

Vlastimir Vuković<sup>1\*</sup>

## **The perception of people about their money and the standpoint of monetary theory and policy, with case study: why digital euro?**

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‘[T]he answers suggest that people are generally unaware of the distinction between private and public money.’ Jon Cunliffe, BoE, May 2021<sup>2</sup>

‘At present, consumers and businesses do not consider whether the money they are using is a liability of the central bank, as with cash, or of a commercial bank, as with bank deposits.’

Lael Brainard, The Fed, May 2022<sup>3</sup>

‘At the heart of the confusion about the digital euro was the fact that neither the general public nor the tech-savvy participants could see the difference from what already exists.’

Kantar Public, March 2022<sup>4</sup>

### ***Abstract***

In the early 2020s, central bankers started to realize that people do not distinguish public and private money, or central bank money and commercial bank money. The widest general public obviously has a perception of money and money issuers that is significantly different from the settings of monetary theory and policy, which has been confirmed by several recent studies and surveys conducted for the needs of central banks. There is no “*nudge*” that will persuade deposit holders that the money in the transaction account is not theirs, but the money created by a commercial bank. The consequences of this discrepancy are fundamental not only for monetary theories and models, but also for the very foundations of contemporary monetary policy (transparency, communication, credibility and accountability). The public is one of the three key counterparts of central banks. The perception of people about their money will have a decisive influence on the adoption of central bank digital currency (CBDC). Evidence of the true power of this influence is presented in the final part of this paper - Case study: Digital euro adoption. The fate of the new digital currency as *a European*

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<sup>1\*</sup> Central Bank Money *Research*.

<sup>2</sup> Jon Cunliffe, Deputy Governor of the Bank of England for Financial Stability.

<sup>3</sup> Lael Brainard, Vice Chair of the Board of Governors of the Federal Reserve System.

<sup>4</sup> Kantar Public (2022), Study on New Digital Payment Methods, *Report*, p. 7, March 2022 (commissioned by the ECB).

*alternative* will be decided by the answer to the question of the general public: **why the digital euro?**

**Key words:** *perception of money, people attitudes, monetary theory and policy, monetary legislation, central bank money, commercial bank money, CBDC, BoE, Fed, ECB, digital euro.*

## **Introduction**

In the early 2020s, central bankers started to realize that people do not differentiate private and public money (Cunliffe, Bank of England, 2021), that consumers and businesses do not think about whose liability is cash and whose are bank deposits (Brainard, Federal Reserve System, 2022)<sup>5</sup>, that most people don't realize that they often use *private sector money* to perform everyday payments (Nagel, Deutsche Bundesbank, 2022), and that many citizens aren't even aware of *the distinction between private and central bank money* (Krogstrup, Danmarks Nationalbank, 2023).<sup>6</sup> It is obvious that the public has a perception of money and money issuers fundamentally different from the settings of monetary theory and policies.

All studies and surveys conducted in recent years for the account of central banks found a significant discrepancy.<sup>7</sup> This was confirmed by the comprehensive Study of *Kantar Public* (2022), commissioned by the ECB, which especially focused on public attitudes about money and payments. 'Unsurprisingly, most did not see a difference between central bank money and commercial bank money' (Kantar, p. 7).

This apparent discrepancy has been largely ignored until now. If it was included in a monetary research, it was usually trivialized by reducing it to the domain of financial literacy and financial inclusion. However, the consequences of this discrepancy between people's perceptions of their money and monetary theories and models are fundamental. It raises some questions not only about the validity of widely accepted theories and models, but also the very foundations of modern monetary policy - transparency, communication, credibility and accountability - are called into question. This is understandable if we bear in mind that the public is one of *the three key counterparts* of central banks, in addition to the legislators and financial market participants (Lastra and Dietz).

Therefore, the significance of the comparative analysis of the people's perception about their money and the standpoint of monetary theory and policy is indisputably critical, together with the legislation provisions. The analysis presented in this paper represents a pioneering attempt to shed light and explain the huge differences in the perception of money between the household sector and the financial sector.

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<sup>5</sup> Joachim Nagel, Governor of Deutsche Bundesbank: The shape of money – yesterday, today and tomorrow, *Speech*, 26.09.2022.

<sup>6</sup> Signe Krogstrup, Governor of Danmarks Nationalbank: Check against delivery, *Speech*, 9 March 2023.

<sup>7</sup> Commercial banks, understandably, haven't shown the least interest into reaseraching these differences.

People's perception of money is shown according to numerous surveys conducted in recent years, which have been especially frequent since the beginning of research of the central bank money in digital forms. The prevailing viewpoints of monetary theory on money and payments are presented according to the most recent representative papers from the abundant monetary literature. The standpoint of monetary policy is derived from the official publications of the leading central banks and their explainers about money and payment, intended for the general public. At the end, the legislative foundations of money and payments are apostrophized according to the most relevant laws and directives. However, methodologically, it was most advisable to first present the prevailing viewpoints of monetary theory, then the standpoint of monetary policy, that is, of central banks, then monetary legislation, and only at the end of people's perception of their money.

The practical consequences of diametrical attitudes were examined using the case study method on the example of digital euro adoption. The choice of digital euro for case analysis is motivated by the ambition of the ECB in researching digital central bank money, as well as the heterogeneity of the euro zone, which inevitably disperses perceptions and attitudes about money and payments.

The paper is structured as follows. Viewpoints of monetary theory about money (Section 2), Standpoint of monetary policy about money (Section 3), Monetary legislation on money (Section 4), Perception of people about their money (Section 5), Case study: Digital euro adoption (Section 6), and Conclusion (Section 7).

## **Viewpoints of monetary theory about money**

There are many monetary theories with different viewpoints about money. However, most of them define money as 'anything that is generally accepted in payment', which implies that it 'has three primary functions in any economy: as a medium of exchange, as a unit of account, and as a store of value' (Mishkin, p. 50). Looking at the other functions of money, theoretical disagreements begin, increased by the attempts of more precise measuring of money using the so-called monetary aggregates (M0, M1, M2, M3, M4, ...). Disagreements culminate in different, often diametrically opposed explanations of money creation mechanism and focusing on its real issuers.

A brief overview of the characteristic viewpoints of monetary theory about money should definitely start with one of the most cited articles in the last ten years: McLeay, Radla and Thomas (2014), "Money creation in the modern economy". The influence of this article is enhanced by its publication in the Bank of England Quarterly Bulletin and by the fact that the authors are from the Bank's Monetary Analysis Directorate. In the same issue of this Bulletin, another explanatory article by the same authors was published, entitled "Money in the modern economy: an introduction". Without mentioning that these are the views of the author, the articles take on an almost official character.

'In the modern economy, most money takes the form of bank deposits. But how those bank deposits are created is often misunderstood: the principal way is through commercial banks making loans. Whenever a bank makes a loan, it simultaneously creates a matching deposit in

the borrower's bank account, thereby creating new money. The reality of how money is created today differs from the description found in some economics textbooks: Rather than banks receiving deposits when households save and then lending them out, bank lending creates deposits. [...] Just as taking out a new loan creates money, the repayment of bank loans destroys money. [...] Banks making loans and consumers repaying them are the most significant ways in which bank deposits are created and destroyed in the modern economy' (McLeay et al, 2014, p. 14, 16, and 17).

In addition to this most significant way of money creation, the authors mention other less significant ways, when '[...] the banking sector (including the central bank) buys or sells existing assets from or to consumers, or, more often, from companies or the government' (Ibid, p. 17). The limits of this kind of money creation are also emphasized: profitability of banks, liquidity risk, credit risk, behavior of borrowers, prudential regulation, monetary policy and interest rates, as well as 'quantitative easing' in *exceptional circumstances*.

The same authors explain the concept of money and its main types in an introductory, explanatory article. Money today is a type of IOU, but one that is special because everyone in the economy trusts that it will be accepted by other people in exchange for goods and services. There are three main types of money: currency, bank deposits and central bank reserves.' (McLeay et al, 2014a, p. 1). It is surprising that in the article that apostrophes: 'It does not assume any prior knowledge of economics before reading' (ibid, p. 2), an anachronistic, centuries-old phonetic acronym of the words 'I owe you' - an IOU is used.<sup>8</sup> Thus they are '[...] currency (banknotes and coin) - an IOU from the central bank, mostly to consumers in the economy; bank deposits - an IOU from the commercial banks to consumers. [...] central bank reserves, which are IOUs from the central bank to commercial banks' (ibid, p. 4). Hence, '*central bank money*' includes currency and central bank reserves. Other numerous *different names for different types of money* (ibid, p.9) can seem confusing in one short article.

However, persistent readers will find out that *base money* = *central bank reserves* + *currency*, with five synonyms: *monetary base*, *central bank money*, *outside money*, *high-powered money* and *M0* (frequently used names are omitted: public money, fiduciary money, sovereign money and government money); that *bank deposits* have only one synonym: *inside money* (the least frequently used name is listed, and the most common are ignored: private money and commercial bank money); that *broad money* = *currency in the private sector* + *bank deposits* + *other similar short-term liabilities of the private sector*, also known as *M4* and *M4ex*; that *commodity money* = *a commodity with intrinsic value* (such as gold coins); and, finally, that *fiat money* = *money that is irredeemable - it is only a claim on further fiat money* (ibid). For those who don't understand what 'irredeemable' means, an even more confusing explanation was given: '**Fiat or 'paper' money is money that is not convertible to any other asset (such as gold or other commodities)**' (ibid, p. 5)?

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<sup>8</sup> 'Financial assets are simply claims on someone else in the economy - an IOU to a person, company, bank or government' (McLeay et al, 2014a, p.4).

The monetary aggregate M1 was noticeably omitted, which most closely relates to the prevailing definition of money and represents money ready for payment transactions. The inquisitive reader will find its definition in the accompanying article in the same issue of the Bulletin. ‘*Non-interest bearing M1 = notes and coins plus non-interest bearing sight deposits held by the non-bank private sector. An indicator of transactions in goods and services in the economy, less useful now since most sight deposits pay some form of interest*’ (McLeay et al, 2014, p. 23). The note on interest on most sight deposits has become unfounded since the Great Financial Crisis 2007/9 and the introduction of the key measure new Unconventional monetary policy – the Quantitative Easing (QE). This measure caused an unprecedented monetary expansion. It is understandable that in the era of excess reserves banks will not pay interest on sight deposits.

Soon the propositions of the so-called theory of financing through money creation (FMC) were supported by influential monetary economists: ‘In the real world, banks provide financing through money creation. That is, they create deposits of new money through lending, and in doing so are mainly constrained by profitability and solvency considerations. [...] Saving is therefore a consequence, not a cause, of such lending. Saving does not finance investment, financing does’ (Jakab and Kumhof, 2015, p. i-ii).<sup>9</sup> Unlike the previously presented articles, at the beginning of this paper it is indicated that it reflects the ‘authors’ views’.

The viewpoint this theory is not new or revolutionary. As the theory of ‘credit creation’, it was described in detail by Joseph Schumpeter, who himself was its proponent. ‘It is much more realistic to say that the banks ‘create credit’, that is, that they create deposits in their act of lending, than to say that they land the deposits that have been entrusted to them. And the reason for insisting on this is that depositors should not be invested with the insignia of a role which they do not play. The theory to which economists cling so tenaciously makes them out to be savers when they neither save nor intend to do so; it attributes to them an influence on the ‘supply of credit’ which they do not have’ (Schumpeter, p. 1080). Schumpeter attributes the pioneering attempt to systematize this theory to Henry Dunning Macleod, whose first work was published in 1855/6 (ibid, p. 1081).

The aforementioned reinterpretations of the old theory that banks ‘create credit’, i.e. that bank loans create deposits, were disputed by Professor Charles Goodhart with arguments: ‘[...] the claim that the bank credit is the genesis of money creation without any mention of the private sector’s key role in the process amounts to a misrepresentation. [...] Rather than claim that banks create credit, and then such loans create money, it would be much closer to the truth to say that the private sector creates credit and money for itself, and that the banking sector is the medium through which private sector clients do so, on the terms and conditions set out by the banks. [...] Thus, the timing and activation of much actual bank borrowing is done primarily at the initiative of the private sector borrower, not of the bank’ (Goodhart, p. 15, 13).

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<sup>9</sup> Zoltan Jakab is an Economist in the IMF’s Research Department, and Michael Kumhof is a Senior Research Advisor at the Bank of England’s Research Hub.

The theory that loans create deposits is opposed to the theory that deposits cause loans, in which commercial banks are financial intermediaries. ‘In this bankers are relatively passive, except that they can offer better terms and conditions to clients’ (Goodhart, p.4). This theory is based on the practice of *traditional deposit banking* and is today the most popular among non-monetary economists and the wider public. The basic principles of this theory are relatively simple, which is probably the reason for its wide acceptance. ‘Banking is essentially a service industry; its special service is to provide access to liquidity for its clients. [...] Bank clients can get access to cash, to the ultimate form of liquidity, in two ways, either by drawing on their deposits or on their precommitted lines of credit, (overdrafts or credit (card) limits)’ (ibid, p 4, 23).

The problem is that ‘[...] the theory, although historically a reasonable representation of the reality facing an *individual* bank(er), tells us nothing about the forces driving the determination of the *aggregate* money stock’ (ibid, p. 5). However, it is irrelevant for the comparative analysis of views of monetary theory and perception of people about money.

*Other Money Supplies Theories* used to be current, such as the Theory of *Money Base Multiplier* and Theory of *Credit Counterpart* (ibid), but they no longer have significant influence. In general, all these theories have minor or major flaws. ‘To conclude, at present we have no satisfactory model of the supply of money, or of the working of the banking system’ (ibid, p. 16). Focusing on separated segments of money creation process, omitting clearing and settlement payment technologies and often equating financial intermediaries and money issuers, monetary theories could not give an acceptable explanation about money issuance, its flows and payments.

## **Standpoint of monetary policy about money**

Unlike monetary theory, the standpoint of monetary policy is very consistent, almost uniform. As indicated in the introduction, this dominant viewpoint is derived from the official publications of central banks and their explainers for the general public.

The most immediate insight is provided by the explainers of central banks, which is why it is advisable to start this section with a presentation of typical examples. The ECB’s explainers deserve to be highlighted at the very beginning because of their content.

“Modern economies, including the euro area, are based on fiat money. This is money that is declared legal tender and issued by a central bank, but, unlike representative money, it cannot be converted into, for example, a fixed weight of gold. It has no intrinsic value – the paper used for banknotes is in principle worthless – yet is still accepted in exchange for goods and services because people trust the central bank to keep the value of money stable over time’.<sup>10</sup> The use of anachronistic names, whose meaning is unknown even to most economists (*representative money*), unclear provisions (*declared legal tender*), long-abandoned monetary

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<sup>10</sup> What is money? (20 June, 2017)  
<https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html>

regimes (gold standard) and quasi-scientific disqualifications (*banknotes as worthless paper*) can hardly contribute to anyone's knowledge of *money in modern economies*.

Describing *central bank money* versus *private money* and explaining how *private banks create money* continues to confuse readers. 'But cash is not the same thing as an electronic payment: one is central bank money and the other is private money. We all use both types of money all the time. [...] The money that we at the ECB create is called central bank money. The cash in your wallet or purse is central bank money. In fact, banknotes and coins are currently the only kind of central bank money available to the public. Central bank money is also called public money because it is issued by a public institution. Commercial banks also create money. That's actually what they do when they grant you a new loan and the money appears in your bank account. This kind of money is called private money. This also includes the balance you see in your bank account statement and the savings in your account. The payments you make with your debit or credit cards, or via an online payment service, are all transfers of private money, because you are using money created by your bank'.<sup>11</sup> Surely the typical owner of a transaction account does not assume that the money he transferred to his bank was actually created by that same bank? And he probably can't understand how that private bank money, by turning it into cash at an ATM, becomes public money, and in reality it's only his money all the time?

The Deutsche Bundesbank, the leading central bank of the Eurosystem, has an agreed stance with the ECB. 'These reserves are sight deposits held at the central bank by the banking sector to fulfill the minimum reserve requirements, to settle payments and as a liquidity reserve, plus the deposit facility. [...] And a bank's ability to grant loans and create money has nothing to do with whether it already has excess reserves or deposits at its disposal' (Deutsche Bundesbank, p. 14, 13). The only thing conspicuously missing from this extensive discussion of 'the money creation process' is the Germans' favorite cash.

Banque de France, the second largest central bank of the Eurosystem, makes very similar claims in its explainer, only more explicitly. 'The central bank manufactures fiduciary money and has a monopoly on the issuance of legal tender currency; it also steers the money creation process by setting the price of money. [...] Loans are therefore the direct source of deposits, and not the other way round' (Who creates money? June 2016). Of course, the question of the source of deposits of people who have never taken a loan from a bank or other financial institution remains open.

Other members of the Eurosystem share approximately the same standpoint, which is contributed to by the ECB's Manual on MFI balance sheet statistics (January 2019). Some don't even have their own explainers, so they use a link to the ECB explainers (eg, The National Bank of Belgium). So much about the Eurosystem view.

Norges Bank has a relatively simple and clear explainer: 'There are primarily two types of money in the payments system, notes and coins issued by Norges Bank (cash) and deposits in

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<sup>11</sup> The digital euro and the importance of central bank money (05 October 2022).  
<https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html>

banks (deposit money). When a payment is settled with notes and coins, the money is transferred immediately between payer and payee on the spot. When settling with deposit money, different payment instruments such as payment cards, apps and online banking may be used' (How are payments made?)<sup>12</sup>.

A minimalistic explainer is also offered by Danmarks Nationalbank, without the definition of money, but with the well-known story that *bank loans generate deposits*. 'So in practice the households and firms define the term "money" via their transaction patterns. There is no clear definition of money. In the narrowest statistical definition of the money stock, money is regarded as cash and bank deposits without a binding period (also known as demand deposits). Banks generate deposits and thus money when they grant loans' (What is money?)<sup>13</sup>.

Distinctive explainer was presented by Sveriges Riksbank, beginning with the history of money *from shells to digital money*? 'Money is what the citizens in society agree it should be. [...] Depending on how the money is created or who is issuing it, a distinction can be made between central bank money and private bank money. Central bank money is money issued by the Riksbank and thus the Swedish state. Private bank money is created by banks and hence constitutes a claim on the issuing bank. [...] The banks can supply new private bank money to the system when they issue new loans' (What is money?)<sup>14</sup>.

The Reserve Bank of New Zealand similarly systematizes *forms of money*, but with somewhat different names: 'Money created by the Reserve Bank directly is known as **the monetary base**, base money or M0. The monetary base includes **physical currency** (notes and coins) and **settlement cash** balances. Settlement cash balances are deposits held by commercial banks in their accounts at the Reserve Bank. However, the monetary base is small relative to the total money supply. The money most people use in their daily lives is known as **broad money**, also known as M2. Bank deposits make up about 98 percent of broad money' (Knowles et al, p. 2).

Unlike the various names for *forms of money*, the explanation of *money creation* fits the narrative of other central banks. A bank deposit represents a bank's promise to allow customers to withdraw physical currency, or transfer that deposit to someone else. [...] Bank deposits are created when banks connect borrowers and savers via the process of bank lending. Likewise, bank deposits are destroyed when customers pay debt back' (ibid, p. 6).

The Federal Reserve (the Fed) performs a wider systematization of *the existing forms of money* and risks inherent in each of them, without observations *that bank loans create deposits and thus money*.

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<sup>12</sup> How are payments made? (12 April 2019).

<https://www.norges-bank.no/en/knowledge-bank/money-and-payments>

<sup>13</sup> What is money? (21 June 2021).

[https://www.nationalbanken.dk/en/knowledge\\_bank/themes/Pages/What...](https://www.nationalbanken.dk/en/knowledge_bank/themes/Pages/What...)

<sup>14</sup> What is money? (Updated 04/01/2023). <https://riksban.se/en-gb/payments-cash/what-is-money>



‘In the United States, money takes multiple forms: **Central bank money** is a liability of the central bank. In the United States, central bank money comes in the form of physical currency issued by the Federal Reserve and digital balances held by commercial banks at the Federal Reserve. **Commercial bank money** is the digital form of money that is most commonly used by the public. Commercial bank money is held in accounts at commercial banks. Nonbank money is digital money held as balances at nonbank financial service providers. These firms typically conduct balance transfers on their own books using a range of technologies, including mobile apps’ (Federal Reserve, 2022, p. 5).

Of course, the inherent risks depend on the type of money. ‘The different types of money carry different amounts of credit and liquidity risk. Commercial bank money has very little credit or liquidity risk due to federal deposit insurance, the supervision and regulation of commercial banks, and commercial banks’ access to central bank liquidity. Nonbank money lacks the full range of protections of commercial bank money and therefore generally carries more credit and liquidity risk. Central bank money carries neither credit nor liquidity risk, and is therefore considered the safest form of money’ (ibid).

The key is the direct access to the central bank. ‘Central bank money serves as the foundation of the financial system and the overall economy. Commercial bank money and nonbank money are denominated in the same units as central bank money (i.e., U.S. dollars) and are intended to be convertible into central bank money’ (ibid). Unlike other central banks, the Fed also classifies nonbank money as forms of money. This is obviously a reflection of the expansive offer of financial services by BigTech, FinTech and other companies. Such systematization is still questionable, because *nonbank financial service providers* do not have access to reserve balances, that is, central bank money, which ultimately makes nonbank money the riskiest form of money.

And finally, an explainer of the central bank that started it all - the Bank of England (see the previous section). Most of the money in the economy is created, not by printing presses at the central bank, but by banks when they provide loans. [...] This also means that when you pay off the loan, the electronic money your bank created is ‘deleted’ - it no longer exists. [...] Finally, most banks have accounts with us at the Bank of England, allowing them to transfer money back and forth. This is called electronic central bank money, or reserves’ (How is money created?)<sup>15</sup>. Emphasizing the central bank’s printing press versus banks creates the impression that banknotes represent central bank money. The truth is different - currency in circulation represents a smaller part of base money, while the majority is made up of central bank reserves, which are exclusively used by banks. In doing so, it is crucial that reserves are high-powered money, as they enable the execution of thousands of times larger amounts of payment transactions than banknotes, thanks to clearing and settlement mechanisms. Hence, the claim from the famous article *Money in the modern economy: an introduction* that base money = high-powered money (p. 9) is incorrect. Essentially, only central bank reserves

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<sup>15</sup> How is money created? (1 October 2019).

<https://www.bankofengland.co.uk/explainers/how-is-money-created>

(overnight deposits with deposit facility) are real high-powered money, not currency in circulation.

Commercial banks still remain the most important financial intermediaries - core deposit institutions, largest creditors and dominant payment service providers. The attribute of money issuers, which is attributed to them without argument, can only make them appear riskier in the eyes of the general public. That is why banks generally avoid the narrative that bank loans create deposits, thereby creating new money. Most of the public intuitively knows that a money issuer cannot go bankrupt. But commercial banks go bankrupt. Despite the access to central bank's liquidity, prudential regulation, supervision and *effective resolution regimes* (Financial Stability Board, 2023), there will still be bank failures. It is precisely this explanation that is most lacking in the presented explainers, excluding the Fed.

## **Monetary legislation on money**

As a rule, legislation lags behind changes in the economy, but these delays are not so dramatic as in monetary legislation. The influence of the concept of *standard vs representative money* from the 19th century is clearly visible in many national jurisdictions and monetary institutions: coins and banknotes are still the only legal tender, and the Monnaie de Paris (Paris Mint), the Royal Mint, the Royal Mint of Spain, United States Mint, Swissmint, Japan Mint and many other mints are living monetary fossils and symbols of monetary sovereignty.<sup>16</sup>

Accelerated innovations in payment methods after the 2000s have dramatically changed the behavior of payers and payees and exposed the archaic nature of the existing monetary legislation. Central banks are still the only ones with the right to issue cash, the use of which for retail transactions in most developed economies has fallen to only a few percent! In this way, the only legal tender disappears from circulation every day! Legislators were not disturbed by numerous cryptocurrencies and stablecoins, whose private, often anonymous issuers arbitrarily appropriated the attributes of money and aggressively advertised them. Expressed legislative lethargy and indifference towards the threat of monetary sovereignty was interrupted only by the announcement of Facebook/Meta company to test its own currency Libra (Diem). Since then, old and completely new laws and directives have been rapidly changing, while most central banks have been testing the possibilities of CBDC adoption.

Authors from IMF are probably the most knowledgeable in the *monetary law*<sup>17</sup> of most economies. 'Most Central Banks Laws only authorize the issuance of cash currency, i.e., banknotes and coins' (Bossu et al, p. 16). From this it follows that cash currency is the only currency? Consequently, with the disappearance of cash, the currency and the sovereign currency system disappear? IMF's authors unequivocally confirm that! 'The main types of

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<sup>16</sup> The first two mints last for over 1100 years!

<sup>17</sup> 'Monetary law is the legislative and regulatory framework that provides the legal foundations for the use of monetary value in society, the economy and the legal system. The basic principle of monetary law provides that it is for a sovereign State to determine and establish its own currency system' (Bossu et al, p. 27).

official means of payment are banknotes and coins. These are in the English language commonly called “currency”. [...] However, not all claims on the central bank are “currency”: central bank book money and central bank bills do not qualify as currency under law, [...]’ (ibid, p.30-31). The ignore of central bank book money is a legislative tradition that has persisted for more than two centuries, despite the ingenious insights of Henry Thornton, published in 1802 and then in 1939 (Thornton).

For this research, the EU monetary legislation is the most interesting. According to the consolidated version of the Statute of the ESCB and of the ECB (2016), the Governing Council ‘shall have the exclusive right to authorize the issue of euro banknotes within the Union. The ECB and the national central banks may issue such notes. The banknotes issued by the ECB and the national central banks shall be the only such notes to have the status of legal tender within the Union’ (article 16). This definition of euro banknotes does not exclude other forms of money from the status of legal tender, but only other banknotes. It is also unusual that *Banknotes* are defined in Chapter III Organization of the ESCB, so it follows that *the issue of bank notes* is within the scope of the organization and not the monetary function (Chapter IV). Contrary to banknotes, *Accounts with the ECB and the national central banks* (article 17) are listed first in *Monetary functions*.

The most extensive definition of money is given in the EU Directive (2015) on payment services: ‘*funds*’ means banknotes and coins, scriptural money or electronic money (p. 25, article 15).<sup>18</sup> Finally, in 2023, the terms central bank money and commercial bank money appeared in the EU monetary legislation. ‘Today, online payments rely entirely on commercial bank money. The acceptability and fungibility of commercial bank money relies on its convertibility on a one-to-one basis to central bank money with legal tender, which serves as a monetary anchor. That monetary anchor is at the core of the functioning of monetary and financial systems’ (European Commission, 2023a, p.16-17).

During this hectic adjustment, it was discovered that there is no legislation defining a legal tender! The European Commission only presented the *Proposal for a Regulation on the legal tender of euro banknotes and coins* in June of this year. At the very beginning, in *Context of the Proposal*, the base reason was given. ‘Although EU law directly attributes the status of legal tender to euro banknotes and coins, neither primary nor secondary EU law defines the concept of legal tender’. A general definition is given as *Proposal* continues. ‘The legal tender status of euro banknotes and coins shall entail their mandatory acceptance, at full face value, with the power to discharge from a payment obligation’ (p. 1, article 4). This definition is followed by *Exceptions* (article 5) and *Additional exceptions* (article 6).

Unlike the EU, in the UK legal tender is only a technical term. ‘Legal tender has a narrow technical meaning which has no use in everyday life’.<sup>19</sup> Something is different in the US. In 1933, Congress changed the law so that all U.S. coins and currency (including Federal

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<sup>18</sup> Directive (EU) 2015/2366 on payment services in the internal market, OJEU, L 337, 23.12.2015.

<sup>19</sup> ‘It means that if you offer to fully pay off a debt to someone in legal tender, they can’t sue you for failing to repay’. <https://www.bankofengland.co.uk/explainers/what-is-legal-tender>

Reserve notes), regardless of when issued, constitute “legal tender” for all purposes’.<sup>20</sup> However, this does not apply to the private sector! ‘There is no federal statute mandating that a private business, a person, or an organization must accept currency or coins as payment for goods or services.’<sup>21</sup>

Busy legislators are now facing much bigger challenges than regulating and controlling cryptocurrencies and stablecoins, which has occupied them until now. These challenges primarily include: redefinition of monetary sovereignty; legislative distinction between central bank money, commercial bank money and nonbank money; regulating the right to issue digital money and obligations of their issuers; tokenization; powers of central banks; the user’s access to different types of money, especially access to cash; relationship between bank transaction account and “digital wallet”; specifying the terms of payment finality and irreversibility; multiplication of different payment providers; security settlement systems; definition of legal tender status; prudential regulation of payment industry; privacy protection; protection of unbanked people. The legislative answer to these questions will shape the framework of monetary policy in the future, but will undoubtedly influence the public’s attitudes about money and payments.

## **Perception of people about their money**

Consumers’ payment behavior and their attitude towards cash reserves indirectly but clearly point to their attitudes about money. In the euro area, as well as in most developed economies, consumers prefer cards and other cashless methods for payments.<sup>22</sup> ‘Nevertheless, the majority of euro area consumers considered having cash as a payment option to be very important. The perceived key advantages of cash were its anonymity and protection of privacy and the perception that it makes one more aware of one’s own expenses. [...] 37% of consumers kept cash reserves at home, outside the wallet or a bank account, up from 34% in 2019’ (ECB, 2022, p. 5).

According to the mentioned *key advantages* of cash and cards, it can be safely concluded that consumers do not distinguish central bank money and commercial bank money. In the same year, these findings were undoubtedly confirmed by a comprehensive study commissioned by the ECB. ‘Unsurprisingly, most did not see the difference between central bank money and commercial bank money – bot were seen as safe and secure, particularly as amounts up to €100,000 in their bank are protected by public deposit guarantees, something which the vast majority were actually unaware of’ (Kantar Public, 2022, p. 7). According to this study, most participants do not understand what “*risk-free*” *central bank money* means (ibid, p. 33). However, the real conclusion is different: people think that all money, in cash and in banks, is

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<sup>20</sup> [https://www.federalreserve.gov/faqs/money\\_15197.htm](https://www.federalreserve.gov/faqs/money_15197.htm)

<sup>21</sup> ‘Private businesses are free to develop their own policies on whether to accept cash unless there is a state law that says otherwise’. [https://www.federalreserve.gov/faqs/currency\\_12772.htm](https://www.federalreserve.gov/faqs/currency_12772.htm)

<sup>22</sup> ‘In the SPACE 2022 questionnaire, 55% of euro area consumers expressed a preference for cards and other cashless payments when paying in a shop, while 22% preferred cash and 23% had no clear preference (ECB, 2022, p. 5).

risk-free. Obviously, they consider *cash, and their money at a bank account* as their own assets in the form of the ECB euro.

The available statistical data could help to explain this mystery about people's perception. 'Support for the euro remains high with 77% of respondents across the euro area [...] A majority of respondents support the euro in all 19 euro-area countries' (EC, Flash Eurobarometer, 2022, p. 3). It looks like no one from the **Euro-Europeans** doubt that their euros are issued by the ECB System, because it can be safely claimed that the group that does not support the euro is made up of people who are nostalgic about the abolished national currencies - marks, francs, lira, pesetas, guilders and other symbols of former monetary sovereignty. In other words, it will not occur to anyone that there is a BNP Paribas euro, an ING euro, a UniCredit euro, a Commerzbank euro or an Intesa euro. The existence of such euro would not only be disputed by consumers, but also by all bankers as well. It is not a fact of life, but a chimerical construction of numerous monetary theorists.

In section 3 we saw that this construction is supported by the majority of central bankers. As a reminder, let's look at one such typical attitude. 'Most of what we perceive as money is holdings in private bank accounts. This type of money is created by the commercial banks and is called commercial bank money or simply deposits. Commercial bank money is a claim on a bank – and we can see it as the bank owing us cash' (Armelius et al, p. 2).

It is unlikely that all central bankers and monetary theorists together will ever succeed in convincing even one bank deposit holder that *this type of money is created by the commercial banks and is called commercial bank money!!* The client of the bank reasons with common sense - how can the bank create my money that I personally paid to it? It is also obvious to him that without deposits, the bank has a problem with lending to clients, regardless of how much it borrows from the central bank and the market. The Fed agrees with the opinion of the majority of the public that deposits are important for banks' credit activity. 'Banks currently rely (in large part) on deposits to fund their loans'. (Federal Reserve System, 2022, p. 17).

Finally, let's look at the public opinion on deposit insurance, liquidity provision for banks and prudential measures. Most people have heard or read something about it and again interpreted it with common sense that in this way the government and the central bank take care of citizens' money, that is, their own private money. This is precisely where **additional trust** in all forms of money originates. That's why it is difficult to sustain the before mentioned statement that *the vast majority were actually unaware of this*. It is a deep feeling related to experience, which is acquired from the first contacts of a child with the visible forms of money.

Of course, public trust in money primarily depends on its general acceptance as a means of payment. Confidence is strengthened by a small number of *bank runs* and their quick resolves. All this together strengthens confidence in money. Consequently, for the general public and most individuals, every euro was issued by the ECB (System), every US dollar by the Fed, every pound sterling by the Bank of England, etc., etc.

The public's "vague" attitudes about their own money and the "blurred" view of money issuers can hardly be corrected by *social engineering*, even with *the Behavioral Insight Unit (BIU)*, initially set up by the UK Government (Haldane, p. 23). 'In particular, their work has focused on how sometimes subtle changes in language can be used to improve understanding by the public and to "nudge" them towards a particular course of actions (ibid). However, for a central banker, *this is not a common approach, and doing experiments with the general public is a rather daunting task.*<sup>23</sup>

In the conclusion of this section, we can highlight the finding that there is a dramatic gap between *the perception of people about their money and the standpoint of monetary policy about money*. There is no "nudge" that will convince deposit holders that it is not their money, but money that commercial banks have created, that is, issued. The public has not believed in alchemy for a long time, and especially not in monetary alchemy.

## **Case study: Digital Euro adoption**

### *Why case study?*

To test the impact of *the perception of people on their money* on the eventual introduction of CBDC in one of the developed economies, the example of the digital euro was chosen. Taking monetary union as the most suitable example, as opposed to countries with monetary autonomy, it may seem surprising and unrepresentative. However, the heterogeneity of the euro area with single currency is the reason why attempts to design and adopt a digital euro in the unforeseeable future have many similarities with other CBDC projects. The characteristics of the digital euro and their contribution to the desired adoption will be tested through the prism of the perception of people.

The testing was performed using the case study method due to the many unknowns in terms of strategic goals (currency or platform), desired characteristics (only retail or and wholesale), operational methods (centralized, decentralized or mixed), network (online and offline or only online), authorized intermediaries (banks, payment providers and others) and other dilemmas that make any modeling and more formal research meaningless. There are two additional reasons. 'First, case studies can help establish the historical and institutional context, an essential first step in good applied work. Second, historical analysis of actual policy experiences is a natural way to find substantive hypotheses that subsequent work can model and test more formally.' (Bernanke and Mishkin, p. 185).

### *Definition, objectives, issuers and distributions*

The starting point of this analysis are the definition of *the digital euro* and the goals of its *adoption*, as well as the indisputable features that the constructors want to incorporate into the new digital currency. These definitions, goals and characteristics are most clearly described in two official documents: European Commission's *Proposal for a regulation [...]*

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<sup>23</sup> 'This approach of trialling, eliciting feedback and then adapting is not common in macro-economic public policy. That is, at least in part, for the understandable reason that doing experiments with the general public on a macro scale is a rather daunting task' (Haldane, p. 23).

on the establishment of the digital euro (**Proposal**) from June of this year and the ECB's *Progress on the investigation phase of a digital euro – fourth report (Report)* from July of this year.

According to the **Proposal (Context)**, the definition is comprehensive: 'Like cash, a **retail CBDC** would be an official form of central bank money **directly accessible** to the general public, endowed with the status of legal tender. It would thus adapt the official forms of the **currency** to technological development, complementing cash' (p. 1). This definition contains the key features that policymakers strive for: *retail CBDC, directly accessible, official currency, and complement of cash.*

Next, a few words about the goal of the digital euro and its issuers. 'The **objective** of this proposal is to ensure that central bank money with the status of legal tender remains available to the general public, while offering a state-of-the-art and cost-efficient payment means, ensuring a high level of privacy in digital payments, maintaining financial stability and promoting accessibility and financial inclusion. For this purpose, the proposal establishes the digital euro may be **issued** by the European Central Bank and national central banks of the Member States whose currency is the euro, as part of the Eurosystem, [...]' (*Proposal*, p. 2).

The area of distribution of digital euro and payment service providers are especially emphasized. 'The proposal builds on the internal market freedom to provide payment services, wherever the payment service provider is incorporated'. The intention is that '[...] all EU payment services providers may distribute the digital euro across the euro area' (*ibid*, p. 2).

#### *Technical features, charge and approach*

In the end, as always, the most interesting are *the technical features*. 'Digital euro users will **not** be required to have a non-digital euro **payment account**. Some functionalities of the digital euro nevertheless **require** a non-digital euro payment account. [...] The digital euro should be available for digital euro payment transactions both **offline** and **online** as of the first issuance of the digital euro and should allow for conditional payment transactions. [...] as a digital form of the single currency, it should be **fully fungible**' (*ibid*, p. 14). These "*technical features*" hide the trigger for tectonic changes in the emission of money and payments. However, this case study is dedicated to the perception of people, not to the analysis of the digital euro design.

Additional clarifications are provided by the already mentioned ECB's fourth report. 'The Eurosystem is of the opinion that a digital euro should offer basic services to citizens **free of charge**, reflecting its status as a public good and in line with users' experience with cash. [...] These **free basic services** could therefore include: (i) opening/holding closing of a digital euro payment account, (ii) non-automated and automated funding and defunding from a non-digital euro payment account, (iii) waterfall/ reverse waterfall services, (iv) provision of a basic payment instrument, and (v) initiating and receiving payment transactions' (*ibid*, p. 1, 6). A summary comparison shows that all services like cash payments will be free, as well as basic non-cash payments services. The direct connection between the two payment

accounts – digital and non-digital – has been repeatedly emphasized, although it is unclear how did the bank transaction account become non-digital. We make all digital payments via cards or smart phones precisely thanks to payment accounts, which are digital by definition today?

Within the *roll-out approach*, the order of implementation is planned. ‘The Eurosystem envisages that a **first** product release would include **person-to-person** and **e-commerce payments**. Focus group research showed that person-to-person payments are highly valued by users across the euro area’ (ibid, p. 10). ‘A **second** product release would include **point-of-sale payments**. Implementing payments at physical stores may take longer because it would entail adapting the existing physical infrastructure across Europe’ (p. 11). The proposed sequence of launches is suitable for market and technological challenges, but not for the needs of the public - *person-to-person payments* should be the priority of all priorities.

The ECB emphasizes that according to the established estimates, there is a sufficient number of innovative payment providers who are interested in business with the digital euro. ‘The research indicated that there is a sufficiently large pool of European providers that are ready to develop digital euro solutions’ (ibid, p. 2). Of course, it is difficult to imagine a payment provider that would risk refusing the distribution of a new digital currency issued by a central bank.

#### *The most important user groups and promotions*

At first sight, it can be concluded that the digital euro adoption will significantly depend on the success of its promotion as a complement to cash and the degree of that complementarity. All other types of payment - e-commerce and point-of-sale - are already available to holders of bank payment accounts! Considering the financial exclusion of vulnerable groups and the problems they face in everyday payments, they could be significant beneficiaries of the digital euro and its promoters. Of course, under the condition that it is free and simple and reliable enough for their payments. This author apostrophized this more than two years ago: ‘However, central bank money for public cannot avoid its digital destiny, since the problem of a billion unbanked people all over the world needs a solution’ (Vuković, p. 1). There are also opposing opinions, but they come from researchers closely associated with the banking sector (Mai, 2021; Sigurd et al, 2023).

To avoid financial exclusion, the basic features of money, contained in cash, are sufficient. ‘The key features that a new payment method should have to make it attractive to at least a subsection of the unbanked, underbanked and offliners are being easy to use, secure and free of charge. In essence, it should act like cash as much as possible’ (Kantar Public, 2022, p. 10).

Another significant group of potential users could make the citizens who prefer the security of central bank money. Inevitably, they would face the quantitative limits that *the waterfall/reverse waterfall regime of funding and defunding from a non-digital euro payment account* imposes on all holders. Future problems with quantitative limits can already be glimpsed from the studies at the national level: ‘We find a clear potential for CBDC: 49% of



the public is interested in opening a CBDC **current account**, and 54% in opening a CBDC **savings account**. People see the not-for-profit nature of central banks and its potential robustness against disruption as a rationale for central banks to introduce CBDC' (Bijlsma et al, p. 3).

Quantitative limits are perhaps the most sensitive parts of the adoption of digital euro, which is deprived of one of the three fundamental functions of money - store of value. How to explain to citizens of euro area countries that they can only keep a small, legislatively limited amount of safe public money and an unlimited amount of less safe private money? And both in digital form? The story of the so-called disintermediation in banking will not be moved by people, especially in today's time of increased interest rates and booming bank profits. And the accounts of the monetary delusions of the past centuries will continue to come due in the form of cyclical banking crises.

All other groups of potential users and other payment methods are likely to contribute less to digital euro adoption. Similar views are shared by the majority of researchers who have also analyzed the possibilities of implementing the digital euro.

'Few participants among the general public or the tech-savvy had heard of the digital euro or knew much about it. <sup>24</sup> [...] However, once it was explained to them, participants appreciated the difference between the digital euro and cryptocurrencies and liked the fact that it would be backed by the ECB. This is considered an added value in terms of safety, regulation and stability. Some participants worried that the introduction of a digital euro would lead to a phasing out of cash' (Kantar Public, 2022, p. 7).

#### *The key drivers of adoption*

Trust in the central bank, security and resilience are the most often mentioned among the decisive factors for the adoption of the digital euro. At the same time, the majority of respondents in the countries of the euro area point out that they are satisfied with the payment services of banks.<sup>25</sup> Therefore, the question immediately arises: why the digital euro? Why should satisfied users of bank accounts also use the digital euro accounts?

Other factors are cited. 'With regard to **preferred payment methods**, common factors cited are convenience, ease of use and wide acceptance. These factors - along with recommendations from friends - were also cited as the key drivers for adapting to a new payment method in the past. [...] However, recent rates of adoption of new payment instruments have been low, as **most participants felt that existing methods already respond to their needs**' (Kantar Public, p. 16). And again at the end we see expressed

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<sup>24</sup> 'The most common spontaneous assumptions they reported were that it was likely to be a cryptocurrency like Bitcoin, or a digital currency that should be used to purchase online goods and services' (Kantar Public, 2022, p. 7).

<sup>25</sup> 'In Netherlands, where most respondents are satisfied with the accounts offered by commercial banks, the two most frequently mentioned reasons to introduce CBDC are non-profit objectives of central bank and improved resilience of the electronic payment system (Bijlsma et al, p. 7-8).

satisfaction of the majority of participants with the existing payment methods offered by commercial banks! And again the question: why the digital euro?

The opinion of the representatives of European consumers is a warning for the ECB System and the European Commission. ‘The creation of the digital euro must be to give consumers who choose digital payments to have at their disposal a form of **digital public cash**. It is why this ranking is determined by the idea that the digital euro will be a payment instrument that the consumer carries with them (**bearer instrument**) on which the electronic monetary units are stored and not simply based on an account (account-based instrument) that requires an internet connection at the time of the transaction. In this logic, this classification prioritizes the aspects that make the difference between cash and traditional digital payments, i.e., resilience and privacy. The others are important but are not specific to the digital euro’ (BEUC, January 2021, p. 5).

However, the views of citizens of the Netherlands are somewhat different. ‘From those who indicated they would open a CBDC current account (49%), the largest group shoes to transfer EUR 101-500 to this CBDC current account. As only a smaller portion of the respondents willing to open a CBDC current account would transfer nothing or at most EUR 100, it is likely that once people are willing to open a CBDC current account, they would transfer substantial amounts to this account. This indicated that a CBDC current account is not only seen as a nice-to-have, but is something that people would actively use’ (Bijlsma et al, p. 9). The optimistic conclusion that the authors of the study ultimately drew is not valid, because the respondents were not presented with quantitative limits. It is not difficult to guess the winner in the race of unlimited bank debit card and limited CBDC current account.

‘Widespread use of the digital euro as a means of payment is not very likely though, as it will provide no added benefits and will be subject to restrictions’ (Mai, p. 1). However, greater privacy protection may be a pull factor (ibid). Yet, the claim that there are *no problems or gaps in the payment system*, often repeated in recent years, especially in the U.S., is unfounded and ‘[...] raises the question as to the problems or gaps in the payment system that the digital euro is supposed to solve or close’ (Mai, p. 2). Experience of Sveriges Riksbank is the best testimony to this.

It is about a fundamental problem - non-acceptance of cash payments, which citizens of the euro area also face. ‘Cash payment, the only “European” retail payment option available throughout Europe, is also on the decline. The ECB’s efforts to create the digital euro as a **European alternative** that could be used throughout the euro area should therefore be welcomed (Mai, p. 4). A complement such as the digital euro is a significant part of the solution to that problem (PoS terminals), but in an uncertain future according to the *Proposal* (p. 11).

However, the acceptance by citizens will be most affected by the limits of the digital euro holding. Brutal limits, below 3,000 euros, will discourage demand. From experience, administrative restrictions on market supply as a rule cause an increase in demand, which is satisfied by finding alternative solutions.

The banking sector is worried and looking for limits that would discourage citizens from accepting the digital euro. ‘Lower holding limits - including a possible **zero holding limit** - would likewise reduce the risk of adverse impact on lending interest rates and thus overall economic activity. As an example, setting a holding **limit of 500 euro** rather than 3,000 euro [...]’ (Sigurd et al, p. 11). In comparison, the current limit in the Bahamas and the proposed limit for the UK are 15-20 times higher than the suggested €500! The banks would be the happiest if the digital euro project was abandoned immediately.

### *Puzzle and confusion*

The biggest part of the puzzle and confusion directly stems from the aforementioned conclusion about the dramatic gap between the *perception of people about their money and the standpoint of monetary policy about money*. Essentially, this gap is the biggest threat to the market survival of the new digital currency. The digital euro is a product of monetary policy, but its market success is determined by the general public acceptance, not by the will of central bankers.

Numerous puzzles are contained in the negative attitudes of *the general public about the digital euro*, concisely presented in the aforementioned *Study*. **‘In general, negative and neutral feelings about the digital euro among the general public are based on the fact that participants saw neither a benefit in nor a necessity for its introduction, given the current environment in which people already use electronic methods for many transactions’** (Kantar Public, p. 38).

Particularly intriguing are the negative views about the possible impact of the digital euro on disappearing cash, the elderly, financially excluded groups and privacy. ‘The most frequently mentioned drawback was the idea that the digital euro would mean the end of physical cash. This was a concern for participants on a number of grounds. Many worried about elderly and less technologically literate people. The move to a digital currency was seen by many as a further invasion of privacy, giving banks even more access to their personal data and spending habits. There was a concern that the digital euro could be used as a form of surveillance and control, in contrast to physical cash’ (ibid).

The accumulation of puzzles is inevitably followed by a growing confusion. ‘At the **heart of the confusion** about the digital euro was the fact that **neither the general public nor the tech-savvy participants could see the difference from what already exists**. How would this digital euro be different from the money held in bank accounts (which some consider to be digital money) or in banking or financial service apps? The difference between these “cashless euro” and the digital euro was unclear to participants’ (ibid, p. 37).

*Section 5* already explained the root of this confusion: people empirically believe that **all money**, in cash and in banks, is **risk-free**. Obviously, they consider *cash, as and money at a bank account* as **their assets** in the form of ECB Euros. They also correctly see their money at the bank account as **digital money**, because they know that it is digitally transferable. The distinction between central bank money and commercial bank money is meaningless for the general public, because they consider it all their money. Persistent explaining to the public

what this difference is can only additionally endanger the otherwise fragile financial stability and disqualify the digital euro.

### *The challenges and perspectives*

The challenges are extremely large and require maximum consideration of the public's views on money and their real needs in retail payments. Ignoring these attitudes and needs, as well as focusing on *technical features*, leads to nothing. Similar ventures in the recent past also require attention, especially the episode with the electronic euro. An instructive example for central banks from the euro area is the failure of electronic money institutions, which today are a peripheral street of the payment system. Central bankers should carefully study the mistakes made by their predecessors in 2010, so that the digital euro does not suffer the fate of the electronic euro, and digital wallets the fate of e-wallets!

Obviously, the perception of people is realistic and sustainable based on the experience and not on various monetary constructions of policymakers. If the designers of the digital euro do not take into consideration the perception of people, or only partially respect it, it will call into question the survival of the new digital currency on the market.

Valuable guidelines for the designers of the digital euro are offered by the **Key findings** of the study commissioned by the ECB System. '[P]articipants were **satisfied with their existing methods and rarely have crucial unmet needs**. Participants struggled to see the need for a digital euro, what unmet needs this would satisfy, and how it would fit with existing payment methods. Many believed that digital money already exists, as stored by banks in some electronic format, electronic transfers via apps, mobiles or bank transfers. The distinction between money in central banks and commercial banks remained unclear to many in both the tech-savvy and the general public group. Participants tried to relate the digital euro to their understanding of the existing situation, and as a result they failed to see advantages or benefits, or the rationale for a digital euro' (ibid, p. 38).

Ultimately, the fate of the new digital currency as a European alternative will be decided by the answer to the question: why the digital euro? More precisely, it will depend on the compliance of that answer with the perception and attitudes of people about their money and payments.

## **Conclusion**

Central bankers started to discover in the early 2020s that people do not distinguish between public and private money, that is, central bank money and commercial bank money. The widest general public obviously has a perception of money and money issuers that is significantly different from the prevailing assumptions of monetary theory and politics.

In general, all relevant monetary theories have minor or major flaws, which is why 'at present we have no satisfactory model of the supply of money, or of the working of the banking system' (Goodhart). Focusing on separated segments of money creation process, omitting clearing and settlement payment technologies and often equating financial intermediaries and

money issuers, monetary theories could not give an acceptable explanation about money issuance, its flows and payments.

Unlike monetary theory, the standpoint of monetary policy is very consistent, almost uniform. Most central banks monotonously repeat the same story. ‘The payments you make with your debit or credit cards, or via an online payment service, are all transfers of private money, because you are using money created by your bank’ (ECB). Surely the typical owner of a transaction account does not assume that the money he transferred to his bank was actually *created* by that same bank?

Monetary legislation on money in the next few years must answer numerous open questions, starting with the definition of legal tender status. The legislative answer to these questions will shape the framework of monetary policy in the future, but will undoubtedly influence the public’s attitudes about money and payments.

The most important finding of this research is the existence of a dramatic gap between the *perception of people about their money and the standpoint of monetary policy about money*. People experientially consider *cash and money at a bank account* as **their assets** in the form of euros, dollars or pounds, which are equally **risk-free**. They also correctly see their money at the bank account as **digital money**, because they know that it is digitally transferable. Because of all this, the distinction between central bank money and commercial bank money is incomprehensible and difficult to explain to the general public. There is no “*nudge*” that will convince deposit holders that it is not their money, but money that commercial banks *create*. The public has not believed in alchemy for a long time, and especially not in monetary alchemy.

*Case study: Digital euro adoption* provided an insight into essential issues of interest to the general public, the biggest *challenges and possible perspectives* of this large and ambitious undertaking. One of the first conclusions is that digital euro adoption will significantly depend on the success of its promotion as a complement to cash and the degree of that complementarity. Quantitative limits are perhaps the most sensitive part of the adoption of digital euro without the fundamental function of money - *store of value*. At the same time, the majority of respondents in the countries of the euro area point out that they are satisfied with the payment services of banks, which is why the question of its expediency arises? That is why the fate of the new digital currency as *a European alternative* will be decided by the answer to the question of the general public: **why the digital euro?** And people’s perception and attitudes about their money and payments.

Monetary authorities that respect people’s attitudes and design digital money for the public according to them can expect a certain success of their started projects. On the contrary, neglecting the perception of people and their needs in everyday payments leads to the inevitable failure of central banks in CBDC adoption.

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### **References**

Armeliuss, Hanna, Carl Andreas Claussen and David Vestin (2020), Money and monetary policy in times of crisis, *Economic Commentaries*, No. 4, Sveriges Riksbank, June 2020.

Bank of England (2021), New forms of digital money, *Discussion paper*, 07 June 2021.

Bank of England and HM Treasury (2023), The digital pound: a new form of money for households and business? *Consultation paper*, February 2023.

Bank of Japan (2023), Results of the 93<sup>rd</sup> Opinion Survey on the General Public's Views and Behavior (March 2023 Survey), 12 April 2023.

Banque de France (2016), Who creates money? *L'eco en bref*, June 2016.

Bernanke, Ben and Frederic Mishkin (1992), Central bank Behavior and the Strategy of Monetary Policy: Observation from Six Industrialized Countries, p. 183-208, in: Blanchard, Olivier and Stanley Fisher (eds.), *NBER Macroeconomics Annual 1992*, MIT Press.

BEUC (2021), Digital Euro: BEUC response to the ECB's consultation, The European Consumer Organisation, January, 2021.

Bijlsma, Michiel, Carin van der Crujisen, Nicole Jonker and Jelmer Reijerink (2021), What triggers consumer adoption of CBDC? *Working Paper No. 709*, De Nederlandsche Bank, April 2021.

Bossu, Wouter, Masaru Itatani, Catalina Margulis, Arthur Rossi, Hans Weenink and Akihiro Yoshinaga (2020), Legal Aspects of Central Bank Digital Currency: Central Bank and Monetary Law Considerations, WP/20/254, International Monetary Fund, November 2020.

Brainard, Lael (2022), *Statement* before the Committee on Financial Services, U.S. House Representatives, May 26, 2022 (Vice Chair of the Board of Governors of the Federal Reserve System).

Cunliffe, Jon (2021), Do we need ‘public money’? Speech, 13 May 2021, Deputy Governor of the Bank of England.

Danmarks Nationalbank (2022), New types of digital money, Analysis No. 8, June 2022.

Deutsche Bundesbank (2017), The role of banks, non-banks and the central bank in the money creation process, *Monthly Report*, April 2017, pp. 13-33.

ECB (2020), Report on a digital euro, European Central Bank, October 2020.

ECB (2021), Eurosystem report on the public consultation on a digital euro, European Central Bank, April 2021.

ECB (2022), Study on the payment attitudes of consumers in the euro area (SPACE) – 2022, European Central Bank, December 2022.

ECB (2023), Progress on the investigation phase of a digital euro – fourth report, European Central Bank, June 2023.

European Commission (2022), The euro area, *Report, Flash Eurobarometer 512*, DG ECFIN, Fieldwork: October 2022, Publication: November 2022.

European Commission (2023), Proposal for a Regulation of the European Parliament and of the Council on the legal tender of euro banknotes and coins, Brussels, 28.6.2023, COM (2023) 364 final.

European Commission (2023a), Proposal for a Regulation of the European Parliament and of the Council on the establishment of the digital euro, Brussels, 28.6.2023, COM (2023) 369 final.

European Union (2016), PROTOCOL (No 4) on the Statute of the European System of Central Banks and of the European Central Bank, in: Consolidated version of the Treaty on European Union, OJEU, C202, 7.6.2016.

Federal Reserve System (2022), Money and Payments: The U.S. Dollar in the Age of Digital Transformation, *Research & Analysis*, Board of Governors of the Federal Reserve System, January 2022.

Financial Stability Board (2023), 2023 Bank Failures – Preliminary lessons learnt for resolution, October 2023.

Friedman, Milton and Anna Schwartz (1987), Has Government Any Role in Money? In: Anna Schwartz (ed.) (1987), *Money in Historical Perspective*, University of Chicago Press, p. 289-314.

Goodhart, C.A.E. (2017), The determination of the money supply: flexibility versus control, *The Manchester School*, Volume 85, Issue S1, pp. 35-56 (LSE Research Online, pp. 1-28).

Haldane, Andrew (2017), A Little More Conservation. A Little Less Action, *Speech*, Bank of England, 31 March 2017.

Jakab, Zoltan and Michael Kumhof (2015), Banks are not intermediaries of loanable funds – facts, theory and evidence, *Working Paper* No. 529, Bank of England, May 2015.

Kantar Public (2022), Study on New Digital Payment Methods, March 2022.

Knowles, John, Laura Austin and Lewis Ker (2023), Money creation in New Zealand, *Bulletin*, Vol. 86, No. 1, Reserve Bank of New Zealand.

Lastra, Rosa and Sara Dietz (2022), Communication in monetary policy, *Study - Monetary Dialogue Paper*, European Parliament, ECON committee, February 2022.

Mai, Heike (2021), The digital euro: Political ambitions and economic realities, *EU Monitor*, Deutsche Bank Research, July 12, 2021.

McLeay, Michael, Amar Radia and Ryland Thomas (2014), Money creation in the modern economy, *Quarterly Bulletin* 2014 Q1, Volume 54 No. 1, pp. 14-27, Bank of England, March 2014.

McLeay, Michael, Amar Radia and Ryland Thomas (2014a), Money in the modern economy: an introduction, *Quarterly Bulletin* 2014 Q1, Volume 54 No. 1, pp. 1-10, Bank of England, March 2014.

Mishkin, Frederic (2007), *The Economics of Money, Banking and Financial Markets*, 8<sup>th</sup> edition, Pearson.

Nagel, Joachim (2022), The shape of money – yesterday, today, and tomorrow, *Speech*, Deutsche Bundesbank, 26.09.2022.

Reserve Bank of New Zealand (2021), The Future of Money, *Issues Paper*, December 2021.

Schumpeter, Joseph (2013), *History of Economic Analysis*, Routledge, 11th.

Sigurd, Helge, Charlotta Zienau, Rodrigo Cipriano, and Jens Brink (2023), Effects of a digital euro on financial stability and consumer welfare, Copenhagen Economics & European Banking federation, December 2023.

Sveriges Riksbank (2021), E-krona pilot, Phase 3, *E-krona report*, April 2023.



Thornton, Henry (1802), *An Inquiry into the nature and effects of the paper credit of Great Britain*, Reprint 1939 (with an introduction by F.A Hayek), 1965.

U.S. Department of the Treasury (2022), *The Future of Money and Payments, Report*, September 2022.

Vuković, Vlastimir (2021), CBDC as a Solution for Billions of Unbanked People, *Discussion Paper*, No. 2, *Central Bank Money Research*, October 2021.