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STABLECOINS & CBDCS AS PRIVATE & PUBLIC MONEY: CONFRONT OR CO-EXIST?

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INTRODUCTION

Stablecoins have become an indispensable component of the cryptocurrency ecosystem[1], nominating 80% of centralized exchange (CEX) transactions and playing a crucial role in the rapidly growing world of decentralized finance (DeFi). By providing a stable store of value and enabling smooth transactions in a volatile market, stablecoins act as a vital link between fiat and cryptocurrencies – their importance cannot be overstated[2].

Randal Quarles, a government official of the highest financial regulator in the United States, Vice Chairman of Supervision at the Federal Reserve Board, stated at the annual convention of the Utah Bankers Association in 2021 that the US central bank has a «strong regulatory interest» but at the same time «we don't need to be afraid of stablecoins.» In addition, Randal Quarles noted: «When our problems are solved, we should say yes to these products, not strain to find ways to say no [...] Indeed, the combination of inevitable improvements in the existing payment system, such as various instant payment initiatives, combined with the cross-border efficiency of properly structured stablecoins, may well render any effort to develop a central bank digital currency superfluous»[3].

In the same context, Randal Quarles raised a number of issues: «Stablecoins are an important development that raises complex questions. For example, how will the widespread adoption of stablecoins affect monetary policy or financial stability? How might stablecoins affect the commercial banking system? Do stablecoins pose a fundamental threat to the role of government in money creation?» And he successfully answers his own questions: «The Federal Reserve has traditionally supported responsible private-sector innovation [...] Our current system depends on private firms creating money every day».

Rohan Grey, a professor at the Willamette University College of Law, responded to Randal Quarles' speech in an email: «I read [Quarles'] speech as the speech of a free-market oriented person who is doing everything he can to allow private actors to continue doing what they are doing and to refrain from any

[1] С.О. Грицай, «Криптовалюта – чи може бути правовою дефініцією?,» *Дніпровський науковий часопис публічного управління, психології, права*, no. 2 (June 13, 2022): 92–97, https://doi.org/10.51547/ppp.dp.ua/2022.2.15.

[2] «Centralized Stablecoins Are Problematic. Is a Decentralized Alternative on the Way?,» Coin Desk, April 17, 2023, https://www.coindesk.com/consensus-magazine/2023/04/17/centralized-stablecoins-are-problematic-is-a-decentralized-alternative-on-the-way/.

[3] «Speech by Vice Chair for Supervision Quarles on Central Bank Digital Currency», Board of Governors of the Federal Reserve System, June 28, 2021, https://www.federalreserve.gov/newsevents/speech/quarles20210628a.htm.

government alternative [...] This is what I think connects the enthusiasm for stablecoins with the pessimism about CBDCs»[4].

What's interesting is that Randal Quarles' speech stands in stark contrast to the speech by the head of the same agency, Lael Brainard, at CoinDesk's Consensus 2021: Digital payments and the rise of private money are two factors that are helping to drive the growing focus on central bank digital currencies (CBDCs). Unlike fiat central bank currencies, stablecoins do not have legal tender status. Depending on the underlying arrangements, some of them may put consumers and businesses at risk. Lael Brainard compared this risk to 19th-century banking in the United States, when private organizations issued their own paper money: an era associated with inefficiency and fraud. It is not obvious that new forms of private money that are linked to fiat currency, such as stablecoins, can carry the same level of protection as bank deposits or fiat currency[5].

Boston Fed Chairman Eric Rosengren sees stablecoins as a threat to short-term credit markets: «I think there's a concern about financial stability that a future crisis could easily be triggered as they become a more important sector of the financial market unless we start regulating them and making sure that there's actually a lot more [...] stability to what's being sold to the public as a 'stable' coin»[6].

Statement of research limitations. The research priorities are the development of stablecoins backed by precious metals rather than fiat currency (for example, terraUSD (UST) or USD coin (USDC)), because then stablecoins inherit their disadvantages. Namely, the priority of the research is: history and their essence, formation, development (experience of experiments), legal regulation and identification of features that give priority in competition with CBDC[7]. The study is less concerned with the formation and legal regulation of CBDCs[8], and if it touches on this topic, it is only for the purpose of comparison with stablecoins[9].

The structure of the study: 1. Theoretical foundations (1.1. Commodity, Representative and Fiat money; 1.2. The mechanism of functioning of fiat money; 1.3. Digital currency of central banks (CBDC); 1.4. Stablecoin as a type of virtual currency (cryptocurrency)); 2. Free banking (2.1. Private banking; 2.2. USA; 2.3.

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[4] Daniel Kuhn, «Stablecoins and CBDCs: Private Vs. Public Monetary Innovation,» Coin Desk, June 29, 2021, https://www.coindesk.com/policy/2021/06/29/stablecoins-and-cbdcs-private-vs-public-monetary-innovation/.

[5] «Fed's Brainard Breaks Down CBDC Policy Considerations, Sees Price Pressures Waning in the Future,» Coin Desk, May 24, 2021, https://www.coindesk.com/markets/2021/05/24/feds-brainard-breaks-down-cbdc-policy-considerations-sees-price-pressures-waning-in-the-future/.

[6] Eric Rosengren, «Official Monetary and Financial Institutions Forum Fed Week Financial Stability Session,» Federal Reserve Bank of Boston, June 25, 2021, https://www.bostonfed.org/news-and-events/speeches/2021/official-monetary-and-financial-institutions-forum-fed-week-financial-stability-session.aspx.

[7] С.О. Грицай, «Цифрова валюта центральних банків – загрози та виклики,» *Актуальні проблеми вітчизняної юриспруденції*, no. 1 (2022): 144–49, https://doi.org/10.32782/392256.

[8] С.О. Грицай, «Цифрова валюта центральних банків – сучасний огляд,» *Юридичний бюлетень*, no. 24 (2022): 84–91, https://doi.org/10.32850/LB2414-4207.2022.24.11.

[9] С.О. Грицай, «Цифрова валюта центральних банків: нестандартний методологічний підхід у правовому полі України,» *Філософські та методологічні проблеми права* 23, no. 1 (2022): 25–34, https://doi.org/10.33270/01222302.25.

England; 2.4. Scotland; 2.5. The Lyon Fair in Florence; 2.6. Other countries: periods of «free banking»); 3. Legal but private currencies of the present (3.1. Hong Kong; 3.2. Macau; 3.3. Great Britain); 4. State persecution of private money (4.1. Templars – Financial fixers; 4.2. USA; 4.2.1. 19th century USA; 4.2.2. American Liberty Dollar (ALD); 4.2.3. The United Cities Corporation (TUC); 4.3. Australia); 5. Alternatives to «free banking» (5.1. Full reserve banking; 5.2. Narrow banking; 5.3. Shadow banking); 6. Development of electronic money as a prototype of the stablecoin system (6.1. History of electronic money development; 6.2. Essence and system of organization of electronic money functioning); 7. Example of legal regulation of electronic money and stablecoins in Ukraine (7.1. Regulation of electronic money; 7.2. Regulation of stablecoins (secured virtual assets – in the sense of Ukrainian legislation); 7.2.1. Definition and legal regulation of virtual assets; 7.2.2. Ownership of a virtual asset; 7.2.3. Peculiarities of circulation and transactions with virtual assets; 7.2.4. Service providers for the turnover of virtual assets); 8. Global trends in the regulation of stablecoins (8.1. USA; 8.2. Great Britain; 8.3. European Union); 9. Experiments with the issuance of stablecoins (9.1. The period of failure 1999-2004; 9.2. E-Gold; 9.3. Pecunix; 9.4. E-Bullion; 9.5. 1MDC; 9.6. Goldmoney); 10. Discussion and generalization; Conclusions and recommendations.

1. Theoretical background

1.1. Commodity, representative and fiat money

Fiat money is a currency issued by the government that is designated by the government as the only legal tender in the country. It is not backed by a physical commodity such as gold or silver, but rather by the promises of the government that issued it. The value of fiat money is determined by the relationship between supply and demand and the stability of the government that issued it, not by the value of the commodity that backs it. Thus, fiat money has value only because the government backs it; fiat money itself, as a material value, or as the value of what is supposedly «behind it» (a promise), has no utility. For these reasons, the term «fiat» was coined: it is a Latin word that is often translated as «be» or «let it be»[10]. The name «fiat money» can be interpreted as «let it be money». Since fiat money is not tied to physical reserves, such as a national gold or silver reserve, it risks losing value due to inflation or even becoming worthless in the event of hyperinflation. In addition, if people lose faith in the national currency, the money will no longer have value. This is quite different from a gold-backed currency, for example; it has intrinsic value because of the demand for gold in jewelry and decorations, as well as in the production of electronic devices, computers, and aerospace vehicles[11].

[10] True Tamplin, «Fiat Money: Definition, Purpose, Pros, and Cons,» Finance Strategist, March 29, 2023, https://www.financestrategists.com/financial-advisor/fiat-money/.

[11] James Chen, Somer Anderson, and Suzanne Kvilhaug, «Fiat Money: What It Is, How It Works, Example, Pros & Cons,» Investopedia, March 28, 2023, https://www.investopedia.com/terms/f/fiatmoney.asp; Dror Goldberg, «Famous Myths of 'Fiat Money'» 37, no. 5 (2005): 957–67, https://doi.org/10.1353/mcb.2005.0052.

Note that fiat money should not be confused with representational money. Representative money has an intrinsic value because it is backed by and can be converted into precious metal or other commodities. External fiat money can be similar to representational money, for example, it can be in paper form. However, fiat money is not backed by a security, while representative money is a claim on a commodity[12].

The use of commodity money can be traced back to the Bronze Age cultures from 3300 BC, the most popular were: bronze, silver, gold[13]. In Europe and the Middle East in the Bronze Age, unofficial pieces of metal (silver and bronze) served as circulating money long before coins were minted. The «silver bars» that served as currency were irregularly shaped and unminted pieces of silver cut into pieces of standard weight[14].

Charles Arthur Conant pointed to a passage in the Old Testament (Genesis 23:16) where the King James Version states that Abraham paid Ephron «four hundred shekels of silver, the current money of a merchant.» Charles Arthur Conant has noted that this language «shows that it was the merchant community, not the government, that set the standard» (p. 128)[15]. The shekel was a unit of weight, not a coin or bullion.

Classical antiquity was the high point for the state monopoly on money production. Ancient rulers from the Greek city-states to the Roman Empire, looking for a source of profit to exploit, granted themselves a legal monopoly on this business by banning private coinage. With the decentralization and weakening of political power after the decline of the Western Roman Empire, private coinage returned to Western Europe. Babelon (Ernest Charles François Babelon, 1897, pp. 124, 127) comments on the period of the Merovingian dynasty (476-750): «Whoever had gold in his possession arrogated to himself the right to turn it into money, ... substituting his own name for that of the emperor as a guarantee for the public.» In medieval India, silver coins with perforations were also «minted by private institutions» (Mukherjee 2012, p. 215). The strengthening of nation-states brought back state coinage monopolies.

Gold was the preferred form of money because of its rarity, durability, divisibility, fungibility, and ease of identification, often in combination with silver. Silver was usually the main medium of circulation, and gold was the cash reserve. Commodity money was anonymous[16].

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[12] Carl E. Walsh, *Monetary Theory and Policy*, 2nd ed (Cambridge, Mass: MIT Press, 2003).

[13] Chapurukha Kusimba, «Making Cents of Currency's Ancient Rise,» Smithsonian Magazine, June 20, 2017, https://www.smithsonianmag.com/history/making-cents-currencys-ancient-rise-180963776/; Jeffrey Hays, «Mesopotamian Economics and Money,» Facts and Details, 2018, https://factsanddetails.com/world/cat56/sub363/item1514.html#chapter-3.

[14] Nicola Ialongo, Agnese Vacca, and Luca Peyronel, «Breaking down the Bullion. The Compliance of Bullion-Currencies with Official Weight-Systems in a Case-Study from the Ancient Near East,» *Journal of Archaeological Science* 91 (March 1, 2018): 20–32, https://doi.org/10.1016/j.jas.2018.01.002.

[15] Charles Arthur Conant, *The Principles of Money and Banking* (Harper, 1905).

[16] Shepard Krech, John Robert McNeill, and Carolyn Merchant, eds., *Encyclopedia of World Environmental History* (New York: Routledge, 2004).

The gold standard is a monetary system in which an accepted standard unit of account is equated to a fixed amount of gold. The gold standard was the basis of the global monetary system in three periods of its existence: 1) from the 1870s to the early 1920s; 2) from the late 1920s to 1932; 3) from 1944 to 1971[17].

The silver standard is a monetary system in which the accepted standard unit of account is equal to a fixed amount of silver. Silver has been much more common than gold as a monetary standard around the world for a tremendous period of time: starting with the Sumerians around 3000 BC and continuing until 1873. The international silver standard emerged due to two factors: 1) after the discovery of large silver deposits in the 16th century at Cerro Rico in Potosí, Bolivia; 2) in combination with the Spanish «eight pieces»: these silver dollar coins played the role of international trade currency for almost 400 years[18].

Historically, the silver standard was more widespread than the gold standard. The transition from the silver to the gold standard began in the 18th century. This happened because of Isaac Newton, a famous world scientist from England, who at that time worked as a master at the Mint of England. He recommended setting a higher exchange rate for gold coins than for silver coins, and thus England actually launched the gold standard in 1717. But it officially formed the gold standard in 1821 and subsequently introduced it into circulation in its many colonies[19].

In Europe, Germany played an important role in the transition from the silver to the gold standard. After the victory in the Franco-Prussian War of 1870-1871, Germany received a contribution of 200,000,000 pounds in gold from France. And it used it to join the gold standard initiated by England, the world's economic leader at the time, which was a trend to follow. This transition by Germany in 1873 provoked the same movement by other European countries and the rest of the world. Only China adhered to the silver standard until 1930 in the form of the French Indochinese piastre.

Representational money and the gold standard protect citizens from hyperinflation and other abuses of monetary policy, as was seen in some countries during the Great Depression. Commodity money, on the other hand, led to deflation.[20]

For a long time, paper money and banknotes have been representative money and traditionally acted as promises to pay the bearer a certain amount of precious metal, usually silver or gold. However, such a promise was first broken by China,

[17] Barry J. Eichengreen, *Globalizing Capital: A History of the International Monetary System*, Third edition (Princeton ; Oxford: Princeton University Press, 2019); S. N. Broadberry and Kyōji Fukao, eds., *The Cambridge Economic History of the Modern World* (Cambridge, United Kingdom ; New York, NY: Cambridge University Press, 2021).

[18] Chapurukha Kusimba, «Making Cents of Currency's Ancient Rise»; Hays, «Mesopotamian Economics and Money».

[19] Eichengreen, *Globalizing Capital*.

[20] Nick Mayhew, «Money and the Economy,» in *Money and Coinage in the Middle Ages* (Brill, 2019), 203–30, https://doi.org/10.1163/9789004383098_010.

which used fiat currency, around 1000 AD, when it was unable to pay off its paper obligations[21].

During the American Civil War, the government of the day issued United States banknotes, which had a paper form but the essence of a fiat currency (because they were not exchangeable), which were popularly called «greenbacks». The US Congress limited their issue to just over 340 million dollars. During the 1870s, the Greenback Party opposed the withdrawal of banknotes from circulation in the United States. For the first time, such money was called «fiat money» at their party convention in 1878[22].

Fiat money became most popular in the 20th century. The first problems began during the First World War, when many countries were unable to pay their debt obligations in representative money due to the costs of the war and post-war reconstruction. And it all ended badly, and for almost the same reasons, some time after World War II. More precisely, after US President Richard M. Nixon announced in August 1971 that he would «temporarily suspend the convertibility of the dollar into gold or other reserve assets»[23]. In fact, this step meant the end of the Bretton Woods system and the last vestiges of the gold standard. From 1944 until this stunning moment, called the «Nixon shock»; 27 years under the Bretton Woods system after World War II, the US dollar served as the international reserve currency backed by gold at a fixed value of $35 per ounce[24]. After this event, most countries adopted fiat money, which is exchangeable between major currencies.

Since then, the world has faced the problem of unlimited government money issuance, which causes bouts of high inflation, hyperinflation in some countries, or chronic inflation in others.

1.2. The mechanism of fiat money functioning

Critics of fiat money argue that the limited supply of gold makes it a more stable currency than fiat money, which has an unlimited supply.

The value of fiat money depends on how a country's economy is performing, how the country governs itself, and the impact of these factors on interest rates. A country that is experiencing political instability is likely to have a weakened currency and inflated commodity prices, making it difficult for people to buy products as they may need them. A fiat currency functions well when the public has sufficient confidence in the currency's ability to act as a store of purchasing power. In addition, it must be backed by the full credit of the government, which decrees and prints it as legal tender for financial transactions[25].

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[21] Walsh, *Monetary Theory and Policy*.

[22] *Fiat Money*, Chicago Daily Tribune (USA, 1878).

[23] Adam Martin, «Remembering Nixon's Gold-Standard Gamble: Interrupting 'Bonanza,'» The Atlantic, August 15, 2011, https://www.theatlantic.com/politics/archive/2011/08/nixon-gold-standard-gamble-interrupting-bonanza/354136/.

[24] «Bretton Woods Conference,» Britannica, March 20, 2023, https://www.britannica.com/event/Bretton-Woods-Conference.

[25] «Fiat Money,» Corporate Finance Institute, December 7, 2022, https://corporatefinanceinstitute.com/resources/economics/fiat-money-currency/.

In a monetary economy, fiat money is an intrinsically valuable object or record that is widely accepted as a means of payment. As a rule, when fiat money is produced, its nominal value is greater than the value of its metal or paper content[26].

Proponents of fiat money use elements of the so-called «micro-founded model.» In most economic models, agents are inherently happier when they have more money. According to the model developed by Lagos and Wright, fiat money has no intrinsic value, but agents get more of the goods they want when they trade, assuming that fiat money is valuable. The internal community creates the value of fiat money and, in equilibrium, makes otherwise unfeasible trades possible[27].

There is also a mathematical model that comes from game theory and tries to explain the value of fiat money. Its essence is as follows: in a game where agents produce and trade objects, there may be several Nash Equilibria when agents settle on stable behavior. As an example, in the Kiyotaki and Wright model, an object that has no intrinsic value may have value when traded in one (or more) Nash Equilibria[28].

1.3. Central bank digital currency (CBDC)

The Board of Governors of the Federal Reserve System (FRS) gave the following explanation of their vision of CBDC: «It is a digital form of central bank money that is widely available to the general public. «Central bank money» is money that is an obligation of the central bank. In the United States, there are currently two types of central bank money: physical currency issued by the Federal Reserve and digital balances held by commercial banks at the Federal Reserve. While Americans have long stored money primarily in digital form – for example, in bank accounts, payment apps, or online transactions – CBDC will be different from existing digital money available to the general public because CBDC will be a liability of the Federal Reserve, not a commercial bank»[29].

Let's compare the definitions of digital money provided by the world's leading financial institutions and the Ukrainian legislator[30], and present it in Table 1.

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[26] Dror Goldberg, «Famous Myths of 'Fiat Money,'» *Journal of Money, Credit, and Banking* 37, no. 5 (2005): 957–67, https://doi.org/10.1353/mcb.2005.0052.

[27] Ricardo Lagos and Randall Wright, «A Unified Framework for Monetary Theory and Policy Analysis,» *Journal of Political Economy* 113, no. 3 (June 2005): 463–84, https://doi.org/10.1086/429804.

[28] Nobuhiro Kiyotaki and Randall Wright, «On Money as a Medium of Exchange,» *Journal of Political Economy* 97, no. 4 (August 1989): 927–54, https://doi.org/10.1086/261634.

[29] «FRS – Frequently Asked Questions,» Board of Governors of the Federal Reserve System, April 15, 2022, https://www.federalreserve.gov/cbdc-faqs.htm.

[30] С.О. Грицай, «Цифрова гривня – становлення,» *Актуальні проблеми політики*, no. 69 (2022): 138–43, https://doi.org/10.32837/app.v0i69.1314; С.О. Грицай, «Цифрові гроші в Україні – CBDC?,» *Юридичний науковий електронний журнал*, no. 4 (2022): 247–49, https://doi.org/10.32782/2524-0374/2022-4/57.

Table 1

Definition of CBDC

Source.	Definition.
International Monetary Fund (IMF)	A digital form of existing fiat money that is issued by a central bank and serves as legal tender
European Central Bank (ECB)[31]	A digital form of fiat money that is publicly available, issued by the state and has the status of legal tender
Bank for International Settlements (BIS) [32]	An electronic form of national currency issued by a central bank that is obliged to maintain it
The Law of Ukraine «On Payment Services» [33]	The NBU's digital money is an electronic form of the Ukrainian currency issued by the National Bank of Ukraine. This definition is contained in the new Law of Ukraine «On Payment Services»

1.4. Stablecoin as a type of virtual currency (cryptocurrency)

Virtual currency is different from fiat currency (also called «real currency», «real money» or «national currency»), which is the coins and paper money of a country that is its legal tender, circulating and widely used and accepted as a medium of exchange in the issuing country. Virtual currency also differs from electronic money, which is a digital representation of fiat currency and is used to electronically transfer value (expressed in fiat currency)[34].

Based on the compound name, stablecoin is a type of altcoin (the word coin is a component of the word) that is stable and has low volatility. But from a technical point of view, stablecoin is a type of token[35]. This is the difficulty of positioning stablecoin in the structure of cryptocurrencies[36].

At the time of the study, there are three types of stablecoins: custodial, decentralized, and algorithmic:

A) Custodial. They are backed by fiat currency or tangible assets (including precious metals). As an example, the 2023 draft law on stablecoins in the United States is focused on formalizing the structure of custodial stablecoins (such as USDC) that use US dollars to secure their negotiable tokens.

B) Decentralized. Stablecoins that are backed mainly by other crypto assets. This includes structures such as MakerDAO and its stablecoin DAI. However, these structures are very experimental at the time of the study and have not been sufficiently researched.

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[31] Lorenzo Burlon et al., «The Optimal Quantity of CBDC in a Bank-Based Economy,» *SSRN Electronic Journal*, 2022, https://doi.org/10.2139/ssrn.4175853; «European Central Bank,» European Central Bank, 2023, https://www.ecb.europa.eu/home/html/index.en.html.

[32] «Bank for International Settlements,» BIS, 2023, https://www.bis.org/index.htm; «Central Bank Digital Currencies,» BIS, March 12, 2018, https://www.bis.org/cpmi/publ/d174.htm.

[33] «Про платіжні послуги,» Pub. L. No. 1591– IX (2021), https://zakon.rada.gov.ua/go/1591-20.

[34] FATF, «Virtual Currencies: Key Definitions and Potential AML/CFT Risks.» Paris, France : FATF, 2014.

[35] «Different Types of Cryptocurrencies and Their Importance». Kriptomat. URL: https://kriptomat.io/cryptocurrencies/types-of-cryptocurrency/.

[36] Serhii Hrytsai, «The Place of Virtual Assets in the Structure of Digital Financial Technology,» *International Science Journal of Management, Economics & Finance* 1, no. 3 (August 1, 2022): 34–48, https://doi.org/10.46299/j.isjmef.20220103.3.

C) Algorithmic. This is a type of stablecoins that are sometimes partially backed by other assets, and usually under-backed. They are often used in fraudulent schemes.

Our study will focus on custodial stablecoins. Their value is tied to physical assets (such as gold, oil) or backed by currency reserves (e.g., the dollar). Stablecoins are needed to avoid withdrawing fiat (traditional) money when trading on the exchange, as exchanges charge a commission and therefore all trading profits can go to the exchange's commission. One of the most popular solutions was USDT or Tether, or a token from the Binance exchange called BUSD.

Another way to put it is that stablecoins are altcoins whose exchange rate is backed by something: either powerful fiat currencies (dollars, euros, etc.), or commodities (for example, gold), or other cryptocurrencies, in order to reduce their volatility. But sometimes stablecoins are not backed by anything – for example, the exchange rate of Carbon and Havven coins is regulated by additional issuance or burning of assets[37].

According to the analysis in the paper «The place of virtual assets in the structure of digital financial technology» of 2022, stablecoins were classified by the type of their backing as follows: 1) backed by fiat money: 2) backed by other cryptocurrencies; 3) backed by commodities (raw materials, etc.); 4) not backed by anything – only by a security mechanism of issue[38].

Another study, Classification of elements of the latest digital financial technology, conducted in 2022, attempted to classify digital financial technologies (DFTs) in terms of their security. Stablecoins were placed in a separate group: DFTs that are prepaid (DFT – Stable coin). These are backed not by government agencies but by individuals and corporations. It was noted that most of the DFTs are prepaid (DFT – Stable coin), unlike DFTs for gaming (DFT – Cryptocurrency), can be attributed to the so-called «private money»[39].

O. I. Dyudykova in her DFT-Secured approach notes that unlike traditional money, the monetary value of which is established by law, the monetary value of digital financial assets is represented by their collateral. The exchange of digital financial assets for legal money is the only condition for obtaining their monetary value outside the digital system. The prepaid nature automatically excludes digital financial assets from the economic category of «money» and puts them in the same group as instruments used in cashless payments: they are informational in nature, providing information on the existence and movement of ownership rights to legal money that serves as their collateral.

[37] Adams M., Hicks C. Different Types of Cryptocurrencies. Forbes Advisor. 15.03.2023. URL: https://www.forbes.com/advisor/investing/cryptocurrency/different-types-of-cryptocurrencies/.

[38] Hrytsai, «The Place of Virtual Assets in the Structure of Digital Financial Technology.»

[39] Serhii Hrytsai, «Classification of Elements of the Latest Digital Financial Technology,» *International Science Journal of Jurisprudence & Philosophy* 1, no. 2 (August 1, 2022): 1–15, https://doi.org/10.46299/j.isjjp.20220102.1.

Digital financial assets, having no intrinsic value and not being the final legal tender, do not act as an independent representative of value (their value is represented by collateral previously provided to the digital system operator) and, accordingly, are not able to perform the function of repaying a debt obligation, requiring final settlements. Therefore, in practice, it is impossible to implement a payment with digital financial assets, the scheme of which excludes the participation of a credit institution, since its completion must be the fulfillment of a monetary obligation by the digital system operator by exchanging digital financial assets for an equivalent amount of legal money deposited. However, the execution of a transaction, including one of a credit nature, or non-commodity transactions using digital financial technologies constitutes an exchange of goods (work, services) for a monetary obligation of the digital system operator, which is later repaid in legal tender. In this case, digital financial assets fully fulfill the function of a means of payment: the seller does not receive the fulfillment of a monetary obligation by the buyer, but the transfer of a monetary obligation to a third party.

The considered approach does not grant digital financial assets the status of «legal tender», as a result of which they perform monetary functions, which are studied in a large number of works, to a limited extent, realizing them only within a specific digital system, and represent a private means of exchange that may not be recognized by a certain circle of persons.

One of the main characteristics of digital financial assets is the mandatory determination of the circle of persons who accept them as a means of exchange. Unlike legal money, which is accepted unconditionally and unreservedly by everyone, always and everywhere (within a particular country), the recognition of digital financial assets is not by virtue of law, but by virtue of an agreement with the operator of the digital system. Being a prepaid financial product, digital financial assets must have such a property as multipurpose use. If not, then, in case of single-purpose use, they «will not provide new information of a monetary nature, but rather will indicate a simple exchange of information, the number of purchases that agent A is entitled to make».

The above position, by its economic nature, coincides with the opinion of the famous economist P. Samuelson, stated in the 90s of the last century, according to which payment instruments, such as checks, «reflect only the expenditure or transfer of money; money itself quantifies the essence of the deposit»[40].

2. Free banking

2.1. Private banking

As a rule, this system is called «free banking». Unlike the centralized banking system, it is focused on free entry, free competition, no artificial legal restrictions on the types of contracts that banks can enter into with their clients, no monopoly

[40] Samuelson P. A., Nordhaus W. D. Economics. 19th ed. Boston : McGraw-Hill Irwin, 2010. 715 p. [HB171.5 .S25 2010]. («The McGraw-Hill series economics» Series). ISBN 978-0-07-351129-0.

privileges for one issuing bank, which was the historical origin of central banks. In this system, anyone could set up a bank, anyone who would take responsibility, so bankers had what lawyers call unlimited liability for the debts created by the banking company. This means that if the owners of the bank did not repay their depositors or did not fulfill the requirements for bonds, all the property of the bank owners was seized at the request of such bank creditors in bankruptcy proceedings. This made the bank owners behave very prudently and responsibly. And most often, if a bank started to become unprofitable, unlike today, the owners, realizing the burden of unlimited liability, came to the conclusion to close the bank and pay everyone to simply wind down the business, because it made no sense to accumulate more and more debts. [41]

In a «free banking» system, market laws control the supply of the total number of banknotes and deposits that can be backed by any given stock of money reserves. As a rule, reserves consist of scarce commodities (e.g., gold and silver), but there are cases of forming reserves from an artificially limited stock of fiat money issued by the central bank. In the classical «free banking» system, central banks either do not play any role in money issuance (except for administrative ones) or their money issuance is one-time and does not increase.

By the middle of the 20th century, monetary mechanisms with monopoly banknote issuance, including the issuance of government treasury bills, currency boards, and central banks, had replaced the system of «free banking.»

There are several reasons for the decline of the «free banking» system: from the banal imitation of the developed economies of the world at that time (for example, the Bank of England) to the useful desire of governments to receive fiscal revenues from the issue. This was reinforced by the development of economic theory that defended the institutions of central banks and financial crises in «free banking» systems.

2.2. USA

The banking system in the United States had several stages of development and they are interesting in the context of our study.

In the period from 1837 to 1864, banking in the United States was carried out in different state banking systems based on the so-called free banking laws, which significantly limited the activities of banks [42]. The bonds of these banks were backed by gold. Among the failures of this system, in addition to the corruption component, is the absence of a branch system and limited asset portfolios of banks, among which

[41] Lawrence H. White, «History and Prospects of Private Money,» Serious Science, October 14, 2015, https://serious-science.org/history-and-prospects-of-private-money-5182.

[42] Andrew Economopoulous and Heather O'Neill, «Bank Entry during the Antebellum Period,» *Journal of Money, Credit and Banking* 27, no. 4 (1995): 1071–85, https://doi.org/10.2307/2077790.

the depreciation of state government bonds (which were a mandatory component of the bank's portfolio) played a fatal role in their bankruptcy. [43]

Otherwise, this period is called «Wildcat banking», given that banks were located in such remote places where there were fewer inhabitants than wild cats. They issued medium of exchange in the form of bearer banknotes, which they issued on their own credit. Formally, they could be redeemed for gold or silver coins. But, as a rule, they were backed by other assets, such as government bonds, real estate bonds, or sometimes nothing at all.[44]

In the period from 1863 to 1913, state-owned banks in the United States operated in the system of «free banking», otherwise known as the «era of national banks». Xavier Freixas in his study «Microeconomics of banking» notes that it is more stable in relation to the system of central banks[45].

Before the so-called Panic of 1907, the United States did not have a central bank. At that time, this was a significant difference between the American banking system and the European one, which was already actively implementing central banks.

It was not until November 1910 that a secret conference was held at the Jekyll Island Club, off the coast of Georgia, with several of the country's leading financiers to discuss monetary policy and the banking system: Aldrich and AP. Andrew (Assistant Secretary of the Treasury), Paul Warburg (representing Kuhn, Loeb &; Co.), Frank A. Vanderlip (successor to James Stillman as President of the National City Bank of New York), Henry P. Davison (Senior Partner of J. P. Morgan Company), Charles D. Norton (President of the First National Bank of New York, which is dominated by Morgan), and Benjamin Strong (representing J. P. Morgan). As a result, a project for the National Reserve Bank was developed, and the final report of the National Monetary Commission was published on January 11, 1911. It was not until December 23, 1913 that Congress passed the Federal Reserve Act.[46]

2.3. England

England did not have classic «free banking». But the Bank of England was in many ways a precursor to the Federal Reserve. In 1674, King Charles II defaulted on his debts while continuing to accumulate large war debts. The government had lost faith in its ability to meet its financial obligations, amid a growing need for creditors to help it meet its financial commitments. To solve the financial problem, merchants and the English government agreed to establish the first public-private partnership bank in 1694, called the Governor and Company of the Bank of England. This event marked the birth of the Bank of England. The key terms of the

[43] Arthur J. Rolnick and Warren E. Weber, «The Causes of Free Bank Failures: A Detailed Examination,» *Journal of Monetary Economics* 14, no. 3 (November 1, 1984): 267–91, https://doi.org/10.1016/0304-3932(84)90044-8.

[44] Gary Gorton, *The Maze of Banking: History, Theory, Crisis* (Oxford ; New York: Oxford University Press, 2015).

[45] Xavier Freixas, *Microeconomics of Banking* (Cambridge, Mass: MIT Press, 1997).

[46] Robert F. Bruner and Sean D. Carr, *The Panic of 1907: Lessons Learned from the Market's Perfect Storm* (Hoboken, N.J: John Wiley & Sons, 2007).

agreement were as follows: the bank would be managed independently by private merchants and would be authorized to issue sovereign money; in turn, the English government would be able to borrow on bank deposits.

2.4. Scotland

The Scottish system of «free banking» existed between 1716 and 1845. There were more than two dozen banks in the Scottish banking system that issued banknotes under the «free banking» system, which were redeemable in silver pounds sterling. All banknotes of different banks were traded against each other, one to one, at face value, one hundred cents per pound; two hundred and forty shillings in the pound sterling. It was a single monetary system, and banks accepted banknotes issued by other banks. There were no floating exchanges between banks. Representatives of the banks came together and exchanged their liabilities in a clearing house, which ensured regular systemic discipline: restraining any bank from issuing more money than its customers wanted to keep. The system was self-regulating, which meant that no bank was in a position to over-issue because of this competitive mechanism. People who had more money than they wanted to keep had the right to take it back to the bank and exchange it for gold or silver. The system as a whole was anchored by the International Gold Standard. At that time, Scotland was not part of the UK, but when it became, the Bank of England managed to stop the «free banking» system with the help of political mechanisms[47].

Researchers note the Scottish system of «free banking» as a stable and competitive banking system[48].

2.5. Lyon Fair in Florence

In Florence in the 1500s, there was the beginnings of what can be called a form of international private credit system between merchants of money to buy and sell goods and services. Which used so-called private money «ecú de marc». The system was organized in such a way that every quarter at large fairs, such as the Lyon Fair, meetings were held to reconcile and repay their own loans. The existence of this system greatly facilitated cross-border commercial transactions between European regions.

Example. A trustworthy merchant could come to the administrator of this system and issue a credit note, which was a promissory note. This credit note was not denominated in French lire or Florentine lire: the value was expressed in «ecu de marc,» a private currency used by this international network. And if a Lyon

[47] Lawrence H. White, «History and Prospects of Private Money»; Lawrence H. White, «Banking without a Central Bank: Scotland before 1844 as a 'Free Banking' System,» in *Unregulated Banking: Chaos or Order?*, ed. Forrest Capie and Geoffrey E. Wood (London: Palgrave Macmillan UK, 1991), 37–71, https://doi.org/10.1007/978-1-349-11398-9_2.

[48] White, «Banking without a Central Bank»; Randall Kroszner, *Free Banking: The Scottish Experience as a Model for Emerging Economies*, Policy Research Working Papers (The World Bank, 1995), https://doi.org/10.1596/1813-9450-1536.

merchant or his agents traveled to Florence, a bill of exchange from a banker in Lyon would be recognized by bankers in Florence, who would gladly exchange it for the local currency. In this way, by turning personal obligations into internationally traded debts, these medieval merchants of the Lyon fairs created their own private money, beyond the control of the kings of Europe[49].

2.6. Other countries: periods of "free banking"

China. Between 960 and 1004, in the capital of Sichuan, Chengdu, China, there was a «Jiaozi» banknote in commercial circulation, which was entirely owned by private merchants. It is a form of bill of exchange and is considered the first paper form of money. Subsequently, the Chinese government began to administer this process, in order to avoid fraud and disputes, by granting 16 licenses to the largest merchants in China[50].

Switzerland. In Switzerland in the 19th century, before the Federal Banking Act of 1881, several cantons had a system of «free banking» that allowed the issuance of banknotes[51]. Which was subsequently canceled with the state centralization of the issue.

Australia. Australia in the late 19th century had no significant banking regulation and no central bank, which can be equated to a «free banking» system. At that time, more than half of Australia's banking sector was held by four large banks with more than 100 branches each. Banks accepted each other's banknotes at face value. There was an interest margin of about 4% per annum. In Australia, private currency first appeared after the arrival of European settlers in 1788, and in the early years of the federation, until the 1910 Banknote Tax Act effectively ended the circulation of private currencies by imposing a 10% tax on the practice, making it economically unviable. The Act was passed in October 1910 by the Fisher Labor government under section 51(xii) of the Australian Constitution, which grants the Commonwealth Parliament the power to make laws concerning «currency, coinage and legal tender» and the taxing power[52].

Sweden. Sweden had a significant period of «free banking» between 1860 and 1902. The banking crisis of 1857 in Sweden advised popular support for private banks and private money issuers, such as the Stockholms Enskilda Bank, founded in 1856. A law de-regulating the interest rate in Sweden was passed by the

[49] Tim Harford, «The Warrior Monks Who Invented Banking,» *BBC News*, January 30, 2017, sec. Business, https://www.bbc.com/news/business-38499883.

[50] Ulrich Theobald, «Paper Money in Premodern China (Www.Chinaknowledge.De)» (Ulrich Theobald), accessed May 1, 2023, http://chinaknowledge.de/History/Terms/papermoney.html.

[51] «Volume 2, Issue 2, August 2005 · Econ Journal Watch,» accessed May 1, 2023, https://econjwatch.org/issues/volume-2-issue-2-august-2005.

[52] «Bank Notes Tax Act 1910» (1910), https://www.legislation.gov.au/Details/C1910A00014/Html/Text, http://www.legislation.gov.au/Details/C1910A00014; «Feature Article – The Australian Note Issue (Feature Article)» (c=AU; o=Commonwealth of Australia; ou=Australian Bureau of Statistics, January 1, 1966), https://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article21966.

parliament in 1864. However, in 1901, the issue of private money was banned. Researchers of the Swedish version of «free banking» prove its stability[53].

3. Legal and at the time private currencies of our time

3.1. Hong Kong

The Hong Kong Special Administrative Region of the People's Republic of China (HKSAR) is a city and a special administrative region of China in the east of the Pearl River Delta in South China.

The Hong Kong government issues fiat currency, but along with this there is also a private form of money that is legal tender = Hong Kong dollar notes. At the same time, private currency issued by banks is the dominant means of exchange, and most ATMs issue private Hong Kong dollar notes; which are issued in daily circulation in denominations of $10, $20, $50, $100, $500, $1000. The issuance of which is regulated by the Hong Kong Monetary Authority (HKMA), the governmental monetary authority of Hong Kong[54].

Under the Currency Ordinance 1935, three commercial banks (the Mercantile Bank of India, London and China, the Chartered Bank of India, Australia and China and the Hongkong and Shanghai Banking Corporation) issue their own banknotes for general circulation in the region under license from the HKMA, which have been declared legal tender. Banknotes are also issued by the HKMA itself. In 1994, the HKMA authorized the Bank of China to issue banknotes.

The authorization was accompanied by a number of conditions agreed between the government and the three issuing banks. In exchange for their right to issue notes and provide collateral for these notes, the three banks are required by law to hold non-interest-bearing debt certificates (BCs) issued by the PBOC. The notes are issued by the three banks or redeemable against payment to or from the Monetary Fund in U.S. dollars at a specified rate ranging from U.S. $1 to HK$7.80 under the pegged exchange rate system[55].

3.2. Macau

Macao Special Administrative Region of the People's Republic of China (MSAR) is a city and special administrative region of China in the western Pearl River Delta near the South China Sea.

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[53] Erik Lakomaa, «Free Banking in Sweden 1830–1903: Experience and Debate,» *The Quarterly Journal of Austrian Economics* 10, no. 2 (June 1, 2007): 122–41, https://doi.org/10.1007/s12113-007-9012-4; Per Hortlund, «The Provision of Liquidity in the Swedish Note Banking System, 1878–1901,» *Scandinavian Economic History Review* 55, no. 1 (April 1, 2007): 1878–1901, https://doi.org/10.1080/03585520701234258.

[54] Hong Kong Monetary Authority, «Hong Kong Monetary Authority,» Hong Kong Monetary Authority, accessed May 1, 2023, //www.hkma.gov.hk/eng/; «Hong Kong's 1,000 (HSBC) Dollar Note,» International Bank Note Society, accessed May 1, 2023, https://www.theibns.org/joomla/index.php?option=com_content&view=article&id=232&catid=13&Itemid=51.

[55] Priscilla Chiu, «Hong Kong's Experience in Operating the Currency Board System,» n.d.

The Macau pataca is the currency of Macau. Macau has a currency board system whereby the Pataca is 100 percent backed by foreign exchange reserves, currently the Hong Kong dollar, which is itself backed by the US dollar. The Monetary Council and the Macau Monetary Authority (AMCM), has a statutory obligation to issue and redeem Macau Patacas on demand against the Hong Kong dollar at a fixed exchange rate without restriction: HK$1 = MOP1.03[56].

Macau banknotes, similar to Hong Kong, are issued not by the central bank or the Monetary Authority, but by two commercial banks: Banco Nacional Ultramarino (BNU) and Bank of China.

The first issue of Pataca Macau banknotes took place in 1906. Until 1934, these banknotes were accompanied by cashier's checks issued by various banks in denominations of $1, $5, $10, $50, $100, $200, $400, $800, and $1,000. Another feature is the replacement of Portugal's coat of arms with the BNU logo, which deprives it of its political symbol in the prospect of reunification with China. In 1995, the Bank of China put into circulation banknotes in denominations of 10, 50, 100, 500 and 1000 patacas[57].

Currently, the banknotes are issued in denominations of 10, 20, 50, 100, 500, and 1000 Patak. The current series of BNU banknotes was issued in 2005, while Bank of China banknotes were last issued between 1995 and 2003.

The denomination and size of Monaco banknotes are the same as Hong Kong banknotes. On December 20, 1999, the day Macau returned to China, banknotes of all denominations (except 10 Patacas) of both banks were reissued with this date. On January 5, 2009, the Macau Monetary Authority announced a new series of banknotes dated 2008, issued by the Bank of China[58].

3.3. United Kingdom. A similar system to Hong Kong and Macau is used in the UK, where 7 commercial banks issue banknotes: three banks in Scotland (Bank of Scotland, Clydesdale Bank, Royal Bank of Scotland) and 4 in Northern Ireland (Bank of Ireland, Danske Bank, First Trust Bank, Ulster Bank). These banks are authorized by Parliament to issue pound sterling banknotes. They are subject to the rules of the central bank, the Bank of England, on «ring-fenced secured assets» and are partially secured by deposits with the Bank of England.

The notes they issue are exchangeable with other pound sterling notes on an individual basis and circulate freely within the United Kingdom, although they are not legal tender, even in Scotland and Northern Ireland. It should also be noted that,

[56] «Macau SAR Government Pledges for Free Trade and Investment – MSAR Gov…,» archive.ph, August 5, 2012, https://archive.ph/HwbS.

[57] «BNU Banknotes Online Exhibition,» Banco Nacional Ultramarino S.A. (Macau), December 13, 2013, https://www.bnu.com.mo/notes_for_collection/en/Pagina%20Principal.htm.

[58] «Bank of China, Macao Branch Issues New Pataca Notes,» 2008, https://wayback.archive-it.org/all/20090319162608/http://www.amcm.gov.mo/Press_Release/20090105/2009BOCNewPataca_En_new.pdf.

in fact, technically no banknote (including Bank of England notes) qualifies as legal tender in Scotland or Northern Ireland[59].

4. State prosecution of private money

In many countries, the issuance of private paper currencies and/or the minting of metal coins intended for use as currency is prosecuted both administratively and criminally.

4.1. Templars – Financial fixers

The Templars were not the first organization in the world to provide the service of «financial fixers». In China, a similar system was operated by the Tang Dynasty government, which used a two-part «feiquan» (flying money document) that allowed merchants to deposit their profits in a fairly wide range of regional offices and return their money back to the Chinese capital. In contrast, the Templars were a non-governmental organization, albeit under the leadership of the Pope, and governed by a society of monks. The Knights Templar, among other services, made long-distance money transfers. William Goetzmann, in his book Money Changes Everything, notes that they provided a number of well-known modern financial services[60]. In 1307, King Philip IV of France owed money to the Templars, and they refused to forgive his debts. On his orders, a raid was carried out on the Paris church, which was the first of a series of attacks across Europe. The Inquisition tortured and forced the Templars to confess to various far-fetched sins. The leader of the Templars, Jacques de Molay, was brought to the center of Paris and publicly burned at the stake. Later, in 1312, the order was dissolved by the Pope[61]

4.2. USA

Under U.S. federal law: Whoever, except as otherwise authorized by law, makes, utters, transmits, or attempts to utter or transmit any coin of gold or silver or other metal, or alloy of metals, intended for use as current money, whether in the likeness of coins of the United States or of foreign countries or of original design, shall be fined under this section or imprisoned not more than five years, or both. (§ 18 U.S. Code 486)[62].

4.2.1. 19th century USA. Private money did not go unnoticed in the United States in ancient times by government officials and was often criticized. In 1862, Secretary of the Treasury Salmon P. Chase blamed the disappearance of small denomination coins on unauthorized currency issuance: «[...] The depreciation of the currency, largely caused by the unlimited issues of non-resident banks and unauthorized

[59] «Scottish and Northern Ireland Banknotes Fact Sheet,» Wayback Machine, January 28, 2018, https://web.archive.org/web/20180128040158/http://www.acbi.org.uk/media/sni_notes_factsheet_nov12_copy1.pdf.

[60] William N. Goetzmann, *Money Changes Everything: How Finance Made Civilization Possible ; with a New Afterword by the Author*, Third printing, and first paperback printing (Princeton, New Jersey Oxford: Princeton University Press, 2017).

[61] Tim Harford, «The Warrior Monks Who Invented Banking.»

[62] «18 U.S. Code § 486 – Uttering Coins of Gold, Silver or Other Metal,» LII / Legal Information Institute, accessed May 1, 2023, https://www.law.cornell.edu/uscode/text/18/486.

associations and persons, is causing the rapid disappearance of small coins from circulation.» (Congressional Globe, 36th Cong. 3405 (1862)).

Congress responded to the situation with private money by prohibiting private citizens or companies from issuing paper currency in denominations of less than $1: «No private corporation, banking association, firm, or individual shall make, issue, distribute, or pay any note, check, memorandum, token, or other obligation of less than one dollar, intended to circulate as money, or to be received or used in place of the lawful money of the United States.» (Act of Congress, 12 Stat. at Large, 592, July 17, 1862)

To avoid legal problems, many private issuers of paper money began to denominate their currency in services (e.g., railroad miles) rather than dollars. In 1864, Congress banned private coinage «intended for use as current money.» However, U.S. courts at the time often upheld the private issuance of coins or paper money, provided that it was circulated locally or could be redeemed in goods or services rather than dollars. As an example, the use of «scrip» (metal plaques that could be redeemed in specific stores located at businesses – a common form of private money) was criticized in the United States at the time. However, the courts generally ruled that coal and lumber companies did not violate the 1862 and 1864 laws by issuing scrip because it was not intended to be circulated as money[63].

4.2.2. American Liberty Dollar (ALD) was a private currency produced in the United States, backed by commodities, created by Bernard von Nothaus. From 1998 to July 2009, Liberty Services exchanged Federal Reserve Notes (US dollars) for silver Liberty Dollars (and later gold and copper), as well as for warehouse receipts in both paper and digital form. The paper and digital freedom dollars were legally defined as warehouse receipts and were backed by a physical commodity: a weight of precious metal. The «base value» as of 2009 was 20 freedom dollars to one ounce of silver[64].

The original name of Liberty Services was the National Organization for the Abolition of the Federal Reserve System and the Internal Revenue Code (NORFED). Since its inception, the organization has argued that the Federal Reserve System is unconstitutional and harmful.

In 2011, Bernard von Nothaus was arrested and subsequently convicted on charges of money laundering, mail fraud, wire fraud, forgery, and conspiracy. The charges all stemmed from the U.S. government's belief that the silver Liberty coins were too similar to official minting[65].

4.2.3. The United Cities Corporation (TUC). In 2007, The United Cities Corporation (TUC) was created. Its founder, Angel Cruz, announced that he was

[63] Bruce Champ, «Private Money in Our Past, Present, and Future,» *Economic Commentary*, no. 1/1/2007 (January 1, 2007), https://www.clevelandfed.org/publications/economic-commentary/2007/ec-20070101-private-money-in-our-past-present-and-future.

[64] «Liberty Dollar,» 2009, http://www.libertydollar.org/information/pdfs/color-brochure.pdf.

[65] «Defendant Convicted of Minting His Own Currency,» FBI, December 5, 2012, https://web.archive.org/web/20121205094219/http://www.fbi.gov/charlotte/press-releases/2011/defendant-convicted-of-minting-his-own-currency.

creating an alternative asset-based currency called «Private US Dollars» worth six billion dollars. Which, according to Mr. Cruz, were «backed by the total net worth of its members» and ancillary assets are estimated at $357 billion[66].

In 2008, Angel Cruz was indicted by a federal grand jury in Florida on one count of conspiracy to defraud the United States under 18; and six counts of bank fraud in connection with his dealings with Bank of America in an attempt to cash United Cities bank notes.

4.3. Australia

In Australia, the Commonwealth Banks Act of 1945 imposed a fine of £1,000 per day on private currencies. And Section 44(1) of the Australian Reserve Bank Act 1959 [2] completely banned private funds. In 1976, Wickrema Weerasooria published an article suggesting that the issuance of bank checks violated this section, to which banks responded that since bank checks were printed with the words «not payable», they were not intended for circulation and therefore did not violate the law.

5. Alternatives to "free banking"

5.1. Full reserve banking

In 1935, a group of economists, including Irving Fisher, as part of the so-called «Chicago Plan» as a response to the Great Depression: proposed monetary reforms that included full reserve banking[67].

Full-reserve banking, also known as sovereign monetary system or 100% reserve banking, is a banking system where banks do not use their demand deposits for lending, but only their time deposits. This is how this system differs from the current partially reserve banking system. Under this system, banks can also lend money using short-term deposits, while fully reserved banks will be obliged to keep the full amount of each customer's demand deposits in cash. In the modern world, no country requires full reserve banking in primary financial institutions[68].

Economists, including Irving Fisher, who formulated the Chicago Plan after the Great Depression, argue that allowing banks to hold partial reserves puts too much power in the hands of banks, allowing them to determine the amount of money in circulation by changing the amount of loans they make[69].

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[66] «Tuc Improving the Us Economy by the Circulation of Their Private,» Openpr, August 2, 2007, https://www.openpr.com/news/25136/tuc-improving-the-us-economy-by-the-circulation-of-their-private-currency-today.html; «The United Cities, Corporation in Conjunction with JC Consultores Laborales, Inc.,» TUC Currencies, January 12, 2008, https://web.archive.org/web/20080112204706/http://www.theunitedcities.org/web/content/view/15/14/.

[67] Jeremy Warner, «The Banking Revolution That Would Wipe out Britain's Debts,» The Telegraph, June 7, 2013, https://www.telegraph.co.uk/finance/comment/jeremy-warner/10107375/The-banking-revolution-that-would-wipe-out-Britains-debts.html.

[68] Joe Weisenthal, «Ban All the Banks: Here's the Wild Idea That People Are Starting to Take Seriously,» Business Insider, accessed May 2, 2023, https://www.businessinsider.com/banning-banks-2014-4.

[69] Aidan Kang, «100% Reserve Banking – The History,» House of Debt, April 26, 2014, https://houseofdebt.org/100-reserve-banking-the-history/.

Murray Newton Rothbard in his book «Secrets of Banking» argues that legalized banking with partial reserves gave banks carte blanche to create money out of thin air[70].

Custodia Bank is a Special Purpose Depository Institution (SPDI) registered in the state of Wyoming, which means that it is a bank that is primarily engaged in the custody of assets, with a focus on the preservation of assets and the efficient settlement of transactions. The SPDI status requires Custodia to maintain unencumbered liquid assets (e.g., cash, U.S. Treasury bills) valued at 100% or more of its deposits.

Custodia Bank can serve as an example of a full-service bank with a focus on the latest digital financial technologies. This bank intends to provide a full range of banking and financial services for business clients seeking increased regulatory clarity and minimization of transactional risks when crossing the digital asset border. As a licensed U.S. bank, Custodia operates as the first special purpose depository institution in the United States. This allows it to offer a full suite of financial services for both US dollars and digital assets, tailored for business clients seeking increased regulatory clarity and minimized transactional risk. Custodia serves U.S. business clients such as digital asset businesses, fintechs, banks, corporate treasurers, trusts, pension funds, startups, and more. Ultimately, Custodia's strategy is to serve clients around the world. As such, Custodia's goal (when it finally launches) is to act as an interoperable bridge between digital assets and the US dollar payment system[71].

However, as of April 2023, the US Federal Reserve Board rejected Custodia Bank's application for membership, which means it was denied an account with the Federal Reserve. Justifying the refusal with the fact that «the firm's new business model and proposed focus on crypto assets posed significant safety and soundness risks. The Board has previously made clear that such crypto activities would likely be inconsistent with safe and sound banking practices [...] It is important that risks associated with the crypto asset sector that cannot be mitigated or controlled do not migrate into the banking system»[72].

5.2. Narrow banking

No private business can realistically turn risky loans into absolutely risk-free deposits.

However, following the idea of ideal banking, banks should take risk-free deposits and invest them in truly risk-free things. This idea is often called «narrow banking» or sometimes the «Chicago Plan». This name refers to a proposed type of bank called a «narrow bank» or «safe bank». This type requires banks to hold only

[70] Murray Newton Rothbard, *Mystery of Banking, The* (Ludwig von Mises Institute, 2008).

[71] «Custodia Bank: About,» Custodia Bank, accessed May 3, 2023, https://custodiabank.com/.

[72] George Kaloudis, «Aspiring Crypto Bank's Plight Shows Binance's Issues Are Just Part of the Story,» Coin Desk, February 8, 2023, https://www.coindesk.com/consensus-magazine/2023/02/08/aspiring-crypto-banks-plight-shows-binances-issues-are-just-part-of-the-story/.

liquid and safe government bonds or securities of their own government; as opposed to other low-liquid and less reliable assets, such as loans secured by depositors' money. They can also hold deposits from depositors. This is what distinguishes such banks from «full reserve» banks. The operations of providing private loans or holding other depositors' deposits will be carried out by other financial intermediaries. In other words, «narrow banking» can be characterized as the separation of deposit-taking and deposit-paying activities from financial intermediation activities (e.g., issuing loans against deposits). The function and activities of such banks are very narrow but extremely reliable.

Dr. Sankarshan Acharya concluded in her study that the solution proposed in the «narrow banking» system is to create a sufficient number of safe banks to serve panic-prone depositors, while the remaining banks can operate as universal banks. Safe banks invest exclusively in government securities, accept deposits not exceeding the liquidation value of their assets, and do not issue any liabilities (e.g., debt) other than common stock and preferred stock[73].

Kevin R James is of the opinion that instead of introducing a system of «narrow banking» it is better to focus on regulating the traditional banking system in order to help them overcome the «temptation» to abuse lending to depositors[74].

An example of an attempt to form a «narrow banking» bank was in the United States in 2018. It was called TNB USA Inc. and was run by a former head of research at the New York Fed. His idea was to apply financial engineering by exploding dynamite: you simply get rid of the entire banking apparatus and dig a tunnel right from depositors to the ultimate pillar of the banking system. Which intended to offer its accounts only to the «most financially sound institutions,» obviously meaning money market funds and foreign central banks. And did not plan to «provide any retail banking services to individuals»[75].

However, the Federal Reserve denied TNB USA Inc. the opportunity to open accounts. The reasoning was that narrowly focused depository institutions («Pass-Through Investment Entities» or «PTIEs») could attract a very large number of deposits from institutional investors, but at the same time avoid the costs incurred by other depository institutions, such as the costs of capital requirements and other elements of federal regulation and supervision, due to the limited scope of their product offerings and asset types. The Advance Notice of Proposed Rulemaking comments on the potential benefits and potential costs associated with the presence of the following institutions in the U.S. financial system and their receipt of IOERs on their balances with the Reserve Bank[76].

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[73] Dr Sankarshan Acharya, «Safe Banking,» *The Journal of American Academic of Business,* August 2003.

[74] Kevin R James, «The Case for Narrow Banking,» *Sao Paulo*, 2007.

[75] Matt Levine, «Fed Rejects Bank for Being Too Safe,» *Bloomberg.Com*, September 6, 2018, https://www.bloomberg.com/opinion/articles/2018-09-06/fed-rejects-bank-for-being-too-safe.

[76] «Federal Reserve Board Issues Advance Notice of Proposed Rulemaking Seeking Public Comment on Whether to Amend Regulation D to Lower Certain Interest Rates Paid on Balances at Federal Reserve Banks,» Board of Governors of the Federal Reserve System, March 14, 2019, https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190306a.htm.

The Fed raises three main objections to «narrow banking.» The first is macroeconomic: The Fed fears that narrow banks could mess up the implementation of monetary policy because if they succeed, they will keep a lot of money at the Fed, increasing the size of its balance sheet. They can also make other short-term interest rates (such as the Fed Funds Rate) more volatile because people who would otherwise participate in these markets may instead keep their money in narrow banks, making it harder for the Fed to target interest rates.

Second, that narrow banks would take funding away from conventional banks, making it harder for those banks to trade stocks and bonds and perhaps even harder to lend.

Third, the Fed fears that too safe a bank will be harmful to financial stability: in times of stress, everyone will flee from regular banks to ultra-safe narrow banks, which will have the effect of bringing down regular banks[77].

5.3. Shadow banking

Paul Allen McCulley of the investment firm PIMCO coined the term «shadow banking» at the Federal Reserve Bank of Kansas City's Economic Symposium in Jackson Hole, Wyoming in 2007, where he defined it as «a whole alphabet soup of non-bank investment channels, vehicles and structures that use credit»[78].

Between 2000 and 2008, many shadow bank-like institutions and mechanisms emerged in the U.S. and European markets and began to play an important role in the provision of credit in the global financial system[79]. Until 2010, the full extent of the shadow banking system was not recognized. That all changed with the publication of the International Monetary Fund's «The (sizable) Role of Rehypothecation in the Shadow Banking System». It revealed an increase in the US SBS, during the period of consideration of the role of rehypothecation, to more than $10 trillion, which is approximately twice as much as previous estimates[80].

Between 2002 and 2010, «shadow banking» increased from $27 trillion to about $60 trillion (£37.97 trillion).

Academic research in 2013 showed that the true size of the shadow banking system may have exceeded $100 trillion in 2012[81]. According to the Financial Stability Board, the size of the shadow banking sector grew by 8% to 99 trillion in

[77] Matt Levine, «The Fed Versus the Narrow Bank,» *Bloomberg.Com*, March 8, 2019, https://www.bloomberg.com/opinion/articles/2019-03-08/the-fed-versus-the-narrow-bank.

[78] Bryan J. Noeth and Rajdeep Sengupta, «Is Shadow Banking Really Banking? | Publications,» St. Louis Fed, February 25, 2014, https://web.archive.org/web/20140225045537/http://www.stlouisfed.org/publications/re/articles/?id=2165.

[79] Gillian Tett and Paul J Davies, «Out of the Shadows: How Banking's Secret System Broke down,» September 19, 2008, https://web.archive.org/web/20080919155833/http://www.ft.com/cms/s/0/42827c50-abfd-11dc-82f0-0000779fd2ac.html?nclick_check=1.

[80] Manmohan Singh and James Aitken, «The (Sizable) Role of Rehypothecation in the Shadow Banking System,» n.d.

[81] «The True Size of the Shadow Banking System Revealed (Spoiler: Humongous),» *The Physics ArXiv Blog* (blog), October 18, 2013, https://medium.com/the-physics-arxiv-blog/the-true-size-of-the-shadow-banking-system-revealed-spoiler-humongous-5e1dd9d1642.

2016 and accounts for 30% of global financial assets, the highest level since at least 2002[82].

The shadow banking system accounts for 25 to 30 percent of the overall financial system, according to the Financial Stability Board (FSB), the regulatory working group for the Group of 20 leading economies (G20)[83].

Chairman Ben S. Bernanke, a former chairman of the US Federal Reserve, has defined shadow banking as follows: shadow banking, as commonly defined, includes a diverse set of institutions and markets that collectively perform traditional banking functions but do so outside of the traditional system of regulated depository institutions or with only loose links to it. Examples of important components of the shadow banking system include securitization facilities, asset-backed commercial paper [ABCP] conduits, money market funds, repurchase agreement markets, investment banks, and mortgage companies[84].

An example of a semi-legal shadow business is the use of mortgage-backed securities that led to the international financial crisis of 2008. They were used by financial institutions to increase the money on their accounts, or rather records for issuing new loans[85].

Shadow banking does not have access to central bank funding or safety nets such as deposit insurance, so these institutions typically do not take deposits. Instead, shadow banking focuses on short-term financing secured by commercial paper, real estate, vehicles, or other liquid assets.

Shadow banking mechanism. A borrower of funds offers collateral to secure a cash loan. To formalize the relationship, two agreements are simultaneously concluded regarding this collateral: the first, on the sale and purchase from the debtor to the lender; and the second agreement of the debtor's intention to buy the same collateral from the lender at an agreed time in the future at an agreed price. The price of the second agreement is higher, as it includes interest on the loan. At the same time, the price of the second agreement is usually less than half the actual price of the collateral. In such loan agreements, the interest rate is lower compared to traditional banks[86].

[82] Huw Jones, «World's 'shadow Banks' Continue to Expand,» March 5, 2018, Reuters edition, sec. Business News, https://www.reuters.com/article/us-g20-regulation-shadowbanking-idUSKBN1GH1NJ.

[83] Michelle Martin, «Q&A – What Is Shadow Banking and Why Does It Matter?,» *Reuters*, February 7, 2012, sec. Business News, https://www.reuters.com/article/uk-shadow-banking-qa-idUKTRE81611Q20120207.

[84] Chairman Ben S. Bernanke, «The Crisis as a Classic Financial Panic,» Board of Governors of the Federal Reserve System, November 8, 2013, https://www.federalreserve.gov/newsevents/speech/bernanke20131108a.htm.

[85] Michael Lewis, *The Big Short: Inside the Doomsday Machine* (London: Allen Lane, 2010).

[86] Michelle Martin, «Q&A – What Is Shadow Banking and Why Does It Matter?»

6. Development of electronic money as a prototype of the stablecoin system

6.1. History of electronic money development

Electronic money has long served settlement and payment transactions outside the legal field and statistical data maintenance, just as the latest digital financial technologies (in the context of our study, stablecoin) exist today[87]. And only after recognizing the clear advantages on the part of state regulators, electronic money became an element of the national payment system [88]. In its early days, e-money was offered not by financial organizations, but by innovative fintech companies. This was followed by a process of legitimization, whereby legal regulations granted the right to act as an electronic money system operator only to financial organizations that have the right to make money transfers without opening bank accounts and other related banking transactions. In the course of this evolution, the regulator effectively equated electronic money with non-cash money, but pointed out its prepaid nature, i.e., its secondary nature to money.

The potential demand of economic entities is closely related to the popularity of electronic money, which can be considered a prototype of modern technologies. On the one hand, acting as a tool for cashless payments in the transition from the traditional to the innovative digital economy, Electronic money has become an element of centralized systems, and the principle of operation is similar to that of traditional electronic banking systems. On the other hand, they have a number of distinctive features that characterize them from a more positive perspective: ease of payment, low commission fees, instant speed of settlement and reflection in electronic accounts, no territorial and time restrictions on the way, the ability to verify the validity of a financial product as quickly as possible and a high degree of divisibility All these advantages are provided by the electronic form of existence, data storage and transmission technology, the peculiarity of reflection in accounting and automation of transactions. The system of fast (instant) payments by bank cards appeared after the full-scale introduction and legitimization of electronic money.

The following factors contribute to the popularity of electronic money: government policy aimed at reducing the level of available cash circulation, growing confidence in non-cash bank settlements, creation of our own national payment system, a system of quick (instant) payments, development of virtual business, introduction of innovative technologies, expansion of the Internet coverage area, expansion of the range of retail payment and settlement services, and a number of other factors.

Existing electronic payment systems can be divided into: 1. Remote financial services: 2. Online payments (by type of payment, online payment systems are

[87] С.О. Грицай, «Генезис цифрових фінансових технологій до появи в Україні поняття «Віртуальні активи»,» *Юридичний науковий електронний журнал*, no. 5 (2022): 355–59, https://doi.org/10.32782/2524-0374/2022-5/82.

[88] «Про платіжні системи та переказ коштів в Україні,» Pub. L. No. 2346– III (2001), https://zakon.rada.gov.ua/go/2346-14.

divided into: a) card payment systems; b) digital cash operators; c) payment gateways.); 3. Terminals; 4. Acquiring (processing).

6.2. Essence and system of organization of electronic money functioning

Despite the very restrained marketing policy of financial organizations with respect to electronic money, the volume of its market is increasing annually. It should be noted that clients of financial organizations cannot accurately identify the product of the payment and settlement system, as there is no clear indication in the name of the financial instrument: cashless money or electronic funds, because the interaction between the operator of electronic funds and users does not occur directly.

Electronic money (e-money) is not money in the traditional sense of the word. Electronic money is the equivalent of traditional fiat money (paper and metal) that is in circulation within any electronic payment system.

Merchant discount cards, as well as gift cards, gas station cards (fuel cards), public transportation tickets, telephone cards, etc., which are accepted as a means of payment exclusively by their issuers, are not recognized as electronic money.

Thus, electronic money stores monetary value on electronic media, such as a computer, phone, smart cards, and others. And their circulation takes place on the Internet, computer networks; as well as devices that work with payment cards or electronic wallets, such as ATMs, POS terminals, etc.

Electronic means of payment is a means that allows a customer of a money transfer operator to draw up, certify and transmit an order for the purpose of transferring funds using special technologies and data carriers. An electronic means of payment is non-personalized if the customer has not been identified, i.e., the operator has not established information about the customer.

To summarize. E-money exists only in non-cash form and is stored in electronic wallets, i.e. it is a reflection of fiat money in the client's accounts, which are called electronic wallets in the system. An electronic wallet provides for the exclusive use of e-money transactions and has nothing to do with a personal bank account, as it belongs to a specific payment system.

In other words, e-money means obligations in traditional fiat money that are in circulation within a particular electronic payment system. Real fiat money remains with the operator of the electronic payment system. Thus, in the case of a settlement in this system, there is no movement of real money. E-money is exchanged for real money after the transaction is completed through the partner banks of the electronic payment system operator.

Very briefly: the issuance and repayment of e-money is the assumption of obligations and their termination.

In its 2019 article, the Bank of England online publication substantiates the facts important for our study. Most of the money in the economy is not created by printing presses at the central bank, but by banks when they lend. [...] This also means that

when you repay a loan, the electronic money created by your bank is «deleted» – it no longer exists. So, in essence, banks create money, not wealth[89].

In the world of finance, two types of electronic money can be classified: public and private. Public electronic money is denominated in the national currency and operates in the state payment system. Private electronic money is electronic units that function in non-governmental payment systems, which are regulated by their rules of issue and circulation.

It should be understood that the state does not ensure the reliability or liquidity of private electronic money in any way. Felix Martin in his book «Money: the unauthorized biography» notes that as of 2011, about 90% of US money and 97% of UK money have no physical existence. It is simply a balance that your bank keeps track of for your account, and most of these balances are in electronic form[90].

7. An example of legal regulation of electronic money and stablecoins in Ukraine

7.1. Regulation of electronic money

Law of Ukraine «On Payment Services» dated 30.06.2021 No. 1591 IX[91], defines the concept and general procedure for performing payment transactions in Ukraine and the general principles of issuing and using electronic money and digital money of the National Bank of Ukraine in Ukraine. From the point of view of the subject of our study, special attention should be paid to clause 7 of Article 4 of the Law of Ukraine «On Virtual Assets»[92], which establishes in a peremptory form that virtual assets are not a means of payment in Ukraine and cannot be exchanged for property (goods), works (services). The essence of these provisions allows us to conclude that the Law of Ukraine «On Virtual Assets» is a so-called «fort-post» between legal tender in Ukraine (hryvnia coins and notes, digital money of the National Bank of Ukraine, electronic money) and other monetary surrogates, which are commonly known as «cryptocurrencies».

On January 12, 2023, the Law of Ukraine No. 2888-IX (hereinafter referred to as the «Law 2888») was adopted to further improve the regulation of electronic money circulation in Ukraine[93]. One of the technical purposes of adopting Law 2888 is to clarify and harmonize the terminology used in the Tax Code of Ukraine with the terminology of the Law of Ukraine «On Payment Services».

The adoption of Law 2888 introduces innovations for the development of GovTech, in particular CashLess payments in Ukraine: full legalization of e-money;

[89] «How Is Money Created?,» Bank of England, October 1, 2019, https://www.bankofengland.co.uk/explainers/how-is-money-created.

[90] Felix Martin, *Money: The Unauthorised Biography* (London: Bodley Head, 2013).

[91] Про платіжні послуги.

[92] «Про віртуальні активи,» Pub. L. No. 2074– IX (2022), https://zakon.rada.gov.ua/go/2074-20.

[93] «Про внесення змін до Податкового кодексу України та інших законодавчих актів України щодо платіжних послуг,» Pub. L. No. 2888– IX (2023), https://zakon.rada.gov.ua/go/2888-20.

the ability to pay taxes and utilities with e-money (if an agreement is concluded); comfortable use and reporting on funds from corporate cards.

Law 2888 equated e-wallet accounts with bank accounts. This makes it possible to carry out the procedure for collecting, seizing and forcibly debiting funds from payment accounts (e-wallets) similar to bank accounts.

Prior to the adoption of Law 2888, e-money and non-cash money had similar features, but they differed in one radical way: different levels of confidentiality. A consumer's bank card is always linked to his or her bank account, where the bank records his or her personal data. However, during e-money transactions, funds were debited from an electronic wallet, which could be identified only by a number (which may vary from system to system), and not by the actual consumer of financial services.

7.2. Regulation of stablecoins (secured virtual assets – in the sense of Ukrainian legislation)

On February 17, 2022, the Parliament of Ukraine adopted the Law of Ukraine «On Virtual Assets» No. 2074-IX (hereinafter referred to as the «Law 2074»)[94]. According to clause 1 of Section VI «Final and Transitional Provisions» of Law 2074, the law itself will come into force[95]: a). from the date of entry into force of the Law of Ukraine on Amendments to the Tax Code of Ukraine regarding the peculiarities of taxation of transactions with virtual assets; b). introduction of the State Register of Service Providers related to the turnover of virtual assets, as further specified in clause 2 of Section VI of the Final and Transitional Provisions, as a restriction on the possibility of applying sanctions under Article 23 of Law 2074. In order to fulfill the requirements of clause 1 of Section VI of the Law 2074 and to bring it into force[96], On 13.03.2022, the Verkhovna Rada of Ukraine registered Draft Law No. 7150 «On Amendments to the Tax Code of Ukraine on Taxation of Transactions with Virtual Assets» (hereinafter – Draft Law 7150)[97]. The planned amendments to the Tax Code of Ukraine include the concept of taxation of stablecoins (secured virtual assets)[98].

[94] Про віртуальні активи.

[95] «Пояснювальна записка до Проекту №7150 Закону України «Про внесення змін до Податкового кодексу України щодо оподаткування обороту віртуальних активів в Україні»,» March 13, 2022, https://itd.rada.gov.ua/billInfo/Bills/pubFile/1245235.

[96] «Порівняльна таблиця до Проекту №7150 Закону України 'Про внесення змін до Податкового кодексу України, щодо оподаткування операцій з віртуальними активами», March 13, 2022, https://itd.rada.gov.ua/billInfo/Bills/pubFile/1245233.

[97] «Проект Закону Про внесення змін до Податкового кодексу України щодо оподаткування операцій з віртуальними активами,» Pub. L. No. 7150 (2022), https://itd.rada.gov.ua/billInfo/Bills/Card/39211.

[98] С.О. Грицай, «Перспективи оподаткування операцій з забезпеченими віртуальними активами в Україні,» *Науковий вісник публічного та приватного права*, no. 2 (2022): 68–74, https://doi.org/10.32844/2618-1258.2022.2.11.

General principles of Law 2074 [99]. Virtual assets are an intangible good[100]. The same legal nature as information or a literary work[101]. They are not a means of payment and cannot be exchanged for property or services[102]. Virtual assets are divided into secured and unsecured. The ownership of a virtual asset is confirmed by the possession of a virtual key, which is a set of technical means. A secured virtual asset gives the right to claim the collateral[103]. The object of collateral is determined by the transaction that created the virtual asset. Transactions with virtual assets collateralized by currency values (national or foreign currency, precious metals) are regulated by the National Bank of Ukraine[104]. Collateralized by securities issued by the National Securities and Stock Market Commission[105]. Types of services with virtual assets: storage or administration, exchange, transfer, intermediary services[106]. Suppliers receive authorizations for each type of service [107]. Only a financial institution may provide services in relation to virtual assets backed by currency values. Participants in the virtual assets market are entitled to judicial protection. The National Bank of Ukraine and the National Securities and Stock Market Commission supervise the activities of service providers and apply enforcement measures. Financial penalties vary depending on the degree of violation, from the least serious (for providing false information) to the most serious offense (for

[99] С.О. Грицай, «Поняттєвий ряд – віртуальні активи,» *Науковий вісник Ужгородського національного університету*, Право, 2, no. 70 (2020): 313–17, https://doi.org/10.24144/2307-3322.2022.70.49; С.О. Грицай, «Сфера застосування законодавства України про віртуальні активи,» *Актуальні проблеми вітчизняної юриспруденції*, no. 2 (2022): 54–59, https://doi.org/10.32782/392278.

[100] С.О. Грицай, «Правова сутність дефініції «віртуальні активи» у законі України «Про віртуальні активи»,» *Електронне наукове видання «Аналітично-порівняльне правознавство»*, no. 1 (2022): 244–48, https://doi.org/10.24144/2788-6018.2022.01.45.

[101] Грицай, «Генезис цифрових фінансових технологій до появи в Україні поняття «Віртуальні активи»«; С.О. Грицай, «Правовий режим віртуальних активів в Україні,» *Juris Europensis Scientia*, no. 2 (2022): 65–68, https://doi.org/10.32837/chern.v0i2.349.

[102] С.О. Грицай, «Віртуальний актив в Україні є засобом платежу?,» *Актуальні проблеми політики*, no. 70 (2022): 131–37; С.О. Грицай, «Порядок реалізації віртуальних активів в Україні,» *Наукові праці Міжрегіональної академії управління персоналом*, Юридичні науки, 61, no. 1 (2022): 18–23, https://doi.org/10.32689/2522-4603.2022.1.3.

[103] Serhii Hrytsai, «Foreclosure in Ukraine on Secured Virtual Assets,» in *Law in the Postmodern Epoch: General Characteristics and Manifestation Particularities in Separate Law Branches : Scientific Monograph* (Riga, Latvia: Baltija Publishing, 2023), 200–217, https://doi.org/10.30525/978-9934-26-284-5-8.

[104] С.О. Грицай, «Національний банк України як суб'єкт адміністрування віртуальних активів в Україні,» *Право та державне управління. Збірник наукових праць*, no. 1 (2022): 87–93, https://doi.org/10.32840/pdu.2022.1.1.

[105] С.О. Грицай, «Національна комісія з цінних паперів та фондового ринку як суб'єкт адміністрування віртуальних активів в Україні,» *Науковий вісник публічного та приватного права*, no. 1 (2022): 86–92, https://doi.org/10.32844/2618-1258.2022.1.14.

[106] С.О. Грицай, «Порядок отримання дозволу на надання послуг, пов'язаних з віртуальними активами в Україні,» *Наукові праці Міжрегіональної академії управління персоналом: Юридичні науки* 62, no. 2 (2022): 11–17, https://doi.org/10.32689/2522-4603.2022.2.2.

[107] С.О. Грицай, «Учасники ринку віртуальних активів в Україні,» *Дніпровський науковий часопис публічного управління, психології, права*, no. 3 (2022): 152–57, https://doi.org/10.51547/ppp.dp.ua/2022.3.25.

operating without a permit) [108]. The concept of cooperation of state bodies with international organizations in relation to virtual assets is outlined[109].

As of the date of this study, Law 2074 has not entered into force, one of the reasons being the need to bring it in line with the MiCA Regulation[110]. However, stablecoin was classified in Law 2074 and has extensive legal regulation[111]. This distinguishes Ukraine from the rest of the world, where the legal framework aimed at regulating stablecoins is just being formed. Therefore, let's pay more attention to the experience of Ukraine in regulating stablecoins.

7.2.1. Definition and legal regulation of virtual assets. State regulation of the virtual assets market is carried out by the state represented by the National Securities and Stock Market Commission (hereinafter referred to as the NSSMC)[112] and the National Bank of Ukraine (the «NBU»)[113] comprehensive measures to organize, control, supervise the virtual asset market, regulate the rules of operation of service providers related to the turnover of virtual assets, as well as measures to prevent and counteract abuse and violations in the virtual asset market (paragraph 1 of Article 16 of Law 2074).

State regulation of the turnover of collateralized virtual assets backed by currency values (SVA(CV)) within its competence is carried out by the National Bank of Ukraine.

The state regulation in the sphere of virtual assets turnover, except for the secured virtual assets (SVA(CV)), including secured virtual assets that are backed by a security or a derivative financial instrument (SVA(FI)), within its competence, is carried out by the National Securities and Stock Market Commission.

The Law 2074 creates its own division of virtual assets, which is not similar to the one generally accepted in the crypto industry community:

– virtual asset – an intangible good that is an object of civil rights, has a value and is expressed by a set of data in electronic form. The existence and turnover of a virtual asset is ensured by the system of ensuring the turnover of virtual assets. A virtual asset may certify property rights, in particular, the right to claim other objects of civil rights (Article 1(1)(1) of Law 2074); Virtual assets are intangible assets, the

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[108] С.О. Грицай, «Відповідальність за порушення вимог щодо обігу віртуальних активів в Україні,» *Нове українське право*, no. 3 (2022): 60–67, https://doi.org/10.51989/NUL.2022.3.9.

[109] Serhii Hrytsai, «Some Aspects of International Cooperation in the Sphere of Turnover of Virtual Assets in Ukraine,» *Baltic Journal of Legal and Social Sciences*, no. 2 (2022): 36–40, https://doi.org/10.30525/2592-8813-2022-2-6.

[110] Сергій Грицай, «Зміна профільного закону про віртуальні активи: імплементація європейського регламенту MICA,» *Наукові праці Національного авіаційного університету*, Юридичний вісник «Повітряне і космічне право,» 66, no. 1 (2023): 72–82, https://doi.org/10.18372/2307-9061.66.17420.

[111] Serhii Hrytsai, «Classification of Virtual Assets in Ukraine,» *Journal of the National Academy of Legal Sciences of Ukraine* 30, no. 1 (2023): 135–52, https://doi.org/10.31359/1993-0909-2023-30-1-135.

[112] «Положення про Національну комісію з цінних паперів та фондового ринку,» Pub. L. No. 1063/2011 (2011), https://zakon.rada.gov.ua/go/1063/2011.

[113] «Про Національний банк України,» Pub. L. No. 679– XIV (1999), https://zakon.rada.gov.ua/go/679-14.

specifics of circulation of which are determined by the Civil Code of Ukraine and this Law. Virtual assets may be unsecured or secured. (paragraph 1 of Article 4 of Law 2074);

– secured virtual asset – a virtual asset that certifies property rights, in particular, the right to claim other objects of civil rights (sub– paragraph 3 of paragraph 1 of Article 1 of Law 2074); Secured virtual assets certify property rights, in particular, the right to claim other objects of civil rights (paragraph 3 of Article 4 of Law 2074);

– Unsecured virtual asset – a virtual asset that does not certify any property or non-property rights (sub-paragraph 6 of paragraph 1 of Article 1 of Law 2074); Unsecured virtual assets do not certify property rights (paragraph 2 of Article 4 of Law 2074);

In turn, a collateralized virtual asset, as a financial virtual asset, forms two separate areas of its internal distribution: collateralized by currency values and collateralized by securities or a derivative financial instrument (paragraph 6 of Article 4 of Law 2074):

– issued by a resident of Ukraine, a collateralized virtual asset backed by currency values (hereinafter referred to as a SVA(VC));

– a collateralized virtual asset issued by a resident of Ukraine that is backed by a security or a derivative financial instrument (hereinafter referred to as a SVA (FI)).

7.2.2. Ownership of a virtual asset. The content of the right of ownership of a virtual asset includes the right to own a virtual asset, the right to use a virtual asset and the right to dispose of a virtual asset at its discretion, unless it is contrary to the law, in particular by transferring ownership of a virtual asset (paragraph 5 of Article 6 of Law 2074). The ownership, use and disposal of a virtual asset is recorded in the system for ensuring the turnover of virtual assets (paragraph 6 of Article 6 of Law 2074). The conditions of acquisition, conditions of transfer and the scope of rights to virtual assets may be expressed in the form of algorithms and functions of the system for ensuring the turnover of virtual assets, within which the turnover of virtual assets is carried out (paragraph 2 of Article 6 of Law 2074).

The ownership of a virtual asset is acquired upon the creation of a virtual asset, the execution and fulfillment of a transaction with a virtual asset, on the basis of the law or a court decision and is certified by the possession of the key of such a virtual asset, except as provided for in part three of Article 6 of Law 2074 (paragraph 1 of Article 6 of Law 2074). The key of a virtual asset is a set of technical means implemented in the system of ensuring the turnover of virtual assets that allow controlling the virtual asset (sub-paragraph 5 of paragraph 1 of Article 1 of Law 2074).

The holder of the virtual asset key is the owner of such virtual asset, unless (paragraph 3 of Article 6 of Law 2074):

1) the key of the virtual asset or the virtual asset is kept by a third party in accordance with the terms of the transaction between the custodian and the owner of the virtual asset;

2) the virtual asset has been transferred for safekeeping to any person in accordance with the law or a court decision that has entered into force;

3) the key to the virtual asset has been unlawfully acquired by a person;

In the absence of a court decision that establishes otherwise and that has entered into force in Ukraine, it is considered that any person to whom the virtual asset belonged in the past has legally owned and has the right to own this virtual asset throughout the entire period of ownership of the virtual asset key in respect of such virtual asset (paragraph 4 of Article 6 of Law 2074);

7.2.3 Peculiarities of turnover and transactions with virtual assets. Turnover of virtual assets means all legal relations relating to virtual assets that arise between participants in the virtual assets market, as well as between them and the state (sub-paragraph 7 of paragraph 1 of Article 1 of Law 2074).

The turnover of secured virtual assets is subject to all restrictions applicable to the turnover of civil rights objects with which such virtual assets are secured (paragraph 1 of Article 8 of Law 2074).

Law 2074 does not apply to legal relations related to the issuance, circulation, storage and redemption of electronic money, as well as to legal relations arising from the issuance, circulation, redemption of securities and fulfillment of obligations under them, conclusion and execution of derivative contracts, replacement of a party to derivative contracts and transactions with financial instruments in the capital markets, operation of software or hardware and software systems for electronic data exchange, which ensure the implementation of the above legal relations with respect to financial instruments, as well as relations arising in the course of professional activities in the capital markets and organized commodity markets (paragraphs. 3 Article 2 of Law 2074).

Disposal of a secured virtual asset is the disposal of a property right to the object of the secured virtual asset (paragraph 1 of Article 7 of Law 2074). If the law establishes requirements for the form or essential terms of a transaction on the disposal of a virtual asset, such requirements must also be met when performing a transaction on the disposal of such a virtual asset (paragraph 7 of Article 6 of Law 2074).

Contracts for the provision of services for the storage or administration of virtual assets or virtual asset keys are subject to the provisions of the Civil Code of Ukraine on custody contracts, taking into account the specifics established by Law 2074 (paragraph 3 of Article 10 of Law 2074).

Intermediary services related to virtual assets are transactions with virtual assets (including public offerings of virtual assets) in the interests of third parties (paragraph 1 of Article 13 of Law 2074). The provider of intermediary services related to virtual assets is entitled to perform transactions with virtual assets (including the public offering of virtual assets) in the interests of third parties, on its own behalf and on behalf of third parties on behalf of other persons and at their expense (paragraph 2 of Article 13 of Law 2074).

If a secured virtual asset is secured by an object of civil rights that is under a private or public encumbrance, or is secured by an object of civil rights that has been withdrawn from civil circulation, the alienation of such a virtual asset is not allowed, and any transaction regarding the alienation of such a virtual asset is void (paragraph 2 of Article 8 of Law 2074).

7.2.4. Service providers for the turnover of virtual assets. Business entities of all forms of ownership have the right to operate as a provider of services related to the circulation of virtual assets, subject to the requirements set forth in Law 2074 (paragraph 1 of Article 18 of Law 2074).

The activities of service providers related to the circulation of virtual assets are allowed only if they have obtained a permit to provide services related to the circulation of virtual assets of the relevant type specified by Law 2074 (paragraph 2 of Article 18 of Law 2074).

Business entities are allowed to carry out more than one type of activity as a provider of services related to the circulation of virtual assets, subject to obtaining a permit to provide each respective type of services related to the circulation of virtual assets (paragraph 3 of Article 18 of Law 2074).

Providers of services related to the turnover of virtual assets are exclusively business entities – legal entities that carry out one or more of the following activities in the interests of third parties: 1). Storage or administration of virtual assets or virtual asset keys; 2). Exchange of virtual assets; 3). Transfer of virtual assets; provision of intermediary services related to virtual assets (paragraph 8, clause 1, Article 1, Law 2074);

A service provider may be a foreign legal entity that is a participant in the virtual assets market and, under the law of a foreign state, operates as a service provider in accordance with the procedure and on the terms and conditions determined by the National Securities and Stock Market Commission, taking into account the requirements and restrictions set forth in this Law (paragraph 6 of Article 9 of Law 2074).

In some cases, it is not mandatory to obtain a permit to conduct activities related to the turnover of virtual assets, and in some cases, it is necessary to additionally hold a corresponding license:

– issuance of a permit for the provision of services related to the turnover of virtual assets to SVA(FI) – in cases and in accordance with the procedure established by the NSSMC, professional capital market participants have the right to carry out the relevant type of activity of a service provider related to the turnover of virtual assets without obtaining the permits provided for by Law 2074 (paragraph 17 of Article 19 of Law 2074);

– issuance of a permit for the provision of services related to the turnover of virtual assets of the SVA(CV) – a). a provider of services related to the turnover of virtual assets that is a bank has the right to provide services related to the turnover of virtual assets on the basis of a banking license and a permit for the provision of services related to the turnover of virtual assets; b). a provider of services related to the turnover of virtual assets, which is a non-bank financial institution, has the right to provide services related to the turnover of virtual assets on the basis of a license of the NBU for currency transactions and a permit to provide services related to the turnover of virtual assets (paragraph 16 Article 19 of Law 2074).

Supervision of the activities of service providers related to the circulation of SVA(CV) that are banks or branches of foreign banks is carried out in accordance

with the procedure established by the Law of Ukraine «On Banks and Banking Activities» [114]. Supervision of the activities of service providers related to the circulation of SVA(CV), which are non-bank financial institutions, is carried out in accordance with the procedure established by the Law of Ukraine «On Financial Services and State Regulation of Financial Services Markets»[115] (paragraph 2 of Article 17 of Law 2074).

Only a financial institution can be a turnover-related service provider (SVA(CV)) (paragraph 7 of Article 9 of Section III of Law 2074).

8. Global trends in the regulation of stablecoins

8.1. USA

Lawmakers and officials in a number of countries have called for stablecoins to be regulated. US Treasury Secretary Janet Yellen cited the TerraUSD collapse, in a Senate committee meeting on 2022, to ask for robust regulation: «It simply illustrates that this is a rapidly growing product and that there are risks to financial stability and we need a framework that's appropriate»[116].

In 2023, the U.S. House of Representatives Financial Services Committee published a bill on stablecoins, which proposes to establish requirements for issuers of payment stablecoins and research on the digital dollar, and for other purposes[117]. The most interesting in the context of our study are the proposals to include a moratorium on stablecoins backed by other cryptocurrencies and recommendations to study the US central bank digital currency (CBDC).

This bill is the US government's response to the collapse of terraUSD (UST), which was backed by a token called LUNA, and the second largest stablecoin, USD coin (USDC), whose tokens were equivalent to 1 US dollar.

The Stablecoins Bill, as it relates directly to stablecoins, largely concerns endogenously backed stablecoins (aka algorithmic stables or backed by digital assets issued by the issuer of the stablecoin) and issuers of qualified payment stablecoins. It is planned to allow issuers of stablecoins in the US: banks, depository institutions and non-bank institutions that apply for regulatory approval.

In addition to creating a definition for issuers of payment stablecoins, the bill also proposes a moratorium on stablecoins similar to UST. However, the most important thing is that this moratorium should last until the CBDC study issued by the Federal Reserve is conducted to examine their potential impact.

Many experts believe that if the U.S. government introduces CBDCs, it should be done in a way that preserves personal privacy and prevents the government from

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[114] «Про банки і банківську діяльність,» Pub. L. No. № 2121-III (2000), https://zakon.rada.gov.ua/go/2121-14.

[115] «Про фінансові послуги та державне регулювання ринків фінансових послуг,» Pub. L. No. 2664– III (2001), Про.

[116] «Crypto Crash: Stablecoin Collapse Sends Tokens Tumbling,» *BBC News*, May 12, 2022, sec. Technology, https://www.bbc.com/news/technology-61425209.

[117] «On Stablecoins, Which Proposes to Establish Requirements for Issuers of Payment Stablecoins and Research on the Digital Dollar, and for Other Purposes» (2023).

pursuing aggressive monetary policy. A fully controlled, programmed, and centrally monitored CBDC would benefit almost no Americans. And it should not be accepted by the government as a real way forward to the «digital future».

In April 2023, the House Financial Services Committee began its work to discuss the future of stablecoins in the United States. The committee heard reports from five experts, two of whom represent the crypto industry: Dante Disparte, Chief Strategic Officer and Head of Global Policy at Circle, and Jake Chervinsky, Chief Policy Officer at the Blockchain Association.

Jake Chervinsky believes that lawmakers and regulators should focus on privately managed custodial stablecoins rather than the issuance of CBDCs by the US Federal Reserve. A well-constructed and publicly supervised private CBDC would probably be the best way forward because it would pose less risk to users. Jake Chervinsky's stated position recognizes the sad political reality that there is virtually no chance that the US will create a CBDC under the auspices of the US Federal Reserve that is similar to cash and without built-in surveillance. This is because privacy, especially among centrist Democrats, has unfortunately lost much of its appeal as a principle of American society. As many have joked, if printed cash were invented today, its completely untraceable nature would probably be anathema to many lawmakers.

As for the regulators who will enforce the new stablecoin rules, Jake Chervinsky favors the Federal Reserve and the Office of the Comptroller of the Currency (OCC)[118].

8.2. United Kingdom

The definition of stablecoins in the UK is as a «payment cryptoasset» and will cover «any cryptographically secure digital representation of monetary value that is, among other things, stabilized by reference to one or more fiat currencies and/or issued and used as a means of carrying out payment transactions».

A British Treasury report released 2022 also outlined plans to regulate stable coins, which it predicted would become «a widely accepted means of payment.». For stablecoin specifically, some respondents questioned the use of 'stable token' instead of the more widely accepted term 'stablecoin'. They also noted the different characteristics and risks presented by tokens which maintain a stable value (e.g. between ecognize forms of central bank money and privately issued tokens which reference their value from other assets). Respondents highlighted that different stablecoins may require a different regulatory treatment and that the UK regime should account for that. Similarly, some respondents called for a clearer delineation between stablecoins which are linked to a fiat currency and stablecoins which reference other assets. Following consideration of the responses, the government maintains its position that, in a fast-growing and nascent area of

[118] David Z. Morris, «The Big Issues of Stablecoin Issuance,» Coin Desk, April 19, 2023, https://www.coindesk.com/consensus-magazine/2023/04/19/the-big-issues-of-stablecoin-issuance/.

financial services, the regulatory framework for cryptoassets and classifications ought to be designed with flexibility, since static classification or definitions could quickly become outdated. In designing that flexibility, however, the government ecognizes that clarity must be achieved to ensure that market participants can identify where activities fall within the perimeter and the requirements and obligations that this entails. The government considers that some forms of digital money or tokens – for example, those intended for wholesale settlement – may already fall within the relevant UK legal frameworks. However, this also depends on the structure of the token and the nature of the activities concerned. Future legislation will provide a clear framework in the UK, providing clarity as to the scope of activities to which the regime applies. The government expects this to be supplemented by further detailed information on activities and tokens in scope from the relevant financial regulators[119].

8.3. European Union

Despite the fact that the most capitalized stablecoins (USDT, USDC) are pegged to the US dollar. But even the euro-pegged stablecoin Circle is issued outside the European Union. This is because the macroeconomic context, geopolitics, monetary policy, and the euro simply do not move in this direction. The European Union has not ignored the legal regulation of cryptocurrencies and stablecoins in particular.

European regulators first mentioned the need to regulate crypto-asset markets (hereinafter referred to as Markets in Crypto-Assets Regulation or MiCA) shortly after Facebook launched Libra stablecoin. The French finance minister said a few minutes after the project's launch that Libra would never become a sovereign currency and would require reliable consumer protection. The bankruptcies of FTX, Terra, and Celsius Network have strengthened the authorities' resolve. Europe has determined that existing legislation cannot be applied to most crypto assets and their providers. Therefore, a new one was created to regulate crypto and the activities of crypto companies[120].

On October 5, 2022, EU lawmakers approved the text of the Markets in Crypto Assets Regulation (MiCA) bill [121], which will become the basis for cryptocurrency regulation in the European Union. On October 10, members of the European Parliament's Committee on Economic and Monetary Affairs adopted a draft law on

[119] HM Treasury, «UK Regulatory Approach to Cryptoassets, Stablecoins, and Distributed Ledger Technology in Financial Markets: Response to the Consultation and Call for Evidence» (London, UK: HM Treasury, April 2022), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1066166/O-S_Stablecoins_consultation_response.pdf.

[120] «Які закони будуть діяти для європейських криптовалютних компаній через рік?,» GagarinNews, January 20, 2023, https://gagarin.news/ua/news/how-mica-regulation-will-change-the-european-crypto-sphere/.

[121] Council of the European Union, «Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-Assets, and Amending Directive (Eu) 2019/1937,» Pub. L. No. 13198/22, 380 (2022), https://data.consilium.europa.eu/doc/document/ST-13198-2022-INIT/en/pdf.

cryptocurrency regulation, thus supporting the MiCA regulation and all relevant provisions.

According to representatives of the EU Committee, the MiCA initiative will have an impact on the ability of market participants to diversify their business by developing a crypto asset strategy, as well as on the ability to increase confidence in banks and offer crypto companies a single license to operate in the EU. This regulation only needs to be approved by the European Parliament by the end of October 2022, after which it will enter into force after 18 months[122].

However, at the beginning of 2023, the European Parliament postponed consideration of the regulation on cryptocurrencies in the EU, known as MiCA, to April 2023. According to press reports, translators do not have time to process 400 pages of the document for translation into the 24 official languages of the bloc's member states[123]. Earlier it was announced that the European Parliament has plans to vote on the MiCA in April 2023.

On April 20, 2023, the European Parliament adopted the MiCA as a common EU rule for the supervision, consumer protection and environmental safeguards of crypto assets, including cryptocurrencies. The MiCA will cover crypto assets that are not regulated by existing financial services legislation. The key provisions for those issuing and trading crypto assets (including asset-linked tokens and e-money tokens) cover transparency, disclosure, authorization and transaction oversight. Consumers will be better informed about the risks, costs and expenses associated with their activities. In addition, the new legal framework will promote market integrity and financial stability by regulating public offerings of crypto assets. The agreed text of the MiCA includes measures against market manipulation and prevention of money laundering, terrorist financing and other criminal acts[124].

Once adopted, the MiCA Regulation will be binding in each of the 27 EU member states. The Regulation will enter into force after an 18-month transitional period[125].

After the adoption of the MiCA Regulation, José Manuel Campa, a representative of the European Banking Authority, said, among other things, which is interesting in the context of our study: «The EBA will pay special attention to the diversification of the deposit component of the reserve.» José Manuel Campa emphasized the importance of stablecoin issuers mitigating conflicts of interest and disclosing their relationships with custodians and trading platforms to ensure that risks are reduced within the crypto-ecosystem. And he called on representatives of

[122] «Регулювання Ринку Криптоактивів. Регламент MiCA 2022,» L&M Finance Group ua, October 19, 2022, https://lmfgr.com/tpost/ezucha2ia1-regulyuvannya-rinku-kriptoaktivv-reglame.

[123] «В ЄС Запропонували Вимоги До Зберігання Криптовалют Банками,» *ForkLog* (blog), January 24, 2023, https://forklog.com.ua/zakonodavtsi-yes-zaproponuvaly-zhorstki-vymogy-do-zberigannya-kryptovalyut-bankamy/.

[124] «Crypto-Assets: Green Light to New Rules for Tracing Transfers in the EU,» European Parliament, April 20, 2023, https://www.europarl.europa.eu/news/en/press-room/20230414IPR80133/crypto-assets-green-light-to-new-rules-for-tracing-transfers-in-the-eu.

[125] «Які закони будуть діяти для європейських криптовалютних компаній через рік?»

the crypto industry to start reorganizing business processes to meet the new legislative norms[126].

The MiCA Regulation states that a stablecoin is an «asset-linked token». And only electronic money institutions and credit institutions are allowed to issue stablecoins, as well as establishing authorization and prudential requirements for crypto asset service providers. Requires issuers of stablecoins to hold an appropriate minimum liquidity reserve.

The European Commission's initial definition of a token with reference to assets specifically referred to «goods». The compromise text adopts the definition of «asset-linked token» proposed by the Parliament and the Council, i.e. without reference to any specific type of asset and simply referring to «any other value or right... including official currencies».

Although MiCA is one single regulation, it actually provides for three separate but interrelated regulatory regimes:

1) There is a regime for offering non-stablecoins (i.e., those that are not asset-linked tokens or e-money tokens) to the public or seeking to admit them to a crypto exchange;

2) There is a similar regime for offering stablecoins (i.e., asset-linked tokens and electronic money tokens) to the public or seeking admission to a crypto exchange.

Both disclosure regimes are modeled after the existing EU prospectus regime, which, subject to certain exceptions, requires a prospectus to be published in order to offer transferable securities to the public or to have such securities admitted to trading on a trading venue. The proposed regime for stablecoins is the more onerous of the two.

3) There is also an authorization regime for the provision of «cryptoasset services», which are certain activities/services performed in relation to cryptoassets. This regime seems to be based on the existing MiFID regime with terminology similar to that of the MiFID regime[127].

The MiCA Regulation prohibits the payment of interest/benefits on stablecoins in order to hinder the development of decentralized finance (DeFi). This is Article 45 «Prohibition of interest»: By way of derogation from Article 12 of Directive 2009/110/EC, no issuer of electronic money tokens or cryptoasset service provider shall provide interest or any other benefit related to the length of time that an electronic money token holder holds the following electronic money tokens.

9. Experiments with issuing stablecoins backed by precious metal

In the context of our study, the most welcomed among the experiments with stablecoins are projects of the «Digital gold currency» (DGC) type. Digital gold

[126] Jack Schickler, «Stablecoin Reserves Need to Be Diverse, EU Bank Agency Chief Says,» Coin Desk, April 27, 2023, https://www.coindesk.com/policy/2023/04/27/stablecoin-reserves-need-to-be-diverse-eu-bank-agency-chief-says/.

[127] «MiCA – Overview of the New EU Crypto-Asset Regulatory Framework (Part 1),» K&L Gates, accessed May 3, 2023, https://www.klgates.com/MiCA-Overview-of-the-new-EU-crypto-asset-regulatory-framework-Part-1-11-15-2022.

currencies are implemented between competing providers in some projects. Each of them allows users to pay each other in units (tokens) that have the same value as the gold equivalent.

Gold, silver, platinum, and palladium have internationally recognized currency codes according to ISO 4217. The list of ISO 4217 codes is used in banking and business around the world. [128] Cryptocurrencies, including stablecoin, are not assigned an ISO 4217 code. However, some cryptocurrencies and cryptocurrency exchanges use a three-letter abbreviation that resembles the ISO 4217 code.

DGC providers claim to keep 100% of their clients' funds in reserve in the form of gold, silver, and/or platinum, which can be exchanged using digital certificates. As such, their deposits are protected from inflation, devaluation, and other economic risks inherent in fiat currencies.

These systems do not advertise themselves as an «investment,» as this implies an expected profit and falls under the regulation of government agencies. Thus, they avoid it. Also, as a rule, providers do not sell DGC directly to customers for fiat money. These are also elements of avoiding legal restrictions.

To purchase DGC, you first need to buy cryptocurrency through an exchanger, and only then buy it on an exchange. Cryptocurrency exchanges accept payment in national currencies in various ways, the list of which is growing: bank transfer, direct deposit, check, money order, and others.

DGC is not a so-called «paper metal» product. This means that the collateral does not depend, for example, on the performance of an exchange-traded fund (ETF), a contract for difference (CFD), or commodity futures to receive and redeem the precious metal, if necessary, to access or sell it. Also, paper metal products do not provide direct ownership of the metal, and therefore expose clients to counterparty risk, as they depend on the ability of the program issuer to fulfill its obligations.

The vast majority of paper metal programs operate on a partial reserve basis (like the classical banking system). This means that if the majority of the program's clients want to redeem their metal for cash at once, the program provider will not be able to fulfill its promises. Since «paper metals» programs are simply a promise to pay metal or a cash equivalent.

9.1. The period of failure 1999–2004

Between 1999 and 2004, several companies claiming to develop the DGC emerged and failed: OS-Gold, Standard Reserve, and INTGold. The failures were due to the fact that the DGC providers redirected deposits for other purposes instead of keeping them as collateral as precious metals. Of course, when these DGC institutions were liquidated, depositors lost their funds.

[128] «ISO 4217 Currency Codes,» accessed May 2, 2023, https://www.xe.com/iso4217.php.

9.2. E-Gold

In 1996, e-Gold was founded as a type of DGC operated by Gold and Silver Reserve Inc. Which allowed users to open an account on its website denominated in grams of gold or other precious metals.

With a monetary base of USD 71 million (about 3.5 metric tons)[129]. e-gold Ltd. was incorporated in Nevis, St. Kitts and Nevis, and its operations were conducted in Florida, USA[130]. Already in 2006, e-Gold processed transactions worth more than USD 2 billion per year[131].

Initially, e-Gold supported service accounts with gold coins stored in a bank safe deposit box in Melbourne, Florida [132].

In 2004, e-Gold had more than a million accounts [133]. E-Gold was noted on July 13, 1999 in the Financial Times as «the only electronic currency to reach critical mass on the Internet». [134]

After 9 years, in April 2007, a court case was filed against e-gold, which included violations of 18 § 1960 of the US Code (Prohibition of unlicensed money transmitters). The e-gold provider tried for more than a year to dispute these charges. In July 2008, following a court ruling that effectively enshrined in case law the Treasury Department's expansion of the definition of «money transmitter,» e-gold entered into a plea agreement. However, e-gold was unable to obtain money transmitter licenses due to the plea. In 2010, e-gold entered into a plea agreement with the US government. As a refund to customers could constitute money transmission without a license, to allow e-gold account holders to claim the «monetized value» of their accounts, which at the time exceeded USD 90 million.

In November 2013, one of e-gold's founders told the Financial Times in an interview that he had hoped to resurrect the e-gold project himself, but was unable to obtain the licenses required in most US states[135].

9.3. Pecunix

Pecunix was founded in 2002 by Simon «Sidd» Davis and registered in Panama. This project is a classic type of gold-based DGC, in which accounts had balances in GAU (gold grams). The gold reserves were initially held at Mat Securitas Express AG in Zurich, Switzerland. Subsequently, in 2008, the directors of Pecunix transferred the bullion to an undisclosed location.

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[129] «E-Gold Examiner,» accessed May 2, 2023, https://web.archive.org/web/20061109161001if_/http://www.e-gold.com:80/examiner.html.

[130] «E-Gold Blog,» e-gold® Blog, accessed May 2, 2023, https://blog.e-gold.com/.

[131] «E-Gold Statistics,» November 9, 2006, https://web.archive.org/web/20061109161419/http://www.e-gold.com/stats.html.

[132] «E-Metal Transactions,» June 27, 1998, https://web.archive.org/web/19980627133928/http://www.e-gold.com/unsecure/synopsis.htm#redeem.

[133] «E-Gold Statistics 2,» July 11, 2004, 2, https://web.archive.org/web/20040711020115/http://www.e-gold.com/stats.html.

[134] Sarah Jane Hughes, Stephen T Middlebrook, and Broox W Peterson, «Developments in the Law Concerning Stored-Value Cards and Other Electronic Payments Products,» 2007.

[135] Stephen Foley, «E-Gold Founder Backs New Bitcoin Rival,» Financial Times, November 28, 2013, https://www.ft.com/content/f7488616-561a-11e3-96f5-00144feabdc0.

In 2012, Simon «Sidd» Davis spoke in an interview with DGCMagazine about the development of Voucher-Safe software and a peer-to-peer network for exchanging digital currencies. And in early 2014, Pecunix announced that it would replace its Pecunix Payments system with the open-source Voucher-Safe system and PX-Gold. However, by the end of 2014, all legal digital currency exchangers stopped servicing Pecunix. And in early 2015, Pecunix disabled the login function on its website: a statement on the Pecunix website claimed that this was a temporary change «due to new management and restructuring,» but access was never restored and account holders never received their funds back[136].

9.4. E-Bullion

was incorporated in 2000 in Panama and launched on July 4, 2001 as a classic DGC variety. It was founded by Jim and Pamela Fayed of Moorpark, California, as part of their Goldfinger Coin & Bullion group of companies. Between 2001 and 2008, e-Bullion grew to more than one million users, a significant volume of transactions on the account, and reserves of approximately 50,000 ounces of gold bullion. Goldfinger Bullion Reserve Corporation, a subsidiary of e-Bullion, stored precious metals in bullion vaults located in Los Angeles and at the Perth Mint in Australia.

E-Bullion at the time provided users with the best way to store and transfer their gold and silver holdings. Additionally, by issuing a debit card to US customers, which allowed them to convert their bullion balances into US dollars and withdraw them from an ATM or use it for debit purchases. E-Bullion had its own currency exchange service through Goldfinger Coin & Bullion, Inc. Which allowed you to fund your e-Bullion account directly by bank transfer from a bank account. E-Bullion was the first DGC to use CRYPTOCard security tokens to protect user accounts from unauthorized access.

In 2008, co-founder Pamela Fayed was murdered, leading to the indictment, trial, and sentencing in 2011 to death of her husband Jim Fayed for hiring her to kill her. The US government confiscated all of e-Bullion's assets, leading to the company's closure in August 2008[137].

9.5. 1MDC

was a digital gold currency backed by the e-gold project, not physical gold [138]. On April 27, 2007, a U.S. court ordered e-gold providers to freeze 1mdc's accounts. By the end of 2007, the 1mdc website was no longer available[139].

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[136] Julia Dixon, «Voucher-Safe, a Next Generation Digital Currency | DGC,» November 20, 2012, https://www.dgcmagazine.com/voucher-safe-a-next-generation-digital-currency-part-i/.

[137] P. Carl Mullan, *A History of Digital Currency in the United States: New Technology in an Unregulated Market*, Palgrave Advances in the Economics of Innovation and Technology (New York, NY, U.S.A: Palgrave Macmillan, 2016), https://doi.org/10.1057/978-1-56870-0.

[138] «1mdc.Com Is Similar to e-Gold(R) and Pecunix(R),» October 21, 2006, https://web.archive.org/web/20061021212944/https://www.1mdc.com/faq.html.

[139] «1mdc.Com Is Similar to e-Gold(R) and Pecunix(R) 2,» May 3, 2007, 2, https://web.archive.org/web/20070503103108/http://1mdc.com/.

9.6. Goldmoney

The Goldmoney Project was Founded in 2001, Goldmoney is a precious metals investment company. The company's official website states that through their operating subsidiaries, they are engaged in the trading, storage and safekeeping of precious metal bullion, coin retailing, and jewelry manufacturing. As of early 2023, they declare that their goal is to protect nearly $2.5 billion in precious metal assets for clients in more than 100 countries[140].

Goldmoney Holding states that the amount of precious metal allocated to a client is always equal to the amount of metal held in their vaults. This one-to-one ratio is always maintained and is a fundamental feature of Goldmoney's management model.

Clients' precious metals are stored in secure, fully insured vaults in Canada, Hong Kong, Singapore, Switzerland, Germany, the United Kingdom, and the United States. All vaults are operated by leading professional private vault operators, including Loomis International (Nasdaq OMX: LOOM), Brink's (NYSE: BCO), Malca-Amit, the Royal Canadian Mint and Rhenus Logistics.

Goldmoney ensures that the insurance coverage maintained by our vault providers is at least equivalent to the value of the metals they hold on behalf of Goldmoney's clients.

Goldmoney, as a publicly traded company, files quarterly and annual financial statements and disclosures that are reviewed and audited by KPMG LLP, a Big Four accounting firm.

10. Discussion and generalization

1. Goldman Sachs analysts believe that the current state of stablecoins is similar to private banknotes, which circulated as money in the 19th century and were later replaced by national banknotes subject to federal supervision[141].

As with all cryptocurrencies in the digital gold currency, there are several types of risk in their use: management risk, political risk, data security, and exchange risk. And there is a separate risk that is specific to stablecoins, which is the risk of availability, safety, and liquidity (exchange) of their natural collateral.

The main problem with modern stablecoins such as DGC is that many of their suppliers do not disclose the amount of precious metal they hold. Or even if they do declare the amount, they do not allow independent external audits of these stocks. Of course, this raises concerns that such companies do not maintain a 100% reserve ratio, or that their DGC is completely virtual and not backed by physical precious metal at all. This completely invalidates the idea of the existence of stablecoins such as «Digital gold currency» (DGC).

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[140] «Goldmoney,» Goldmoney, accessed May 2, 2023, https://www.goldmoney.com/.

[141] Frances Yue, «The History of Private Bank Notes in 1800s May Hint at the Future for Stablecoins: Not a Good One, Says Goldman Sachs,» MarketWatch, May 17, 2022, https://www.marketwatch.com/story/the-history-of-private-bank-notes-in-1800s-may-hint-at-the-future-for-stablecoins-not-a-good-one-says-goldman-sachs-11652830513.

2. Private money has a long and complicated history, dating back to ancient times when people traded goods and services directly without using a common currency issued by the state. The concept of private money as we know it today originated in China and continued in the Middle Ages in Europe.

An example of the spread of private money is when goldsmiths began issuing receipts for deposits of gold and silver. These receipts were initially used as a form of proof of ownership of the deposited metal, but eventually they began to be accepted as an independent means of exchange. This led to the emergence of private currencies that were backed by precious metals and circulated among the population. And in the 17th century, private banks began issuing banknotes, which were essentially bills of exchange that could be exchanged for gold or silver in the bank's vaults. These banknotes quickly became popular because they were more convenient than carrying heavy coins and were backed by the reputation of the issuing bank.

The system of «free banking» existed in more than 60 countries. Free banking was widespread in the 19th century and early 20th century[142].

In the United States, private currencies were common in the 19th century, when a large number of private banks issued their own banknotes. These notes were often denominated in dollars and backed by bank assets such as bonds or mortgages. However, this system was fraught with problems, including widespread counterfeiting, bank failures, and a lack of uniformity in the notes themselves. In 1863, the US government created a national banking system and began issuing a single currency backed by the full faith and credit of the US government. This effectively ended the era of private currencies in the United States, although some private banks continued to issue their own banknotes until the early 20th century.

The experience of the Scottish system of «private banking» («free banking») deserves special attention as a more studied one. It inspired many reformers in the 19th century to introduce Scottish-style banking systems around the world. And this system worked wherever the government allowed it to operate on a competitive basis and without any significant central bank issuing privileges. The decline of this system was due to fiscal motives of the governments of the countries where it functioned, the desire to have income from the monopoly issue of public funds[143].

The modern issue of private money, in the legislative field of a particular state, is nullified all over the world, with some exceptions. And their issue is prosecuted both administratively and criminally.

It can be noted that today private money has been modernized and has other technological forms: including digital currencies such as Bitcoin and other cryptocurrencies, in this case, stablecoins. However, as a rule, they are outlawed, and the use and acceptance of these private currencies remains a subject of debate and regulation in many countries.

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[142] Manfred Neldner, «The Experience of Free Banking,» ed. Kevin Dowd, *Weltwirtschaftliches Archiv* 128, no. 4 (1992): 749–56.

[143] Lawrence H. White, «History and Prospects of Private Money.»

2.1. Gold standard. A full or 100% reserve gold standard exists when a monetary authority holds enough gold to convert all circulating representative money into gold at a promised exchange rate. In an international gold standard system (which is necessarily based on the domestic gold standard in the respective countries), gold or a currency that is convertible into gold at a fixed price is used to make international payments. International gold standards often limit which entities are allowed to redeem currency for gold.

«Once money is established, any stock of money becomes compatible with any amount of employment and real income»: gold standard supporters say to its opponents[144]. Others argue that while prices necessarily adjust to the supply of gold, the process can cause significant economic turmoil, as was the case in previous attempts to maintain gold standards[145].

The advantages of the gold standard were first outlined in 1824 by David Ricardo (1824) during the Bullionist debate: a currency is in its most perfect state when it is composed of cheap material but has equal value to the gold it professes to represent. David Ricardo proposed that convertibility for foreign exchange purposes should be ensured by bidding on demand for gold bars (not coins) in exchange for banknotes, so that gold could be available only for export and not allowed to circulate domestically.

Economist Michael D. Bordo argues that the gold standard has three advantages: «its record as a stable nominal anchor; its automaticity; and its role as a reliable mechanism of obligation»[146].

In 1913, John Maynard Keynes referred to both standards as simply the gold standard in his book Indian Currency and Finance. He described it as the predominant form of the international gold standard until World War I. Until the 19th century, the Gold Standard was generally impossible to implement due to the lack of newly developed instruments: central banking institutions, banknotes, and that the gold exchange standard was even superior to the British gold standard with gold in circulation[147].

Former US Federal Reserve Chairman Alan Greenspan has admitted that he was one of a «small minority» in the central bank that was positive about the gold standard. In a 1966 essay for Ayn Rand's book, Gold and Economic Freedom, Alan Greenspan argued for a return to a «pure» gold standard. Among Greenspan's most recent notable assertions is that by focusing on inflation targeting, «central banks

[144] «The Misesian Case against Keynes – Hans-Hermann Hoppe – Mises Daily,» January 30, 2009, https://web.archive.org/web/20140915120724/https://mises.org/daily/2492#i2.

[145] «Gold as Money: FAQ – The Mises Community,» accessed May 2, 2023, https://web.archive.org/web/20110714174608/http://mises.org/Community/wikis/economics/gold-as-money-faq.aspx.

[146] Michael D. Bordo, *The Gold Standard and Related Regimes: Collected Essays*, Studies in Macroeconomic History (Cambridge: Cambridge University Press, 1999), https://doi.org/10.1017/CBO9780511559624.

[147] John Maynard Keynes, «Indian Currency and Finance» (n.d.), Wikisource.

have behaved as if we were on the gold standard,» making a return to the standard unnecessary[148].

2.2. Another interesting way of creating private money is the historical example of the Lyon Fairs in Florence. Namely, through the transformation of personal obligations into internationally traded debts, these medieval merchants of the Lyon Fairs created their own private money, beyond the control of the kings of Europe.

However, this description is also true today, among financial institutions that are locked in a network of mutual obligations, giving rise to «shadow banking.» And we can consider their debts to each other as a very real type of private money.

In the context of our study, this approach partially explains the functioning of modern cryptocurrency exchanges.

3. The theory and practice of «free banking» is central to the development of private money. In their 1992 paper «The Experience of Free Banking,» Manfred Neldner and Kevin Dowd list the most famous episodes of free banking to date and discuss some of them in some depth, including Canada, Colombia, Foucault, France, and Ireland[149]. Among its supporters and researchers are: Milton Friedman, Fred Emanuel Foldvary, David Director Friedman, Friedrich August von Hayek, George Selgin, Steven G. Horwitz, Richard Henry Timberlake.

In 1976, the book «Denationalization of Money» by economist Friedrich August von Hayek started a new wave of debate among scholars. In it, he called on governments to end their monopoly on money issuance and allow private issuers to compete freely for it. Subsequently, an increasingly sophisticated theory of free market money and banking began to spread in the 1980s.

Economist Lawrence H. White, who is a professor of economics at George Mason University, is a leading scholar in the study of «free banking.» In his research, he notes that to restore the reliability of money, one possibility would be to return to the gold and silver standard. Another possibility is a new technology known as cryptocurrency. He points specifically to Bitcoin, and more specifically to its limited quantity property. That this can work at the level of states, and the rationale is the same theories and models that explain the work of fiat money. The difference is that Bitcoin will solve one of the main problems of today – unlimited emission. Thus, people can count on the fact that it will not be inflated. There is no one who controls the quantity – it is controlled by this program. However, the problem with Bitcoin is that, therefore, when demand goes up and down, the value goes up and down because the quantity is pre-determined. This works against it being widely adapted as a medium of exchange. If we don't go back to the commodity standard and if we face this difficulty of getting cryptocurrencies to be more widely adopted because of

[148] «Conduct of Monetary Policy: Report of the Federal Reserve Board Pursuant to the Full Employment and Balanced Growth Act of 1978, P.L. 95-523 and The State of the Economy : Hearing Before the Subcommittee on Domestic and International Monetary Policy of the Committee on Banking and Financial Services, House of Representatives, One Hundred Fifth Congress, Second Session,» *Monetary Policy Oversight: House of Representatives Hearings*, July 22, 1998; «Alan Greenspan, Gold and Economic Freedom (1966),» September 25, 2010, https://web.archive.org/web/20100925231456/http://constitution.org/mon/greenspan_gold.htm.

[149] Manfred Neldner, «The Experience of Free Banking.»

the volatility of value, we are left trying to figure out how to control the issuance of money by central banks. So this is the challenge of our time to come up with or invent, to write down some kind of constraint that will give people some reliability[150].

One of the main messages of Lawrence H. White is that people should have the freedom to choose any currency and use it freely in settlements, including the ability to pay with gold or silver.

We agree with his main message, but we have a different opinion about the use of Bitcoin. More precisely, we do not use it and give priority to the development of stablecoins in this direction, through the restoration and development of the «free banking» system in the formation of collateral by analogy with the «gold standard».

4. Problems of «private» money. The issue of banning small-denomination banknotes goes back to Adam Smith's book The Wealth of Nations, published in 1776. He argued that such a ban could prevent inflation. Banknotes of his era were usually redeemed by the issuer in gold or silver coin. Adam Smith believed that if banks were allowed to issue only large denominations, the public would have a greater incentive to redeem them. It was expected that frequent redemption would deter banks from over-issuing banknotes. Since small denominations, by contrast, could be passed from hand to hand for a long time before anyone saw the need to redeem them, it was thought that banks would print more banknotes than they could redeem with the gold and silver they had on hand. Without a check on the amount they could issue, the bank could make too many banknotes, leading to inflation[151].

The problem of re-issue of private or public money is the «cornerstone» of fiat money in general and stablecoins in particular. The solution to this problem when introducing stablecoins as private money in the «free banking» system is not possible without introducing administrative supervision by the state as a guarantor of the storage of values that can provide them.

Bruce Champ, in his historical study «Private Money in our Past, Present, and Future,» identified a number of problems that accompanied the issuance of private money in the past:

a) Many private money issues failed because people did not believe that the issuer would fulfill its original intentions to redeem them in dollars, goods or services.

б) Many examples of private money and almost all of the scripts were highly localized, meaning they did not circulate widely. While this is not necessarily a problem, it does mean that private money cannot be expected to meet the need for a national currency or provide relief from a widespread currency problem;

c) The use of money will be limited by how easy it is to redeem. Money that is difficult to redeem will often be discounted or not accepted at all. This was most evident in the first half of the nineteenth century when state banks issued banknotes. Because these banknotes had to be returned to the issuing bank to be redeemed in

[150] Lawrence H. White, «History and Prospects of Private Money».
[151] Bruce Champ, «Private Money in Our Past, Present, and Future».

gold or silver, they often traded at less than their full value. The local «scrip», which could only be redeemed at a company store, also did not always trade at face value outside the store.

5. Reuters, based on the results of the study, expresses concern that more businesses may move into the shadow banking system as regulators seek to strengthen the financial system by tightening banking regulations[152].

Operating outside of the regulation of central authorities, illegal financial institutions issue their own credit, which is not based on deposits, unlike traditional banks, thereby «creating» a credit system outside of fiat money.

Researchers believe that «shadow banking» has attracted attention because of its competition with traditional depository banking and was a factor in the subprime mortgage crisis of 2007-2008 and the global recession that followed[153].

6. Experts believe there is a technological connection between stable coins and CBDC. Sergey Shashev, founder of Broxux and one of the leaders of the Everscale blockchain community, on the basis of which several national digital currency projects are already being implemented: in an interview on 12/30/2022 for ForkLog, states that most CBDC projects start with stable coins tied to national currencies. It is possible to create a stablecoin and, gradually updating the smart contract, increasing the user base and experience, transfer it to CBDC. Subsequently, the asset is placed under the control of the central bank. When the movement initially comes from the central bank, it is usually tied up in sandboxes and bureaucracy, so the process is very slow. Any wallet in the blockchain is a smart contract. This means that it is possible to create a multi-sig system for central banks and banks, and these flows can be divided: users have assets, and banks have wallets and rules for it. In other words, you can evolve to CBDC through stablecoin, gradually introducing new rules and conditions into the smart contract. And this can be done almost imperceptibly for the user without causing any inconvenience.

7. The 2023 US stablecoin bill plans to freeze the issuance of stablecoins for two years from the moment of its adoption. At the same time, it proposes to consider the issuance of CBDCs during this time, for one year, and to hold a briefing on CBDCs within 180 days after the bill becomes law.

This is very similar to the race before the launch of the digital currency market between stablecoins and CBDCs. Where the latter, using levers of power, sets restrictions for a competitor – stablecoin, which has more potential and experience: both in theory and practice, stablecoin is ahead of CBDC.

In addition, U.S. lawmakers prioritize the legalization of stablecoins by officially enshrining the ability to be backed by fiat currency, the U.S. dollar, and pay little attention to precious metal backing.

In April 2023, the House Financial Services Committee began its work to discuss the future of stablecoins in the United States. The committee heard, among

[152] Michelle Martin, «Q&A – What Is Shadow Banking and Why Does It Matter?»

[153] Paul Krugman, «Sanders Over the Edge,» *The New York Times*, April 8, 2016, sec. Opinion, https://www.nytimes.com/2016/04/08/opinion/sanders-over-the-edge.html.

other things, a report from Dante Disparte, Chief Strategy Officer and Head of Global Policy at Circle.

Jake Chervinsky highlighted the legitimization of stablecoins in the United States and noted its potential: «reinforcing the dominance of the US dollar as the global reserve currency at a time when that status is under threat from foreign adversaries such as China and Russia.»

Regarding custodial collateralized stablecoins, Jake Chervinsky recommended a «regulated path for both banks and non-banks» to issue stablecoins, as well as standards for supervision and reserve quality[154].

8. Article 45 of the MiCA Regulation restricting the accrual of interest on stablecoins is aimed at restricting the issuer of stablecoins from essentially conducting banking activities. By accepting deposits in the form of stablecoins and charging interest on them. It should be clarified that the restrictions apply to both issuers and cryptoasset service providers (CSPs), which in turn is aimed at restricting the latter from operating as a depository of electronic money or stablecoins.

A similar provision to Article 45 of the MiCA Regulation on the prohibition of interest is derived from e-money laws, which also prohibit the charging of interest on issued e-money in order to separate e-money from bank money.

This problem was noted by the European Central Bank in its 2022 report on cryptocurrencies. Among other things, it pointed out that stablecoins, for example, have created additional interconnections by acting as collateral in transactions with cryptoasset derivatives or liquidity providers in DeFi. At the same time, the interconnections between the cryptoasset ecosystem and the traditional financial system have increased due to growing institutional interest. The critical function that some stablecoins perform in the broader cryptoasset ecosystem and for unsecured cryptoassets could have contagious effects on the financial system if unsecured cryptoassets pose a risk to financial stability at some point in the future. To date, the speed and cost of stablecoin transactions, as well as the terms of their redemption, have proven insufficient for use in real-world payments Appropriate regulatory, supervisory and oversight frameworks should be implemented urgently before stablecoins become a risk to financial stability[155].

9. Stablecoins and Central Bank Digital Currencies (CBDCs) have emerged as potential alternatives to traditional fiat currency. While both stablecoins and CBDCs share some similarities, they differ in some fundamental aspects, including their issuers.

Stablecoins are privately issued digital tokens designed to maintain a stable value relative to a specific asset or basket of assets, such as the US dollar or gold. They are typically backed by reserves of fiat currency or other assets held by a private entity, such as a company or consortium.

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[154] David Z. Morris, «The Big Issues of Stablecoin Issuance.»

[155] Alexandra Born and Josep M. Vendrell Simón, «A Deep Dive into Crypto Financial Risks: Stablecoins, DeFi and Climate Transition Risk,» July 11, 2022, https://www.ecb.europa.eu/pub/financial-stability/macroprudential-bulletin/html/ecb.mpbu202207_1~750842714e.en.html.

CBDCs are digital currencies issued and backed by central banks, making them the digital equivalent of traditional fiat currencies. CBDCs are meant to be used as a legal tender for transactions within a country, providing a more efficient, secure, and cost-effective alternative to physical cash.

So, can stablecoins and CBDCs coexist or will they confront each other?

Both types of digital currencies offer different advantages and use cases, and they can complement each other in the financial system.

In theory, stablecoins and CBDCs can coexist as they serve different purposes and target different audiences. Stablecoins are typically used for peer-to-peer transactions and cross-border payments, while CBDCs are primarily intended for domestic transactions and government payments.

However, there are potential challenges to this coexistence.

Stablecoins can be used as a store of value. However, they are subject to issuer risk, and their value can be affected by market conditions, such as changes in the value of their underlying assets. The lack of regulation and oversight of stablecoins may lead to instability and disruption in financial markets.

The advantage of stablecoins over CBDC is their ease of use: stablecoins can be used directly through various applications and services, which makes them easily accessible and easy to use.

CBDCs, on the other hand, offer a more secure and stable form of digital currency that is backed by a government. They could potentially provide a means of financial inclusion for unbanked or underbanked populations, and they could be used to facilitate government payments, such as social welfare benefits or tax refunds. CBDCs could also provide more transparency and control over the monetary system for central banks.

Is the potential competition between stablecoins and CBDCs. As CBDCs are issued and backed by central banks, they may be perceived as more reliable and secure than stablecoins, which are backed by private entities.

In terms of potential challenges, there could be concerns over financial stability and privacy with the widespread adoption of stablecoins. There could also be issues with interoperability between different digital currencies and traditional financial systems.

Overall, it is possible that stablecoins and CBDCs could co-exist in the future, providing different advantages and use cases for consumers and businesses. However, there will likely be ongoing discussions and debates over their regulation and integration into the financial system.

CONCLUSIONS

1. The financial crisis of 2008 stimulated the development of cryptocurrencies, which were subsequently developed in their modification into stablecoins. Stablecoin has become a financially innovative development of cryptocurrencies, which partially eliminated the disadvantages of cryptocurrencies in the form of their insecurity, which is the reason for the high level of volatility. In turn, as a response to the technologically advanced stablecoin, which has attractive properties for the

population, the authorities were forced to look for an alternative to classic fiat money in the form of research and development of CBDC. The stablecoin became a technological platform and an experimental basis for the design and development of CBDC.

2. Electronic money, in its organizational and legal formation, can be considered a prototype of stablecoins. The system of organization of electronic money before its regulation and legalization by the state is similar to the system of modern organization in the work of stablecoins: in the beginning, e-money was issued by private organizations and was not regulated by the state. Based on this, it can be reasonably assumed that stablecoins will have a similar socio-legal development: ignoring, regulation, legalization.

3. The authorities, as the issuer of public money, have always not only opposed but also suppressed the development of private analogs in every possible way, using all available state apparatus. The motive for this opposition and suppression of development is an encroachment on one of the two main monopoly pillars of power, namely the monetary monopoly. This is second only to the monopoly on the formation and maintenance of armed security forces.

If the government has successfully resisted the development of private money in its attempt to compete with the classical form of fiat money. This confrontation has become quite different with the development of new financial technologies (cryptocurrencies). The state authorities will be forced to coexist with them due to ineffective actions in the possible fight against stablecoins.

4. The conditions of coexistence or success in competition between stablecoins and CBDCs will depend on the specific country of their existence. An economically developed country will have a financially strong CBDC, which will weaken the development of stablecoins. Conversely, a country with low economic growth and high inflation will see a decline in the popularity of CBDCs against the growing popularity of stablecoins.

However, there may be variations in this statement due to the international political situation. Given the properties of stablecoins to be backed by a specific commodity (fiat money) and the possibility of their use in international settlements, they may be of increased interest in some countries, regardless of their level of economy. Alternatively, in countries subject to international sanctions, as a tool to circumvent them.

5. We see the restoration and improvement of the «private banking» («free banking») system as one of the possible and pleasant options for the further development of stablecoins. On the one hand, this primarily depends on the political will of those in power; on the other hand, given the technological properties inherent in stablecoins, the government is physically unable to completely stop the process of stablecoin development.

The development of stablecoins, in theory, will be based on a weak fiat currency and a logical understanding by humanity that money should be backed not only by the promise of the state (which has been repeatedly broken throughout history), but by a specific thing, and the most reliable, as history has shown, is precious metal.

The development of stablecoins, in terms of technology, will be based on the achievements of advanced digital technologies, compared to classic fiat money. And compared to CBDC, this is a priority for the development of stablecoins on the blockchain platform, as the introduction of another level of reliability to their nature of security. Based on recent research, CBDC is increasingly leaning towards a centralized technology platform in its current pilot projects, which loses out to blockchain in terms of reliability and transaction certainty.

6. The development and spread of stablecoins in the near future may be the impetus for the beginning of the process of returning the prototype of representative money (for example, the «gold standard») on a modern technological digital platform. This will be caused by the processes of competition between stablecoins and CBDCs, both between private and public spheres of interest. And the emergence in the future of a new representative digital currency of central banks, which will have common features with the existing modern forms of CBDC and stablecoins in development, the so-called «representative CBDC».

7. The development of legal regulation of stablecoins should cover all their diversity (custodial, decentralized, algorithmic). In order to increase the reliability and controllability of «private banking» of stablecoins, we believe it is advisable to regulate its functioning under state supervision in terms of supervision and/or storage of collateral (for example, gold and silver). This will help solve one of the most pressing problems of modern money – the problem of uncontrolled emission.

8. Along with the idea of «private banking» of stablecoins, other variations of their development are possible. Interpreting the ideas of «narrow banking» and «full reserve banking» to the use of stablecoins that are backed by gold and silver, a number of conclusions and suggestions can be made. The idea of stablecoin banking, in the sense of starting to service stablecoins, is quite capricious, at least at the first stages of its development. Due to the need to solve two problems in legal regulation: 1. keeping collateral with the national bank (or a third unaffiliated party with mandatory risk insurance) as a guarantor of the corresponding number of issued stablecoins in a «full-reserve stablecoin bank»; 2. the purity of the reserves of the «narrow banker» of stablecoins and the prevention of lending at their expense (following the example of widespread lending at the expense of deposits in the classical partial-reserve banking system).

9. In 2023, the European Parliament adopted the MiCA Regulation, which was one of the first in the world (along with Ukraine) to provide a regulatory definition of stablecoins.

Stablecoins that have properly executed collateral can significantly enrich the tools of «shadow banking» for the short-term lending market in the future. And their lack of legal regulation by the state only reinforces this statement: hypothetically, it could lead to a repeat of the 2008 financial crisis, where shadow banking played a role.

The EU's successful application of recent legal initiatives is an example of how to prevent this. Article 45 of the MiCA Regulation restricts the accrual of interest on stablecoins, which is intended to restrict the issuer of stablecoins from essentially

conducting banking activities, and crypto asset service providers (CASS), restricts the operation of a depository of electronic money or stablecoins.

SUMMARY

Problem statement. The financial crisis of 2008 spurred the development of cryptocurrencies, giving confidence in the recording of transactions and eliminating the need for intermediaries, while reducing transaction costs. However, there is a problem of price volatility that has prevented their development in trading operations. To eliminate these negative phenomena, the first stablecoins were created on the Ethereum platform, which have proven to be one of the most famous innovations. And, in turn, when the authorities felt threatened by their financial monopoly, stablecoin became a technological platform and an experimental basis for the development of CBDC. ***Purpose and limitations of the study***. The research prioritizes the development of stablecoins backed by precious metals (E-Gold, Pecunix, E-Bullion, Goldmoney) rather than fiat currency (e.g., terraUSD (UST) or USD coin (USDC)), as stablecoins inherit their disadvantages. The study is less concerned with CBDC, and if it touches on this topic, it is only for the purpose of comparison with stablecoins. ***The structure of the study***: 1. Theoretical background; 2. Free banking; 4. State prosecution of private money; 5. Alternatives to «free banking»; 6. Development of electronic money as a prototype of the stablecoin system; 7. An example of legal regulation of electronic money and stablecoins in Ukraine; 8. Global trends in the regulation of stablecoins; 9. Experiments with the issuance of stablecoins. ***Conclusions.*** 1) Stablecoins will have a similar social and legal development as electronic money: ignoring, regulating, legalizing. 2) The current state of stablecoins is similar to private banknotes that circulated as money in the 19th century. The government, as the issuer of public money, has always not only opposed but also suppressed the development of private counterparts in every possible way. Due to ineffective actions in the possible fight against stablecoins, the government will be forced to coexist with them. 3) The conditions of coexistence or success in competition between stablecoins and CBDCs will depend on the specific country of their existence: in an economically developed country, CBDCs will prevail over stablecoins, and vice versa in countries with high inflation and low economic growth (except when it is a tool to circumvent international sanctions). 4) Further development of stablecoins is possible in the system of «private banking» («free banking»). Other variations of their development are also possible, based on the idea of «narrow banking» and «full reserve banking». 5) The development and spread of stablecoins in the near future may be the impetus for the beginning of the process of returning the prototype of representative money and the formation of a new digital financial technology, the so-called «representative CBDC». 6) The development of legal regulation of stablecoins should cover all their diversity (custodial, decentralized, algorithmic). The priority is to regulate its operation under state supervision in terms of control and/or storage of collateral. This will solve one of the most pressing problems – the problem of uncontrolled issuance. 7) Stablecoins are a potentially attractive tool for «shadow banking». This could have a negative

impact on the financial market, similar to the causes of the 2008 financial crisis. To prevent this, there is an example of the EU's successful application of recent legal initiatives in Article 45 of the MiCA Regulation, which limits the accrual of interest on stablecoins, thereby preventing the development of «shadow banking».

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