

CLASSIFICATION AND LEGAL REGULATION OF STABLECOINS

CLASSIFICAÇÃO E REGULAMENTAÇÃO LEGAL DAS MOEDAS ESTÁVEIS

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Abstract: The article defines the legal status and principles of cryptocurrency circulation at the international level. Normative minimalism and the difficulty of defining a new legal institution have revealed the problem of legal regulation of the crypto market. The study aims at creating the conceptual foundations for the legal regulation of cryptocurrency. Scientific methods are based on the analysis of a limited number of studies selected according to special parameters and considered comprehensively. **Results:** The study has demonstrated that there is no uniform systemic approach in determining the legal status and principles of cryptocurrency circulation at the international and national levels. Based on the study results, it has been concluded that the institution of cryptocurrencies has its legal specifics. Thus, it is necessary to introduce a new concept for the regulation of cryptocurrencies and combine all their types under a single name “virtual currencies”. Considering the above-mentioned legal features, a definition of cryptocurrencies is given and the principles of their circulation are highlighted.

Keywords: Cryptocurrency. Legal status. Transactions. Digital legal relations. Blockchain. Tokens.

Resumo: O artigo define o status legal e os princípios da circulação de moedas criptográficas em nível internacional. O minimalismo normativo e a dificuldade de definir uma nova instituição jurídica revelaram o problema da regulamentação legal do mercado de criptocracia. O estudo visa criar as bases conceituais para a regulamentação legal da moeda criptográfica. Os métodos científicos são baseados na análise de um número limitado de estudos selecionados de acordo com parâmetros especiais e considerados de forma abrangente. **Resultados:** O estudo demonstrou que não há uma abordagem sistêmica uniforme na determinação do status legal e dos princípios da circulação da moeda criptográfica em nível internacional e nacional. Com base nos resultados do estudo, concluiu-se que a instituição das moedas criptográficas tem suas especificidades legais. Portanto, é necessário introduzir um novo conceito para a regulamentação das moedas criptográficas e combinar todos os seus tipos sob um único nome "moedas virtuais". Considerando as características legais acima mencionadas, é dada uma definição de moedas criptográficas e são destacados os princípios de sua circulação.

Palavras-chave: Moeda criptográfica. Status legal. Transações. Relações jurídicas digitais. Bloqueio. Fichas.

1. INTRODUCTION

Over the past few years, the introduction of information digital technologies in the financial sector has led to the emergence of a new class of assets called cryptocurrency. Cryptocurrencies are based on distributed ledger technology that ensures the decentralized storage of information related to the issue, trade, and transfer of assets (Fantacci, 2019). Due to the decentralized emission of cryptocurrencies, the lack of an elastic supply, and the impossibility of influencing the turnover of cryptocurrencies, their typical feature is the high volatility of their market price. Therefore, cryptocurrencies do not sufficiently perform the standard monetary functions since their exchange value has unpredictable large-amplitude fluctuations. From the viewpoint of banking regulators, cryptocurrencies are not secure as a medium of exchange.

In this regard, the question arises of creating crypto assets that can provide greater market exchange rate stability, which would allow such assets to be used on a larger scale as a means of payment and a store of value. The most important task for a wide range of users is to create a type of crypto asset that, by its nature, could provide a more stable market rate both in the short (to stimulate its wider use in payments and transfers) and long term (to increase its volume among the savings of economic agents).

In 2015, the idea of issuing a crypto asset, whose price would depend on the value of the underlying asset to which it is linked, was implemented based on the blockchain by Tether Limited (Hill et al., 2018). New financial assets are called stablecoins (stable digital coins) or secured crypto assets. They can maintain a stable market price by having collateralized or algorithmic technology that regulates the volume of their market supply.

The mechanism for stabilizing the market rate of stablecoins is based on new information technologies that control the circulation of digital coins. Unlike fiat money, stablecoins are not a generally accepted means of payment; they can be issued by non-credit institutions and might not be subject to the regulation of monetary authorities. Therefore, the availability of appropriate collateral for stablecoins is an important factor for market success when confidence in their issuers has not been formed yet.

Within the framework of the circulation of stablecoins, the regulation of relations by legal norms is a multidirectional and contradictory phenomenon. On the one hand, legal regulation can solve important tasks of protecting both public (combating money

laundering and terrorism financing, tax evasion) and individual interests (citizens and organizations) in case they are violated through the adoption of statutory requirements.

Due to the technological features of the emission and use of various blockchains, as well as due to the inclusion of various methods and mechanisms for maintaining the stability of their exchange rate, stablecoins can differ from each other. In this regard, it is necessary to classify stablecoins and diversify approaches to the legal regulation of various types of stablecoins. The main objective of the study is to classify stablecoins based on expert conclusions and propose methods for the legal regulation of stablecoins.

2. METHODS

The study is based on the analysis of scientific works on the classification of stablecoins. The main goal of the study was to identify the main types of stablecoins, classify them, and propose differentiated legal regulation with due regard to the specifics of each type. To achieve this objective, more than 150 papers were selected considering both cryptocurrencies in general and stablecoins in particular. A wide range of publications was selected by their author from the Scopus and Web of Science databases. The database of studies was formed based on the following criteria:

1. Scientific works relate to legal topics;
2. They are written in the period from 2015 to 2022;
3. Scientific works should be posted in the public domain in the Scopus and Web of Science databases;
4. Their authors should have at least five scientific works on the legal status of cryptocurrencies and at least two works on stablecoins;
5. The selected works should mainly cover the classification of cryptocurrencies and stablecoins.

After the initial sampling, 60 works of scientists from around the world formed the basis of the study. In percentage terms, the selected studies were conducted in the following countries:

– Western Europe 35% (Bank for International Settlements, 2019; Bolliger, 2019; Bullmann et al., 2019; Gagauz & Chuvyrgyzalova, 2021; CryptoSlate, 2020; Danielsson, 2019; Echelpoel et al., 2020; European Council, 2019; Fantacci, 2019; Fantacci & Gobbi, 2021; Ferreira, 2021; Guérot, 2006; Hacıoglu, 2019; Hileman, 2019; Hill et al., 2018; HM

Treasury, 2021; Houben & Snyers, 2020; Kavuri & Milne, 2021; Lipton et al., 2021; Moin et al., 2019; Schlichting & Petrini, 2019);

– Russia 25% (Astrakhtantseva & Astrakhtantsev, 2021; Balian et al., 2021; Baydakova, 2019; Bolotaeva et al., 2019; Bondarenko et al., 2019; Butenko & Isakhaev, 2018; Chornous et al., 2019; Dniprov et al., 2019; Dorokhova et al., 2021; Drozd et al., 2017; Dumchikov et al., 2020; Dyntu & Dykyi, 2018; Kochergin, 2020; Kołodziejczyk & Jarno, 2020; Sidorenko, 2020);

– USA 15% (Auer & Claessens, 2018, 2021; Bains et al., 2022; Cassidy et al., 2019; Dallyn, 2017; Griffin & Shams, 2019; Mita et al., 2019; Overall & Adams, 2019; Smith et al., 2021);

– China 11.7% (Abraham & Guegan, 2019; Allen et al., 2022; Cheng, 2020; Gorton & Zhang, 2021; Li & Shen, 2021; Shi et al., 2021; Yahya & Fong, 2022);

– India 8.3% (Abd Aziz et al., 2022; Aziz, 2019; Banwari, 2017; Detroja et al., 2019; Dorbala et al., 2018);

– Other countries 5% (Abdul, 2018; Chang, 2019; Hrnjic & Clarke, 2022).

Throughout the analysis of scientific papers, we determined the main features of stablecoins and cryptocurrencies: decentralization (noted in 38% of scientific works); the security of ongoing transactions (24%); the irreversibility of payments untypical of transactions with fiat money (14%); the anonymity of users who own cryptocurrencies and carry out operations with them (13%); the transparency of operations (11%).

In the course of the study, we proposed a classification of stablecoins and formulated differentiated methods of their legal regulation.

3. RESULTS

Stablecoins accelerate financial turnover, as well as fulfill a value function and provide certain guarantees of capital preservation. These features of stablecoins depend on their structure. From the technological perspective, stablecoins have the same functioning as decentralized cryptocurrencies but they have one emission center, which maintains a stable exchange rate and a fixed reference to the underlying asset (CryptoSlate, 2020; Houben & Snyers, 2020). This proves that the economic nature of a stablecoin is fundamentally different from that of a decentralized cryptocurrency. Approaches to its regulation should be similar to the regulation of e-money and depend on the type of assets

provided by certain stablecoins. Stablecoins have the characteristics of both cryptocurrencies and e-money (Echelpoel et al., 2020; Smith et al., 2021).

Stablecoins are most often issued based on existing blockchains (Ethereum, EOS, etc.), which makes them technologically dependent on this blockchain. In the case of cryptocurrencies, stablecoins are denominated in new monetary units (albeit pegged to underlying assets), which implies the need to establish an exchange rate for trading (Griffin & Shams, 2019). Unlike cryptocurrencies, they are directly related to the requirement to identify the issuer or asset underlying the issuance of stablecoins. This circumstance makes certain stablecoins (fiat-backed stablecoins) similar to the narrow concept of e-money used in “The Second Electronic Money Directive of the European Parliament and of the Council”. According to this document, electronic money is a monetary value stored in electronic form (including in magnetic form) and represented by a claim on the issuer, which is issued upon receipt of funds by the issuer for making payments and is accepted as a means of payment by other institutions (not electronic money issuers).

If a stablecoin is formally issued in accordance with all the requirements of “The Second Electronic Money Directive”, it can be considered by regulators as electronic money, and the activities of its issuer should be regulated by the relevant laws of the EU countries. Any stablecoin might embody a monetary value in electronic form, be used to make payments, and be accepted as a means of payment by individuals or entities other than the issuer.

Electronic money is widely regarded as a digital alternative to cash, therefore the key goal of its issuance and use is to make current payments. For this purpose, they are issued as interest-free obligations of the issuer and do not bring their holder any income. Unlike e-money, stablecoins with a stable exchange rate are issued as tradable assets that can change owners through the use of blockchain technology (Balian et al., 2021; Hacioglu, 2019). In this regard, they can be traded on the financial market and bring speculative income to their owner due to differences between the market price of a stablecoin and its redemption value. In addition, stablecoins are often used not only as a means of payment but also as a store of value, which allows one to level high volatility in the crypto asset market. When issuing e-money, a partial reserve mechanism works, i.e. the introduction of mandatory reserve requirements for the funds raised by the issuer for the issuance of electronic money. In the case of fiat-backed stablecoins, their underlying assets are typically

owned by the issuer. As a rule, the backing of such stablecoins is 100%, but there are no reserve requirements for the underlying assets.

Stablecoins are hybrid crypto assets that combine innovative emission technologies with a centralized emission mechanism and various forms of maintaining a stable exchange rate. Stablecoins have typical features reflected in the table below (Figure 1).

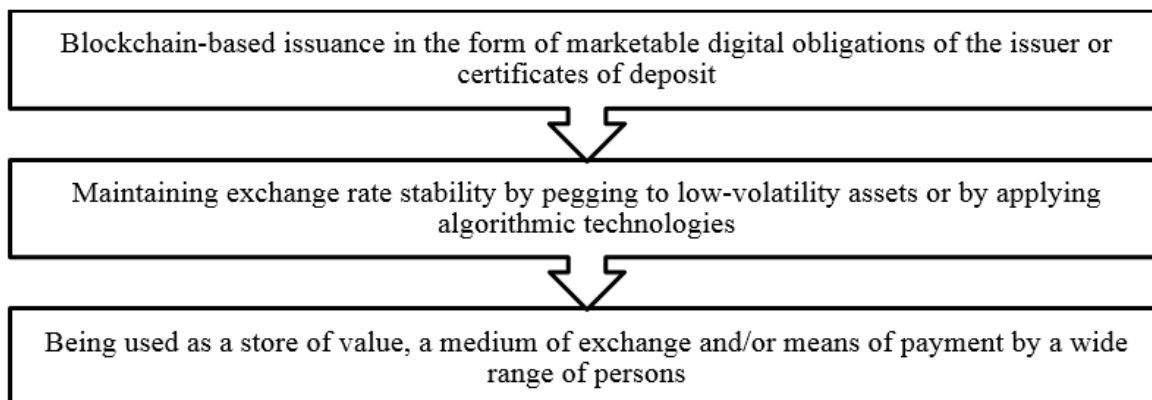


Figure 1. Typical features of stablecoins

In the case of large-scale introduction and use of stablecoins as a universal medium of exchange at the international level, there is a risk to the financial stability of states (Abraham & Guegan, 2019). Therefore, it is required to develop basic and unified legal norms governing the entry of stablecoins into money circulation. To create a legal framework for stablecoins, it is necessary:

- To identify the main participants in the emerging legal relations in the sphere of stablecoin circulation;
- To ensure the supervision of central regulators over the main market participants;
- To determine the rights and obligations of participants in payment systems;
- To establish procedures for the notification and exchange of information between such participants in legal relations;
- To decide on which participant in the stablecoin payment systems to place demands.

The introduction of these regulatory approaches will require cross-border and inter-agency cooperation.

4. DISCUSSION

Stablecoins are not homogeneous as they are issued for different purposes within different blockchains, therefore they have different economic and legal characteristics. They differ in various ways that condition their classification. Stablecoins are diverse in terms of documents ensuring their functioning, assets to which their rate is linked, types of communication, etc. For legislative regulation, it is necessary to classify stablecoins.

Some experts distinguish between two types of stablecoins:

- Asset-referenced tokens;
- E-money tokens.

Asset-referenced stablecoins maintain a stable value by pegging to multiple legal tenders, one or more commodities, one or more crypto assets, or a combination of such assets.

E-money stablecoins are intended for use as a means of payment and aim at stabilizing their value by referencing only one fiat currency.

Other scholars propose a classification according to the mechanism for ensuring exchange rate stability. According to the rate stabilization mechanism, stablecoins are divided into collateralized (secured) and algorithmic (unsecured) (Table 1).

Table 1. Types of stablecoins according to the exchange rate stabilization mechanism

Collateralized (secured) stablecoins	
Collateralized by traditional assets Collateral is as follows:	Fiat currency Goods Commodity money
Collateralized by crypto assets Collateral is as follows:	Digital tokens are issued for the real number of assets in a 1:1 ratio. The issuance can be carried out by authorized organizations and through smart contracts Cryptocurrencies and fiat money
Algorithmic (unsecured) stablecoins	
On the level of applications	The creation of a smart contract on behalf of the issuer (the prototype of the central bank in this system) and the monetary policy of such a smart contract fulfills one function, i.e. to issue a currency that will be traded at 1 USD
On the level of protocols	The use of various stabilization methods at the protocol level
Hybrid (combining elements of the two mechanisms)	Combines elements of applications and protocols

Other experts have classified stablecoins by direction of use and exchange rate regime.

In terms of use, collateralized stablecoins can be retail or wholesale. Retail stablecoins are available to any user, while access to wholesale stablecoins is limited and only specialized financial institutions can use such coins.

The exchange rate regime of stablecoins can be either fixed or floating. In the case of a fixed exchange rate, stablecoins are purchased and redeemed at their notional value. With a floating rate, stablecoins are valued in relation to the base currency.

Other criteria for classifying collateralized crypto assets include subdivision by stablecoin issuer, issuance and redemption conditions, and stablecoin collateral size and control.

Stablecoins collateralized in different ways differ from each other, which conditions their different regulation. The legal regulation of stablecoins backed by goods should be similar to exchange activities that are used to control organizations involved in deliverable contracts.

For stablecoins pegged to cryptocurrencies, it is necessary to create a mechanism to test this technology and regulate it with obligatory procedure compliance. It is advisable to supervise entities that are responsible for maintaining the stability of cryptocurrencies backed by stablecoins.

Fiat-backed stablecoins are monetary substitutes that perform the functions of money.

Asset-backed stablecoins need to be more strictly regulated, which consists in applying the following measures:

- To issue preliminary permission for emission from the regulator, while the authorized body has the right to refuse permission if, from its point of view, the proposed business model might pose a threat to financial stability and monetary policy;
- To conduct regular audits with the help of independent auditors;
- For holders of stablecoins, it is necessary to provide the right of redemption;
- The issuer that did not provide the holders of stablecoins with the right to redeem shall ensure the liquidity of these stablecoins.

The main requirements for the issuer of stablecoins backed by one fiat currency are as follows:

- The issuer should have the authority to issue e-money;

– The issuer should comply with the requirements for those authorized to issue e-money.

5. CONCLUSION

The study showed that stablecoins can be classified on various grounds:

- 1) By reference:
 - a) Asset-referenced stablecoins;
 - b) E-money tokens.
- 2) By exchange-rate-based stabilization:
 - a) Collateralized stablecoins;
 - b) Unsecured stablecoins.
- 3) By direction of use:
 - a) Retail stablecoins;
 - b) Wholesale stablecoins.
- 4) By exchange rate regime:
 - a) Fixed stablecoins;
 - b) Floating stablecoins.
- 5) By stablecoin issuer;
- 6) Under the terms of issue and redemption of stablecoins;
- 7) By the size and control of collateralized stablecoins.

Depending on the type of stablecoins, there are also other classifications. It is necessary to conduct their special legal regulation with due regard to their specific features. Asset-referenced stablecoins should be regulated similarly to e-money so that the supervisory authority has the opportunity to monitor the issuance and fulfillment of collateral requirements. The regulation of commodity-backed stablecoins should be similar to exchange activities. For stablecoins as pegged cryptocurrencies, it is necessary to create a mechanism to test this technology.

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