadow services have some features: Abraxas (Internet operations service); Agora (Internet e-mail and web hosting services); Darknet (anonymous networks, underground Internet communications and technologies, hidden networks, encrypted, open-source neural networks that are implemented for illegal activities); Evolution (one direction - online gaming services, online casino; the other direction - a program for working with e-mail, for managing and creating an address book); Nuklias (cloud platform of Internet services in the field of business services, multimedia, graphic design based on Modernizr, Font Awesome, Wordpress 4.5, PHP technologies); Ship Marketplace (transactions for the purchase and sale of goods on the public online trading platform Marketplace on Facebook with delivery); Silk Road (transactions on the anonymous online trading platform of the anonymous network, most of the goods and services sold are illegal, including banned psychoactive substances), etc.

In today's electronic world, certain software packages are used to identify illegal cryptocurrency transactions. These programs are based on the use of advanced castration and proprietary algorithms to establish links between e-wallets, transactions, transfers. Such software products include:

- Chainanalysis (a blockchain database platform; a service company that helps build trust in blockchains; works with cryptocurrency; it specializes in bitcoin tracking; assists government agencies, regulators, banks and other financial institutions; cryptocurrency companies, to track the sources of funds from anonymous wallets, despite the confusing and multiple nature of the agreement, creates transparency for the global economic system, which is based on a blockchain structure, enables banking and other financial institutions, government, business, to imagine the use of cryptocurrency; provides software, information, services, research, government agencies, financial institutions involved in cybersecurity; develops clear standards, rules, methodologies, means of control over cryptocurrency);
- CypherTrace (the world's first blockchain forensic team; is an online platform that monitors cryptocurrency risks of money laundering, threats, crimes, financial institutions, banks; used to reduce financial risks of cryptocurrency compliance and compliance; assists banking institutions, payment systems, regulators, identifies cryptocurrency transactions and establishes their relationship with risky partners and counterparties; risk blind areas of cryptocurrency, works on the principle of "know your customer", and, accordingly, ensures the implementation of comprehensive customer due diligence in order to identify suspicious, unscrupulous, authentically unregistered customers who hide their intentions to work with cryptocurrency; implements blockchain analytics; performs in-depth analysis of virtual financial service providers; provides individual provision of information and data on crypto-risks);
- Elliptic AML (software that implements solutions for the organization and compliance with cryptographic regulatory requirements for the use of cryptocurrencies; conducts blockchain analytics; performs certification of cryptocurrencies; provides financial risk management of cryptocurrencies; cryptocurrency financial transactions to comply with the requirements of financial monitoring, combating smuggling, terrorist financing, sanctions, screening of the portfolio of risks of virtual asset service providers, conducting cryptocurrency investigations through detailed network visualization of e-wallets and financial transactions;
- Orbit (cloud service platform, which is a practical assistant that monitors, automates, controls user operations; provides workstation virtualization, endpoint virtualization, 3 D Workplace, wireless application delivery, virtual desktop; uses the strategy of cloud services, cloud management; includes IT consolidation); etc.

CONCLUSIONS

Cryptocurrency is often used in financial crimes, which is becoming a significant problem in economic development. This is due to the fact that the existing measures in the cryptocurrency sector are currently ineffective. And the results of the study by identifying informational evidence of illegal cryptocurrency transactions will help to gain an understanding of methods and ways of money laundering, terrorist financing, financing the proliferation of weapons of mass destruction, corruption. Therefore, in order to more effectively combat financial crime based on the use of cryptocurrency, it is necessary to create a certain model and common standards for working with cryptocurrency, regulation and control of such transactions. And the methodology developed by the authors can be the basis for the formation of such standards. All these will allow experts in practice to predict possible public financial fraud, for further government, legal regulation, internal and external supervision, control over the legality of the circulation of funds using cryptocurrency.

ADDITIONAL INFORMATION

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ПАТЕРНИ ФІНАНСОВИХ ЗЛОЧИНІВ ІЗ ВИКОРИСТАННЯМ КРИПТОВАЛЮТ

Ринок криптовалюти швидко набирає обертів та постає альтернативною до традиційного фінансового торгового ринку фінансовою платформою. Нині криптовалюта викликає особливу зацікавленість у представників злочинної сфери, які мають на меті отримання незаконного прибутку, а саме: відмивання нелегальних доходів, фінансування тероризму, фінансування розповсюдження зброї масового знищення, корупція. Основною метою проведеного дос-

лідження є ідентифікація інформаційних ознак, що засвідчують здійснення незаконних фінансових операцій із використанням криптовалют. Для проведення дослідження використано емпіричні (спостереження, опис) та теоретичні (групування, синтез, абстрагування) методи дослідження. За результатами проведеного дослідження встановлено, що ознаками незаконних операцій із криптовалютою є: непрозорі криптовалютні контракти; зашифровані криптовалютні угоди; неперсоніфіковані транзакції; роздроблені систематичні операції на граничні, лімітовані суми для уникнення ідентифікації; операції, що не відповідають затвердженим протоколам транзакцій; операції обміну валюти неідентифікованими трейдерами; проведення заплутаного обміну криптовалюти на інші форми електронних коштів із метою виведення таких кошів у готівку. Авторами статті визначено основних агентів у криптовалютній економіці (централізовані та децентралізовані біржі криптовалют, емітенти токенів, сервіси роздачі, ігрові сервіси, криптовалютні гаманці). У роботі охарактеризовано програмні продукти для ідентифікації незаконних операцій із криптовалютою. Результати дослідження мають практичну цінність для національних регуляторів для посилення фінансової стабільності та протидії незаконним фінансовим операціям; для менеджменту фінансових установ для вдосконалення системи протидії нелегальним фінансовим операціям із використанням платіжних карток, а саме: створення окремих органів аналізу та регулювання шахрайства в банківському секторі, посилення відповідальності за скоєння шахрайства на законодавчому рівні, установлення єдиного стандарту системи аутентифікації для клієнтів, розвиток системи відкритого банкінгу.

Ключові слова: шахрайство, платіжні інструменти, банківські картки, фінансові злочини

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