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The scientific article

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STABLECOINS AS AN IMPLEMENTATION OF HAYEK'S PRIVATE MONEY THEORY

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Objective: to search for the new ways and forms of evolution of the institution of private money based on one of the types of cryptocurrencies called stablecoins.

Methods: the study uses the approaches of the historical school by D. North, evolutionary economics and the Austrian school of economics, as well as the new institutional economics.

Results: the initial tasks of creating a bitcoin have led, as a result of the hype around its value, to a distortion of the original concept of forming "private money" and to the use of cryptocurrency in illegal operations. The development of a private monetary paradigm is also hindered by the high volatility and unpredictability of the cryptocurrency exchange rate. The solution to this problem can be stablecoins, which are more capable of performing the function of "Hayek money". The article considers the main provisions of the concept of de-monopolization of monetary circulation in Hayek's theory, as well as the possibilities of its implementation, taking into account the institutional technological innovations that have occurred. The scheme of operation and distribution of stablecoins is studied on the example of the Tether cryptocurrency. The main reasons for the use of stablecoins as a private form of money, as well as some obstacles to their development, are identified. The possibilities of their further implementation in the real sector based on the system of flexible-collateral system of new issued tokens are considered.

Scientific novelty: it consists in a holistic assessment of the evolution of the private money institutional structure based on the analysis of the characteristics and ways of implementing certain types of cryptocurrencies in the real sector. The prospects for the formation of the private money market based on the Hayek model are determined.

Practical significance: it consists in the further development of the cryptocurrency market and the formation of the institutional environment of the private money market.

Keywords: Hayek's money; Stablecoins; Private money; Cryptocurrencies; Monetary system; Unconventional monetary policy; Austrian school of economics; Flexible-collateral system

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Научная статья

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СТЕЙБЛКОИНЫ КАК ИМПЛЕМЕНТАЦИЯ ТЕОРИИ ЧАСТНЫХ ДЕНЕГ ХАЙЕКА

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Цель: поиск новых путей и форм эволюции института частных денег на базе одного из типов криптовалют, называемых стейблкоинами.

Методы: в исследовании используются подходы исторической школы в традиции Д. Норта, эволюционной экономики и австрийской экономической школы, а также новой институциональной экономики.

Результаты: изначальные задачи создания биткоина в результате ажиотажа вокруг его ценности привели к искажению первоначальной концепции формирования «частных денег» и использованию криптовалюты в незаконных операциях. Развитию частной монетарной парадигмы также мешают высокая волатильность и непредсказуемость курса криптовалют. Решению этой проблемы могут служить стейблкоины, в большей степени способные к выполнению функции «денег Хайека». В статье рассмотрены основные положения концепции децентрализации денежного обращения в теории Хайека, а также возможности ее реализации с учетом произошедших институциональных технологических инноваций. Изучена схема работы и распространения стейблкоинов на примере криптовалюты Tether. Определены основные причины использования стейблкоинов как частной формы денег, а также некоторые препятствия по их развитию. Рассмотрены возможности их дальнейшей имплементации в реальный сектор на базе системы гибкого обеспечения новых эмитируемых токенов.

Научная новизна: заключается в целостной оценке эволюции институциональной структуры частных денег на базе анализа характеристик и путей имплементации отдельных видов криптовалют в реальный сектор экономики. Определены перспективы формирования рынка частных денег на основе модели Хайека.

Практическая значимость: заключается в дальнейшем развитии рынка криптовалют и формировании институциональной среды рынка частных денег.

Ключевые слова: деньги Хайека; стейблкоины; частные деньги; криптовалюты; монетарная система; нетрадиционная монетарная политика; Австрийская экономическая школа; гибкая система обеспечения

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Introduction

Despite the significant evolution of the cryptocurrency market institutional structure over the past decade, the ever-deeper introduction of blockchain technology into real economy, the use of cryptocurrencies as a measure of value (an accounting unit), a means of payment and a store of value (conservation of value), as well as the growing

interest in them on the part of large institutional investors, the market still poses a large number of unresolved questions, both of fundamental and purely technical character. One of the possible reasons for creating the first cryptocurrency (bitcoin) in October 2008 was the inefficiency of the current monetary system, when the monopoly of central banks on money emission under the unconventional ultra-

soft monetary policy is the basis for a regulator to obtain significant seignorage, a violation of the conditions for fair competition in the financial market, a restriction to the freedom of economic agents, and causes extremely negative macroeconomic effects, such as disorientation of investments due to distorted market prices [1].

Thus, the initial task of a bitcoin as the cryptomarket leader was to demonopolize the fiat money market through gradual implementation of the theoretical ideas elaborated by an Austrian economic school representative F. Hayek and an economist E. Rigel, which allowed creating a primary institutional environment of “private money” based on informational technologies and blockchain. The subsequent “hype” around a bitcoin simultaneously facilitated and hampered the process of the “private money” concept development: on the one hand, a fundamentally new market for digital money in the form of cryptocurrencies started to form, new projects and business models of the “private money market” started to appear. On the other hand, there was a fundamentally unjustified rise in the price of a bitcoin (which at the beginning of 2021 set a new record of \$50,000 per coin), as well as the use of cryptocurrencies in illegal operations (drugs, terrorism, money laundering), including implementation of various suspicious investment projects. This hinders the economical mainstream from adopting cryptocurrencies value as a financial instrument for the transition to a private monetary system.

Nevertheless, as was shown in our previous studies [2], the cryptocurrency market development is likely to follow the path of the Internet market of the late 1990s, when, after a series of ups and downs, only 1% of companies that created truly innovative products remained in the market and formed a fundamentally new sector of the market economy. In our opinion, “stablecoins” will be one of such examples in the cryptocurrency market in the nearest future.

Problem setting

In the previous studies [3] we showed that the evolution of the private money theory is at a radically new stage today due to cryptocurrencies (primarily bitcoin). However, the cryptocurrency market does not stand still, which is reflected in the constant emergence of new projects [4] with new technological features, emission control mechanisms and business models, as a part of the competing and evolving institutional structure of private money.

One of the significant factors that hinder the further practical implementation of many cryptocurrency projects in the real economy, starting from the most well-known bitcoin, is the extremely high volatility and unpredictability of exchange rate values. For example, over the past few years, the bitcoin has experienced growths by many percent and similarly large falls several times in a row (Table).

Comparison of the annual volatility of the bitcoin and major currency pairs

Сравнение годовой волатильности биткоина и основных валютных пар

Currency Pair / Валютная пара	Annual Volatility, % / Годовая волатильность, %
Bitcoin/USD	77
AUD/USD	11
CAN/USD	8
CHF/USD	14
EUR/USD	9
GBP/USD	10
JPY/USD	10

Source: [5].

Источник: [5].

Some studies focus on different types of bitcoin volatility (short-term and long-term) [6], which can be demonstrated through technical analysis of a larger timeframe of bitcoin exchange rates. Today, a number of key reasons can be identified that increase the bitcoin volatility, which can be conditionally divided into two subgroups (classified both by the reasons for a sudden growth and reasons for a sudden drop) (Fig. 1).

Let us consider these reasons for the subgroups in more detail:

The reasons for the drops:

- inexperienced traders (the use of leverage when trading cryptocurrencies leads to gaps and jerks in prices for orders execution, which is accompanied with large losses and leads to a price decrease);
- media pressure (Media FUD stands for “fear, uncertainty and doubt”. These feelings in the general mass of investors and traders arise when the bitcoin receives a very negative assessment in media). Any news about the “death of the bitcoin” or mentioning it as a “bubble” causes panic among people, which ends in a rapid sale of the digital asset;

Fig. 1. Key causes of bitcoin volatility

Source: compiled by the author.

Рис. 1. Ключевые причины волатильности биткоина

Источник: составлено автором.

– “dumping” of a large number of bitcoins by large investors (bitcoin whales);
– selling of the bitcoins by the earliest investors who try to fix profits for large sums during the speculative growth cycles;
– poor management of digital exchange platforms: problems of any type with crypto-exchanges (data leakage, hacker attacks, large theft of coins) cause local panic among cryptocurrency holders on other platforms and exchanges, provoking strong local sell-offs of cryptocurrencies.
The reasons for the growth:
– long-term investments (most bitcoin whales or large bitcoin holders) store and/or channel most of their bitcoins

into investment funds, which artificially reduces the number of bitcoins in circulation and leads to an increase in the market rate);
– media hype (just as the effects of FUD in mass media can create panic and downward pressure on prices, media hype and optimism can increase buying pressure);
– increased liquidity (the use of complex trading instruments, such as futures and exchange-traded funds (ETFs) traded on the bitcoin, increases liquidity, helps to balance excess volatility in the short term and to attract new investors, thereby accelerating the price of the coin);
– mistrust in fiat money due to the growing national debt and ultra soft monetary policy in developed economies has become the main factor behind the rise in bitcoin

prices, contributing to a decrease in public confidence in conventional fiat currencies (US dollars, euros, pounds sterling, etc.);

– “lack of supply” – the maximum number of bitcoins is limited to 21 million coins, which is a significant deflationary factor (by now, over 85% of all bitcoins have been mined in the world);

– acceptance of the bitcoin as a means of payment (every time large retail companies start accepting the bitcoin, investors see it becoming more and more popular among the real economy subjects).

The developers of the first cryptocurrencies were “inspired” by the causes and consequences of the 2008 crisis, as well as the growing distrust to fiat money [7]. Therefore, crypto-enthusiasts considered the main function of the created “private” money to be a universal stable means of payment independent of state institutions (according to Hayek’s ideas), and only secondary – as an artifact with all the other functions of money such as a measure of value, a means of accumulation, and the world money.

However, the observed volatility does not allow the bitcoin to fully fulfill its monetary functions, which explains why it is sometimes called “digital gold” and is often used exclusively as a speculative investment asset [8]. Some studies using logarithmic analysis and modeling [9] showed that the price change in the bitcoin is more similar to the behavior of “investment assets” than money. In others [10], it was demonstrated that the bitcoin stands somewhere between gold as an asset (commodity) and the dollar as a means of payment, but still closer to the “digital analogue of gold” [11].

More than 12 years have passed since the inception of the bitcoin, and during that time, many new promising cryptoprojects have been created on the basis of blockchain, which, in our opinion, can be more effectively used in the real economy as a means of payment. Stablecoins is a kind of such cryptocurrencies.

Stablecoins: essence and parallels with Hayek money

Stablecoins can be generally defined as a digital token that has a low exchange rate volatility as a result of backing with some underlying asset or fiat currency, acting as a store of value, a medium of exchange and a unit of account for making payments based on blockchain technology [12]. Thus, these are digital currencies with

the following main purposes (in addition to the traditional purposes of cryptocurrencies [13]¹):

1) to ensure a stable exchange rate due to low volatility;
2) to eliminate explicit inflationary and deflationary effects (for example, the number of bitcoins limited to 21 million [13] enhances its deflationary properties, Fig. 2).

3. to ensure the flexible exchange rate formation (flexibility of changes in the money supply, adaptation of the money supply to the commodities supply in real time)².

These unique characteristics of stablecoins have made some researchers to refer to them as “Hayek’s money” [14] (a concept of a new monetary order based on private currencies).

An independent libertarian economist Edwin Riegel (“Money of a Private Enterprise: a Non-Political Monetary System”, 1944 [15]) and a representative of the Austrian economic school Friedrich von Hayek (“Private money”, 1976 [16]) founded the alternative monetary theory aimed at demonopolizing the monetary system and transiting to the “private money” system. Among the modern researchers engaged in this topic, we can highlight S. Andryushin, K. Monet, Dr. Sanchez, J. Dörr, O. Kowalski, M. Grabowski, F. Ametrano, J. Smith, and F. Buckens.

According to F. Hayek [16], “exchange rate flexibility” (changes in the money supply) manifests itself as follows: “... [the private] bank will have to monitor not so much how changes in the circulation of its currency directly affect the prices of other goods, as how they affect the exchange rates of other currencies in which these goods are predominantly bought and sold in the market. Although the task of establishing the appropriate exchange rates (taking into account the exchange rates between various currencies) will be difficult, a computer will help to make an almost instant calculation so that the bank will know hourly whether to increase or decrease the amount of its currency offered for loans and/or for sale”.

This is why cryptocurrencies that adopt the monetary standard of elastic, fully automatic, non-discretionary

¹ Traditional goals of the developers of cryptocurrencies and the bitcoin, such as demonopolization, denationalization, autonomy and anonymity of money.

² Today, this goal has not been fully implemented, but exists more like a promising characteristics given the current practice and technologies.

Fig. 2. Number of bitcoins in circulation (million)

Source: compiled by the author.

Рис. 2. Количество биткоинов в обращении (млн шт.)

Источник: составлено автором.

supply, regulated to achieve stable prices in relation to the (commodity) price index, are defined in a number of studies as “Hayek’s money”. The difference from Hayek’s parallel currency scheme refers to how the volume of private currency can be regulated.

In Hayek’s scheme, the issuing institution (a private bank) would have to buy/sell its currency for other currencies/securities/commodities and reduce/expand its crediting: this is how central banks work. In the case of cryptocurrency, a promising alternative is to enforce monetary policy in the blockchain itself, directly changing the number of monetary units in each wallet [14].

The operation model of private issuing banks, proposed by Hayek, was quite simple and at the same time complicated for its time. Simplicity could be found in the following:

- the bank issues its own currency with an initial exchange rate bound to the main existing currencies – for example, one ducat for two dollars, etc.;
- this rate is set as the initial (minimal) and guaranteed rate, below which the new currency cannot fall;

– the initial emission, according to Hayek’s plan, should be carried out on the basis of direct sales or open auctions (today, an ICO³ scheme could be used);

– a subsequent emission could be carried out conventionally through the issuance of new loans;

– for backing the emission, the bank establishes a certain commodity-material or other asset base (in modern conditions, the commodity base can also include “intangible” assets, such as patents, digital assets, copyright and intellectual rights, forming a flexible-collateral system which will be described further);

– it is not appropriate to make the commodity standard “fixed” in relation to only one commodity (otherwise the money becomes a quasi-asset).

Thus, Hayek’s model of a private issuing bank resembled the quasi-private banks in Scotland and the United States that already existed in the past [17]. The

³ ICO (Initial coin offering) is a form of attracting investments by selling to investors a fixed number of new cryptocurrency units obtained after emission.

key difference was the need to use only legally secured types of a collateral (as a rule, gold and silver, as well as government bonds) and the impossibility of international use of the money issued by private banks (in Scotland, the USA and France, they were used exclusively for intra-country transactions).

The complexity of the practical implementation of Hayek's private banking model at his time was reduced to the lack of the relevant technologies and tools. In 1974, there was no Internet, no blockchain and smart contracts, personal computers had just begun to be introduced into the banking system, stock exchanges worked from traditional "pits", and stock prices were published every day in the morning newspapers. With such a poor technical infrastructure of that time, it was nearly impossible to implement Hayek's plans, which was admitted by himself and other researchers who considered the ideas of private emission banks to be a theoretical utopia [16].

Modern institutional technological innovations such as the Internet, blockchain and smart contracts have changed this situation. We will try to determine what a theoretical model of Hayek's private emission banks might look like in the modern technological landscape.

Regarding the possible use of the bitcoin for these purposes, due to the inflexible money supply (a fundamental feature of the algorithm), the bitcoin will always be unsuitable for tying its value to anything, and therefore it cannot be a relevant accounting unit [14].

An elastic (flexible) money supply (money backing system) as a monetary order has never before existed in the economic history of mankind. Only two main periods can be marked – deflationary (for example, the 19th century, the use of gold and/or silver as a standard of value) and inflationary (after the abolition of the Bretton Woods system).

According to Huert de Soto [18], deflation of the 19th century was an inevitable consequence of the fact that the long-term gold production growth rate was always in the range from 2 to 4 %. If the rate of economic growth is about 4 % per year or more, then we will have net deflation due to the "physical" lack of gold. The most famous example of this is the 19th century Great Deflation, from 1870 to 1890, when the world prices for goods, materials and labor steadily declined, although at a low rate, less than 2 % per year [19].

Some studies provide a comprehensive assessment of deflation, noting both the negative and positive effects

of this phenomenon: "The results show that deflation in the gold standard era of the late 19th century in three key countries reflected both a positive aggregate shock and a negative monetary shock. However, the negative monetary shock had an insignificant effect on the volume of production" [20]. In general terms, deflation slows down the possible economic growth due to chronic underfunding.

While the assessments of different studies differ regarding the causes and consequences of the 19th century Great Deflation, the history of inflationary shocks in the world economic history, including the example of the 1970s, demonstrates more clearly the negative consequences of this monetary phenomenon for the real economy development.

In the 1970s, chaos reigned in the global economy and stock markets. The cancellation of the Bretton Woods system, the impeachment of President Nixon, the surge in oil prices and a number of other factors led to the stock markets "sinking" by almost 50 %, the economic growth being extremely weak, and unemployment rising sharply, reaching double-digit numbers [21].

The easy monetary policy of the US Federal Reserve System, pursued to increase employment, also further accelerated inflation [22]. The FRS later changed its policy, raising interest rates to about 20 % per annum – a value that is extremely disastrous for certain interest-sensitive industries such as housing and auto industries, which turned out to be a disaster for these sectors. As we noted earlier, there were many reasons for the high inflation of that time, but the main one was monetary policy which served the huge budget deficit; as Milton Friedman said, "inflation is always a monetary phenomenon" [23].

A number of studies showed [24] that even the use of modern monetary policy approaches could not have solved the problem of inflation stabilization in the 1970s due to the presence of real information asymmetries, for example, regarding the interpretation of the natural unemployment rate.

The history of the world economy, by the examples of the economies of France (1789–1797), the USA (1812–1814, 1861–1865), Germany (1923–1924), and Brazil (1986–1994), demonstrates that the most important task of economic policy is to constrain (target) inflation within 2 % per annum; the failure to fulfill that leads to a crisis in the economy.

Main characteristics and working mechanism of stablecoins

In a number of studies, the main types of stablecoins were identified according to their working mechanisms which currently exist. The presented classification is based on the works by Zhang [25] and Mancini-Griffoli [26].

1. Type one: uses fiat money as a collateral; the issuer must have the same amount of fiat currency as the number of stablecoins to ensure that the stablecoin is pegged to fiat currency and can be converted to it at any time. Thus, a full reservation scheme is used (100 % backing).

2. Type two: other cryptocurrencies are used as a collateral.

3. Type three: commodity groups such as gold, oil, etc. are involved as a collateral.

4. Type four: algorithmic stablecoins without a collateral (algorithms are designed to automatically adjust the demand).

For a detailed examination of the working mechanisms of stablecoins, we chose the Tether cryptocurrency (ticker USDT). This choice is due to the fact that at the beginning of 2021 this cryptocurrency was the largest of its kind among stablecoins:

- 80 % share of Tether among other stablecoins in the cryptomarket [27];
- 70 % of the total volume of cryptotrading in the world falls on Tether [28];
- the third place among all cryptocurrencies in terms of capitalization (US\$ 24.38 bln at the beginning of 2021) [29].

Unlike conventional exchange rate pegs, stablecoins are not managed by national central banks or other monetary institutions. The Tether issuer officially confirms the absence of intervention in the secondary market to stabilize the exchange rate, and [30]:

1. Tether does not represent any country and does not control the banking ecosystem of its own cryptocurrency.
2. The USDT supply is formed solely on the basis of consumer demand (all issued USDTs were purchased by consumers in a 1:1 ratio).
3. Tether does not set or manage interest rates anywhere.
4. Tether does not manipulate market prices [31].

Tether is backed by the national currency, the US dollar. According to the official documents of the project, the cryptocurrency uses the principle of full reservation. This means that each issued Tether is backed by a similar

dollar deposit. However, there are studies [32], indirectly confirmed by the company, that in fact Tether is backed by US dollars only at the level of 74 %.

New Tether tokens in circulation are created through Tether “grants” that are formed when private investors deposit US dollars into the Tether account, thus creating an equivalent Tether supply put into circulation, and the reverse situation occurs when Tether coins are “bought back” with dollar deposits and are removed from circulation.

Fig. 3 and 4 show the conceptual scheme of creation (emission) and subsequent distribution of the Tether cryptocurrency in the secondary market. Until April 2019, Bitfinex first deposited dollars into Tether’s treasury. The Treasury transferred the newly created Tether tokens to Bitfinex, which then distributed them to many other exchanges and investors for transactions in the secondary market.

Nevertheless, the Tether cryptoproject itself indicates that currently, any investor can deposit dollars directly to receive Tether tokens at a fixed rate of 1:1. Until 2018, almost all Tethers created in the form of grants were distributed to Bitfinex and other exchanges for trading in the secondary market [33].

The bitcoin, the most popular cryptocurrency, was developed for use in direct peer-to-peer online payments without the mediation of financial institutions. However, the bitcoin (and other cryptocurrencies) is mainly used as an investment asset rather than a payment instrument. Therefore, stablecoins represent the hope of a return to the widespread idea of private money.

A number of studies identified the main reasons for using stablecoins in the financial market:

- to “fix” profits as a tool for temporary storage of value without leaving the cryptocurrency market;
- as a stable “tax shelter”, or tax evasion tool;
- to access key currency pairs outside the official banking system.

The main function of stablecoins is to be a cross-bridge converter between other cryptocurrencies [34]. Speculative investors temporarily “freeze” their profits before making a new investment decision, thereby reducing their exposure to the risk of price fluctuations in the event of instability in the exchange rate values of different cryptocurrencies.

Secondly, when cashing out investments in a cryptocurrency, the investor is obliged to pay tax (for example,

Fig. 3. Scheme of the Tether tokens distribution to the secondary market through the Bitfinex exchange

Source: [33].

Рис. 3. Схема распространения токенов Tether на вторичный рынок через биржу Bitfinex

Источник: [33].

Fig. 4. Scheme of the Tether tokens distribution to the secondary market through third-party cryptoexchanges

Source: [33].

Рис. 4. Схема распространения токенов Tether на вторичный рынок через сторонние криптобиржи

Источник: [33].

capital gains tax in Poland). The exchange of cryptocurrencies for stablecoins is a way to evade the “return” of money to the financial jurisdiction of the country, which can protect the investor from paying taxes or submitting tax and financial statements.

Third, stablecoins provide digital access to traditional fiat currencies (for example, the US dollar) around the world, that is, outside the country of the currency issu-

ing, without the need to open a bank account in their own country [35].

The first and most common criticism of stablecoins, oddly enough, is the denial of their stability (stable, low volatile rate). For example, a number of studies found [36] that the low volatility of the main stablecoins is in fact imaginary, which is expressed in a high direct correlation of volumes between stablecoins and the bitcoin.

That testifies to the use of stablecoins as a pure “cross-bridge” of currencies for exchange for bitcoins (Fig. 5). Also, these studies [36] hypothesize that the existence of stablecoins contributes to additional volatility of the bitcoins, since the transaction costs for buying and selling the bitcoins through stablecoins are much lower than through traditional fiat currencies.

The concept of “stability” (low volatility) has a too general meaning in relation to money. Therefore, within the framework of this study, we have to clarify what the cryptocommunity means by “stability” of stablecoins based on the study by J. Samman and A. Masanto [37]:

- the ability to purchase a similar basket of goods and services during the day;
- the possibility of easy and fast conversion of stablecoin into a collateral;
- the predictable price volatility on weekends (when the world financial and foreign exchange markets are closed);
- the token inflation is not higher than the level of official inflation (preservation of value in real terms);
- the low absolute and relative volatility of exchange rate values.

The variety of operational goals and mechanisms for achieving stability is, at least partially, the consequence of the multiple definitions of stability [38], discussed above.

The second important problem relates to the scheme for reserving new emissions of tokens in stablecoin projects. Let us consider this situation using the example of the same Tether. Although the project officially announced the use of full 100 % reserve, the company does not have official audit reports on these reserves. The raised doubts among investors and the public led to a lawsuit in the New York Supreme Court [39], which eventually forced the company’s lawyers to confirm that the company actually uses fractional reservation at 74 %.

Conclusions

As we noted earlier, the bitcoin, despite its popularity and primacy among all cryptocurrencies (private digital money), implemented over the past 12 years in world economy, in the long term cannot be used as private money due to a number of technical and institutional features laid down by its developers.

In this regard, in our opinion, the bitcoin can be replaced by stablecoins, the initial task and technological

Fig. 5. Cross-bridge and lower transaction costs when using stablecoins to buy conventional cryptocurrency

Source: compiled by the author.

Рис. 5. Кросс-бридж и снижение транзакционных издержек при использовании стейблкоинов для покупки обычной криптовалюты

Источник: составлено автором.

institutional structure of which is more consistent with the goals of a sustainable and stable means of payment, a measure of value (accounting unit), and a store of value, that correspond to the fundamental theoretical principles of private money described by Hayek.

But what is wrong with the modern stablecoins, and why cannot we use them for the final implementation of Hayek's theory in the real economy?

In addition to the problems already considered, the most important, in our opinion, is the problem of a collateral. Starting from the quasi-private banking systems (USA, Scotland) of the 18th century, the attempts to create a private monetary system alternative to the state monetary order were associated with the collateral of the issued private money with some assets or goods. In previous centuries, gold and silver were the uncontested instrument. But any precious metals, as we have shown earlier, have a deflationary nature, due to the difference in the economic growth rates and the growth rates of the new metal production.

The modern stablecoins have not solved this problem: most of the common stablecoins are backed by the same US dollar, which makes them a quasi-electronic dollar token – this will not help to solve the existing problems in the monetary system, because these tokens will carry the same inflationary risks as their “parent” currency.

In our opinion, a promising solution to the current contradictions in the stablecoins working model lies in the creation of a fundamentally new stablecoin with a flexible-collateral system, based on a basket of certain goods and assets.

What we mean by the flexible-collateral system and a system of flexible securing of private money based on stablecoins is a system of full or partial reservation when new banknotes are issued by private banks using the constantly changing in the real time regime, most liquid and low volatile basket of goods, assets and various alternative value artifacts.

The monetary history of mankind confirms the fact that in each period of its development it had examples

of completely different, but, for one reason or another, highly demanded artifacts used as money – stones, shells, precious metals, red wine of 1812, game consoles, bitcoins, virtual skins and assets in games, etc., the list can be endless [40].

Undoubtedly, the use of some assets was fixed in the history of mankind, which in one way or another proved their viability as universal and time-tested low volatile monetary unites, such as gold, the US dollar, the German mark (and later the euro). But they have a number of restrictions and risks for further use, including in connection with the ongoing easy monetary policy of the world's leading central banks (FRS, ECB) and the threat of high inflation in the near future.

At the same time, the use of a flexible collateral in the private money emission, coupled with the competition of private emission centers (banks) according to the Hayek model, will lead to the formation of a new competitive private money market, whose participants will compete for:

- emission and control of the money supply used in the circulation of private currencies;
- “search” and “tracking” of the most liquid and least volatile collateral to reserve the issue of private currencies;
- support for the operation of their own financial ecosystems based on issued private currencies.

By now, a number of crypto projects have already appeared that indirectly experiment with the use of unconventional ways of backing their tokens. For example, a project called Zilliqa [41] has issued its tokens, which are backed by a rare single malt Scotch whiskey from the Casks of Distinction collection. The whiskey tokens will be additionally issued as new bottles of whiskey are produced.

Future directions of research in this area will include the analysis of the practical implementation of the flexible collateral of cryptocurrencies in the form of stablecoins, as well as the analysis of the existing “harmful” narratives in economics that hinder the implementation of the private money theory in the real economy.

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