
Digital Euro as a platform and its private law implications*

Vincenzo Zeno-Zencovich

Abstract

The article analyses, in the light of the various preparatory documents of a ECB digital currency and of two recent proposals of regulation by the EU Commission what are the private law implications of such an innovation, especially in the field of the law of obligations, and the consequences of the transformation of central banks in digital platforms.

Summary

1. Introduction – 2. Digital euro as legal tender – 3. The implications on the law of obligations – 4. Digital euro and GDPR – 5. Regulatory limitations to the use of CBDCs – 6. Digital euro as a platform.

Keywords

e-money – platforms – digital payments – data protection – monetary sovereignty

1. Introduction

The process of creating digital currencies with legal tender presents all the traditional problems of money, in addition to those common to the dematerialization of socio-economic relationships and activities.

Although we have been talking about “Central Bank Digital Currencies” (CBDCs) for less than twenty years¹, it should be noted that this outcome is only a further stage in

* Su determinazione della direzione, ai sensi dell’art. 15 del Regolamento, il contributo non è stato sottoposto a referaggio.

This paper was presented at the ELSOBA (European Legal Strategies for payment systems in the Open Banking Age) final conference at Siena university in October 2022. On June 28,2023 the EU Commission presented two twin proposals for a Regulation on the “legal tender of euro banknotes and coins” (henceforth the Legal tender Regulation) and on the “establishment of the digital euro” (henceforth the Digital euro Regulation). Inasmuch as possible this text takes into account the abovementioned proposals which in some cases confirm the analysis provided in the original paper, in other cases go in a different direction.

¹ P.K. Ozili, *Central bank digital currency research around the World: a review of literature*, in *Journal of Money*

a process which began centuries ago of dematerialization of currency with the transition from metal to paper² and then to scriptural money which has been associated, for almost a century, with the progressive and general abandonment of the principle of the convertibility in gold of the currency issued by a State³.

These pages want to highlight some trajectories that characterize the process of creating CBDCs and in particular its private law aspects in the broad sense of the word, while being aware that these must be inserted in a highly regulated context, within which financial and geo-political policies and macroeconomics play a prominent role⁴.

The points that will be addressed are:

- a) CBDCs as legal tender.
- b) The implications on the law of obligations.
- c) Digital euro and the GDPR.
- d) Regulatory limitations on the use of CBDCs.
- e) The digital euro as a platform.

It should be noted that these reflections are limited to the process of creating the

Laundering Control, 2022. See also the rich section on the [Bank for International Settlements](#); and G. Soderberg, *Behind the Scenes of Central Bank Digital Currency: Emerging Trends, Insights, and Policy Lessons*, 2022.

² It is worthwhile remembering – also in relation to the ongoing process in the PRC – what Marco Polo describes in his *Travels* (at the end of the 13th century): «The Emperor's Mint then is in this same City of Cambaluc (*now Peking*), and the way it is wrought is such that you might say he hath the Secret of Alchemy in perfection, and you would be right! For he makes his money after this fashion. (...) All these pieces of paper are [issued with as much solemnity and authority as if they were of pure gold or silver; and on every piece a variety of officials, whose duty it is, have to write their names, and to put their seals. And when all is prepared duly, the chief officer deputed by the Kaan smears the Seal entrusted to him with vermilion, and impresses it on the paper, so that the form of the Seal remains printed upon it in red; the Money is then authentic. Anyone forging it would be punished with death]. And the Kaan causes every year to be made such a vast quantity of this money, which costs him nothing, that it must equal in amount all the treasure in the world. With these pieces of paper, made as I have described, he causes all payments on his own account to be made; and he makes them to pass current universally over all his kingdoms and provinces and territories, and whithersoever his power and sovereignty extends. And nobody, however important he may think himself, dares to refuse them on pain of death». And the circumstance is confirmed a few years later by Ibn Battuta in his *Travels*: «Transactions are carried on with paper: they do not buy or sell either with the dirhem or the dinar; but should anyone get any of these into his possession, he would melt them down into pieces. As to the paper, every piece of it is in extent about the measure of the palm of the hand and is stamped with the King's stamp. Five and twenty of such notes are termed a 'shat'; which means the same thing as a dinar with us. But when these papers happen to be torn, or worn out by use, they are carried to their house, which is just like the mint with us, and new ones are given in place of them by the King. This is done without interest; the profit arising from their circulation accruing to the King. When anyone goes to the market with a dinar or a dirhem in his hand, no one will take it until it has been changed for these notes».

³ S. Grünewald - C. Zellweger-Gutknecht - B. Geva, *Digital Euro and ECB Powers*, in *Common Market Law Review*, 2021, 1035 highlight «the evolution of the concept of the banknote, of which the transition from paper to digital merely constitutes the latest in a sequence of evolutionary steps». See also S. Grünewald - C. Zellweger-Gutknecht – B. Geva, *Digital euro, monetary objects and price stability—A legal analysis*, in *J. Financial Regulation*, 284, 2021; S. Grünewald - C. Zellweger-Gutknecht – B. Geva, *The e-banknote as a 'banknote': A monetary law interpreted*, in *Oxford J. Legal Studies*, 2021, 1119, and R. De Bonis - M.I. Vangelisti, *Moneta*, Bologna, 2019.

⁴ C. Herrman - C. Dornhacher, *International and European Monetary Law. An Introduction*, Berlin, 2017, 14 who point out the erosion of “monetary sovereignty” «due to limitations caused by globalization, information technology and economic and financial developments in the past decades».

digital euro, promoted by the European Central Bank⁵ and to the two ensuing proposals issued by the EU Commission which are mutually connected: A Regulation on the establishment of the digital euro; and a Regulation on the legal tender of euro banknotes and coins. Therefore, although there are numerous parallel initiatives underway in other countries – in particular in the People’s Republic of China⁶, in the United States of America⁷ and in European countries not belonging to the EU and the Eurosystem⁸ – in this paper the problems of a digital currency will be referred to the fairly homogeneous legal framework in continental Europe.

Furthermore, it is necessary to clarify that the very complex issues relating to the powers of the ECB to issue the digital euro will not be considered. Questions whose solution lies in the Lisbon Treaties, as they will be interpreted by the Council which, ultimately, will be left with the decision whether, and with what modalities, this currency can be issued⁹. A decision that cannot fail to have repercussions also on its private law dimension.

Finally, again by way of premise, it should be specified that this paper shall not consider the phenomena of issuance by private subjects of digital entities whose aim was that of replacing the State currencies (the so-called crypto-currencies), and which – to any critical observer – had immediately revealed their purely speculative nature, many of which have been subject to fraud and embezzlement.

2. Digital Euro as Legal Tender

An Italian lawyer, grown up under the light of art. 1277 of the Civil Code¹⁰, links the currency issued by a central bank to the notion of legal tender with the double function of means of determining the value of something, and of means of payment. On the one hand, prices, counter-prestations, resources and relationships are expressed in a current currency; and on the other hand, any pecuniary obligation, whether of a private or of a public nature, must be fulfilled - subject to express exceptions - through

⁵ Over the last years the ECB has issued several Reports starting with an initial scepticism and subsequently moving forward very rapidly. See e.g., the Report Progress on the investigation phase of a digital euro, 29.9.2022; and the Paper Central bank digital currency and bank intermediation, May 2022. The main policy lines have been made explicit in numerous speeches by the member of the ECB’s governing board.

⁶ E. Journey Fullerton - P.J. Morgan, *The People’s Republic of China Digital Yuan: Its Environment, Design, and Implications*, in Asian Development Bank Institute Discussion Paper no. 1306, February 2022.

⁷ Report of the Federal Reserve Money and Payments: The U.S. Dollar in the Age of Digital Transformation, January 2022.

⁸ For the UK see the Bank of England publications Central Bank Digital Currency Opportunities, challenges and design, March 2020; M. Kumhof - C. Noone, *Central bank digital currencies — design principles and balance sheet implications*, in Bank of England Working Paper no. 725, May 2018; O. Ward - S. Rochemont, *Understanding Central Bank Digital Currencies (CBDC)*, March 2019. For Sweden see the Sveriges Riksbank Report E-krona pilot Phase 2, April 2022.

⁹ A. Dorsé - X. Barrull, *Special-purpose Central Bank Digital Currencies: A proposal*, available at SSRN (May 16, 2022).

¹⁰ «Pecuniary obligations are discharged through a payment in the currency which has legal tender in the State at the moment of the payment and at nominal amount».

a currency which is legal tender.

However, when one observes the various systems of the Eurozone¹¹, one realizes that, at least formally, this framework is not common, *i.e.* not all of the following three elements are always recognized:

- a) The obligation to receive a payment in currency having legal tender in the legal system that governs the obligation, unless the parties have previously agreed on different methods.
- b) The nominalistic principle, according to which the payment due corresponds to the face value indicated by the currency – in coins/banknotes – having legal tender.
- c) The discharging nature of the exact payment in legal tender currency with the consequence of extinguishing the obligation¹².

Although it could be assumed that the lack of a common notion of legal tender purely theoretically could have practical effects¹³, to the extent that in the Eurozone all three

¹¹ The issue of the *lex monetae* and how it should be determined is analysed by M. Perassi, *Il diritto comunitario dei pagamenti*, in G. Carriero - V. Santoro, *Il diritto del sistema dei pagamenti*, Milan, 2005, 141.

¹² The necessary consequence is that the Legal tender Regulation must harmonize the various European rules by stating (art. 4) that:

- «1. 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.
2. In accordance with the mandatory acceptance of cash, the payee shall not refuse euro banknotes and/or coins tendered in payment to comply with that obligation.
3. In accordance with the acceptance at full face value of cash, the monetary value of euro banknotes and/or coins tendered in settlement of a debt shall be equal to the amount in euro indicated on the banknotes and/or coins. Surcharges on the settlement of debt with euro banknotes and coins shall be prohibited.

4. In accordance with the power to discharge from a payment obligation, a payer shall be able to discharge from a payment obligation by tendering euro banknotes and coins to the payee».

And the Digital euro Regulation *par consequens* states (art. 7) that:

- «1. The digital euro shall have legal tender status.
2. The legal tender status of the digital euro shall entail its mandatory acceptance, at full face value, with the power to discharge from a payment obligation.
3. In accordance with the mandatory acceptance of the digital euro, the payee shall not refuse digital euro tendered in payment to comply with that obligation.
4. In accordance with the acceptance at full face value of the digital euro, the monetary value of digital euro tendered in payment of a debt shall be equal to the value of the monetary debt. Surcharges on the payment of debt with the digital euro shall be prohibited.

5. In accordance with the power of the digital euro to discharge from a payment obligation, a payer shall be able to discharge himself from a payment obligation by tendering digital euro to the payee».

The provision follows the indications of the [Report by the Euro Legal Tender Group](#), (ELTEG), 2009 on “definition, scope and effects of legal tender of euro banknotes and coins”: «Looking for a common definition of legal tender of euro cash, the Group expressed unanimous support for a definition relying on three main criteria, seen as cumulative, in cases where a payment obligation exists:

- a) Mandatory acceptance of euro cash; a means of payment with legal tender status cannot be refused by the creditor of a payment obligation, unless the parties have agreed on other means of payment.
 - b) Acceptance at full face value; the monetary value of a means of payment with legal tender status is equal to the amount indicated on the means of payment.
 - c) Power to discharge from payment obligations; a debtor can discharge himself from a payment obligation by transferring a means of payment with legal tender status to the creditor».
- One should however remember what has been aptly pointed out by A. Di Majo, *Il diritto comunitario dei pagamenti pecuniari*, in *Annuario del contratto*, 2010: the discharging effects of payments in a currency having legal tender does not aim so much at protecting the parties of the transaction, but to reassert the sovereignty of the State over the money it issues.

¹³ H. Siekmann, *Legal tender in the euro area*, in IMFS Working Paper Series, Frankfurt, 2018 «In the euro area the *jus monetae* has been completely transferred to the EU with the result that the concerned

of these elements are not always found, the question has a great significance with regard to the proposal of a digital euro.

In the first place, while metal coins or banknotes are characterized by materiality and their delivery constitutes a juridically decisive act, with a digital - and therefore immaterial - currency, in the first place an appropriate technological instrumentation is needed to give the order, to transmit it, to receive it, failing which the currency is useless.

Secondly, there is a common principle in digital systems, namely that what is not regulated is free. Therefore, if the digital euro is to have all three of the characteristics indicated, it is necessary that they are expressly - and not indirectly - provided for.

On the other hand, systems with a Roman law tradition collide, always in the digital ecosystem, with the dilemma of whether we are faced with proprietary legal forms, characterized by the materiality of the asset, or, instead, with credit relationships, characterized by immateriality¹⁴. The difference is clear when one thinks of the instruments of criminal protection: the unlawful appropriation of banknotes constitutes the crime of theft or those of embezzlement or robbery. The “misappropriation” or “diversion” of digital euros by someone who is not entitled entails entirely different - and special - provisions in which the material element of the crime is of a different nature.

In addition, it should be noted that with the digital euro a further process of abstraction takes place: When the gold standard ruled, banknotes represented a credit towards the central bank. Once the gold standard has been abolished, banknotes maintain the nature of bearer instrument with a limited claim against the issuer, such as the replacement of deteriorated banknotes or with newly issued ones or with a new currency (as one has seen in the transition from national currencies to the euro). With the digital euro, the “purchase” of digital euros obliges the issuing institution to make them available (first abstraction) in order to then be able to use them as payment instruments recognized by the same institution (second abstraction).

All this leads to the construction of a system in which digital money, rather than moving between reality (banknotes) and abstraction (credit), is born, lives and ends as a credit situation¹⁵.

But who is the “debtor”? The issuing institution, or the individual credit institutions authorized by the central bank to issue the digital currency?¹⁶

To this dilemma we must add further problematic aspects.

Member States lost their power to define legal tender, Art. 3.1 (c) TFEU».

¹⁴ «The fact that money, with the end of metallism, is an abstract ‘ideal unit’, completely dematerialised and unconvertible, entails that it is not a commodity but rather a ‘function’, which serves as a medium of exchange and as a measure of value». N. Vardi, *The Integration of European Financial Markets*, London-New York, 2011, 3.

¹⁵ A. Di Majo, *Il diritto comunitario dei pagamenti pecuniari*, cit., pointed out in his commentary to directive 2004/64 that payments had lost any “real” (in a civilian sense) nature and that payments have become services, and therefore are the object of a prestation and not of a delivery (of banknotes or coins).

¹⁶ S. Grünwald - C. Zellweger-Gutknecht - B. Geva, *Digital Euro and ECB Powers*, cit., ask themselves if the digital euro should be considered a banknote (and therefore within the exclusive competence of the ECB) or a coin (and therefore within the competence of the Eurozone central banks. The Digital euro Regulation opts for the first choice.

When the digital euro is in someone's e-wallet, a unique and certified relationship is created between that amount and the holder. That value - marked with an alphanumeric sequence expressed in univocal binary impulses - is and can only be in the possession of a certain subject, who can - and only he can - decide its destination: to continue to remain in the wallet, to be transferred to that of another person, to flow into a bank account, to be converted into cash.

This situation highlights the not always clear boundary - in a civil law environment - between property rights and credits. The "tokenization" of the digital euro¹⁷ increases the uncertainty of the borders in the event of an off-line payment, *i.e.* without the use of the network that connects the holder's e-wallet to the central register of the issuer (or one of its intermediaries) and the latter to the e-wallet of the recipient¹⁸. Digital currency would almost be reified with an unintermediated passage from the payer to the payee.

On the other hand, in the hypothesis in which the issuing institution authorizes a credit institution to issue a certain amount of digital euros, what is the difference between these and the consolidated figure of "scriptural money"? It should be noted that with regard to the latter, the events concerning the credit an individual or an entity have towards the credit institution are regulated by a private law contract which establishes terms and conditions for deposits, withdrawal, overdrafts etc. But with regards to the digital euro, this exists and can only exist through a *fiat* of the issuing institution to which events of digital forgery or embezzlement could be referred.

Further profiles of ambiguity emerge in the case of loss of the e-wallet, which will usually be incorporated into a mobile phone necessarily equipped with functions (password, biometric identification, etc.) that make it usable only by the owner. Should one apply the traditional procedures used for the cancellation of material securities which have gone lost or destroyed?

3. The Implications on the Law of Obligations

With the digital euro, what changes in the law of pecuniary obligations? The attempt to answer is here confined to Italian law. It is, in fact, an area - that of pecuniary obligations - which has historically evolved under the influence of strong doctrinal writings, of very luxuriant negotiating practices, of a jurisprudential harvest that has adapted to the infinite variety of cases of conflict. To all this one must add the not infrequent legislative interventions that have touched this or that aspect.

It would therefore be impossible - here - to identify a trajectory in the French¹⁹ or

¹⁷ «The discussion thus naturally centres around a digital euro in the form of immaterial tokens recorded on the liability side of central banks' balance sheets and circulating in the economy through the transfer of these tokens (*i.e.* a token-based digital euro)». S. Grünwald - C. Zellweger-Gutknecht - B. Geva, *Digital Euro and ECB Powers*, cit.

¹⁸ The Digital euro Regulation expressly provides that «The digital euro shall be available for both online and offline digital euro payment transactions».

¹⁹ T. Le Gueut, *Le paiement de l'obligation monétaire en droit privé*, Librairie générale de droit et de jurisprudence, 2016.

German²⁰ legal systems where the issue of pecuniary obligations has always been the subject of in-depth and enlightening academic treatises. Clearly if and when the twin Regulations on legal tender and digital euro will have been approved there will be a convergence, but for a long-time path-dependency will govern the field²¹.

a) With reference to the three characteristics of the currency indicated above, the first and preliminary question concerns the obligation to receive a payment in legal tender currency²².

As has been said, the functionality of the digital euro depends on the availability of a technological device to credit the currency, a transmission network, and a device to receive it.

If these elements do not exist, the operation becomes very problematic: it cannot be transmitted, or the beneficiary is not able to verify that it has actually been carried out. And the difficulties exist even when the payment is made offline because the two devices (of the payer and of the payee) must be connected. A situation similar to that of the millionaire lost in the desert who would be willing to pay anything for a glass of water, but his unlimited credit card is useless.

Therefore, for the digital euro - unlike the physical currency - it would not seem possible to impose the obligation to accept it as a payment solution²³.

And yet the conclusion opens to an infinite number of variables drawn from the widespread use of IT payment instruments.

i. The obligation to accept a digital payment - instead of physical cash – may be imposed by contractual terms and conditions, *e.g.* already in the case of online purchases of goods and services, but also in many physical outlets that do not have a cash service. Or it can be imposed through legislation, such as the numerous interventions aimed at “limiting the use of cash”. Sometimes, both forms of payment are possible, sometimes, above a certain amount, only the electronic one is possible. The Digital euro Regulation proposes rather broad exceptions (at art. 9) for small enterprises and non-profit entities (provided they do not accept other forms of digital payment)

²⁰ P.W. Heermann, *Geld und Geldgeschäfte*, Hamburg, 2003.

²¹ The ECJ has repeatedly stated (see *ex multis* cases ECJ, C-489/15, *CTL Logistics* (2017) and ECJ, C-484/20, *Vodafone Kabel Deutschland* (2022)) that when a certain matter is regulated by EU law there is no place – unless expressly allowed - for ordinary domestic law, in particular contract law set out in civil codes. One can expect that at a certain point the Court will take this position with regard to digital euros, but it will take time.

²² To understand the position taken by the Digital euro Regulation one should bear in mind the conclusion of the Report by the Euro Legal Tender Group, (ELTEG), 2009: «A clear majority of Group members were in favour of the principle of general acceptance of cash in B to C relationship, the refusal being the exception and always based on reasons related to the “good faith” principle. Members from four Member States however argued that contractual freedom can limit legal tender provisions (IE, DE, FI, NL)». Report by the Euro Legal Tender Group, (ELTEG), 2009, 10: «For a clear majority of members, high denomination banknotes should in principle be accepted. They can only be refused based on the “good faith” principle and/or specific national rules (*e.g.*, “*obligation de faire l'appoint*” in FR). For 4 members, the concept of legal tender does not affect the possibility –based on contractual freedom- of the parties agreeing that payments cannot be made with high denomination banknotes. In any event, the banknotes might also be rejected on the ‘good faith’ principle».

²³ Unless, obviously, the payee already and normally uses other forms of digital payment: see the Digital euro Regulation, art. 9.

ii. Conversely, the obligation to make a dematerialized payment may result either from agreements or from regulatory provisions. Transposing this rich experience with reference to the digital euro, it is easy to imagine cases in which certain subjects are required to accept payment with this currency (typically in all cases in which they already accept or are required to accept electronic payments). And cases in which it is possible to pay only with digital euros or with another electronic instrument.

iii. Basically, relationships between private individuals that are not regular, or payments made by professionals to non-professionals (the typical case is that of payment in cash to the pensioner at the post office), would remain outside this framework²⁴.

b) The other characteristic of money having legal tender is that the payment through it extinguishes *ipso iure* the monetary obligation, at least for the amount corresponding to the payment.

This effect therefore should also occur when the payment is made with digital euros, on the basis of the principle of equivalence of the currency, be it physical or digital. However, the fact that a payment in a digital form requires the correct functioning of technological equipment -in transmission of the order, in reception of the sum - which are beyond the control of the parties, must be considered²⁵. The hypotheses of malfunctioning are multiple and obvious: the payment of an amount that the debtor does not hold in his e-wallet; the payment of an amount higher than the one ordered; failure to transmit the order; the non-crediting of the payment, or the crediting of a lower amount²⁶.

While with traditional cash all these unforeseen events - and the related risks - are borne by the parties, it seems reasonable to believe that - in view of the indispensable trust that a currency with legal tender must ensure - these technological risks weigh on the issuer, *i.e.* on the central bank (or on the subject indicated by the latter as an intermediary)²⁷.

And just as with reference to cash, the risk of theft or robbery weighs on the bearer, in the case of digital currency – excluding the (by now typified) cases of self-responsibility of the holder – the risk of theft/misappropriation of amounts should weigh

²⁴ Art. 9 of the Digital euro Regulation foresees an exception when «the payee is a natural person acting in the course of a purely personal or household activity».

²⁵ According to art. 30 of the Digital euro Regulation «Final settlement of online digital euro payment transactions shall occur at the moment of recording the transfer of the digital euros concerned from the payer to the payee in the digital euro settlement infrastructure approved by the Eurosystem». Therefore, a black-out of the infrastructure does not allow the settlement. As already pointed out by A. Di Majo, *Il diritto comunitario dei pagamenti pecuniari*, cit., when a payment is considered as a service that must be rendered this entails obligations not only on those who formally are parties of the transaction but also to those who benefit from its performance.

²⁶ G. Olivieri, *La rilevanza del tempo nei sistemi di pagamento*, in BBTC, 2000, 161.

²⁷ Recital 64 of the Digital euro Regulation «The settlement of online digital euro payment transactions should be performed in the digital euro settlement infrastructure adopted by the Eurosystem. Online digital euro payment transactions should be settled in a matter of seconds as specified under the functional and technical requirements adopted by the European Central Bank. Final settlement of online digital euro payment transactions should be achieved at the moment of recording the digital euros concerned of the payer and the payee in the digital euro settlement infrastructure approved by the European Central Bank, irrespective of whether digital euros are recorded as holding balances or units of value, or of the technology used».

on the issuer (or on his intermediary). The typical hypothesis - of which we have seen excellent and easily predictable examples with reference to the so-called crypto-currencies - is that of intrusion into the computer network with the transfer of sums in favour of subjects or entities other than the entitled person²⁸.

Likewise, one could posit that the issuer (or its intermediary) must bear the risk of malfunctioning of the system which makes payment impossible, with damage for the user (the failed last-minute purchase of a transport ticket; impossibility to participate in an online auction; failure to meet a tax deadline, etc.)

Almost fifty years of practical experience has taught us how to deal with and solve these cases in the world of traditional electronic payments²⁹.

But in such cases an entirely private law relationship is created between the payer and his credit institution; between the latter and the payee's credit institution; between the latter and the payee. Relationships which are governed by general terms and conditions and sometimes by consumer law.

The framework has not changed much - if not for an increased regulatory dimension - in cases where a third party is added to the relationship, such as the issuer of a credit or debit card.

But in the case of a CBDC it can be doubted that the relationship between the issuer (central bank) or its intermediary and the entitled person is governed by private law, and rather should not be qualified entirely under public law³⁰, as in the cases (which make the joy of numismatics) of banknotes printed by the central bank containing errors that prevent their use³¹.

There is further point that has to be made: the role of banks in enabling the purchase, use and conversion of digital euros is entirely technical. They are not providing

²⁸ The cryptocurrencies fans maintain that CBDCs should use the Distributed Ledger Technology (DLT) which is notorious for been used in the Bitcoin system. Quite aptly F. Panetta in his speech, *Demystifying wholesale central bank digital currency*, 26.9.2023 notes that «central bank money has been available in digital form for wholesale transactions between banks for decades. This misconception is fuelled by the commonly held assumption that wholesale CBDC needs to be operated using DLT. But wholesale CBDC is not synonymous with DLT, as it can be based on any digital technology». Adding this important comment concerning monetary sovereignty: «Importantly, the governance of major DLT technologies and networks is dominated by actors who are either unknown or based outside Europe, which raises concerns about strategic autonomy». In the same direction see J. Cullen, *Economically inefficient and legally untenable: constitutional limitations on the introduction of central bank digital currencies*, in *Journal of Banking Regulation*, 2022, 39 «By offering a standardised and non-proprietary interoperable payments infrastructure, this might also ensure that large tech firms could not come to dominate payments markets, in effect avoiding the replacement of one set of dominant institutions by another».

²⁹ And one should not forget the issues of clearing houses and of netting: see M. Perassi, *Il diritto comunitario dei pagamenti*, in G. Carriero - V. Santoro, *Il diritto del sistema dei pagamenti*, cit., 141; and N. Vardi, *The Integration of European Financial Markets*, cit., 62 ss. For the situation at the dawn of digital payments see V. Zeno-Zencovich, *Clearing houses informatizzate e irrevocabilità del pagamento*, in *Diritto informazione e informatica*, 1987, 555.

³⁰ «No account or other contractual relationship would be established between the digital euro user and the European Central Bank or the national central banks». (Digital euro regulation, recital 9). The Digital euro Regulation aims at introducing (at art. 27) a dispute resolution mechanism for payment service providers and e-money users in the cases of technical and fraud controversies.

³¹ One should recall the public law approach to money set out over a century ago by G. F. Knapp, *Staatliche Theorie des Geldes*, Berlin, 1905.

credit to the user, nor are they depositaries of the digital currency. They are simply technological enablers which record the various operations. Therefore, in the case of insolvency of the credit institution the digital euros should remain unscathed.³² And it remains to be seen who should be responsible for errors or frauds in some way connected to the third parties providing technological services.

In conclusion, since it does not seem that private law can adequately assist the parties who have suffered damage in the use of a CBDC, its introduction must be accompanied by the necessary public regulatory interventions, which inevitably influence the law of pecuniary obligations and their exact fulfilment.

c) Finally, with regard to the digital euro, the issue of bearing interest, considered immanent in pecuniary obligations, should be considered.

If we consider cash and digital currency equivalent, the consequence is that the latter, once placed in the possession of the holder, is not interest-bearing, as happens if one has banknotes in one's wallet. Indeed, the natural fruitfulness of money presupposes that there must be a credit/debit relation between two parties and whoever disposes of the sum can make a profitable use of it. A situation quite different from that of reserve deposits of commercial banks with their central bank.

But with digital currency this is not possible, on the one hand because it is in the exclusive availability of a subject, and therefore no one else can use it. And on the other hand, the issuing institution is precisely the institutional issuer of the currency, not a subject who makes its own use of it³³.

In order for digital currency to produce interest, it is therefore necessary that it be deposited with an authorized intermediary and made available to the latter. The situation is clear when one considers the difference between the case in which a person deposits a certain amount into his bank account; and the case in which he deposits the same amount, in banknotes, in his safety deposit box.

4. Digital Euro and the GDPR

If the aspects that have been presented so far fit into the well-established province of pecuniary obligations, there are others that instead depend on regulatory factors, and therefore are variable and transitory in relation to preeminent legislative policy choices.

The first is that of the digital euro's relationship with the instable galaxy of personal data protection, which in the last years has become a pillar - if not even an obsession - of European Union law.

The intersection is due to the fact that a digital currency must necessarily be connected to an identified subject who is entitled to it and is authorized to dispose of it³⁴. And

³² And in effect the Digital euro Regulation states that «the insolvency of payment service providers would not affect digital euro users» (recital 9).

³³ Art. 16, para. 8 of the Digital euro Regulation: «the digital euro shall not bear interest».

³⁴ R. Lattanzi, *Sistemi di pagamento e protezione dei dati personali. Prime note*, in M. Mancini – M. Perassi (eds.), *Il nuovo quadro normativo comunitario dei servizi di pagamento. Prime Riflessioni*, Quaderni di Ricerca

this makes it possible to trace its circulation backwards and therefore the reasons/occasions of its use. In contrast, cash is anonymous, and its disintermediated circulation much more difficult to trace, in space and time.

This characteristic of cash constitutes one of its attractive and preferential elements compared to other payment instruments, including the future digital euro. Nor is it a question that can be resolved with a simple legislative *fiat*³⁵. We have always known that money has its foundation in its social use, and if it is not accepted, society will move towards alternative instruments.

To try to limit the competitive disadvantage compared to cash, all the preparatory documents for the digital euro state that it will be “anonymous”, like cash.

Now, it is necessary to clarify once and for all and in a *tranchant* way: in the digital universe there are no “anonymous” data. With greater or lesser deployment of resources it is possible, by cross-referencing allegedly “anonymous” data from various databases, to identify with certainty or reasonable approximation the subject to which they refer. Already the fact that a digital payment must start from a specific electronic device, through a network, to reach another electronic device or an account, also electronic, means that there are at least three databases that contain elements - time, place, nature of the impulse – which make the promise of “anonymity” purely declamatory. And this happens also, albeit in a subsequent time sequence, in the case of off-line transactions.

But there is a further element, this time regulatory, which makes the announced “anonymity” of the digital euro scarcely reliable³⁶.

The mammoth (and ever-expanding) General Data Protection Regulation (679/16) (the so-called GDPR) repeatedly provides (see *e.g.* articles 6 and 23) that numerous principles do not apply in the case of the exercise of public functions or the pursuit of the financial interests of the Union or of a Member State. And both the first Directive on payment systems (art. 79) and the PSD2 (art. 94³⁷) provide for the processing of personal data pursuant to the law to prevent and combat cases of fraud. It is therefore foreseeable that the veil of the declaimed anonymisation of transactions in digital euros will, at law and in fact, be pierced by a number of exceptions making it

Giuridica della Banca d'Italia n.63, December 2008, 161.

³⁵ See recital 16 of the Digital euro Regulation: «The mandatory acceptance of payments in digital euro as one of the main conditions of the legal tender status ensures that people and businesses benefit from a wide acceptance and have a real choice to pay with central bank money in a digital way and in a uniform manner throughout the euro area».

³⁶ V. Santoro, *Considerazioni sulla moneta*, in *Diritto della Banca e dei Mercati Finanziari*, 2022, 185 points out that «anonymity is a notion quite different from that of privacy». And the ECB, in the Monthly Bulletin Report, 29.9.2002, states «Full anonymity is not considered a viable option from a public policy perspective».

³⁷ «Member States shall permit processing of personal data by payment systems and payment service providers when necessary to safeguard the prevention, investigation and detection of payment fraud. The provision of information to individuals about the processing of personal data and the processing of such personal data and any other processing of personal data for the purposes of this Directive shall be carried out in accordance with Directive 95/46/EC, the national rules which transpose Directive 95/46/EC and with Regulation (EC) No 45/2001».

transparent³⁸.

However, this conclusion should not come as a surprise. In the digital universe of every event there remains a trace and therefore it can be reconstructed. This already occurs eminently for payment systems which, due to their importance, require identification, certainties, durable supports and high security networks; and to all this it should be added that since a multiplicity of legal effects are connected to each payment - not only in the field of private law, but also and above all in that of public/administrative/tax law - the memorization and traceability of all these factors constitutes a *sine qua non* condition. The digital euro, therefore, in this respect, does not differ from the other common forms of electronic payment to which we have long been accustomed, without the transparency of the transactions having hindered their diffusion and prevalence³⁹.

If anything, the operation that - adopting a fashionable expression - could be defined as “privacy-washing” has the function of reassuring the public of an equivalence that in reality does not exist: in the “analogue” world, payments by cash present some grey areas, which are dissolved in the digital one.

With these lenses one can read with a certain scepticism Chapter VIII of the Digital euro Regulation devoted to “Privacy and data protection” and which includes articles from 34 to 36 and whose aim is to pass muster with the EDPS⁴⁰ and eventually the EUCJ.

³⁸ In the first place there is a preliminary need to verify and match the identity of digital euro holders. See recital 25 of the Digital euro Regulation: «For the purpose of properly enforcing any holding limits on the use of the digital euro decided upon by the European Central Bank, when onboarding digital euro users, or during ex-post checks where appropriate, payment service providers in charge of distributing the digital euro should verify whether their prospective or existing customer already has digital euro payment accounts». And quite naturally, art. 32 of the Digital euro Regulation introduces a «general fraud detection and prevention mechanism». Although its para. 4 states that the measures «shall not be able to directly identify the digital euro users on the basis of the information provided to the fraud detection and prevention mechanism», it is clear that once a fraud is suspected identification will subsequently follow. The ECB documents cautiously place themselves on the line of “data minimization” (art. 5, para. 1, letter c), GDPR): «As approved by the Governing Council, the Eurosystem is committed to provide for highest levels of privacy within the regulatory framework. The Eurosystem has no interest in exploiting individual payment data for any purpose. This stands in contrast to the monetisation of individual payment data by private companies. The availability of data visible to the Eurosystem will be limited to only that what is necessary to perform its tasks or is required by regulation. To this end, the digital euro solution shall be designed in a way that aims to minimise the Eurosystem’s involvement in the processing of users’ data».

³⁹ A research by the Bank of Korea on a sample of 3500 Korean citizens points out that there would be a preference towards CBDC – in respect of other forms of digital payment – if a higher level of privacy were ensured for the purchase of sensitive goods and services such as mental health-care or adult products but «in the situation of purchasing privacy-insensitive products (e.g. food, office supplies), we find negligible treatment effects in both offline and online purchasing situations». S. Choi et al., *Central Bank Digital Currency and Privacy: A Randomized Survey Experiment*, 2022, 4.

⁴⁰ The EDPS in Press and Publication about “Tecnosar” has already expressed himself in these terms on the risks presented by CBDCs: «Concentration of data in the hands of central banks could lead to increased privacy risks for citizens: if payment data of all citizens were concentrated in the databases of a central bank, it would generate incentives for cyberattacks and a high systemic risk of individual or generalised surveillance in case of data breaches or, more in general, of unlawful access.

- Wrong design choices might worsen data protection issues in digital payments: payment data already reveals very sensitive aspects of a person. Wrong design choices in the underlying technological infrastructure might exacerbate the privacy and data protection issues that already exists in the digital payment landscape. For example, transactional data could be unlawfully used for credit evaluation and

5. Regulatory Limits on the Use of CBDCs

Another normatively variable factor is given by the limits that one can expect will be imposed on the use of the digital euro. In the various preparatory documents, maximum amounts are mentioned between €3,000.00 and €5,000.00⁴¹. Above these ceilings, the surplus would be transferred automatically to the holder's bank account⁴². Therefore, the possibility - worrying in terms of monetary supervision by the central bank - of hoarding huge resources in the form of digital euros must be excluded⁴³. And at the same time, it must be emphasized that this limit cannot be justified by purposes of contrasting tax evasion or money laundering. In fact - as pointed out in the previous paragraph - digital payments, unlike those through banknotes and coins, are always traceable, especially when, due to their amount and the circumstances in which they are made, they fall under the attentive control of automatic monitoring programs.

In any case, the immaterial and technological nature of digital money requires that - unlike cash - there is, upstream, a private law contract with a credit institution. The provision of digital euros will therefore be a new service offered to its customers⁴⁴, who in some cases - typically commercial establishments - will be required to use it

cross-selling initiatives.

- Lack of security might turn into severe lack of trust from users: security concerns in the CBDC infrastructure, whose security requirements and expectations are high, may turn into a significant loss of trust from users» (EDPS, Tech Dispatch, 1/2023, 29.3.2023).

⁴¹ P. Wierds - H. Boven, *Central bank digital currency – Objectives, preconditions and design choices*, De Nederlandsche Bank Occasional Studies, 2020, 36 ss.

The Digital euro Regulation (art. 16) leaves it to the ECB to establish the «limits to the use of the digital euro as a store of value».

⁴² The so-called “waterfall functionality” described in recital 36 of the Digital euro Regulation which follows the Report Progress on the investigation phase of a digital euro, 29.9.2022: «Quantitative limits on digital euro holdings of individual users could limit individual take-up and the speed at which bank deposits are converted into digital euro». Additional functionalities could avoid negative effects of holding limits on user experience. One such tool could be the “waterfall” functionality, under which funds in excess of the digital euro holding limit would be transferred automatically to a linked commercial bank account».

⁴³ «The issuance of a digital euro could have the (unintended) side effect of creating competition with commercial bank deposits, as households and companies may consider the digital euro an alternative to deposits rather than to cash. Faced with the risk of outflowing retail deposits, commercial banks would encounter higher funding costs—either by offering a better value proposition to their depositors or by turning to more expensive (and potentially less stable) wholesale funding markets. Moreover, they would be obliged to adapt their business models to the ‘new reality’ of a diminished deposit base, with still uncertain effects on the economy at large. Arguably, however, the greatest risk to financial stability stems from the fact that a digital euro would facilitate a flight from commercial bank deposits to the safety of central bank money in a distressed market environment (‘digital runs’). S. Grünwald - C. Zellweger-Gutknecht - B. Geva, *Digital Euro and ECB Powers*, cit. This concern underlies the whole ECB Paper “*Central bank digital currency and bank intermediation*”. A concern which is common to the Federal Reserve: «Central bank liquidity may be insufficient to stave off large outflows of commercial bank deposits into CBDC in the event of financial panic». These indications are followed by recital 32 of the Digital euro Regulation states that «An unrestricted use of digital euro as a store of value could endanger financial stability in the euro area, with adverse effects on credit provision to the economy by credit institutions».

⁴⁴ T. Ahnert *et al.*, *The economics of central bank digital currency*, in European Central Bank Working Paper, August 2022.

by virtue of the legal tender principle of the digital euro. The difference compared to common debit/credit cards is obvious: with reference to the latter, there is an intermediary who, in exchange for a fee, assures the cardholder the possibility to pay almost everywhere, immediately, without having to carry cash (or various types of currencies). And to the payee the solvency of the debtor and direct credit procedures on his own account.

The digital euro therefore is clearly distinguishable from the rather unsatisfactory experience of e-money, with which an attempt was made to create alternative payment circuits to debit/credit cards⁴⁵. With e-money, the subject paid or withdrew an amount and received an equivalent credit to spend within certain circuits that accepted it. To the contrary digital euro is not a credit towards a private entity; there is no conversion of legal tender into a credit that can be spent only with certain subjects belonging to a circuit; it is not “refundable”⁴⁶. But above all it cannot have a cost. In fact, if a fee had to be paid to acquire digital euros (To whom? To the issuing institution?) not only from an economic-social point of view the endeavour would die even before being born, but above all it would challenge, at its root, the nominalistic principle: *Mark gleich Mark*. One euro – physical or digital – is worth one euro, always material or digital⁴⁷. What may have a cost - but it is foreseeable that it will be included in that of the connected current account⁴⁸ - is the “digital cash” service, which however is a relationship external to the supply and availability of digital euros.

This conclusion appears to be consistent with the “ceiling” on the availability of digital euros, within the limits indicated above. These are amounts that imply a prevailing use of digital euros *ex parte creditoris*, in B2C or C2C relationships. The professional *accipiens* of the digital euro will make modest use of it for micro-payments⁴⁹, the more common ones being entrusted to normal commercial practices - especially as to their

⁴⁵ Directives 2000/28 and 2000/46 had introduced a detailed regulation of e-money. S. Sica - P. Stanzone - V. Zeno-Zencovich (eds.), *La moneta elettronica: profili giuridici e problematiche applicative*, Milan, 2006. The most notable case is that of PayPal which has had considerable success. It is doubtful, however, that it has created an effective competition with the major credit card companies.

⁴⁶ Recital 66 of the Digital euro Regulation makes this clear: «Payment service providers are not party to a digital euro payment transaction between two digital euro users».

⁴⁷ Nearly 15 years ago these were the conclusions of the ELTEG Report: «The majority of Group members felt that: a) no surcharges (either express or by measures of equivalent effect on all other available means of payment) can be imposed on payment through the use of the legal tender currency, euro banknotes and coins; and b) Surcharges can be imposed on other means of payment, the mere existence of *pouvoir libératoire* not attributing to them the quality of legal tender. Members from five Member States (IE, DE, FI, NL, SI) considered that the imposition of cash surcharges was legally permissible and did not necessarily conflict with the legal tender status of currency». And, in fact, recital 41 of the Digital euro Regulation states that «The European Central Bank or the Eurosystem do not charge payment service providers for the costs it bears to support their provision of digital euro services to digital euro users».

⁴⁸ J. Cullen, *Economically inefficient and legally untenable: constitutional limitations on the introduction of central bank digital currencies*, cit.: «Because banks may offer bundled products alongside payment services, they can cross-subsidise their payments services and infrastructure costs and there are well-established findings that banks and other financial institutions with direct access to central bank settlement systems enjoy competitive rents from these privileges».

⁴⁹ The Digital euro Regulation states, from the beginning, that «the digital euro should support a variety of use cases of retail payments» (recital 4).

scheduling - through bank orders⁵⁰.

The use of the digital euro therefore appears to be placed, in general, within the complex and hyper-regulated system of consumer law. It follows that the payment by the consumer with the means of digital euros will have to enjoy the same protections normally offered both for distance contracts (especially the right to reconsider and of withdrawal), and for payments made through debit/credit cards. In this last field one disposes of over thirty years of regulations and case-law aimed at protecting the user. One should ask oneself if they could be extended to the user of the digital euro. The reply requires careful examination of the many implications, taking into account the kind of relationship that is created by the use of digital euros. In any case, however, an *ad hoc* regulatory intervention would be necessary.

6. Digital Euro as a Platform

More generally, the advent of the digital euro means that the relationship between issuer and user is placed in a different context than the “analogue” one of cash⁵¹. Previously, the risks deriving from malfunctioning of electronic equipment or networks, and those from digital intrusions and misappropriations have already been highlighted. Once upon a time, the issuer’s role ended with the printing/minting and distribution of banknotes or metal coins. After this activity there were those related to the deterioration of the material object (withdrawal of banknotes damaged or replaced by a new design) and the fight against counterfeiting. In the world of the digital euro, the circulation of money is under constant supervision, which implies a continuity of legal relations between the issuer and the holder of the money.

One has already pointed out that the introduction of the digital euro fits into a political and geopolitical context specific to every monetary decision⁵². This is not the place to analyse the multiple and complex aspects that go beyond private law relationships and pertain to public law and international law and politics.

However, some comments must be made:

a) In economically evolved societies with predominantly consumer-driven models (in simple terms: the reduction in consumption is reflected on the entire economy with recessive chain effects) money is an essential factor of citizenship. Although it is a highly debatable tendency, the position of each citizen and the theoretical equality between them is increasingly measured in terms of consumption capacity, of which

⁵⁰ Again, the same recital states that «The digital euro should not cater for payments between financial intermediaries, payment service providers and other market participants (that is to say wholesale payments)».

⁵¹ A. Di Majo, *Il diritto comunitario dei pagamenti pecuniari*, cit. already pointed out the immense distance between the domestic rules governing the discharge of pecuniary obligations and the EU systems of payments which covers not only debts in euros but also in other currencies of Member States or of the EEA.

⁵² S. Grünewald - C. Zellweger-Gutknecht - B. Geva, *Digital Euro and ECB Powers*, cit., «digital banknotes must be designed as a functional equivalent to tangible banknotes. Accordingly, their functions must be limited to those of a means of payment and a store of value, excluding their use as a monetary policy instrument».

money is the prerequisite⁵³.

The digital euro must be available in an “inclusive” way⁵⁴ not only by avoiding the creation of a further “digital divide”, or effects of stigmatisation/exclusion of those who do not adapt to more technologically advanced models⁵⁵.

One of the corollaries is that the cost of introducing the digital euro - which, as we have seen, is intended to be used as a means of payment mainly by consumers - cannot be borne by the latter through opaque “price transfer” procedures⁵⁶. The obvious parallel is with consumption taxes, which are notoriously regressive in their nature. Therefore, the regulation – even by private law – of the digital euro cannot ignore this dimension and the social implications of public choices.

b) The second broader profile that must be examined concerns the natural global dimension of digital phenomena, as everyone can see in the use of ubiquitous online services, raising the question of the territoriality of the new digital currency. The Dig-

⁵³ On the “class” nature of money both in ancient and present times see V. Santoro, *Considerazioni sulla moneta*, cit., 185 ss.

⁵⁴ See L. Galotto - M.I. Vangelisti, *Designing an inclusive digital euro*, in 16 *J. Payments Strategy & Systems*, n° 2, 137 (2022).

⁵⁵ The issue is considered already in the Legal tender Regulation with regards to cash payments: «financially excluded people, such as the unbanked, asylum seekers and migrants, who may not be able or willing to use means of payment supplied by the private sector, rely on cash as their payment method. Cash is considered to provide for a clear overview of expenses, with high degrees of ease of use, speed, safety and privacy». (recital 14) The rule is expressed in art. 8 (Access to cash): «Member States shall ensure sufficient and effective access to cash throughout their territory, in all their different regions, including urban and non-urban areas». And the Digital euro Regulation states that «it is essential to support financial inclusion by ensuring universal, affordable and easy access to the digital euro to individuals in the euro area, as well as its wide acceptance in payments. Financial exclusion in the digitalised economy may increase as private digital means of payments may not specifically cater for vulnerable groups of the society or may not be suitable in some rural or remote areas without a (stable) communication network». (recital 5). The text reflects what had been written by S. Grünewald - C. Zellweger-Gutknecht - B. Geva, *Digital Euro and ECB Powers*, cit.: «By providing costless access to a simple, universally accepted, credit risk-free, and trusted means of payment and store of value, the euro represents an important public good for European citizens». See also J. Cullen, *Economically inefficient and legally untenable: constitutional limitations on the introduction of central bank digital currencies*, cit.: «A CBDC would be highly beneficial for low-income households, which tend to rely heavily on cash and whose access to bank accounts may be limited. Small businesses, who are often charged large account and transaction fees, and must contend with additional charges for accepting debit and credit card payments would also benefit from the introduction of a CBDC».

⁵⁶ There is a growing tendency by public entities to impose, as only form of payment, digital procedures which bear a cost in favour of intermediaries which often are publicly owned companies. The result is that the debtor must “pay to pay”. While this is not allowed in B2C relationship, in this case the payer is not considered a consumer. The ECJ has taken a rather pharisaic position in the ECJ, C-422/19, *Dietrich v. Hessischer Rundfunk* (2021), widely cited in the two proposed Regulations: art. 128 TFUE «must be interpreted as not precluding national legislation which excludes the possibility of discharging a statutorily imposed payment obligation in banknotes denominated in euro, provided (i) that that legislation does not have the object or effect of establishing legal rules governing the status of legal tender of such banknotes; (ii) that it does not lead, in law or in fact, to abolition of those banknotes, in particular by calling into question the possibility, as a general rule, of discharging a payment obligation in cash; (iii) that it has been adopted for reasons of public interest; (iv) that the limitation on payments in cash which the legislation entails is appropriate for attaining the public interest objective pursued; and (v) that it does not go beyond what is necessary in order to achieve that objective, in that other lawful means of discharging the payment obligation are available». Clearly, in the case of payments in digital euros all the excuses made by public authorities to refuse payments in cash fall through.

ital euro Regulation tries to set a few limitations, stating (art. 8) that «The digital euro shall have legal tender status for online payments of a monetary debt denominated in euro to a payee residing or established in the euro area». Therefore, imagining the typical online transaction, extra EU providers of goods or services must establish themselves in the Union if they want to take advantage of being paid directly in digital euros. Art. 18 of the same Regulation states that «Payment service providers may only distribute the digital euro to natural and legal persons residing or established in a Member State whose currency is not the euro if the European Central Bank and the national central bank of that Member State have signed an arrangement to that effect». And art. 19 sets higher standards for possible agreements between the ECB and third countries. These limitations – whose aim is self-evident (and laid out in the recitals) – remind us of the still common restrictions one finds in many countries to the use of domestic currencies by foreigners: one may not import or export domestic banknotes; foreign currency must be exchanged in local currency in official change bureaus. It remains to be seen how the envisaged e-monetary protectionism will fare in global money markets and networks.

c) Always in transnational perspective one should consider that if the cost of the digital currency is zero, the advantage of using the digital euro from countries outside the Eurozone (both EU and non-EU) is immediate as it is free from onerous exchange rates and commissions imposed on every transaction. And, of course, the reverse is true, assuming that other countries – the most obvious example is the United States⁵⁷ – digitize their currency. This implies that it would be highly convenient for a person, natural or legal, to hold multiple e-wallets in the most used currencies (*e.g.* US dollar, British pound, Swiss franc). However, as one has seen, the Digital euro Regulation allows such a practice only on the basis and at the conditions set out in a specific bilateral agreement.

d) The introduction of the digital euro should lead to a significant reduction in the payment/collection costs currently carried out by electronic means. In the case of the most common transactions through debit/credit cards there generally is a fixed annual fee for the holder of the card; and for the commercial payee a fixed or percentage commission for each operation, to which one must add a fee for the technical validation equipment and for the connection to the network. These are amounts that overall reach very high volumes, to a large extent appropriated by non-EU financial entities (such as VISA, MasterCard or American Express)⁵⁸. In addition to the - very important - issue of monetary sovereignty⁵⁹, the digital euro can - and should, if it is to be successful -

⁵⁷ Which are well aware of the same issues as explained in Report of the Federal Reserve Money and Payments: The U.S. Dollar in the Age of Digital Transformation, January 2022: «The potential for significant foreign demand for CBDC would further complicate monetary policy implementation».

⁵⁸ And one should add the extraordinary economic and strategic value of the collection, storage and processing of financial data (even without raising the issue of transborder transfers of personal data). The issue, with regards to the SWIFT system, has been the object of Opinion 10/2006 of the Article 29 European Data Protection group.

⁵⁹ Repeatedly mentioned in the Digital euro Regulation at recitals 38 and 47, and in its “explanatory memorandum”. The ECB has made the point in a rather elliptical way: «A digital euro would also contribute to Europe’s strategic autonomy and economic efficiency by offering a European means of payment that could be used for any digital payment, would meet Europe’s societal objectives and would

imply the elimination of intermediation costs, with microeconomic effects⁶⁰. Again, one should point out that in the case of credit/debit cards the issuer guarantees both the payer and the payee that the payment is correct and that the funds are available. But in the case of a payment in a digital currency this guarantee is *per se* in the nature of money. The bank is not guaranteeing that the funds are available very simply because they are already “tagged” to an individual and can be spent only by him. The costs therefore should be minimal.

e) With its digital currency the State enters in direct competition with private entities to govern modern payment systems⁶¹. From a systematic point of view, the digital euro is not just a legal tender: it constitutes a platform in the sense that computer science and socio-economic theories ascribe to it. A multiplicity of subjects – credit institutions, companies, public administrations, private citizens – access, communicate, exchange and regulate relationships through this platform. Whoever issues the digital currency therefore has a direct, constant and global control over the platform and therefore takes on functions that are specific to digital networks and relationships⁶². This determines an inevitable metamorphosis of central banks in their role as issuing institution, and will entail, in the governance of money, a growing importance of decision-making mechanisms typical of the digital world (big data, user profiling, predictive analytics, artificial intelligence). Over the past years and presently a great deal of debate is ongoing concerning the role of private platforms as political actors governing social and economic processes. Much less attention has been, instead, devoted to the changing role of “government as platform”. This already happens in significant areas of our welfare state (education, health, social security). Now is the turn of monetary policies. This perspective must also be kept in mind when shaping the law of digital pecuniary obligations.

be based on a European infrastructure».

⁶⁰ The Digital euro Regulation proposes (art. 17) that the charge for transactions in digital euros should not exceed the lowest between the fees requested for comparable means of digital payment (*viz.*: credit/debit card) or the relevant cost incurred by payment service providers for the provision of the service including a reasonable margin of profit. While the former are set in accordance with Regulation (EU) 2015/751 on interchange fees for card-based payment transactions, the latter are more complex to establish. The ECB TIPS (immediate payment system) sets a € 0.002 fee per transaction. From January 2024 this fee should be equally shared between payer and payee. How do these provisions combine with the principle stated in recital 40: «To ensure wide access to and use of the digital euro, consistent with its status of legal tender, and to support its role as monetary anchor in the euro area, natural persons residing in the euro area (...) should not be charged for basic digital euro payment services»? The response lies in recital 45: «an inter-PSP fee may be needed to provide compensation to those payment service providers for the distribution costs». On the “basic” services envisaged by the PSD Directives see A. Sciarrone Alibrandi, *L'adempimento dell'obbligazione pecuniaria tra diritto vivente e portata regolatoria indiretta della Payment Services Directive 2007/64/CE*, in M. Mancini - M. Perassi, *Il nuovo quadro normativo comunitario dei servizi di pagamento. Prime Riflessioni*, Quaderni di Ricerca Giuridica della Banca d'Italia n.63, cit.

⁶¹ As J. Cullen, *Economically inefficient and legally untenable: constitutional limitations on the introduction of central bank digital currencies*, cit., notes the EU has, until now, failed in trying to introduce payment systems alternative to traditional bank transfers or credit/debit cards.

⁶² On this new and different notion of monetary sovereignty see S. Murau - J. Van't Klooster, *Rethinking Monetary Sovereignty: The Global Credit Money System and the State*, in *Perspectives on Politics*, 1, 2022. But, to the contrary, see C.D. Zimmerman, *The Concept of Monetary Sovereignty Revisited*, in *European Journal of International Law*, 2013, 818: «the concept of monetary sovereignty cannot, by its very nature, become eroded under the increasingly strong impact of various economic and legal constraints».