



The Concept and Models of the Cryptocurrency Market

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Abstract

In recent years, there has been an intensive market formation process which involves interrelations of various cryptocurrencies and other financial tools formed on the basis of cryptoplatforms. This process is fraught with numerous difficulties relating to determining the status of these new tools in the legal sphere of relations among market participants. However, the key role consists in the identification of the economic content of cryptotools. The purpose of the present article is to substantiate the proposals on the economic essence of cryptotools and the resulting models of their market formation. The article deals with the economic aspects of cryptotools and suggests possible models of their markets. Currently, in cryptocurrency market formation, the evolutionary path is dominated. Therefore, the article discusses the main tendencies characteristic of this development path. However, the authors also emanate from the necessity of cryptocurrency market formation under the regulating influence of the state and give recommendations on the cryptocurrency market formation based on the interaction of market participants with regulating bodies of state power. It is this approach that allows minimizing financial risks for investors, providing stability of money circulation and macroeconomic resilience, creating favorable conditions for this market to take the proper place in the contemporary economy, and in the digitalization processes occurring in the economy.

Keywords: *cryptocurrency, cryptotools, cryptomarket, cryptoassets, market model, economic essence of cryptocurrency, regulated market*

1. Introduction

One of the most challenging and controversial areas of the contemporary market development is the market of cryptocurrencies and other financial tools that are formed on the basis of the created cryptoplatforms. In this respect, the current times are even called "the era of cryptocurrency" [1].

At the same time, the created cryptoplatforms are beginning to be used as a basis for the formation of distributed (decentralized) information databases of any kind, as well as for calculations on the financial and commodity markets. But since in all cases they are based on a digital code ("digit", numerical sign), its specific quality content depends solely on who creates such a currency and for what purpose. Since the ultimate goal of most market participants is making a profit [2, 3], creators of cryptoplatforms have paid initially the most attention to the possibilities of using them to obtain cash recourses. It is from this perspective that the interest arises towards understanding what constitutes cryptocurrencies and other means of "accumulating" cash recourses on the basis of cryptoplatforms.

2. Methods

2.1 Relevance of the Problem

The relevance of cryptocurrency related issues has two aspects. On the one hand, we are talking about scientific relevance. Ultimately, without certain generally accepted understanding of what cryptotools represent in the market, it will be impossible to

create the necessary and sufficient regulatory framework for their circulation and regulation [4]. The issues concerning encompassing the contemporary economy by cryptocurrencies and cryptoplatforms [5] as well as the taxation of cryptocurrency-based transactions [6] are discussed very actively. At that, especially many authors, if not to say that almost everyone, who writes on cryptocurrency issues, generally consider cryptocurrency to be the engine of the contemporary economy [7, 8, 9, 10], despite the existing problems and pending issues. On the other hand, the relevance of cryptotools is also of practical nature, since the actual presence of various cryptocurrencies in the market has turned them into a specific product, the purchase and sale of which can bring high profits to traders [11, 12, 13].

2.2 The Purpose and Objectives

The purpose of the present article is finding approaches to identify the essence of the cryptocurrency and its market. To achieve this goal, the following issues should be considered:

- analyzing the origin of cryptocurrencies;
- identifying the causes of their transformation into marketable product;
- studying development trends of the cryptocurrency market.

2.3 The Object and Subject of the Research

The financial market, where a variety of financial, i.e. intangible, assets are traded represents the research object, while the re-

search subject is the purchase and sale of cryptocurrencies and related tools.

2.4 Research Methods

This study is of a theoretical nature and is based on the application of the known laws of logic, methods of analysis and synthesis, induction and deduction, as well as analogy and modeling. The application of these methods allows analyzing the research object from different perspectives, highlighting its significant features and properties, relationships and attitudes.

2.5 Scientific Novelty

The scientific novelty of the research lies in the systematization of the definitions of cryptocurrency market options, as well as the proposals for establishing the economic nature of cryptocurrency, and classifications of the cryptocurrency formation models.

3. Results

3.1 "Cryptocurrency Market" Concept Options

The concept of "cryptocurrency market" most common in practice is a kind of intuitive concept, arising from the understanding of the very words, which it includes. However, since we are talking about the economic essence, the formation models and existence of the market, the approaches to their understanding, and therefore the creation, significantly depend on what is put into this concept.

We will proceed from the fact that there may be narrow and broad interpretation of the cryptocurrency market.

A) Narrow interpretation of the "cryptocurrency market" concept

Narrow interpretation is based on definition, in which the determining factor is the meaning of the "cryptocurrency" concept. Obviously, this concept means actually what is called a "cryptocurrency", i.e. a variety of cryptomoney with their known characteristics from the standpoint of their origin ("mining") and inextricable connection with cryptoplatforms (blockchains), according to which they exist and are applied among the owners of electronic purses (participants of cryptoplatforms).

Purchase and sale (exchange) of cryptocurrency, or its market in this case definitely includes two groups of relations: exchange of one type of cryptocurrency for another type of cryptocurrency, and exchange (purchase and sale) of cryptocurrency for traditional (fiduciary, legal) money.

It should be noted that the concept of "purchase and sale" can be used correctly only in the case where there is an exchange of "goods", in our case, exchange of cryptocurrency for fiduciary money. The essence of money is that money can be exchanged for anything, because money is the universal equivalent (legal means of payment) in the market. The cryptocurrency in its existing and potentially "infinite" diversity is different thing. Cryptocurrency or some of its types is only claiming the role of money in the contemporary economy, and therefore the exchange of one cryptocurrency for another cannot be called purchase and sale. Moreover, this exchange itself, as practice shows, is not an independent market process, but an exchange, which becomes possible in the capacity of cross-exchange rates of cryptocurrencies for fiduciary money.

Obviously, an already existing currency market, where national currencies are exchanged on each other, is an analogue of this "exchange" market.

B) Broad interpretation of the "cryptocurrency market" concept

The broad interpretation arises because of the potential limitlessness of the "market" concept. The market is understood as any economic (cost) relations concerning different types of

goods (assets). With regard to the "cryptocurrency market", such expansion of meaning means that this is not only the market of cryptocurrency, but also the market of any other tools based on cryptocurrencies. Similarly, the usual (traditional) understanding of the financial market includes not only the existence of the currency market, but also the existence along with it the markets of securities, derivative financial tools, as well as credit and insurance markets. From the standpoint of various tools, the cryptocurrency market can "grow to infinity" as new financial assets emerge, which lay the basis for cryptoplatform and the associated cryptocurrency. Based on the existing practice, even now we are talking about "cryptocurrency" securities and derivative tools based on cryptocurrencies.

In other words, if the cryptocurrency does not "die out" in the future, while will occupy a significant and necessary (important) place in the contemporary financial market, then it will inevitably contribute to development of all sorts of other "cryptocommodities", or, since financial products are often called "assets", we will be able to use the concept of "cryptoassets".

However, if cryptoassets are the true subject of relations in the cryptocurrency market, it is more logical to call the market "cryptoassets' market", or even better use a shorter name - "cryptomarket".

Thus, the use of a single concept of "cryptocurrency market" can hide the different content given by its users. It is clear that desirably, different contents be expressed by different concepts. In our case, if the emphasis is made on the purchase and sale of just the cryptocurrency itself, then in this case we have a relatively "narrow" set of market relations, and therefore it is desirable to designate them through "direct" concept of "cryptocurrency market", i.e. the market where only cryptocurrencies are traded as different types of cryptomoney.

While talking about the purchase and sale of any kind of marketable assets based on cryptocurrencies (cryptoplatform), it is more accurate to use the term "cryptoassets' market" or "cryptomarket". The concept of "cryptomarket" encompasses not only purchase and sale of cryptocurrencies, but also other cryptoassets.

At the same time, it is possible to point another important aspect while considering the concept of "cryptomarket" as the market of any kind of cryptoassets. It is referred to the possibility of highlighting the internal quantitative difference in this concept similarly to the concept of "one market or several markets". For example, when using the term of "cryptomarket", one can understand under this word (or use this word to designate), for example, a single (common) market, which presents different cryptoassets. This cryptomarket means a market of all cryptoassets, but not a cryptomarket as an aggregate of organizationally (legally) existing separate different markets of cryptoassets. In the latter case, the cryptomarket represents a formal sum of independent markets for each type of cryptoassets.

In aggregate, the considered concepts or even other aspects in understanding the category of "cryptomarkets" are nothing more than possible forms of its organizational (and legal) existence, which can be used by market participants based on different circumstances of an economic, political, or other nature. In this aspect, the raised issues about the cryptomarket organization, quantitative and qualitative differences in understanding of this market reflect the possible diversity of ways (models) of such a market formation, regardless of the ways of this market emergence, which can be both spontaneously developing or government regulated.

More specific content (understanding) of the "cryptomarket" concept or more aggregative (unifying) content (understanding) just reflect infinitely many possible forms of existence of such market in practice.

3.2 The Economic Essence of Cryptocurrency

Any cryptocurrency in its origin is a digital record, i.e. a special kind of number. This number results from certain computational procedure, which is defined by a specific cryptoplatfrom and certain rules of working with it. Thus, unlike ordinary commodity, which results from labor in the material production sphere, cryptocurrency is not a similar product. Moreover, cryptocurrency is not a service, i.e. it is not a useful intangible result of human labor.

Lawyers try to understand, what cryptocurrency is in terms of the object of civil law [14, 15]. Usually cryptocurrency is "equated" with money (currency) if one emphasizes just the ability of money to perform the function of a payment instrument for goods and services. However, legal (fiduciary) money is not just money that is issued by the state (central banks) as a nationwide or global payment instrument, but it is also a measure, by which all goods and services are assigned their prices necessary for purchase and sale. In this capacity, money is always different from all sorts of monetary surrogates [16].

Because of this circumstance, for the time being, cryptocurrency cannot become full-fledged money and therefore can get its "value" only through its equalization to fiduciary money, just as it is the case with "ordinary" goods or services. Therefore, in the conditions of coexistence of cryptocurrency and legitimate money, cryptocurrency serves as a specific commodity. Cryptocurrency is a digital commodity which is neither usual product, nor money. However, due to its "digital nature", cryptocurrency can legally obtain any economic content, which explains the possibility of its simultaneous existence as both a cryptocurrency and a token, which is an analogue of the securities. In this sense, the cryptocurrency is similar to ordinary noncash money, which also has digital records, though directly related to commodity circulation. Hence, the first key aspect of turning cryptocurrency into fiduciary money is based on its relation to direct exchange with the commodity weight.

Another key point of blurring the difference between cryptocurrency and money is related to their issuer. Contemporary cryptocurrencies result from the actions of many issuers, while the fiduciary money is issued by just the state. If the state itself will start issuing "its" cryptocurrency in such a way that no market participant will be able to mine it independently, in this case, such a "state" cryptocurrency in its economic sense will not differ from noncash money, at that, technical differences in the emission of noncash money in this case do not matter for the purchase and sale of goods and services.

Finally, we can also point to an important aspect in the difference between cryptocurrency and money such as the number of types of cryptocurrencies, which is already very large [17], and theoretically can be endless, which is absolutely unsuitable for performing their role in the capacity of "single" money.

Most likely, the contemporary state will not abandon its monopoly on the issue of money, no matter in what "technical" form, including the "digital" one, it is carried out. Therefore, to our opinion, at least in the coming years, the cryptocurrency will not replace fiduciary money, and, therefore, will develop as a digital commodity (asset), the specific quality of which is that it can potentially be given any economic content at the will of market participants.

It should be noted that the expansion of the concept of money towards encompassing cryptocurrency, means theoretically that there may be other models of electronic money. For example, Andryushin S. and Burlachkov V. offer a model of "file-money" [18].

3.3 Models of Cryptocurrency Market Formation

The cryptocurrency market can develop in several directions, which in the most general form are grouped into the following basic models.

From the standpoint of market regulation, two opposite models of the market are entitled to exist:

1. Regulated market model;
2. Model of unregulated market.

From the standpoint of the attitude to the world market, the following relatively opposite models are possible:

3. National market model;
4. Model of the market built-in into the international (world-wide) market.

From the standpoint of the assets composition concentrated in the market, the following market models are possible:

5. Independent market model;
6. Model of complementary market.

From the standpoint of the market centralization method, two more models can be distinguished:

7. Exchange market model;
8. Nonexchange market model.

3.4 Models of Market Controllability

The first two models are models of the cryptocurrency market (cryptomarket) from the standpoint of its regulation by the state. But at the same time, the methods of the cryptocurrency market formation are closely related with cryptocurrency. As a rule, initially any market develops spontaneously on the basis of the emerged new type of commodity (asset), especially if we are talking about financial assets, which are not directly related to the process of material goods production. But further relations concerning purchase and sale of a new asset can continue developing towards market unregulated by the state, or be subject to increasingly regulatory influences from the state, i.e. developing towards the regulated market.

The general trend of the contemporary market is still a tendency towards the development of regulated markets. The "niche" of unregulated markets is usually preserved just for the very first stages of the emergence in the market of a new purchase and sale commodity. Developed markets or markets important for the economy differ only in terms of their degree of regulation, greater or lesser, and are not completely regulated or completely unregulated markets. At the same time, it can be noted that the more "intangible" (financial) is the asset itself (as a commodity), the more regulation on the part of the state is experiencing its market as its true economic scale increases. The recent historical example is the strongest strengthening of state regulation of the nonexchange derivatives' market, and first of all, the market of swap contracts.

As for the "longstanding" existence of unregulated markets, as practice shows, this applies mainly to markets of commodities, forbidden to the private circulation, such as drugs or most types of weapons.

The unregulated nature of the cryptomarket development is associated with the risk of disappointment of its many potential participants with respect to their own abilities in achieving their subjective goals and consequently the risk of continued underdevelopment of such a market.

3.5 Models of National Market Affiliation

The third and fourth models of the cryptomarket encompass the same market from the standpoint of its relationship with the international (world-wide) market of cryptocurrencies and other cryptoassets. It should be noted that due to the technical nature of the cryptoassets emergence on the market, simply no "pure" national market is possible due to the existence of the contempo-

rary Internet. The blockchain technology in a variety of cryptoplatforms underlying cryptocurrency and other cryptoassets exists only in the environment of worldwide electronic communications. The Internet as a technical basis turns any electronic market into a special kind of world (global, international) market.

However, the global nature of the cryptocurrency market does not deny at the same time its national character with respect to the following:

- the state controls the Internet technically on its territory, for example, state may disable it or require blocking of some of its individual parts (sites);
- the state may regulate and control the resources or actions of any of its individuals (or individuals within the national territory) in the Internet based markets;
- the state may regulate the admission of a variety of individuals as members of the cryptomarket.

The problem of the global nature of the cryptomarket consists also in the fact that the uncontrolled circulation of cryptoassets can increase the uncontrolled circulation of capital between countries, as well as "forcibly" turn the national (fiduciary) currency into an object of spontaneous trade in the world market, when it is completely unprofitable for the country due to the weak economic backdrop.

However, from the general economic standpoint, the emergence of the cryptoassets' market as a market accessible to participants from all over the world, and therefore as a truly world (global) market reflects the trend of globalization and internationalization of contemporary commodity and financial markets. The contemporary market, legally preserving its national forms of existence, increasingly discards ("denies") these forms, and at the same time is looking for such forms of market existence that simply cannot have a national shell, so to speak, purely technically. The development of the Internet and the blockchain (cryptoplatforms) technology allows "creating" global markets based on supranational economic relations among people.

Though, this process is not yet a denial of the dominant (regulatory) role of the national state in the market. Simply, the regulatory role of the state will change in the course of formation of cryptomarkets. It will take new forms that will require increasingly close interaction between nation-states with each other. One can say that the development of the world market of cryptoassets is an important step towards the development of the "global" state. The regulatory role of an individual country with respect to the cryptomarket requires close interaction with market regulators of many other countries of the world.

3.6 Models of Cryptomarket Autonomy

From the standpoint of the traded assets composition, the financial market usually exists as an autonomous market of some groups of homogeneous assets, such as the foreign exchange market, as the securities market, and as the market of derivative financial tools. Therefore, in fact, the formation of a new financial market is possible as a kind of single market, where different types of cryptoassets are traded irrespectively of already existing financial assets. In this option, cryptomarket is at large an independent market, existing "in addition" to the available financial markets. Though, there might be another option, at which different types of cryptoassets are traded relatively separately from each other in already existing financial markets as "additional" assets (cryptotools) along with already traded "fiduciary" assets. From here, the fifth and sixth market models are potentially possible.

An autonomous market model is a model of a cryptoassets' market that develops alongside with existing financial markets as a relatively independent type of financial market.

The model of complementary market is a model of a cryptomarket that does not exist in the form of an organizationally independent market of all (different) cryptoassets along with the

existing financial markets. This model implies that the cryptomarket will develop as a sort of "crypto-parts" in the existing financial markets which are already formed organizationally and economically.

3.7 The Market Centralization Models

With regard to present-day conditions, all major trading markets of financial assets represent a greater or lesser combination of exchange and non-exchange markets, though with the dominance of its exchange component.

The concentration of the financial market allows its trading participants to switch from one financial tool to another much faster and relatively cheaper, and accordingly, to minimize the possible technical (operational) risks associated with the transition from one market to another.

However, the centralization of the cryptomarket is inevitably associated with the problem of combining the trading systems of the stock exchange with cryptoplatforms, "located" in the Internet networks. In this case, the independence of the exchange market from the Internet is possible only on the basis of the creation of the own necessary cryptoplatforms by the exchange that significantly limits the scope of their existence because of their "closedness" from "nonexchange-traded" public.

In some way, we can say that the exchange market of cryptocurrency (cryptoassets) on the basis of the national exchange is similar to the national currency market, the participants of which do not have access to the world currency market.

At the same time, the extension of the cryptomarket outside the country due to its "Internet based nature", in fact, makes its state regulation almost ineffective.

A possible solution to this contradiction lies in the fact that the regulation of the cryptomarket, as the global market of cryptoassets, should rely on a kind of unified world regulation, i.e. the regulatory procedures of all countries round the world should be interconnected and not contradict each other with respect to cryptomarkets, that is, should be international. The market common to all countries should be regulated commonly by these countries.

4 Discussion

Scientific and practical interest in the cryptocurrencies and cryptomarkets development is caused due to their novelty and specificity, their focus on digital technology in the financial sector. However, in fact, research and development in this area are definitely insufficient, because basically the market community pays the most attention to the issues of how one can earn on the growth (or fall) of cryptocurrency rates, or how one can maximize the attraction of dollar investments in cryptoprojects based on the sale of the relevant cryptoassets (tokens). Actually, it is this last aspect of the practical application of cryptocurrencies that stipulates the extremely high relevance of a variety of economic and legislative problems associated with cryptocurrencies. The theoretical suspense of many key issues related to the existence of cryptocurrencies complicates their legal regulation. In Russia, two main economic regulators are engaged in this problem in parallel, namely the Bank of Russia [19] and the Ministry of Finance [20].

5 Conclusion

The obtained results and recommendations can be used by financial market participants, financial regulatory authorities, and legislative bodies to establish the boundaries and areas for further development of the cryptoassets' market, the presence in this market of a variety of participants of already existing financial markets, including individuals, as well as the development

of the infrastructure of financial markets, and the links between cryptomarket and other markets and market structures.

The conducted study makes a fair share of contribution to ensuring the macroeconomic sustainability of the modern market economy, and at the same time is focused on creating conditions conducive to the further growth of trading activity in the financial markets and increasing their investment attractiveness through the use of new "digital assets" based on cryptoplatforms. Development of theoretical provisions and tools of cryptocurrency market can be continued in the following directions:

- providing further clarification and development of the economic content of cryptocurrencies and cryptocurrency-based tools to determine the status of this sort of digital tools in the contemporary economy development;

- forming the necessary economic and legal conditions for the cryptocurrency market development;

- establishing directions and connections of the cryptomarket with other financial markets.

Cryptomarket develops mainly spontaneously and independently of the state. Though, as its scope and range of participants increase, and therefore capitals involved, this market will be subject to increasing regulation by the state, which acts as a representative of the society interests in general.

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