NATIONAL BANK OF KAZAKHSTAN

ANALYSIS OF APPROACHES TO THE REGULATION OF THE CRYPTO-ASSET MARKET BY FINANCIAL REGULATORS IN DIFFERENT COUNTRIES FOR THE DEVELOPMENT OF DIGITAL FINANCIAL ASSETS' REGULATION MODEL

Department of Payment Systems

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Annotation

The study analyzes the current state of the global cryptoasset (digital asset) industry, as well as issues of legal regulation of the market, including such elements as cryptocurrencies, stablecoins, tokens and other digital assets.

With the development of technology and the growing popularity of cryptoassets, the associated risks also increase: high volatility, massive loss of investor funds, cyber threats, legal uncertainty, and the use of cryptoassets in illegal transactions, including money laundering.

The main goal of the work is to analyze existing international and national approaches to regulation of cryptoassets, taking into account their inherent risks, to identify key problems associated with legal uncertainty and technological threats, and to propose solutions to improve legislation. Particular attention is paid to the need to create a unified and coordinated approach to regulating cryptoassets at the national level. This includes ensuring the safety of market participants, preventing financial crimes and maintaining economic stability.

The most important element of the study is the development of effective regulatory mechanisms based on the principles of transparency, responsibility and innovation. These mechanisms will help to minimize the risks associated with crypto assets and create favorable conditions for the sustainable development of this market, facilitating its integration into the traditional financial system.

Special attention is paid to the tokenization of real assets and the introduction of innovative technologies into the digital economy. The importance of protecting consumer rights in the transition to new forms of assets is emphasized. The study offers recommendations for creating balanced regulation for the digital asset industry, including tokenized assets and digital financial instruments, taking into account modern challenges and opportunities.

Keywords: crypto-assets (digital assets), cryptocurrencies, stablecoins, DeFi (decentralized finance), NFT, tokens, coins, crypto industry, digital financial assets, blockchain, Bitcoin (BTC), Ethereum (ETH), mining, anti-money laundering (AML), know your customer (KYC)

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CONTENT

1. INTRODUCTION

Cryptoassets, including cryptocurrencies, stablecoins, tokens and other blockchain-based instruments, have become an important element of the global financial system in recent years. Their rapid growth and growing popularity create both new opportunities for businesses and investors, and significant risks for national economies. In the context of increasing involvement (both in the world and in Kazakhstan) of the population in the global circulation of cryptoassets, governments are faced with the task of forming an adequate legal and regulatory framework that can protect the interests of citizens and minimize risks.

Among the key challenges associated with cryptoassets are their high volatility, cyber threats, legal uncertainty and the possibility of use in illegal transactions, including money laundering. International experience shows that the lack of effective regulatory mechanisms gives rise to legal uncertainty, which creates institutional risks for the entire financial system and the economy as a whole. In this regard, the development of an effective system for regulating cryptoassets is becoming one of the priorities for governments, central banks and international organizations.

However, no matter how strict the regulatory measures are, without the conscious participation and understanding of citizens, it is impossible to ensure full protection of their interests. Financial literacy of the population is a critical factor in minimizing risks and preventing massive loss of savings. Educating citizens on the basics of dealing with digital assets, understanding the risks and opportunities associated with them will allow users to make more balanced and informed decisions, which will significantly reduce the likelihood of negative financial consequences.

Along with this, an important task of public policy should be the development of secure financial instruments based on crypto asset technologies. This will allow extracting the best aspects of the new technology to ensure stable and secure market development. An example is the tokenization of assets and the use of digital financial instruments, which open up new prospects for investing and asset management.

However, today one of the main problems that remains is the lack of a unified approach to the legal regulation of digital assets. This leads to legal uncertainty and creates conditions for abuse. While some countries seek to integrate crypto assets into their economies by creating a regulatory framework, others act more conservatively, introducing strict restrictions or a complete ban, and some ignore their existence altogether. In these conditions, the importance of developing universal regulatory principles that will ensure a unified approach to the crypto asset industry increases.

The purpose of this study is to analyze the level of development and penetration of crypto assets into the global economy and the economy of Kazakhstan, to study existing approaches to regulating crypto assets at the international and national levels, to identify key problems and risks, and to develop recommendations for the development ofa more flexible, balanced and effective legal system for regulating crypto assets in Kazakhstan. Proposals and recommendations should take into account the specifics of the Kazakhstani market, support innovation, and ensure financial stability and protection of the interests of market participants.

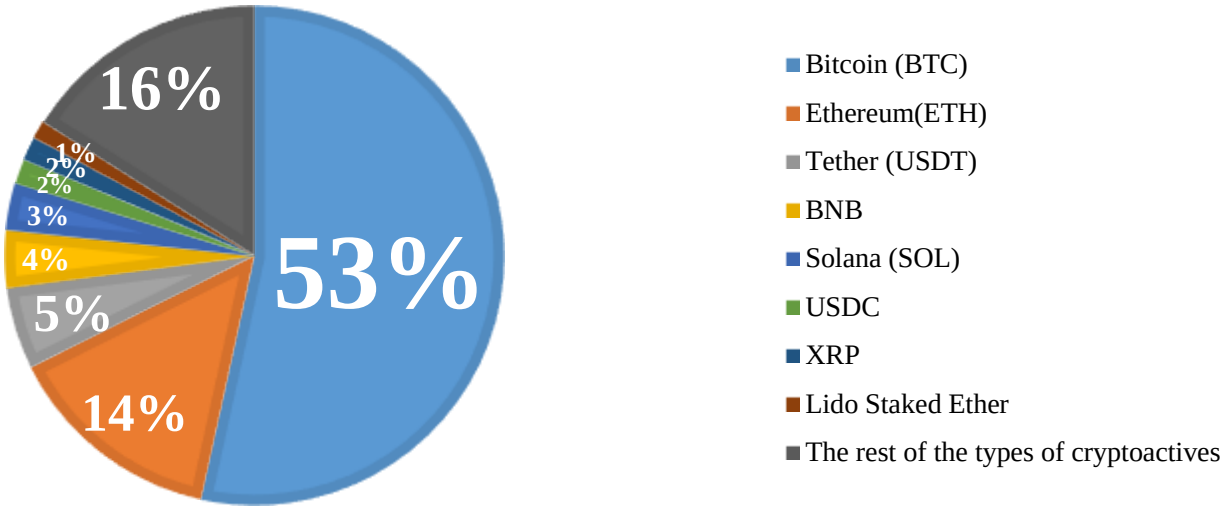
GLOBAL CRYPTO INDUSTRY, GENERAL INFORMATION AND CURRENT STATUS

The global market capitalization of **crypto-assets** as of the end of August 2024 is **$2.2 trillion** ***(100% growth per year**, $1.1 trillion as of the end of August 2023)*, which is 43 times greater than the capitalization of all shares included in the KASE Index ($50.7 billion), 8 times Kazakhstan's GDP for 2023 ($259.7 billion), and 50 times less than the total capitalization of the global stock market (estimated by experts at the end of 2023 to be $111.2 trillion). The peak level of crypto asset market capitalization was reached in **November 2021** and was about **$3 trillion**. [1], [2]

There are currently over **14,000 cryptocurrencies** in the world, and the market is highly concentrated - 8 cryptocurrencies[3] account for **84%** of the entire market *(Bitcoin - 53%, Ethereum - 14%, Tether - 5% and others)*. [1]

The market capitalization of the main and most capital-intensive cryptocurrency **Bitcoin** ***(BTC**, 1 BTC = 59,460 US dollars)* is **1.1 trillion US dollars** ***(53%** of the entire market)*, which indicates the dominance of Bitcoin in the crypto asset market. [1]

Cryptocurrency Market Capitalization as of End of August 2024 *(USD Billions)*



Source: based on data from the Internet resource «CoinGecko»

The first wave of growth in the crypto asset industry in 2017-2018 was driven by the popularization of cryptocurrencies, the emergence of crypto exchanges and, most significantly for that period, the introduction of the initial coin offering (ICO). The second wave, which came in 2020-2022, occurred against the backdrop of a rapid increase in the supply of stablecoins, the growth of the decentralized finance (Defi) sector and the non-fungible token (NFT) market.

In the early stages of the crypto asset industry (*starting in 2009 – the creation and first emission of Satoshi Nakamoto Bitcoin)*, the popularity of this new instrument was largely associated with the possibility of easy earnings due to the "mining" available at that time.

Mining is the activity of creating new blocks in the distributed ledger system using computing power to ensure the functioning of the cryptocurrency platform. The creation of a new block in the platform is

[3] 1) Bitcoin, 2) Ethereum, 3) Tether, 4) BNB, 5) Solar (SOL), 6) USDC, 7) XRP, 8) Lido Staked Ether

rewarded with new (issued) units of cryptocurrency. At the beginning of the industry's development, mining could be afforded by almost anyone with even small computing power (personal computer), which led to large-scale involvement of people in the industry.

*However, due to the increasing complexity and competition of mining in the Bitcoin network and other cryptocurrencies, **mining pools** began to appear, the main purpose of which is to combine the efforts of individual miners to increase the chances of successfully adding blocks to the system and more stable receipt of rewards, which are evenly distributed among all participants in the mining pool proportionally depending on the share of its computing power in the total capacity of the mining pool. The first such mining pool - **Slush Pool** was created in 2010 in the Czech Republic. Over time, mining pools have become an integral part of the cryptocurrency ecosystem and various reward distribution models have appeared, such as Pay-Per-Share (PPS), Pay-Per-Last-N-Shares (PPLNS), which differ in the way they reward participants in the mining pool.*

*Over time, including in Kazakhstan, the concentration of large volumes of capacity based on mining pools in certain regions led to the need **to regulate mining pools and miners**, which consumed large amounts of electricity and caused **risks for the energy system of the entire country**.*

In most countries, regulation of mining activities involves their registration, determination of a possible location (based on the presence of surplus electricity in the region, area, etc.), application of special tariffs for the volumes of electricity consumed and taxation of income as from entrepreneurial activity, as well as, in some cases, obligations to contribute funds to the development of green energy.

The growth in popularity of the crypto industry was also facilitated by the emergence of the first **"altcoins"** *(a collective name for all coins that are not Bitcoin. For example, in 2011 - Litecoin)* in 2011-2013. During these same years, the first **cryptocurrency exchanges** *(such as Mt. Gox)* began to appear, which allowed the exchange of cryptocurrencies, in particular Bitcoin, for traditional currencies.

Subsequently, the Mt. Gox crypto exchange, the most popular and largest at the time, went bankrupt as a result of a hacker attack, which caused a significant drop in confidence in cryptocurrencies.

In 2015, Vitalik Buterin launched **Ethereum** *(Ethereum (ETH), the 2nd most popular and largest cryptocurrency by market capitalization - **$310 billion** as of the end of August 2024, which is **14%** of the total capitalization of crypto assets, 1 ETH = $2,587))*, which allowed the creation of **smart contracts** and decentralized applications, which gave a new impetus to the development of the industry due to the emergence of new opportunities for using blockchain technology.

However, one of the most significant events for the industry and the reason for the explosive growth of the market capitalization by **40 times** from **21 billion US** dollars in 2017 to **848.6 billion US dollars** in 2018 (years of mass, global interest in cryptocurrencies) was the boom of initial coin offerings **(ICO)**, when small companies and "startups" began to raise millions of US dollars by issuing their own tokens. This period also saw the formation of regulations in individual countries, which began back in 2013 *(USA, European Union, China, Japan)*.

However, after a rapid growth, the market experienced a sharp decline *(to $127 billion in 2019)*, which marked the end of the ICO boom period and led to the formation of a more or less stable market state until the next sharp rise in 2021.

In 2020-2022, there was active growth in the decentralized finance (**De-Fi**) sector, the non-fungible token (**NFT**) market and stablecoins, which led to even greater attention to cryptocurrencies and another stage of sharp market growth. Also, an important role in the growth of the industry's capitalization (the flow of liquidity from the traditional to the crypto economy) was played by the economic instability around the world caused by the **COVID-19 pandemic**. This period saw the most significant

growth of the industry, the capitalization of which reached its historical maximum in **November 2021 - about 3 trillion US dollars**.

The **stablecoin** market cap as of the end of August 2024 is **$168.9 billion** and has a **7.67% share** of the total crypto asset market cap. [1]

Stablecoin – designed to minimize the volatility of a crypto asset by tying it to a more stable asset or fiat currency. Typically, these are hard national currencies such as the US dollar, euro, and British pound. This design allows for the benefits of blockchain technology without the high volatility associated with Bitcoin, Ethereum, or other cryptocurrencies. However, it is important to note that tying the value does not mean full reserve coverage, meaning there is no guarantee that pre-deposited funds will be available to back these stablecoins.

The emergence of stablecoins in 2014 was largely due to the high and uncontrolled volatility of cryptocurrencies and the need to create a less volatile payment instrument that would allow for settlement transactions in the crypto asset market. Stablecoins have become a kind of "bridge" for clients to enter the crypto asset market.

The most popular stablecoin, **«Tether»** or USDT, which is pegged to the US dollar (1 USDT = 1 US dollar), accounts for **69%** of the total stablecoin market capitalization ***($117 billion** is the capitalization of Tether)*. [1]

De-Fi market cap reached **$71.4 billion** as of the end of August 2024, accounting for **3.2%** of the total crypto asset market cap. [1]

*DeFi or decentralized finance are financial services that are built on the basis of blockchain technology using the capabilities of the crypto market (reproduction of traditional financial services) and do not have centralized intermediaries, i.e. the role of traditional financial institutions is leveled out while making it possible to receive an **analogue of traditional financial services** in the crypto asset market.*

For example, in the DeFi market, the most capital-intensive crypto asset is “Lido Staked Ether” *(**35.9%** of the total DeFi capitalization)*, which are derivative assets issued as a reward for “staking” the popular cryptocurrency Ethereum. [1]

Staking is the process of locking tokens/cryptocurrencies, which helps secure the blockchain network. Accordingly, the owner of the locked crypto assets helps the network and receives a reward for this. Thus, staking is a kind of analogue of the reward received from savings bank accounts in the traditional banking system.

These stages of development and formation of the industry demonstrate how the crypto industry has evolved from a marginal technology to a significant element of the global economy, continuing to influence global markets and the economy.

However, the other side of the coin of such influence is the high risks inherent in crypto assets. Despite the growth of capitalization of crypto assets and their popularization, this market is subject to very high fluctuations and volatility, which often lead to significant financial losses for investors, which has been demonstrated more than once in the history of the industry's development.

Such development of the industry, the increasing influence on the financial system and the economy as a whole, and the risks inherent in cryptocurrencies cannot be ignored by governments. At the moment, many countries continue to develop legal aspects of regulation of the crypto asset industry. Governments of different countries

are developing strategies to control cryptocurrencies, especially with regard to their use in illegal transactions.

2. INTERNATIONAL EXPERIENCE IN CRYPTO-ASSETS REGULATION

The first regulatory framework for cryptocurrencies began with individual countries attempting to establish a legal framework for their use and circulation. Many countries that initially adhered to prohibitive practices began to move towards the introduction of balanced regulation. The main steps were taken in the early 2010s, when governments and financial regulators began to recognize the growing popularity of cryptocurrencies and the risks associated with it.

Although regulation of the industry began to form in individual countries as early as 2010, at the moment the global community is still in the process of building it.

International experience in regulating the crypto asset industry shows a variety of approaches depending on the legislative, economic and cultural characteristics of different countries.

The main models of regulation can be conditionally divided into several groups:

1) Complete ban or restriction of circulation (strict regulation)

For example, China, whose government has completely banned cryptocurrency transactions, including mining, citing the need to protect financial stability and prevent illegal transactions.

2) Integration into existing financial systems or adaptation within the framework of existing regulation (moderate regulation)

In the US, cryptocurrencies are considered financial assets. Regulation is carried out by various agencies, such as the SEC (Securities and Exchange Commission) and the CFTC (Commodity Futures Trading Commission). Anti-money laundering (AML) laws and KYC (Know your client) compliance have been adopted.

The European Union has adopted a single legislative act known as the Markets in Crypto-Assets Regulation (MiCA), which defines the basic rules for digital asset market participants.

3) Permission to operate within certain special economic zones (moderate regulation)

In some countries, the introduction of permission for the circulation of cryptocurrencies in certain economic zones is practiced. For example, the United Arab Emirates, Kazakhstan, Singapore, Hong Kong and others.

4) Liberal regulation or creation of favorable conditions

Some countries seek to create conditions for the development of a promising industry. Malta and Switzerland (certain regions) are known for their favorable conditions for crypto companies.

5) Lack of clear regulation (unregulated markets)

In some countries, such as Argentina, Venezuela, Brazil, Mexico and Peru, as well as in a number of African countries, the regulation of cryptocurrencies remains

unclear, which creates both opportunities and risks. In such jurisdictions, the lack of legal regulation leads to uncertainty for users and businesses, an increased risk of legal conflicts and fraud due to the lack of protection of rights and trust as a tool.

The main difficulties in developing the regulation of digital assets have long been associated with the lack of unification and recommendations from international organizations, the uncertainty of the legal status (classification as a commodity, financial asset or means of payment), which led to uncertainty in terms of taxation, protection of the rights and interests of consumers, as well as with such properties of cryptocurrencies as decentralization, which means the absence of a single control center and makes it difficult to determine jurisdiction and responsibility, anonymity, which creates risks of using cryptocurrencies for illegal purposes with the lack of the ability to track transactions and the lack of knowledge and experience in this industry among regulators of the traditional market.

The following key risks and challenges of digital asset regulation can be noted:

1) Financial risks

Digital assets, especially cryptocurrencies, are characterized by high volatility, which makes them unpredictable in terms of value. Sharp fluctuations in exchange rates can lead to significant losses for investors and market participants. These risks raise the issue of the need to develop mechanisms to protect investors and stabilize the digital asset market. Regulators are faced with the task of identifying measures that will help reduce volatility and strengthen financial stability without suppressing innovation or limiting investor participation depending on the level of qualification, knowledge, availability of sufficient capital, etc. [3]

The main financial risks are:

- high volatility;
- lack of collateral (in the case of most cryptocurrencies, which are not backed by real assets);
- the risk of a systemic crisis in the event of large-scale failures or massive loss of confidence in digital assets;
- the impossibility of insuring deposits for investors in digital assets, which can lead to significant losses in the event of a sharp drop in the value of the coin.

2) Technological risks

The technological basis of digital assets, blockchain. It is generally accepted that blockchain provides a high degree of transaction security, but in practice, cybersecurity threats cannot be ruled out. Cryptocurrency exchange hacks, smart contract vulnerabilities, and threats of attacks on blockchain networks pose serious risks. Since digital assets and their infrastructure are largely decentralized, responsibility for their security often lies with private market participants, which makes control and protection a difficult task for regulators.

Major technological risks:

- hacks of cryptocurrency exchanges and wallets;
- vulnerabilities of smart contracts and decentralized applications;

- attacks on the blockchain (for example, 51% attacks), which can compromise the integrity of the network;

- problems with storing private keys: loss of access to assets due to the loss of keys.

3) Risks for consumers

Digital assets attract the attention of not only institutional investors, but also a wide range of individuals, many of whom may not have sufficient knowledge of the specifics of this market. Lack of regulatory oversight can leave consumers exposed to high risks of fraud, market manipulation, and opaque investment conditions. For example, cases of unsecured or fraudulent ICOs (Initial Coin Offerings) are becoming a common problem for market participants.

The main risks for consumers are:

- Fraud: illegal schemes and fraudulent projects (e.g. pyramid schemes or fake ICOs);

- Market opacity: insufficient or confusing information about financial products related to digital assets;

- Lack of consumer protection standards: many countries do not yet have clear legal provisions to protect investors in digital assets;

- Lack of refund mechanisms: in case of losses due to fraud or errors, users often have no way to get their funds back.

4) Risks related to money laundering and terrorist financing (AML/CFT)

Digital assets are often criticized for their use in criminal activities, including money laundering and terrorist financing. The anonymity and decentralized nature of many cryptocurrencies make them attractive to criminal groups. In this regard, regulators are faced with the need to implement strict measures to comply with AML (Anti-Money Laundering) and CTF (Counter-Terrorism Financing) procedures, which may hinder innovations related to decentralization and privacy.

The main risks of AML / CTF:

- anonymity of transactions, which complicates tracking operations;

- use of cryptocurrencies for illegal purposes: money laundering, financing of illegal activities;

- lack of global coordination in the fight against financial crimes related to digital assets.

5) Legal risks and legal uncertainty

Many countries are still at the stage of developing a legal framework for regulating digital assets, which creates serious legal risks for market participants. Differences in approaches to the legal regulation of digital assets at the international level can lead to legal uncertainty and conflicts of jurisdictions. Companies and investors may face difficulties in understanding their rights and obligations, as well as choosing the appropriate jurisdictions in which to operate.

Thus, the financial, technological and legal risks associated with digital assets pose serious challenges to the entire global community. **To effectively manage these risks, countries are focusing their efforts on developing balanced regulatory**

measures that will simultaneously stimulate innovation and ensure consumer protection and financial stability.

2.1. EXPERIENCE OF LEGAL REGULATION OF CRYPTO-ASSETS IN INDIVIDUAL COUNTRIES

1) United States of America (USA)

The regulation of digital assets and cryptocurrencies in the United States is complex and multi-layered, as it involves the actions of various federal and state regulators. In the United States, cryptocurrencies and digital assets are regulated based on their use and classification.

Federal Regulation

The United States does **not have separate/specialized legislation** in the field of crypto-asset regulation. The United States adheres to the position that legislation should not be oriented towards the technology on which the product/service is based (in this case, the "blockchain" technology) and it is important to consider it only from the point of view of its economic essence.

The types of crypto-assets, their circulation and the activities of entities in this segment are subject to the requirements of the current US legislation and, depending on their characteristics, are regulated by various government agencies.

For example, cryptocurrencies, tokens, tokenized financial assets (digital analogue of securities and other financial assets), as well as ICO (Initial coin offering) of crypto-assets are investment instruments, and their regulation, including the activities of exchanges, dealers and brokers, is carried out within the **framework of the US securities market legislation**. The authorized government agency is the **US Securities and Exchange Commission** (SEC). [4]

The SEC regulates digital assets, classifying some of them as "securities" under the Howey Test[4]. If a cryptocurrency or token meets this test, it must comply with all requirements applicable to securities, including registration, disclosure, and compliance with anti-fraud rules.

The SEC has brought several high-profile cases against companies that conducted initial coin offerings (ICOs) for violating securities laws, especially for the unregistered sale of tokens that were deemed securities.

Some of the high-profile cases brought by the SEC include lawsuits against Ripple Labs, Telegram, and Gram Token, exchanges Binance, Coinbase, Kraken, and Consensys, the developer of the most popular crypto wallet Metamask, and an important business unit of the Ethereum ecosystem. [5].

In turn, the United States **Commodity Futures Trading Commission** (CFTC) classifies Bitcoin and other cryptocurrencies as "commodities," similar to gold or oil. This allows the CFTC to regulate cryptocurrency futures and derivatives. The CFTC also regulates cryptocurrency markets to prevent price manipulation and illegal activity in the derivatives market.

The United States **Financial Crimes Enforcement Network** (FinCEN) considers cryptocurrency exchanges and other digital currency businesses to be money

[4] The Howey Test is a set of criteria used to determine whether an asset has the characteristics of a security and is an "investment contract".

services businesses (MSBs). This requires them to comply with the Bank Secrecy Act (BSA), including customer identification (KYC), suspicious activity reporting (SAR), and anti-money laundering (AML) obligations. In 2013, FinCEN issued guidance clarifying that digital currency exchange businesses must register with FinCEN and comply with AML/KYC requirements. [4]

In cases where financial institutions are involved in activities related to digital assets, such as organizing platforms for the circulation of cryptocurrencies, issuing tokenized assets and organizing "financial" services such as crypto lending (lending using cryptocurrency, as well as attracting financing secured by crypto assets) and crypto staking (receiving a reward for storing cryptocurrencies in a wallet - an analogue of a classic deposit), such activities are regulated by the US **Federal Reserve Bank**.

The United States **Internal Revenue Service** classifies cryptocurrencies as "property" rather than currency. This means that every event involving the use of cryptocurrencies (such as selling, exchanging for other cryptocurrencies, or purchasing goods) is considered a taxable transaction. Citizens are required to declare income from cryptocurrency transactions and pay capital gains'taxes.

Starting in 2020, the IRS has included a question about owning and using cryptocurrencies on the main tax return, increasing enforcement of tax obligations.

At the same time, there are **no requirements** in the US legislation declaring the possibility of **using/circulating crypto assets exclusively on relevant platforms (crypto exchanges)**. Regulation of crypto exchanges in the US is carried out by analogy with the current regulation of stock exchanges. However, crypto assets can also be transferred from one person to another outside of regulated platforms at the level of direct transactions between individuals, i.e. they are regulated by civil law relations.

In addition, there is **no separate regulation** by the Securities Commission for **stablecoins**, including requirements for collateral, storage, issuance, and persons bearing obligations under them. Stablecoins are subject to regulation like other types of cryptocurrencies.

Also, separate regulations *(within the framework established at the state level)* are implemented by states independently.

State-Level Regulation

The **New York** Department of Financial Services (NYDFS) introduced the "BitLicense" in 2015, making New York one of the most heavily regulated states when it comes to cryptocurrencies. The BitLicense requires cryptocurrency companies to obtain a license to operate in the state and adhere to strict rules regarding AML/KYC, reserve requirements, and consumer protection.

California treats cryptocurrency companies as money service providers, requiring them to register and comply with financial regulations similar to federal ones.

Wyoming has become one of the most "friendly" states for cryptocurrencies, having passed a number of laws that create favorable conditions for cryptocurrency companies to operate, including recognizing some digital assets as "non-taxable property."

Thus, cryptocurrency regulation in the United States continues to evolve and remains complex, as it involves many regulators and various legal aspects. However, this approach also allows for the regulation to adapt to the rapidly changing digital asset market.

2) Russian Federation

In the Russian Federation, the Federal Law of the Russian Federation of July 31, 2020 No. 259-FZ "On Digital Financial Assets, Digital Currency and Amendments to Certain Legislative Acts of the Russian Federation" is in force.

The law, which entered into force on January 1, 2021, defines the legal status of **digital currency (cryptocurrency) and digital financial assets** (DFA). The law **prohibits the use of cryptocurrency as a means of payment in Russia**. Restrictions have been introduced on the advertisement of cryptocurrencies and related services in order to prevent misleading inexperienced investors and minimize the risks of fraud.

However, despite the ban on the use of cryptocurrencies and the organization of their circulation, according to some experts, about 20 million citizens of the Russian Federation are owners of cryptocurrencies, which indicates that the country's population is quite actively involved in the circulation of cryptocurrencies.

In addition, at present, taking into account the developing geopolitical situation, an experimental legal regime for the use of digital currencies has begun in Russia. [6]

As for Digital Financial Assets **(DFA)**, they are recognized as property rights expressed in digital form, which may include obligatory and other rights, including the right of claim.

Thus, **digital financial assets** are actually understood as **tokenized financial assets**. In March 2024, the President of the Russian Federation signed a law permitting the use of DFA in international settlements. According to the document, digital financial assets can be used as a means of payment under foreign trade agreements between residents and non-residents. [7]

As of the end of 2023, the total number of digital financial asset (DFA) issues is about 450, the number of digital rights issuers is 130 issuers, and the market volume in monetary terms is estimated at 107 billion rubles. By the end of 2023, the register of the Central Bank of the Russian Federation includes 10 platforms for issuing DFA: these are three banks (Sberbank, Alfa-Bank, Eurofinance Mosnarbank), the National Settlement Depository (NSD), SPB Exchange, Atomize, Lighthouse, Distributed Registry Systems (Masterchain), Tokens (Tokeon) and Blockchain Hub (part of the MTS ecosystem). At the same time, there is only one operator for the exchange and creation of a secondary market for DFA - MoEx. [7]

The law requires that operators providing services for the issuance, exchange and storage of digital assets be registered in a special register and have the appropriate licenses. Some activities related to DFA, such as issuing tokens, exchanging digital assets, are permitted, but their use is strictly controlled and regulated.

The Central Bank of the Russian Federation is actively involved in the development and implementation of regulations related to the regulation of digital assets.

Organizations dealing with digital financial assets (for example, cryptocurrency exchange platforms) are required to comply with customer identification (KYC) requirements and report suspicious transactions in accordance with anti-money laundering (AML) legislation.

3) European Union (EU)

In the European Union, crypto assets are regulated under MiCA (Markets in Crypto-Assets Regulation). MiCA is a legislative act proposed by the European Commission in September 2020, which aims to create uniform rules for the regulation of crypto assets in the European Union. MiCA is part of the EU's broader digital finance agenda, which aims to stimulate innovation in the financial sector, create legal certainty and protection for cryptocurrency users, and minimize risks to financial stability. [8]

MiCA introduces legal definitions of different types of crypto assets, including asset-linked tokens (e.g. stablecoins), utility tokens, and tokens linked to electronic currency. The regulation covers all digital assets that were not covered by other EU legislation at the time of adoption.

Classification of digital assets in MiCA:

- Asset-referenced tokens. These are digital assets whose value is pegged to multiple fiat currencies, commodities, or other crypto assets in order to maintain a stable value. They are most often referred to as basket-backed stablecoins. The main purpose of these tokens is to provide a stable value for use as a means of payment or store of value.

Issuers of such crypto assets are required to comply with strict reserve, liquidity, and risk management requirements. There is a requirement to obtain a license and strict supervision by EU regulators and requirements for disclosure of information on the mechanisms for maintaining the stability of the token value. [9]

- E-money tokens. This is a type of digital asset that is pegged to a single fiat asset, usually a national currency. They are similar to traditional electronic money, but are issued as tokens on the blockchain. Their main purpose is to be used as a means of payment.

Issuers of such crypto assets must ensure 100% reservation of their tokens in the corresponding currency. Issuers of electronic money tokens are required to obtain a license to operate and be supervised by central banks or other financial regulators. Such tokens are regulated in a similar way to traditional electronic money. [9]

- Utility tokens. These tokens provide access to specific products or services within a specific platform or ecosystem. They are not intended to be used as a means of payment or investment, but rather to provide access to the company's services or products. The main purpose is to provide access to the company's products or services, often within the blockchain ecosystem. [9]

Issuers are required to disclose information about the nature and use cases of the tokens. Companies issuing utility tokens must provide a white paper explaining the nature of the tokens, their application, and the associated risks. Regulation for utility tokens is less strict than for stablecoins and asset-backed tokens.

- Tokens that do not fall under other categories (other crypto-assets). MiCA also covers crypto assets that do not fall under other existing EU regulatory

frameworks, such as the Payment Services Directive or the Markets in Financial Instruments Directive (MiFID II). These may include various innovative assets that do not have a clear link to the existing legal framework. [9]

Issuers of such assets must comply with minimum transparency requirements by publishing a white paper that discloses information about the risks, issuance mechanisms and circulation of tokens. Depending on the nature of the tokens, additional requirements for risk management and user protection may be introduced.

MiCA provides for a differentiated approach to regulation depending on the category of cryptoasset. For asset-linked tokens and e-money, the requirements are much stricter than for utility tokens, since their use involves a higher risk to financial stability and consumer rights. Issuers of stablecoins, especially large projects, face additional requirements for reserves, reporting and risk management in order to minimize possible systemic risks.

MiCA requires cryptocurrency services (exchanges, wallets, brokers) to obtain a license to operate in the EU. These services are obliged to comply with a number of requirements:

- transparency of operations and compliance with anti-money laundering (AML) and counter-terrorist financing (CFT) rules;
- ensuring user protection from fraud and theft of funds;
- establishment of dispute resolution and refund mechanisms. [9]

MiCA also introduces important measures to protect the rights of crypto asset users, including mandatory disclosure of information about the risks associated with digital assets and mechanisms to protect against cyber attacks or loss of funds. It also introduces measures to compensate for losses if they are related to regulatory violations.

One of the key aspects of MiCA is the prevention of systemic risks associated with the mass use of crypto assets, especially stablecoins. The regulation introduces strict rules on risk management, liquidity and reserves for systemically important stablecoins in order to prevent their potential negative impact on the financial system.

Thus, MiCA introduces uniform rules for all EU countries, which creates legal clarity for companies dealing with crypto assets. MiCA is one of the most comprehensive pieces of legislation in the field of cryptocurrency regulation in the world. The implementation of MiCA can be an important step in the development of the crypto industry in Europe and create a standard for other jurisdictions. However, the success of MiCA will depend on how effectively the proposed measures are implemented and how the cryptocurrency market adapts to the new requirements.

However, there is also an opposing view, with some in the crypto community believing that **strict requirements could slow down innovation and the development of new products**. There are concerns that complex licensing and reporting procedures could increase costs for businesses and limit market access for smaller companies. Supporters of this view believe that EU regulation could make the European crypto market less competitive compared to other regions with less stringent regulations.

4) Latin American countries

Regulation of digital assets and cryptocurrencies in Latin American countries is becoming an increasingly relevant topic amid the rapid growth of the crypto market in the region. Latin America occupies a significant place in the global crypto space, with high levels of penetration and volume of transactions in some countries.

Brazil: Brazil is one of the largest cryptocurrency markets in Latin America. Brazil ranks 10th on Chainalysis' Global Cryptocurrency Penetration Index as of August 2024. According to 2022 statistics, more than 16% of the country's population has used cryptocurrencies at least once, making Brazil one of the leaders in digital asset penetration in the region. In 2022, cryptocurrency trading volume in Brazil was around US$120 billion. [10]

Given the growth of uncontrolled cryptocurrency circulation, Brazil has begun to form a structured legislative framework for regulation of crypto assets. In 2022, a law on the regulation of cryptocurrencies was adopted, which was an important step in the development of this sector. The law regulates the activities of crypto exchanges (registration and obtaining a license from the central bank), defines the concept of crypto assets (a means of exchange and storage of value, but not a means of payment). The regulatory government bodies are the Central Bank and the Securities Commission of Brazil.

Argentina: Argentina is also one of the world's leading countries in cryptocurrency usage, ranking 15th on Chainalysis' Global Cryptocurrency Penetration Index as of August 2024. Research estimates that in 2022, around 21% of Argentina's population uses cryptocurrency to protect their savings from high inflation and currency devaluation. This is one of the highest cryptocurrency adoption rates in the world at the time. [10]

However, despite the widespread adoption of digital assets, regulation in the country remains fragmented. The government is currently focusing on taxation of cryptocurrency transactions and exchanges.

Mexico: As the third largest economy in Latin America, Mexico has also shown significant interest in cryptocurrencies. In 2022, the country's cryptocurrency transaction volume exceeded $30 billion, and according to Chainalysis, Mexico ranks 14th in the world in terms of cryptocurrency penetration. Around 12% of the country's adult population has used cryptocurrencies at least once to conduct financial transactions. [10]

Cryptocurrency regulation in Mexico began with the passage of the Fintech Law in 2018, which regulates platforms that offer cryptocurrency exchange services. However, this law only covers the exchange of digital assets for fiat currencies and does not regulate the use of cryptocurrencies as a means of payment or investment asset. The government is discussing further steps to create more comprehensive regulations, but no real changes have been made yet.

Venezuela: A Unique Case of National Cryptocurrency. Despite being one of the most economically unstable countries, Venezuela has been actively using cryptocurrencies as a hedge against hyperinflation. Around 17% of the Venezuelan population uses cryptocurrencies for savings and international transfers. The country ranks 13th in the world in terms of cryptocurrency penetration. [10]

Venezuela also stands out from other countries due to the launch of the state-owned cryptocurrency El Petro, which is backed by oil assets. However, El Petro has not become widely used either domestically or internationally. Instead, the main activity of Venezuelan users is focused on international cryptocurrencies such as Bitcoin and Ethereum. Cryptocurrency regulation in Venezuela remains incomplete, with a significant portion of transactions taking place on informal markets.

A similar pattern of active cryptocurrency use can be seen in other Latin American countries such as Peru and Colombia. Latin American countries with high inflation and economic instability, such as Argentina and Venezuela, consider cryptocurrencies as an important alternative for citizens, but there is no clear legal framework for their use. The region as a whole shows a high level of cryptocurrency use in the world, occupying a leading position in the penetration of digital assets among the population. At the same time, the region is characterized by the lack of full-fledged market regulation, which leads to the flow of a large amount of liquidity into the crypto ecosystem due to the lack of public confidence in the national currency. In the context of global growth of the crypto market and increasing investor activity, the need to create balanced and effective regulation in Latin American countries is becoming increasingly urgent.

5) Japan

In Japan, cryptocurrencies are regulated by the Law on Payment Services, adopted in April 2017. According to this law, cryptocurrency exchange operators must register with the Japanese Financial Service and comply with AML/CFT requirements. Japan classifies cryptocurrencies as "virtual assets" and recognizes them as a legitimate means of exchange and payment, but they are not an official currency. [11]

After the collapse of the largest exchanges Mt. Gox (2014) and Coincheck (2018), based in Tokyo, the Japanese authorities announced the need to regulate this market. Taxation of cryptocurrencies and transactions with them has been introduced. Cryptocurrency transactions fall under the category of "miscellaneous income", and tax rates on them can reach up to 55%, depending on the amount of income. Trading cryptocurrencies, mining, as well as receiving income from ICO are taxed. Purchases of goods and services for cryptocurrency may also be subject to capital gains tax if the value of the cryptocurrency has changed since its acquisition. [11]

In order to protect the interests of representatives of the cryptocurrency business, a Digital Assets Commission has been established. Since 2016, cryptocurrency exchanges have been subject to registration with the Financial Services Agency (JFSA), which can audit sites and apply administrative measures. Since October 2017, all cryptocurrency transactions have been monitored by the Agency in order to protect the rights of customers. Mandatory asset insurance requirements have been introduced, i.e. exchanges are required to insure customer funds in case of hacking or other losses and asset separation, when customer funds must be separated from the company's assets in order to exclude their use in the operational activities of exchanges. [11]

In addition, in 2018, Japan adopted an amendment to the law on financial instruments and exchanges, which expanded the definition of virtual currencies and amended the rules for trading cryptocurrencies. [11]

There is also an association of cryptocurrency exchanges in Japan, which develops security standards and cooperates with the government in the field of regulation of the cryptocurrency market.

Japan uses a **differentiated approach** to regulating cryptocurrencies, depending on their security. For example, cryptocurrencies and "utility" tokens like BTC, ETH refer to crypto assets and are regulated in accordance with the Payment Services Act and on the prevention of transfers of criminal proceeds. Business operators who directly or as an intermediary participate in the purchase, sale, exchange of crypto assets, management of crypto assets in favor of third parties are required to register as providers of crypto asset exchange services.

"Security tokens", which are tokenized stocks, bonds (digital financial assets) They are regulated in accordance with the Law on Financial Instruments and Exchanges and are classified as transferable rights with electronic registration. Registration of the relevant participants is carried out as Operators of the Type I Financial Instruments business Operators.

In 2022, a law was passed regulating the issue of *stablecoins*. According to this law, stablecoins in Japan must be linked to fiat currencies and issued either by banking institutions or trust companies. The purpose of this legislation is to ensure financial stability and prevent abuse in the stablecoin market. [11]

The initial coin offering (ICO) in Japan is regulated depending on the nature of the tokens. If tokens have the characteristics of securities (for example, they represent a share in a company or provide the right to receive income), they are subject to the "Financial Instruments and Exchange Act" (FIEA). IPO companies are required to follow strict requirements, including obtaining a license and implementing anti-money laundering (AML) measures. Other tokens and non-interchangeable (unique) tokens (NFT) are not regulated within the framework of the regulatory framework in force in Japan.

6) South Korea

In South Korea, cryptocurrencies are not recognized as legal tender, but they are considered as virtual assets and financial instruments. In 2020, the South Korean government adopted amendments to the Law on Special Financial Information, which introduced cryptocurrencies into the legal field.

South Korea has introduced a number of legislative measures to regulate the cryptocurrency market and protect investors. Some of them include:

1. The Financial Services Act (FSS) - it requires payment providers and cryptocurrency exchanges to register and comply with certain rules, including anti-money laundering (AML) and Customer Care (KYC).

2. The Electronic Financial Transactions Act (EFT) requires cryptocurrency exchanges to register when providing cryptocurrency exchange services to the national currency.

3. The National Income Taxation Act (NCIT) - it requires companies working with cryptocurrencies to pay taxes.

South Korea has introduced a tax on profits from transactions with cryptocurrencies. At the beginning of 2023, a new tax regime was to come into force,

involving the taxation of profits from the sale of cryptocurrencies in the amount of 20% on income exceeding 2.5 million Korean won (approximately $2,000) per year. However, due to political discussions, the introduction of this tax was postponed until 2025.

4. The Law on Consumer Protection - it protects the rights of investors in cryptocurrencies, requires cryptocurrency exchanges to be transparent, disclose information and comply with high security standards.

5. The Law on Information Security - it requires improved security measures and protection of users' personal data when working with cryptocurrencies and cryptocurrency exchanges.

8. The Law on e-Commerce defines e-commerce, which includes the purchase and sale of cryptocurrencies.

9. ***The Law on Cryptocurrencies and Blockchain*** was adopted in early 2021 and establishes the legal framework for the regulation of the cryptocurrency market and the development of blockchain technologies.

In addition to the legislative framework, the regulation of the cryptocurrency market in Korea is also carried out through the activities of the Financial Supervision Commission (FSC) and the Securities and Futures Exchange Commission (FSS), which impose restrictions on the activities of exchanges and monitor transactions with cryptocurrencies in the country.

In September 2017, the FSC decided to ban any form of initial coin offerings (ICOs) in the country and banned trading in bitcoin futures, as well as all types of lending in digital currencies, including margin trading in cryptocurrencies.

South Korea is one of the leading countries in the field of digital assets and blockchain technologies, actively developing regulation of cryptocurrencies and digital assets to ensure transparency and user protection. The country seeks to control the crypto market, minimizing the risks associated with illegal activities and contributing to the development of blockchain technology.

7) Singapore

Singapore is one of the most progressive jurisdictions in the world in the regulation of digital assets and cryptocurrencies. The government actively promotes the use of blockchain technologies and innovations in the financial sector, while ensuring strict measures to protect consumers and prevent illegal activities. Singapore's approach combines flexibility and security, which makes the country attractive to crypto companies.

1. Legislation.

In 2019, Singapore adopted amendments to the PSA (Payment Services Act), adopted in 2019 (entered into force in January 2020), providing for the introduction of mandatory regulation of the exchange and trade of cryptocurrencies in the country. It creates a special category of "digital currencies" and requires companies to obtain a license from the Monetary Authority of Singapore (MAS, Monetary Authority of Singapore) to engage in the exchange and sale of cryptocurrencies. Local exchanges providing cryptocurrency exchange services also require registration with MAS.

According to the provisions of the PSA Law:

- crypto assets (virtual assets) are designated as "Digital Payment Tokens";
- digital representation of the value of crypto assets can be expressed in units, is not linked to the issuer in any currency and is a means of exchange;
- virtual assets can be stored or sold electronically;
- a person providing services for the maintenance of "digital payment tokens" must obtain a license from a payment institution;
- The AML/CTF guidelines for DPT service providers imply the establishment of reliable controls to detect and suppress money laundering and terrorist financing.

2. Control and supervision.

MAS is the central bank responsible for overseeing all securities, investment and financial services companies in Singapore. It also monitors the activities of companies providing cryptocurrency exchange services to ensure compliance with legal requirements.

There are three types of licenses:

- Standard Payment Institution License — for organizations that process small amounts of transactions.
- Major Payment Institution License — for large companies with a high volume of transactions.
- Money-Changing License — for companies engaged in the exchange of currencies and digital assets.

Companies are required to comply with KYC (Know Your Customer) and AML (Anti-Money Laundering) requirements.

Until January 2020, cryptocurrencies in Singapore were subject to the Goods and Services Tax (GST). However, the government has lifted this requirement, and now cryptocurrency transactions are exempt from GST. However, cryptocurrencies used as investment assets may be subject to capital gains tax if a company or individual receives income from transactions with them.

Initial coin offerings (ICOs) and token issuance in Singapore are regulated depending on whether tokens are securities under the Securities and Futures Act (SFA). If tokens have the characteristics of securities (for example, they grant rights to income or a share in a project), their issuers are required to comply with rules similar to those that apply to traditional securities.

MAS requires ICO projects to receive appropriate permission if their tokens fall under the category of securities.

3. Consumer protection systems.

MAS also has consumer protection programs related to cryptocurrency exchanges. It urges companies providing cryptocurrency exchange services to comply with consumer protection requirements, such as detailed disclosure of information and storing customer funds in separate accounts.

8) China

In China, the regulation of digital assets and cryptocurrencies is characterized by a strict and extremely restrictive approach. The Chinese government has established strict control over the cryptocurrency market, and since 2017, has imposed significant

bans on many aspects of working with cryptocurrencies. The main reason for such measures is related to concerns about financial stability, money laundering and cash flow control.

China was one of the first major states to completely ban transactions with cryptocurrencies. The main approaches of Chinese regulators to regulating cryptocurrencies are listed below:

1. *Ban on ICO (initial coin offering)* - In September 2017, Chinese regulators announced a ban on ICOs, citing the risk to investors.

2. *Ban on cryptocurrency trading on exchanges in China - at the end of 2017, regulators issued a directive banning cryptocurrency trading on exchanges in China*. In September 2021, the People's Bank of China officially announced that all transactions related to cryptocurrencies are illegal. This includes trading, exchanging, issuing tokens, and any other cryptocurrency-related activity.

As a result of this ban, cryptocurrency exchanges and related services have ceased operations in China.

3. Ban on cryptocurrency mining - In early 2018, Chinese regulators also took measures to ban cryptocurrency mining in some provinces. [12]

China was previously the largest center of global cryptocurrency mining due to cheap electricity and large-scale infrastructure. However, in May 2021, the government started to actively combat the mining of cryptocurrencies, citing excessive energy consumption and environmental impact. Mining has been recognized as an illegal activity, and most mining organizations have been shut down or relocated to other countries such as Kazakhstan and the United States.

Summarizing the results of the analysis of foreign practice, it can be concluded that there are no uniform standards and regulatory practices in the world. In general, there is a **tendency in the world to systematically legalize the circulation of cryptocurrencies with the simultaneous introduction of systemic risk-based regulation of the cryptocurrency market.**

At the same time, there is a general tendency for many foreign regulators to move away **from the prohibitive practice** (from a total ban) of the cryptocurrency sphere *(a total ban due to the high technology of this sphere is ineffective, since all circulation becomes "shadow" and uncontrolled)*, **and the transition to legalization of circulation and the introduction of systemic (full-fledged) regulation** and supervision based on the principles of proportionality and risk-orientation with some limitations.

In neighboring countries, such as **Uzbekistan and Kyrgyzstan, the activities of crypto platforms have been legalized.** They demonstrate successful models of working with digital assets. According to experts, in the first seven months of 2024, the volume of transactions conducted by service providers with virtual assets in Kyrgyzstan amounted to **375.9 billion KGS (4.46 billion US dollars).** At the same time, tax revenues from cryptocurrency platforms and exchanges amounted to 92.2 million KGS (1 million US dollars), and mining companies brought 30.7 million KGS (0.36 million US dollars) to the budget. [25]

In July 2024, the volume of transactions with virtual assets, including purchase, sale and exchange, reached **26.1 billion KGS (about 310 million US dollars),** which

is 166% higher than in the same period last year, when circulation amounted to 9.8 billion KGS (116.4 million US dollars). [24]

The clients of these crypto platforms are also more likely to be citizens of the Republic of Kazakhstan.

For reference*: since November 2023, support for crypto wallets has been integrated into the Telegram messenger, from which it is possible to carry out transactions for the purchase, sale, transfer of such instruments as bitcoin, stablecoin USDT, Toncoin, Notcoin. This significantly simplifies access to the crypto market and creates prerequisites for a multiple increase in their penetration in many countries of the world, especially considering that in 2024 the average monthly number of active Telegram users in the world approached 1 billion people (in Kazakhstan, this figure was 12.5 million). Regulators need to take this challenge into account when monitoring risks to financial stability and shaping an approach to the regulation of the crypto asset market, and law enforcement agencies should take this challenge into account to strengthen the fight against ML/FT/FRM threats and ML/FT/FRM risks (including taking into account the experience of France).*

It can be concluded that bans on digital assets in a number of countries have often encountered difficulties, which led to their partial or complete failure. The main reasons for the failure of such bans are related to the global nature of cryptocurrencies, decentralized technologies, and difficulties in controlling them. The following are examples of countries where bans on digital assets have proved ineffective or have encountered difficulties in implementation:

1**) India** has repeatedly tried to introduce strict measures to ban cryptocurrencies, but they have proved ineffective.

In 2018, the Reserve Bank of India (RBI) imposed a ban on cryptocurrency transactions' servicing by banks and financial institutions. This created serious obstacles for the crypto business, but did not stop citizens from trading cryptocurrencies through P2P platforms. [13]

In 2020, the Supreme Court of India overturned the RBI ban, declaring it unconstitutional. This was a significant victory for the crypto community, and the cryptocurrency market started to recover quickly. [13]

Despite ongoing discussions about the possible introduction of new bans or restrictions, the cryptocurrency market in India remains active, and attempts to ban it completely have met strong resistance. At the moment, India ranks first in terms of circulation of crypto assets according to the Chainalysis Global Crypto Adoption Index as of August 2024. [10]

2) **Nigeria** is one of the countries with the largest volume of cryptocurrency transactions in Africa, despite government attempts to ban them.

In February 2021, the Central Bank of Nigeria banned banks and financial institutions from servicing cryptocurrency accounts, citing the risks of money laundering and fraud. However, this has not stopped Nigerians from using cryptocurrencies. [14]

Cryptocurrency trading in Nigeria has moved to the P2P (direct trading) sector, which has made regulation almost impossible. Cryptocurrencies continue to be used for cross-border transfers and as a means of protection against inflation. Despite government bans, market activity remains high, and this demonstrates the ineffectiveness of attempts to ban cryptocurrencies.

Later, this ban was lifted, the regulator stated that global trends showed the need to regulate such operations. Nigeria currently ranks 2nd in the world in the Chainalysis Global Crypto Adoption Index. [10]

3) **Pakistan** also tried to impose strict restrictions on cryptocurrencies, but the bans proved ineffective.

In 2018, the State Bank of Pakistan (SBP) banned banks and financial institutions from participating in cryptocurrency transactions, prohibiting the purchase and sale of digital assets. However, as in India and Nigeria, cryptocurrency transactions continued to be carried out through P2P platforms. [15]

Many Pakistani citizens continue to use cryptocurrencies to conduct international transfers and savings, which makes regulation difficult. Pakistan currently ranks 9th in the world in the Chainalysis Global Crypto Adoption Index. [10]

4) **Turkey** has imposed restrictions on cryptocurrencies, but they have not achieved the desired effect.

In April 2021, the Central Bank of Turkey banned the use of cryptocurrencies as a means of payment. The government has expressed concern about the possible use of cryptocurrencies for illegal activities and the risks associated with their volatility.[16]

However, cryptocurrencies continue to be used for investments and savings, especially amid high inflation and the depreciation of the Turkish lira. The popularity of cryptocurrencies remains high, and restrictions have not stopped the use of digital assets to store value. Turkey currently ranks 11th in the world in the Chainalysis Global Crypto Adoption Index. [10]

5) **Bangladesh** has imposed one of the strictest bans on cryptocurrencies, but despite this, the use of cryptocurrencies continues to grow.

In 2014, the Central Bank of Bangladesh banned the use of bitcoin and other cryptocurrencies, threatening criminal liability for their use. [17]

Nevertheless, amid agrowing interest in cryptocurrencies and the opportunity to earn income through cryptocurrency exchanges and mining, many citizens continue to participate in cryptocurrency transactions using P2P platforms and bypassing legal restrictions.

The main reasons for the failure of bans are:

- The global nature of cryptocurrencies: Since cryptocurrencies are decentralized and their operations can be carried out on a global network, many governments face difficulties in implementing strict controls;

- P2P transactions allow users to exchange cryptocurrencies directly, bypassing official channels, which makes bans ineffective;

- high demand and inflation: in countries with high inflation or limited access to international financial systems, cryptocurrencies provide an alternative, which increases interest in them even in conditions of prohibition (for example, in Latin America and Africa).

As a result, despite the efforts of many countries to ban cryptocurrencies, the global nature of digital assets and the high demand for them lead to**bans often turning out to be ineffective or temporary.**

2.2. RECOMMENDATIONS OF INTERNATIONAL FINANCIAL ORGANIZATIONS

The International Monetary Fund offers the following approaches to eliminate the risks associated with crypto assets:

1. To protect monetary sovereignty and stability by strengthening the foundations of monetary policy and *not to grant crypto assets the status of official currency or legal tender*, as well as to establish the *legal certainty* of crypto assets and eliminate *legal risks*.

2. *Protection against excessive volatility* of capital flows and maintaining the effectiveness of capital movement indicators.

3. Disclosure of fiscal risks and *establishment of a tax regime* for crypto assets. Tax policy should ensure an unambiguous tax regime for crypto assets, while tax authorities should strengthen compliance with tax legislation.

4. Develop and implement *prudential, behavioral and supervisory requirements* for all participants in the cryptocurrency market.

5. Establish *a joint monitoring system* covering various national agencies and authorities.

6. Monitor the impact of crypto assets on the stability of the international monetary system.

7. Strengthen global cooperation to develop digital *infrastructure and alternative solutions* for cross-border payments and financing. [18]

The International Securities and Exchange Organization (IOSCO, International Organization of Securities Commissions) in 2019, IOSCO publishes "Methodological Principles" for government regulators addressing issues such as cryptocurrency trading, storage and transfer of digital assets. The organization has presented a number of recommendations that will allow states to regulate cryptocurrencies without endangering users. One of the main recommendations of IOSCO *is the requirement to register cryptocurrency platforms* and mandatory compliance with anti-money laundering and terrorist financing standards. IOSCO also recommends that states provide information about cryptocurrencies and related risks, tax regulations, and user security guarantees. IOSCO also raised the issue of digital asset issuance (ICO), recommending that states adhere to the principles of investor protection and transparency. IOSCO calls on states to cooperate and coordinate the regulation of cryptocurrencies in various jurisdictions. IOSCO's recommendations will expand the existing set of laws and regulations on the cryptocurrency market and help improve security and regulatory comfort for users. [19]

In 2020, IOSCO is calling on regulators around the world to tighten the rules of operation of cryptocurrency exchanges and their methods of verifying users. IOSCO called on regulators to take a closer look at the regulation of cryptocurrency exchanges and how they verify their customers. The organization claims that this will reduce the risks of money laundering.

On November 16, 2023, IOSCO published the final version of the recommendations on the policy of the regulation of crypto assets. The document

developed by IOSCO experts covers six main areas of 18 recommendations: (1) conflicts of interest caused by vertical integration of activities and functions; (2) market manipulation, insider trading and fraud; (3) Cross-border risks and regulatory cooperation; (4) storage and protection of client assets; (5) operational and technological risks; (6) the suitability assets for supply in retail markets. *Currently, IOSCO has focused its efforts on promoting, supporting, monitoring and evaluating the adoption and implementation of effective regulatory regimes for crypto assets in IOSCO member jurisdictions, as well as providing technical assistance for the implementation of its recommendations.* [20]

In July 2022, the Committee on Payments and Financial Infrastructure of the Bank for International Settlements (CPMI, Committee on Payments and Market Infrastructures), together with IOSCO, published a Guide on Applying the Principles of Financial Market Infrastructure to Systemically Important Ecosystems of stablecoins (Application of the Principles for Financial Market Infrastructures to stablecoin arrangements). The guide emphasizes that the transfer function of stablecoins is comparable to the transfer function performed by other types of financial market infrastructure (FMI). As a result, a stablecoin that performs this transfer function is considered an FMI for the purposes of applying the FMI principles, and if the relevant authorities deem it systemically significant, it is expected that the relevant FMI principles will be followed. [21]

The mechanisms of circulation of stablecoins may have some noticeable and new features compared to existing FMI. These notable features relate to: (i) the potential use of settlement assets that are neither central bank money nor commercial bank money and involve additional financial risk; (ii) the interdependence between several functions of the stablecoin organization; (iii) the degree of decentralization of operations and/or management; and (iv) potentially large-scale deployment of new technologies, such as distributed ledger technology. [21]

Taking into account these features of the stablecoin mechanisms, the guide discusses in detail aspects related to: (i) management; (ii) the basis of integrated risk management; (iii) settlement completeness; and (iv) monetary settlements. The guide also contains considerations that will help the authorities determine whether the stablecoin agreement is systemically important. This guide is an important further step in applying the principle of "the same risk, the same regulation" to systemically important stablecoin agreements that are used for payments. It is also a key contribution to the G20 cross-border payments program. [21]

The International Swaps and Derivatives Association (ISDA, International Swaps and Derivatives Association), in order to form an effective regulation of cryptocurrencies, recommended in September 2021 to establish standard rules for trading cryptocurrencies. They include the following:

1. Determining the status of cryptocurrencies: ISDA states that cryptocurrencies are not currencies, but rather are considered digital assets. However, from the point of view of financial reporting, they can be classified as currencies or securities.

2. Risk for market participants: ISDA indicates that cryptocurrencies can be very volatile and may have a high level of risk. Therefore, market participants should be prepared for losses.

3. The Need for Regulation: ISDA states that cryptocurrency regulation is necessary to protect investors and prevent fraud. However, the association also notes that regulation must balance consumer protection and innovation development.

4. Cryptocurrency Agreements: ISDA recommends setting standard rules for cryptocurrency agreements to reduce risk for market participants.

5. Settlement mechanisms: ISDA states that it is necessary to establish settlement mechanisms for transactions with cryptocurrencies. They should be transparent and convenient for market participants. [22]

In May 2022, ISDA published the document "Risks of Crypto Assets and Hedging Analysis" regarding the hedging of risks on crypto assets using futures and ETFs *(exchange-traded fund, exchange-traded fund - repeats the structure of the selected underlying asset)*. This document reveals the possibility of creating a crypto asset hedging structure using effective hedging relationships, strong correlation and a relatively small base between crypto assets and their futures and ETFs.

The Financial Action Task Force (FATF), an intergovernmental organization that develops international standards in the field of AML/CFT/FMT, considers cryptocurrencies as a *"virtual" asset.*

According to FATF Mutual Assessment reports, the United States is the most advanced country in regulating virtual asset service providers (VASP). The country has legislation that requires registration and licensing of cryptocurrency exchanges and wallet owners, as well as providers of virtual asset transfer services. There are also many regulatory agencies in the United States that monitor compliance with the rules.

Japan is in second place in terms of regulation of virtual assets. The country has legislation that requires the registration of cryptocurrency exchanges and owners of cryptocurrency wallets. Japanese regulators also ensure compliance with the requirements and impose administrative penalties for violations.

Other countries in the **TOP 10 for regulating virtual assets** include Australia, Canada, Germany, France, the United Kingdom, Italy, Sweden and the Netherlands. In each of these countries, there are laws and regulators that ensure that VASP complies with the AML/CFT legal requirements in these countries and the requirements of FATF Recommendation 15.

What all the countries in the TOP 10 have in common is that they are taking measures to create a regulatory environment for virtual assets, which includes requirements for registration and licensing of VASP, monitoring and punishing violations. However, each country has its own characteristics and requirements, which increases the risks of regulatory arbitration.

In general, in accordance with the FATF position, all countries of the world are recommended to fully control the risks of ML/FT/FRM when using virtual assets, for this FATF recommends ensuring, in accordance with the 15th FATF Recommendation, *a systemic risk-oriented regulation of all VASP (with registration/licensing, establishment of regulatory requirements for licensed VASP)*, conducting periodic

national and sectoral risk assessments of ML/FT/FMT (money laundering, terrorist financing, financing the proliferation of weapons of mass destruction) with the participation of the VASP sector (and the VASP conducting its corporate assessments taking into account the national assessment), and developing measures based on the results of these assessments to minimize the risks and threats of ML/FT/FRM. In the absence of full-fledged regulation, FATF requires a complete ban on the circulation of virtual assets. [24]

Thus, international financial organizations emphasize the importance of global coordination and an integrated approach to the regulation of the crypto asset market. The recommendations of international organizations are aimed at creating a transparent, secure and sustainable market for crypto assets.

4. KAZAKHSTAN'S EXPERIENCE AND CURRENT PRACTICE OF REGULATING CRYPTO ASSETS

The formation of regulation of crypto assets in Kazakhstan can be divided into several stages:

1) The beginning of the formation of regulation (prohibition of circulation from 2020 to 2022)

The process of forming the legal regulation of the crypto assets market in Kazakhstan started with the adoption of the Law of the Republic of Kazakhstan "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on the regulation of digital technologies" No. 347-VI dated June 25, 2020. Within the framework of this law, the basic provisions for the regulation of crypto assets were introduced into the Law of the Republic of Kazakhstan "On Informatization". Key concepts such as "digital asset", "secured digital asset", "unsecured digital asset", "mining" were defined, and the legal regimes of circulation of digital assets and mining activities were described.

According to this law, **a digital asset** is defined as property created in electronic form using cryptography and computer computing, which **is not a financial instrument**, but can serve as a confirmation of property rights in digital form. It is important to note that **a digital asset cannot be a means of payment**.

The law classifies digital assets into:

- **"Secured digital assets"** — tokens certifying property rights to goods or services issued by the issuer. These are,utilitarian tokens.

- **"Unsecured digital assets"** are the remaining types of crypto assets, including cryptocurrencies, stablecoins, digital financial assets, tokenized assets, NFT and others.

According to the requirements of this law, activities related to the issuance and organization of circulation of **secured digital assets** require **notification** to the authorized state body – the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan (hereinafter – MDDIAI).

As for **unsecured digital assets**, their circulation on the territory of Kazakhstan is **prohibited**, except in cases specifically provided for by law.

The law allowed to engage in **mining activities** subject to notification of the authorized state body. This created a legal framework for mining companies that **could operate without significant restrictions**, but the **trading of crypto assets itself remained prohibited.**

The growing popularity of mining, especially after the migration of miners from China to Kazakhstan, where a ban on crypto assets was introduced in 2018, led to an increase in the burden on the country's energy infrastructure. In response, in 2021, a "cryptocurrency mining tax" was introduced, which amounted to 1 KZT for each kilowatt-hour of electricity consumed by mining farms. This decision was aimed at reducing the pressure on the energy system and establishing stricter rules for participants in the mining industry. Requirements for mandatory registration of mining companies were also introduced, which allowed the state to better control their activities and receive tax revenues from the fast-growing industry.

2) Pilot phase of the new mechanism (from August 2022 to November 2023 inclusive)

According to the University of Cambridge, Kazakhstan ranked **second in the world in terms of cryptocurrency mining** in 2021. In 2021, Kazakhstan's share in bitcoin mining amounted to 18.1%. The first and third places are occupied by the United States and Russia, whose shares in the global mining of this cryptocurrency amounted to 35.4% and 11.2%, respectively. The growing popularity of mining activities due to inexpensive electricity in 2020-2021 and the load on the national energy system threatened Kazakhstan to become once again a raw material appendage for foreign companies.

The companies engaged in mining activities, in most cases, were foreign. Despite Kazakhstan's leading position in terms of the volume of mining of unsecured digital assets (cryptocurrencies), **the economic effect for the country from mining of unsecured digital assets (cryptocurrencies) was minimal**, since foreign miners, using cheap electricity in Kazakhstan, mined cryptocurrency in the country and sold it abroad on international crypto platforms for foreign currency. At the same time, the foreign currency proceeds from the sale of cryptocurrencies mined in the country on foreign markets were not returned by miners to Kazakhstan and remained outside the jurisdiction of Kazakhstan.

At the same time, there was an active involvement of citizens of Kazakhstan in the international cryptocurrency market through international crypto platforms and decentralized crypto exchanges. Citizens risked their own funds without the possibility of obtaining protection of interests from the state and legalization of the income they received. Cases of fraudulent schemes and crypto-pyramids had become more frequent.

Such a situation required the introduction of regulation of mining activities, including in terms of determining, when registering, a possible location in regions with an excessive amount of energy, and weakening the current ban on the circulation of cryptocurrencies in order **to start ~~the~~ formulating the cryptocurrency ecosystem in the country.**

However, the high risks associated with the legalization of cryptocurrency circulation and unreadiness of the market, including the likelihood of a sharp increase

in fraudulent schemes/operations and the massive loss of citizens' own funds due to a low level of financial literacy in investing funds in the volatile cryptocurrency market, could lead to negative effects from opening full access to the crypto industry.

In these circumstances, the Government, together with the National Bank and other interested state bodies, decided to launch a pilot project on the interaction of the Astana International Financial Center's crypto exchanges (hereinafter – the AIFC) with second-tier Kazakhstani banks.

According to the requirements of the legislation of the Republic of Kazakhstan in force at that time, the circulation of unsecured digital assets was prohibited on the territory of the country, except in cases provided for by the laws of the Republic of Kazakhstan. This exception included the territory of the AIFC, within which the Constitutional Law on the AIFC allowed the activities of crypto platforms.

As part of the pilot project, a mechanism for servicing the AIFC crypto platforms by Kazakh second-tier banks was developed, i.e. transactions of clients of the AIFC crypto platforms, including non-residents of the Republic of Kazakhstan, for the purchase and sale of cryptocurrencies started to be serviced by Kazakh banks, which allowed the AIFC crypto platforms to begin operations. Previously, the crypto platforms of the AIFC, without their operations being serviced by Kazakhstani banks, did not have access to the fiat ecosystem, correspondingly, they could not service customer transactions for the purchase/ sale of cryptocurrencies.

The interested state bodies approved the Rules of the pilot project defining clear conditions for the functioning of the AIFC crypto platforms in cooperation with second-tier banks of the Republic of Kazakhstan, including the circle of persons participating in trading on crypto platforms *(professional and retail investors, qualified and unqualified)*. In order to prevent mass loss of funds by business entities, legal entities - residents of the Republic of Kazakhstan, with the exception of miners, were not allowed to trade, limits on the purchase of cryptocurrencies for customers were determined depending on their category and qualifications, qualification requirements for crypto platforms, KYC and AML requirements and etc. were established.

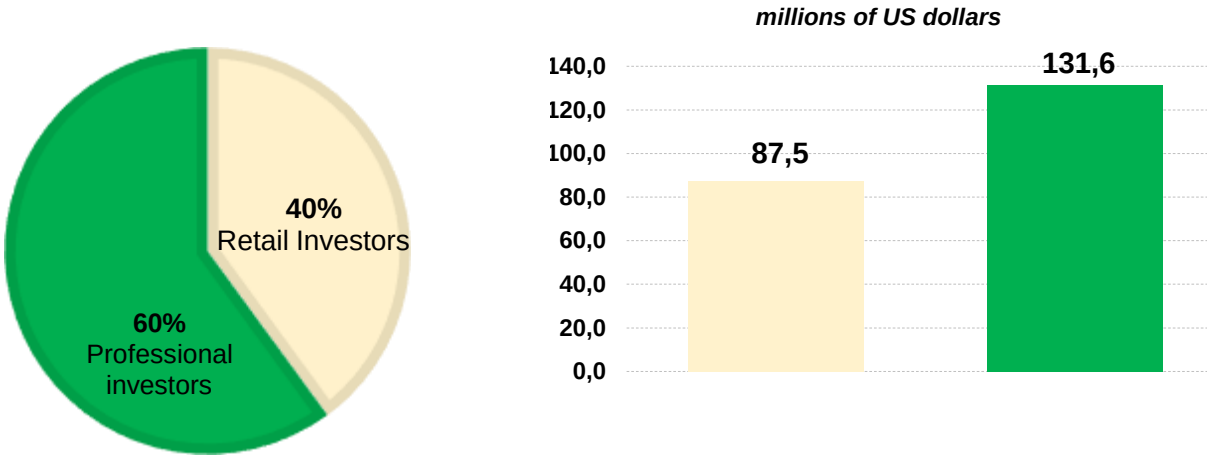
The purpose of the pilot project was to test (pilot) a new crypto-fiat mechanism in a limited environment to further scale generalized inter-institutional crypto-fiat practice in a full-fledged format and develop approaches to form a balanced regulatory environment for the functioning of the crypto market in the AIFC with access to investors to this market through Kazakhstani banks.

Trading on the AIFC crypto platforms within the framework of the pilot project began in September 2022. The pilot phase lasted until November 2023. **6 crypto platforms of the AIFC and 8 second-tier banks** of the Republic of Kazakhstan participated in the implementation of the pilot project. During the period of operation of the pilot project, trades in the amount of **$219.1 million** were conducted on the AIFC crypto platforms.

More than 47 thousand investors participated in trading on the AIFC crypto platforms as part of the pilot, including about 45 thousand retail investors *(individuals)* and about 2 thousand professional investors *(legal entities)*.

At the same time, **the structure of trading** volume for the entire period of the Pilot Project implementation in terms of types of investors shows a **significant share of professional investors of 60.1%** *(131.6 million US dollars)*, retail investors account for 39.9% *(87.5 million US dollars).* The predominance of professional investors in the trading structure, with a small number of them, is due to the presence of a limit for retail investors in the amount of $ 1,000 for the purchase of digital assets on the AIFC crypto exchange within a month.

The structure of trading on AIFC crypto exchanges in the pilot phase in terms of customer classification

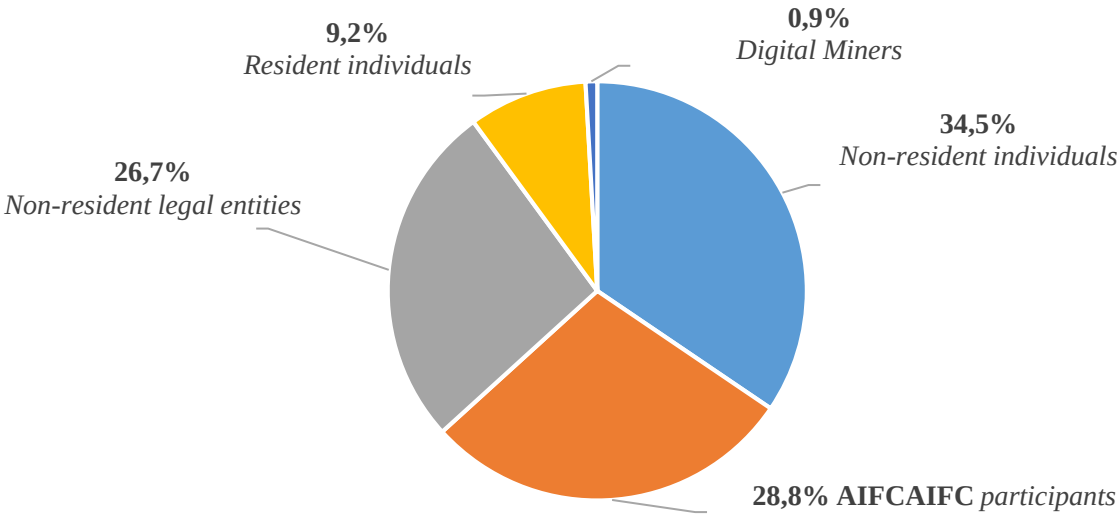


Source: National Bank of the Republic of Kazakhstan

It is also worth noting that in terms of types of clients of crypto exchanges, **more than 61%** of circulation was accounted for **by non-residents of the Republic of Kazakhstan.**

The available results of the pilot project demonstrate the interest of both local and foreign investors in the country's crypto infrastructure.

The structure of total money circulation by clients of the AIFC crypto exchange



Source: National Bank of the Republic of Kazakhstan

As a result of the pilot project, the cases of non-fulfillment of transactions with digital assets, violations of investors' rights,requirements for the safety of crypto investors' funds and other violations (*cases of money withdrawal from the country, cyber attacks and violations of the requirements of the Rules of the pilot project and the legislation of the Republic of Kazakhstan in the field of AML/CFT)* were not revealed, **which indicates moderate effectiveness** of regulatory approaches of the pilot regime for the control of fiat transactions and transactions with digital assets, and restrictions (limits) to reduce the risks inherent in the activity related to the circulation of digital assets.

Thus, the set of measures jointly developed within the framework of the pilot regime provided clear regulatory conditions and a balanced mechanism for the functioning of the AIFC crypto platforms in cooperation with Kazakhstani banks with effective control over transactions with digital assets and application of measures to reduce the risks inherent in activities related to the circulation of digital assets.

3) The introduction of legislative regulation on the circulation of cryptocurrencies on the territory of the AIFC in cooperation with Kazakhstani banks (November 2023 to the present)

Taking into account the ongoing pilot and its indicators, the formation of the regulatory framework began by the interested state bodies at the end of 2022.

As a result, on February 6, 2023, the Law of the Republic of Kazakhstan “On Digital Assets in the Republic of Kazakhstan” (hereinafter referred to as the Law on Digital Assets) was adopted, within the framework of which the pilot's practice was summarized, which at the same time provided for the exclusion of certain restrictions that were in force during the pilot. For example, legal entities of the Republic of Kazakhstan were allowed to participate in trading. As part of the built–up regulation, new subjects appeared - participants in the crypto market, such as crypto brokers, crypto dealers, investment companies, in addition to investing in cryptocurrencies, operations on crypto-staking, margin trading, crypto-currency lending (fiat attraction through collateral encumbrance of digital assets), etc. were also allowed.

At the same time, the Law on Digital Assets adopted the previously existing norms **prohibiting the circulation of unsecured digital assets in the country,** with the exception of the territory of the AIFC. **All types of digital assets**, including secured and unsecured ones, **are not recognized as a legal means of payment and/or financial assets/instruments** in the country. Cryptocurrencies, stablecoins, tokenized assets, digital financial assets, and NFTs are considered unsecured digital assets.

At the same time, editorial changes were made to the definitions of “digital asset”, “secured digital asset”, and “unsecured digital asset”. It is clearly defined that the circulation of unsecured digital assets is **allowed only on the territory of the AIFC** in cooperation with Kazakhstani banks.

In addition, **regulation of the mining sector** has been introduced: licensing of digital mining and accreditation of mining pools on the MDDIAI side. The requirements are fixed, according to which the state body responsible for the management of the electric power industry determines the requirements for connecting digital miners to electric grids in accordance with the Law of the Republic of Kazakhstan “On Electric Power Industry”, approves the mechanism for determining

the quota for electric energy for digital miners, and also exercises other powers provided for by the legislation of the Republic of Kazakhstan.

According to the Law on Digital Assets, the procedure and mechanisms for interaction of the digital asset exchange and the subjects of the AIFC digital asset market with Kazakhstani banks are approved by the relevant AIFC document in coordination with the National Bank of the Republic of Kazakhstan and the Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market.

This document/The rules of interaction were agreed and approved in December 2023, which meant the end of the pilot regime and the transition to industrial mode.

From January 2023 to August 2024, transactions in the amount of 704 million US dollars were carried out on **10 AIFC crypto platforms, 3 crypto brokers, 1 crypto manager through 8 Kazakhstani banks.**

More than 100 thousand clients participate in the AIFC crypto platforms, 90% of which are retail clients.

According to the State Revenue Committee, in 2023, the government received about 9 billion KZT from the digital asset industry and 3.5 billion KZT from the digital mining industry in the first half of 2024.

Kazakhstan demonstrates **a strategy of careful and gradual expansion of the ecosystem of digital assets** in order to minimize threats to the financial system and the economy. Kazakhstan's experience in introducing partial permission for the circulation of cryptocurrencies within the framework of the Astana International Financial Center (AIFC) can be considered successful and timely. At the first stage, this step provided a platform for testing legal and regulatory mechanisms for dealing with digital assets, as well as developing regulatory practices in conditions of limited access, which allowed minimizing potential risks.

This gradual approach has allowed government agencies to manage the risks associated with cryptocurrency volatility, money laundering opportunities, cyber threats, and investor inexperience. This was a justified decision that contributed to the safe expansion of the digital asset market.

However, with the growing interest in crypto assets, more and more Kazakhstanis are beginning to actively participate in trade and investment through foreign platforms. According to experts, **more than 1.5 million Kazakhstanis** are involved in the global circulation of crypto assets outside the jurisdiction of the AIFC. Many of them, especially unskilled investors, face hacker attacks, fraudulent schemes and pseudo-asset managers, which leads to significant financial losses. This highlights the problem of inefficiency of the current prohibitive measures, which do not provide full control over transactions with cryptocurrencies.

In order to reduce risks and the transition of citizens from "gray" channels to licensed crypto exchanges, it is necessary to **create an appropriate infrastructure on the territory of Kazakhstan**. It is important to ensure access to **new secure financial instruments** and consolidate regulation of the activities of infrastructure entities, including control and supervision of their activities **at the level of the national**

regulator. This will help prevent the withdrawal of capital and money laundering through uncontrolled cryptocurrency platforms.

Thus, there is currently a high demand on the market for **tokenized assets and digital financial instruments**. These innovations can significantly expand the possibilities of the financial market, helping to attract capital, diversify investment portfolios and increase liquidity. Asset tokenization allows companies to issue digital equivalents of traditional financial instruments such as stocks, bonds and real estate, which simplifies access to these assets and reduces barriers for investors.

Tokenized assets and digital financial instruments stimulate the emergence of new financial products, such as smart contracts, which automatically fulfill the terms of transactions without the participation of intermediaries. This increases the transparency of operations, reduces costs and speeds up processes, which, in turn, contributes to the development of the national digital economy.

Thus, today's challenge lies in the need to create secure investment tools, which will allow the domestic crypto market to move to a new stage of development. The introduction of such an infrastructure **based on advanced technologies and transparent regulation** will ensure sustainable market growth and minimize risks for investors and the state. It is also in line with the recommendations of international financial organizations and international best practices.

5. CONCLUSIONS AND SUGGESTIONS

International experience demonstrates that each country has its own characteristics and, based on this, forms regulatory models (approaches) and relevant requirements and restrictions. In many countries, due to the failure of the total ban, they consistently and methodically approach the introduction of systemic regulation of the circulation of cryptocurrencies in order to minimize the risks of transactions with cryptocurrencies.

As a result, balanced regulation of the circulation of crypto assets has been successfully and timely implemented in countries such as the USA, Japan, European Union countries (through the Regulation on Crypto Asset Markets — MiCA), Singapore, South Korea, as well as in countries with partial permission of circulation in special economic zones such as the UAE, Hong Kong and others. These countries have developed flexible and thoughtful regulatory mechanisms that allow the development of innovative technologies in the crypto industry, minimizing risks to the financial system and ensuring the protection of market participants.

Individual countries such as Brazil, Argentina, Mexico and Venezuela are also beginning to move towards attempts to introduce balanced regulation of crypto assets. They are aware of the risks caused by the lack of regulation, such as the flow of liquidity from the traditional financial system to the cryptocurrency, which can destabilize the economy. These countries are striving to adapt the regulation of crypto assets taking into account their economic situation and national interests, trying to create conditions for their safe use and integration into the financial system.

However, the example of countries such as India, Turkey, Bangladesh, Nigeria, Pakistan and China demonstrates the failure of a total ban on crypto assets. Despite strict restrictions or prohibitions on the circulation of cryptocurrencies, all these countries are among the top 20 countries in the Global Crypto Adoption Index, according to the Chainalysis report. This highlights that harsh measures do not stop the use of cryptocurrencies, but only create parallel, less regulated markets. For example, in China, which ranks 20th in the world in terms of the Global Crypto Adoption Index, bans on cryptocurrencies have not been able to completely stop their use. This indicates the need to revise strict policies in favor of more flexible and controlled regulation.

Thus, as practice shows, with the uncontrolled expansion of the use of cryptocurrencies without an appropriate regulatory framework, their inherent risks will become systemic and lead to serious consequences, such as an increase in financial crimes, loss of citizens' funds, a shortage of liquidity in cryptocurrencies and a threat to financial stability. In this regard, the adoption of adequate and preventive measures to prevent systemic risks and minimize their consequences for the financial system becomes necessary.

The experience of Kazakhstan shows that allowing the circulation of cryptocurrencies on the territory of the International Financial Center of Astana (AIFC) was a justified step to test the regulatory model. This made it possible for both government agencies (from a regulatory point of view) and the public to accumulate knowledge and experience in the field of investing in cryptocurrency.

Nevertheless, current challenges indicate that a significant number of citizens (about 1.5 million people) continue to participate in uncontrolled international decentralized exchanges, which entails risks such as lack of consumer protection, the possibility of losing funds without the possibility of their recovery and tax evasion, which negatively affects the country's economy. The large-scale involvement of the country's citizens in the uncontrolled gray market of cryptocurrencies contributes to the preservation of all the risks inherent in cryptocurrencies.

In these circumstances, it is extremely important to develop a coordinated and integrated approach to the regulation of crypto assets, which will ensure the protection of the interests of citizens and minimize potential risks to the economy.

An important aspect of successful regulation is to increase the financial literacy of the population. Without awareness of the risks and opportunities associated with crypto assets, citizens remain vulnerable to financial losses. Training and informing users about the rules of dealing with cryptocurrencies and the risks associated with them will help create an informed and responsible attitude to investments, which, in turn, will increase the level of confidence in the market.

It is necessary to form clear business processes in the market with a division of roles and responsibilities of its participants. Additionally, it is necessary to strengthen the requirements and establish strict and clear norms and standards for customer identification, transaction monitoring and compliance with anti-money laundering (AML) rules to prevent capital withdrawal and money laundering, which, in turn, will strengthen confidence in the cryptocurrency market.

At the same time, currently the most actively developing area is the **tokenization of assets and the creation of digital financial assets**. These tools are a product of the introduction of advanced crypto industry technologies into traditional financial systems, combining the advantages of both ecosystems. Such initiatives are a logical development of the crypto industry and the traditional financial market, providing an opportunity to use innovative decentralized finance (DeFi) practices within more familiar financial systems.

For the European Union and many other countries, asset tokenization and digital financial assets are becoming a priority, which allows to increase asset liquidity, ensure transparency of transactions, improve risk management and stimulate investment attraction. Digitalization of assets creates new opportunities to optimize processes in financial markets, including simplification of transactions, automation of asset management, as well as reduction of transaction costs.

Digital financial assets provide access to a wider range of investment products for users around the world, including those who previously had no access to complex financial instruments. This contributes to the democratization of financial markets and the strengthening of global integration. In addition, asset tokenization provides a higher level of security and trust through the use of smart contracts and blockchain technologies, which minimizes the risks of fraud and human error.

However, for the successful implementation of digital financial assets, it is necessary to create a reliable legal and regulatory infrastructure that will ensure the protection of investors' interests, financial stability and data security. It is necessary to develop clear standards and requirements for tokenized assets in order to avoid legal uncertainty and create conditions for abuse.

Building a comprehensive educational program plays an important role here, which will allow people to consciously and effectively use new tools and minimize risks.

Taking into account the above, the following main conclusions can be identified:

1. World experience demonstrates the **ineffectiveness of bans on crypto assets**. Bans do not prevent people from accessing cryptocurrencies and blockchain technologies, as globalization and international platforms open up opportunities for their use even under severe restrictions. This confirms the need to develop crypto ecosystem.

2. **Balanced regulation is the most effective way**. Developed countries are aware of the importance of introducing regulation that not only reduces risks, but also allows the development of innovative technologies. This approach allows you to avoid illegal circulation of crypto assets and minimize risks to the financial system. It is also important to increase the financial literacy of the population in order to consciously use new tools and benefit from it.

3. **Regulation can offset the risks** inherent in crypto assets. Proper legislative regulation helps to reduce risks such as fraud, cyber-attacks and money laundering, ensuring the protection of users and the stability of the financial market. It is necessary to build a clear regulation of market participants with a separation of roles and

responsibilities, as well as the formation of enhanced AML and KYC measures to prevent the use of crypto assets for illegal purposes.

4. **Proper regulation contributes to economic growth**. The introduction of legislation regulating crypto assets contributes to an increase in tax revenues and makes the incomes of market participants more transparent. This stimulates the development of new financial products and services, which, in turn, contributes to economic growth.

5. **Prospects for digital financial assets and tokenization**. One of the most promising areas is the development of digital financial assets and the tokenization of real assets such as real estate and securities. To do this, it is necessary to legally allow their use and develop an appropriate regulatory framework, which will open up new opportunities for investors and companies.

Taking into account the above conclusions, the following proposals are available for the development of a full-fledged and balanced regulatory regime for the crypto industry in Kazakhstan:

1) implement the principles of “smart regulation” that will **take into account the specific risks of cryptocurrencies and promote their integration into the economy**;

2) to focus on improving the financial literacy of the population;

3) develop clear and understandable mechanisms and requirements for AML and KYC;

4) provide **legal protection for market participants**, especially for investors and consumers, in order to minimize financial risks;

5) **Legislatively approve the tokenization of real assets and digital financial assets**, which will create new opportunities for economic growth and investment attraction.

6. LIST OF LITERATURE

1. *CoinGecko cryptocurrency platform, Global charts of cryptocurrency market capitalization* (2024). Access mode: https://www.coingecko.com/ru/global-charts;

2. *Total market capitalizations of companies listed on stock exchanges worldwide from 2013 to 2023* (2024). Access mode:https://www.statista.com/statistics/274490/global-value-of-share-holdings-since-2000/;

3. Report: Report of the Financial Stability Board "Decentralized Financial Technologies" on the implications for financial stability, regulation and governance (2019). Access mode: https://www.fsb.org/wp-content/uploads/P060619.pdf;

4. *Blockchain & Cryptocurrency Laws and Regulations 2024* (2024). Access mode: https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/usa/#:~:text=by%20existing%20regulations.,Sales%20regulation,MSB%E2%80%9D)%20under%20federal%20law.;

5. *The US SEC severely restricts the crypto business* (2024). Access mode: https://www.rbc.ru/crypto/news/669f6a669a79472eefd28688;

6. *What are the prospects for cross-border payments in cryptocurrency (2024).* Access mode: https://www.vedomosti.ru/finance/articles/2024/08/28/ 1058359-kakie-perspektivi-u-transgranichnih-platezhei-v-kriptovalyute;

7. *Digital financial assets in Russia* (2024). Access mode: https://www.tadviser.ru/index.php/%D0%A1%D1%82%D0%B0%D1%82%D1%8C%D1%8F:%D0%A6%D0%B8%D1%84%D1%80%D0%BE%D0%B2%D1%8B%D0%B5_%D1%84%D0%B8%D0%BD%D0%B0%D0%BD%D1%81%D0%BE%D0%B2%D1%8B%D0%B5_%D0%B0%D0%BA%D1%82%D0%B8%D0%B2%D1%8B_%D0%B2_%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B8;

8. *Markets in Crypto-Assets Regulation (MiCA)* (2022). Access mode: https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/markets-crypto-assets-regulation-mica;

9. European Commission. *Crypto-assets* (2024). Access mode: https://finance.ec.europa.eu/digital-finance/crypto-assets_en#legislation;

10. *The 2024 Global Adoption Index: Central & Southern Asia and Oceania (CSAO) Region Leads the World in Terms of Global Cryptocurrency Adoption* (2024). Access mode: https://www.chainalysis.com/blog/2024-global-crypto-adoption-index/

11. *Blockchain & Cryptocurrency Laws and Regulations 2024* (2024). Access mode: https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/japan/;

12. *China's History With Cryptocurrency* (2024). Access mode: https://www.investopedia.com/news/price-cryptocurrencies-totally-dependent-china/#:~:text=China%20does%20not%20allow%20cryptocurrency,from%20mainland%20Chinese%20financial%20regulations.;

13. *Cryptocurrency Law in India (2024 Regulation & Tax Updates)* (2024). Access mode: https://www.lawpreptutorial.com/blog/cryptocurrency-regulation-in-india/;

14. *Overview of Nigeria's dynamic cryptocurrency regulatory landscape* (2024). Access mode: https://www.ibanet.org/overview-of-cryptocurrency-regulatory-landscape-nigeria#:~:text=It%20is%20important%20to%20note,from%20processing%2Fenabling%20such%20transactions;

15. *Public Notice CAUTION REGARDING RISKS OF VIRTUAL CURRENCIES* (2018). Access mode: https://www.sbp.org.pk/warnings/pdf/2018/PBNT-VC.pdf;

16. *Turkey's crypto rules seen addressing licensing, taxation after boom* (2023). Access mode: https://www.reuters.com/business/finance/turkeys-crypto-rules-seen-addressing-licensing-taxation-after-boom-2023-11-14/;

17. *Bangladesh has outlawed Bitcoin* (2014). Access mode: https://psm7.com/ru/news/bangladesh-announced-bitcoin-illegal.html;

18. Report: IMF-FSB Synthesis Paper: Policies for Crypto-Assets (2023). Access mode: https://www.fsb.org/uploads/R070923-1.pdf;

19. Report: Issues, Risks and Regulatory Considerations Relating to Crypto-Asset Trading Platforms Consultation Report (2019). Access mode: https://www.iosco.org/library/pubdocs/pdf/IOSCOPD627.pdf;

20. Report: Policy Recommendations for Crypto and Digital Asset Markets Consultation Report (2023). Access mode: https://www.iosco.org/library/pubdocs/pdf/IOSCOPD747.pdf / https://www.iosco.org/library/pubdocs/pdf/IOSCOPD755.pdf ;

21 Report: Committee on Payments and Market Infrastructures, Board of the International Organization of Securities Commissions, Application of the Principles for Financial Market Infrastructures to stablecoin arrangements (2022). Access mode: https://www.bis.org/cpmi/publ/d206.pdf;

22. First Steps to Crypto Derivatives Standards (2022). Access mode: https://www.isda.org/2021/09/30/first-steps-to-crypto-derivatives-standards/;

23. Crypto-asset Risks and Hedging Analysis (2022). Access mode: https://www.isda.org/a/pMWgE/Crypto-asset-Risks-and-Hedging-Analysis.pdf

24. Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers (2021). Access mode: https://www.fatf-gafi.org/en/publications/fatfrecommendations/documents/guidance-rba-virtual-assets-2021.html;

25. *The turnover of cryptocurrency transactions in Kyrgyzstan increased by 166%* (2024). Access mode: https://fintech-retail.com/2024/09/17/cripta/.