International river and sea transportation: specifics of risk management in cryptocurrency transactions

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Abstract. This article considers the peculiarities of risk management in operations with cryptocurrencies, the necessity of risk management in operations with cryptocurrencies was substantiated. Cryptocurrency transactions have a high level of risk due to price volatility, the possibility of fraud and a lack of regulation. Therefore, institutions involved in cryptocurrency transactions should take measures to manage risk. Cryptocurrencies have a high degree of price volatility and are susceptible to fraud, so credit institutions involved in cryptocurrency transactions must take measures to manage risk. This includes conducting thorough customer due diligence, using data from various sources to verify the customer's legitimacy and financial stability, strictly following rules and procedures when conducting cryptocurrency transactions, and adhering to laws and regulations. Risk management is essential to protect clients from potential losses and problems. The main purpose of this study is to examine the peculiarities of risk management in operations with cryptocurrencies. The results of the study can be used by various subjects in transactions with cryptocurrencies.

1 Introduction

Cryptocurrency risk management is essential to protect economic entities from potential losses and problems associated with cryptocurrency transactions. Organizations involved in cryptocurrency transactions must strictly follow rules and procedures as well as law and regulation to minimize risks and protect their businesses and customers. There are several types of risks associated with cryptocurrency transactions:

1. *Risks of price volatility*: Cryptocurrencies can be subject to significant price fluctuations, which can lead to the loss of a significant part of the investment.
2. *Security risks*: cryptocurrency storage can be vulnerable to hacking and theft.
3. *Fraud risks*: there is a risk of falling for fraudulent schemes related to cryptocurrencies, such as phishing, scams, etc.
4. *Regulatory risks*: governments and regulators may introduce new laws and regulations that may affect cryptocurrency transactions.

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5. *Liquidity risks*: some cryptocurrencies may have low liquidity, which may make it difficult to sell or exchange for other assets.

6. *Technical failure risks*: technical failures on cryptocurrency platforms can lead to loss of access to assets and losses.

7. *Reputation risks*: cryptocurrency transactions can affect an organization's reputation if they involve illegal actions or fraud.

Risks associated with cryptocurrencies are higher in emerging economies because they are traditionally more monetized and less financially literate. Developed countries, especially those with reserve currencies, can afford to be more tolerant of cryptocurrencies and can act incrementally.

2 Materials and Methods

This article is based on methods of analysis containing analysis of scientific and practical publications in the field of scientific problems, as well as economic and statistical methods involved in the analysis of the subject area [1-3].

Managing risk with cryptocurrencies for economic entities can be complex and requires expertise [4]. Typically, organizations involved in cryptocurrency transactions should have a risk management policy that includes:

1. *Identifying risks*: organizations should identify potential risks associated with cryptocurrency transactions, such as price volatility risks, fraud risks, and security risks.

2. *Risk assessment*: organizations must assess the risks associated with cryptocurrency transactions to determine how much potential damage to the business.

3. *Develop a risk management strategy*: Organizations must develop a risk management strategy that includes measures to mitigate risks and protect the business from potential losses.

4. *Develop risk management procedures*: Organizations must develop risk management procedures that enable them to effectively manage the risks associated with cryptocurrency transactions.

5. *Employee training*: organizations should train their employees in risk management so that they can do their jobs effectively and protect the business from potential losses.

6. *Monitoring and analysis*: Organizations should constantly monitor and analyze their cryptocurrency transactions to quickly identify and respond to potential risks and threats.

The risks of cryptocurrencies for retail investors are related to the possibility of losing their investments in cryptocurrencies altogether. Cryptocurrencies depend on their acceptance by society and the possibility of their use for various transactions (including illegal ones). The growth of the cryptocurrency market largely reflects the formation of bubbles in the market [Cryptocurrencies and blockchain as attributes of the new economy: https://eec.eaeunion.org/upload/medialibrary/71f/Doklad_FINAL.pdf].

The cryptocurrency market is highly volatile. The price of cryptocurrencies largely depends on the information background. Statements by public figures and media reports about cryptocurrencies can cause a boom and bubble in the cryptocurrency market in a short period of time.

Cryptocurrency price rises are similar to pyramid schemes in that they are supported by demand from new entrants.

Long-time investors sell cryptocurrencies at high prices, actually at the expense of new participants. Sooner or later, such pyramid schemes can collapse and their participants lose their money.

Loss of investor interest in certain cryptocurrencies and government regulation could not only seriously affect cryptocurrency prices, but also lead to cryptocurrency prices, but can also lead to a sharp drop in value and complete loss of invested money. This problem

becomes especially dangerous when buying cryptocurrencies with borrowed funds. The risk of loss of investment exists for many financial assets, but for investors in cryptocurrencies it is many times higher.

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3 Results

The global nature of cryptocurrencies and differences in regulation between countries can create the risk of "regulatory arbitrage" when transactions are routed to countries or regions with stricter regulatory regimes. In this context, further efforts are needed to improve engagement with national regulators and international organizations to harmonize approaches.

An important aspect is the development of a common perspective on the regulation of cryptocurrencies within the Eurasian Economic Union in order to eliminate the risk of regulatory arbitrage within the Eurasian Economic Union, given that many countries are also active participants in the global cryptocurrency market.

We believe that the main ways to develop risk management with cryptocurrencies are:

1. *Developing a risk management strategy*: Organizations should develop a risk management strategy that includes assessing risk, determining an acceptable level of risk, and selecting appropriate risk management measures.
2. *Training staff*: organizations must train their employees to recognize fraudulent schemes and take measures to protect them from hacking attacks.
3. *Using reliable platforms and exchanges*: organizations should choose reliable platforms and exchanges for cryptocurrency transactions that have appropriate security and fraud protection measures in place.
4. *Developing a security policy*: organizations must develop a security policy that includes measures to protect against hacking, setting passwords, encrypting data, etc.
5. *Portfolio diversification*: organizations can reduce the risks of price volatility by diversifying their portfolio to include different types of cryptocurrencies and other assets.
6. *Compliance with legislation*: organizations must follow legislation and regulations related to cryptocurrency transactions to avoid regulatory risks.
7. *Regular technology updates*: Organizations must regularly update their technology and software to reduce the risks of technical failures and improve security.

4 Discussion

There are different methods of assessing the risks of cryptocurrencies in the world:

1. *Fundamental factors analysis*: risk assessment based on the analysis of factors affecting the cryptocurrency price, such as economic, political and technological changes.

2. *Technical analysis*: risk assessment based on the analysis of charts and statistical data such as trading volumes and price trends.

3. *Social analysis*: risk assessment based on the analysis of opinions and behavior of cryptocurrency users, such as public opinion and social media.

4. *Creditworthiness assessment*: risk assessment based on the financial stability and creditworthiness of cryptocurrency companies.

5. *Security risk assessment*: risk assessment based on possible security threats such as hacking and fraud.

6. *Regulatory risk assessment*: risk assessment based on possible changes in legislation and regulations related to cryptocurrency transactions.

7. *Volatility risk assessment*: risk assessment based on possible cryptocurrency price fluctuations that can lead to capital loss.

We can highlight the weaknesses of existing methods of assessing the risks of cryptocurrencies:

1. *Lack of accuracy*: some factors may be unpredictable and cannot be analyzed, which makes risk assessment less accurate.

2. *Limited data*: cryptocurrencies have been around for a short time, so historical data is limited, making it difficult to analyze and assess risk [7].

3. *Lack of expertise*: cryptocurrencies have not yet developed enough qualified experts, which can lead to errors in risk assessment.

4. *Limited access to information*: many cryptocurrency transactions take place in closed networks, which makes access to information difficult and risk assessment difficult.

5. *Failure to consider social factors*: risk assessment based on technical and fundamental analysis may not take into account social factors, such as public opinion, which can affect the price of cryptocurrency.

6. *Failure to consider global factors*: risk assessment may not take into account global economic and political changes that can affect the price of cryptocurrency [8].

Strategic risk management is particularly important in risk management, and it is essential for investing in cryptocurrencies. The cryptocurrency market is very volatile and unstable, so without understanding the risks and developing an investment strategy, it is possible to lose all your savings.

Strategic risk management includes determining the maximum amount an investor is willing to lose, as well as developing a plan of action in case the market situation changes. In addition, it is necessary to consider investment diversification and market research.

Investing in cryptocurrencies can be profitable and promising, but only with the right approach and strategy. Risk management will help minimize potential losses and protect investments from possible risks [9]. Therefore, before investing in cryptocurrencies, it is necessary to develop a strategy and action plan, as well as study the basic principles of the market and follow the news and updates.

The stages of strategic cryptocurrency risk planning may include the following steps:

1. Defining goals and expectations of investing in cryptocurrencies. This will determine the maximum amount that the investor is willing to lose, as well as the expected return.

2. Risk analysis. The main risks associated with investing in cryptocurrencies, such as market volatility, the possibility of fraud and cyberattacks, changes in legislation, etc. should be examined.

3. Development of a risk management strategy. Based on the risk analysis, it is necessary to develop a plan of action in case of changes in the market situation. This plan may specify risk mitigation measures, such as diversification of investments, use of stop-loss orders, etc.

4. Implementation of the strategy. Once the strategy has been developed, it should be implemented following the specified risk management measures.

5. Monitoring and strategy adjustment. The market situation can change, so it is necessary to constantly monitor investments and adjust the strategy if necessary.

Cryptocurrency market can be viewed in Cryptocurrency data aggregator [Cryptocurrency data aggregator: https://www.coingecko.com/en/global-charts]. Based on the study of materials, we systematize the strengths and weaknesses of the modern cryptocurrency market.

Table 1. Strengths and weaknesses of the cryptocurrency market

Weaknesses	Strengths
High price volatility	Decentralized and anonymous
High levels of risk and volatility	High profit potential
Limited use in daily life	Safety and transparency
Difficult to use for beginners	Independence from financial institutions
Lack of regulation and user protection	Possibility of instant transfers and international transactions
Low liquidity for some coins	Strong interest from investors and companies
Poor infrastructure and scalability issues	Ease of use in international trade and transfers

As analysis in the cryptocurrency market shows, there are strengths and weaknesses. One method of dealing with the weakness is the use of digital technology. Digital technology can be used to improve security and consumer protection in the cryptocurrency market [10]. For example, blockchain technology can be used to create decentralized exchanges that are not dependent on a single control center and are more resistant to hacking and hacker attacks. Digital technology can also be used to create tools to analyze risk and monitor transactions on cryptocurrency exchanges, which can help prevent illegal transactions and terrorist financing. Overall, the use of digital technology can help improve security and consumer protection in the cryptocurrency market.

Digitalization plays an important role in improving risk management of cryptocurrency activity. It enables the fast and efficient collection, processing and analysis of large amounts of data on transactions, user accounts and other factors affecting the risk of hacking or fraud [11].

Some of the most effective solutions in this area include:

Using blockchain technology to create a more secure and transparent system of data storage and transfer.

Using machine learning and artificial intelligence algorithms to quickly process large volumes of data and automatically detect suspicious transactions.

Developing decentralized cryptocurrency exchange solutions that reduce the risk of bank hacks and DDOS attacks.

Building a unified monitoring and control system, which will enable a prompt response to any changes in the situation and reduce the possibility of risks.

Digitalization in risk management of cryptocurrency transactions plays a key role in improving the quality and security of services provided. It allows not only to work efficiently with large volumes of data and make optimal decisions, but also to react quickly to changes in market volatility and eliminate possible problems.

5 Conclusion

Thus, the prospects for the development of the cryptocurrency market, taking into account the risk management system include:

1. Growth in the number of users and use of cryptocurrencies. Every year more and more people become interested in cryptocurrencies, which leads to an increase in the number of users and transaction volume.

2. Improvements in technology and security. Cryptocurrencies and blockchain technology continue to evolve and improve, which increases their security and efficiency.

3. Regulatory development. Many countries are beginning to develop legislation regulating the use of cryptocurrencies, which helps improve trust and attract more investors.

4. The possibility of using cryptocurrencies in different spheres. Cryptocurrencies can be used not only for investment, but also to pay for goods and services, money transfer, etc., which expands their functionality and attractiveness.

5. Emergence of new cryptocurrencies and projects. Cryptocurrency market is constantly updated and new projects appear, which can attract a large number of investors and users etc.

However, along with the prospects of the cryptocurrency market, there is a need for state regulation of this market. This is due to the fact that cryptocurrencies can be used for illegal purposes, such as terrorism financing, money laundering and other criminal acts [9, 10]. In addition, if a cryptocurrency exchange or wallet goes bankrupt, users can lose their savings because cryptocurrencies are not protected by government guarantees. Therefore, government regulation can help ensure the safety and protection of consumer rights in the cryptocurrency market.

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