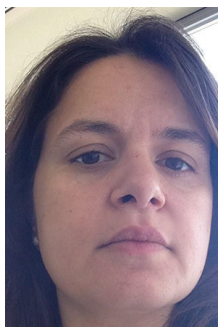


# An analysis of the legal impact of central bank digital currency on the European payments landscape

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## ABSTRACT

*This paper considers the legal impact of a central bank digital currency (CBDC) on the European payments landscape. It opens with a discussion about the concept of money, its functions and the underlying theories. The analysis then discusses the concept of CBDCs and the various types of CBDC that are currently being advanced. The paper questions whether adoption of a pan-European CBDC would require a harmonised approach, or whether national solutions alone could suffice. The paper describes the legal aspects of the European payments landscape that would need to be adjusted in order to settle CBDC transactions without posing risks to payment system participants. The paper concludes by suggesting that this new form of money could broaden the discussions surrounding the institutional theory of money, and that a more cautious approach to the subject would be more likely to incline the European legislator to consider amendments to the Treaty on the Functioning of the European Union and the Statute of the European System of Central Banks, should any decision be taken to embrace a CBDC.*

**Keywords:** money, central bank digital currency, payment systems, central banks, legal tender

## INTRODUCTION

The emergence of private digital currencies (such as Bitcoin) has shown that it is possible to transfer value securely without a trusted third party. While existing private digital currencies have economic flaws which make them volatile, the distributed ledger technology that their payment systems rely on may have considerable promise. This raises the question of whether central banks should themselves make use of such technology to issue digital currencies.<sup>1</sup>

The question of whether a central bank should issue a central bank digital currency (CBDC) is one that could affect a whole economy, all the way to the roots of the existing financial intermediation system.

From a financial law perspective, the discussion surrounding CBDC presents issues associated with the concept of money, legal tender and the current and future legal framework that could apply to payment transactions conducted using CBDC.

From a merely hypothetical perspective, this paper aims to analyse precisely what legal adjustments would be required in the payments landscape before a CBDC could be used by the general public, were the Eurosystem ever to embrace such a policy decision.

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To this end, the paper begins by setting the scene for discussion. The analysis opens with a discussion on both the concept of money and the concept of CBDC, including the various types of CBDC that are currently being advanced. This is followed by a brief discussion on whether a European harmonised approach would be required for such purpose, or whether national solutions alone address the obstacles emerging from a CBDC policy. The paper then explains the legal aspects of the European payments landscape that would need to be adjusted so that CBDC transactions could be settled without posing risks to payment system participants, namely in terms of legal certainty.

From the moment that it is technically possible for a central bank to issue digital liabilities on a platform that is similar to those that enable the functioning of virtual currency schemes (defined as ‘unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community’<sup>2)</sup> or via traditional centralised payment systems, legal experts should begin to analyse *de iure condendo* the impact of such approach on the existing legal framework.

Finally, it should be noted that the idea here is not to discuss whether CBDC should or should not be issued, or the possible impacts of CBDC issuance on (1) the transmission mechanism of monetary policy, (2) overcoming the ‘zero lower bound’ of nominal interest rates; (3) contribution to financial stability or (4) efficiency and cost reduction in payment systems, but solely to analyse the legal impacts to the payments framework. Despite their economic relevance, none of the abovementioned issues fall within the scope of this analysis.

## THE CONCEPT OF MONEY

Although more prevalently discussed in the economic sphere, the concept of money has

also been subject to intense scrutiny in the legal sphere.

In general terms, money is defined with reference to its traditional functions, namely, as a unit of account, a means of exchange and a store of value. In the words of Mann: ‘It is suggested that, in law, the quality of money is to be attributed to all chattels which, issued by authority of the law and denominated with reference to a unit of account, are meant to serve as universal means of exchange in the state of issue’.<sup>3</sup>

These functions, however, do not enjoy universal acceptance. For example, some legal doctrines consider that the function of money as means of exchange should prevail over all other functions, including the concept of money as representing the authority of a state. In this vein, money should be understood as the currency that the state has granted the status of legal tender.<sup>4</sup>

In contrast to the state theory of money, the societary theory of money considers that it is the use of money in the course of trade and the trust of people that transform chattels into money (as Nussbaum stresses, ‘in the phenomenon of money the attitude of society, as distinguished from State, is paramount’<sup>5)</sup>). In effect, a state can impose a currency, such as the euro, as a unit of account by defining its power to enable the discharge of monetary debts and designating it as legal tender. Society, however, may still decide to trust another currency to fulfil its contractual obligations. Thus, a state may grant legal tender to a currency but, under certain circumstances, cannot impose its use as an intermediary in commercial trading. This was amply demonstrated during the period of hyperinflation in Germany during the Weimar Republic in the early 1920s, and in the recent history of some African states.

The emergence of virtual currencies and local currency projects clearly exemplifies that the concept of money is connected to trust.

The denomination of modern currency systems as fiduciary currency systems (derived from the Latin word ‘*fiducia*’, meaning trust) is proof of the importance of trust for the concept of money. Following the collapse of the Bretton Woods Agreement and the end of the US dollar’s convertibility into gold, the public was willing to trade goods or services in exchange for money, solely on the basis of the confidence established in the authority and the underlying legal framework related to the issuance of currency.

At this point, reference should be made to the institutional theory of money. This theory holds that money is no more than a ‘transferable credit’ within a certain institutional framework. In the words of Vicuña:

‘money is no more than a credit against an obligator, whose acceptance as a store of value and as a means of payment by the public is dependent on a comprehensive legal framework that ensures stable purchasing power, its availability even in time of banking stress and its functional capability to settle monetary obligations. It is no longer a chattel, but a transferable credit within an overall institutional framework’.<sup>6</sup>

Such a claim, whether in the form of central bank deposits or deposits made by the public in commercial banks that can be transformed into banknotes, thus converted into a direct claim against a central bank, depends ‘on the central bank’s monetary policy within a given institutional and normative framework’.<sup>7</sup>

Therefore, according to the institutional theory, the abovementioned traditional functions of money, namely its value, are determined by the monetary policy of central banks and public confidence in such authorities.

To conclude, the theory defines money ‘as a direct or indirect claim against a central bank, which can be used by the public as a general means of exchange and as a store

of value, which is originated and managed by central banks in a manner that preserves its availability, functionality, and purchasing power’.<sup>8</sup> On the basis of this definition, it is deemed crucial that:

- price stability should be the main objective of central banks;
- to achieve price stability, central banks must have sufficient functional capacity and statutory independence;
- central banks must be able to influence money-related legislation, namely the legal framework under which financial intermediaries and infrastructures operate; and
- central banks must oversee the functioning of financial infrastructures to guarantee that scriptural payments are reliable.<sup>9</sup>

## AN INTRODUCTION TO CENTRAL BANK DIGITAL CURRENCY

### What is CBDC?

When analysing the legal impacts of CBDC in the retail payments landscape, it is imperative to stress that central banks already issue ‘digital currency’. According to Mersch, CBDC is characterised by two features: ‘(1) like banknotes in circulation, DBM [digital base money] is a claim on the central bank; (2) in contrast to banknotes, it is digital’.<sup>10</sup>

Effectively, liquidity accounts or minimum reserve accounts held with central banks are described as ‘central bank money’ (CeBM). Therefore, it is not novel for money without a physical form to be accepted to perform the three basic functions of currency, namely (1) a means of exchange; (2) a unit of account and (3) a store of value. Explaining the mechanics of payment systems, Wood states that:

‘[in] international financial markets debtors pay their creditors by “bank money”. A debtor arranges for the beneficiary’s bank account to be credited with the amount

due. Debtors do not pay by legal tender, eg handing over a sackful of notes ... The claim of a creditor against its bank constitutes a debtor-creditor relationship'.<sup>11</sup>

In parallel with CeBM, another type of scriptural money, 'commercial bank money' (CoBM), may also be identified, referring to deposits held at commercial banks representing a credit claim on the bank which may be transformed 'on demand into banknotes, that is, into a claim against a central bank'.

Two main differences distinguish CeBM from CoBM. First, unlike CoBM, CeBM is not available to the general public and does not comprise any type of credit risk, as central bankers are able to issue more liabilities. Conversely, CoBM entails a credit risk, as in the case of insolvency of an institution, its liabilities may not be honoured.

Hence, the question that ought to be raised regarding CBDC is not what it is, but rather whether central banks should provide this digital form of money 'to a wider range of counterparties, allowing non-banks, including households, to hold accounts at the central bank'.<sup>12</sup>

### **What types of CBDC may be implemented?**

It is equally important to ascertain whether or not the legal implications for retail payment systems are connected with the main characteristics established by central bankers for their CBDC projects.

From a structural and merely hypothetical perspective, central bankers can introduce CBDC on the basis of the following simple characteristics (1) type of access; (2) account-based or value based solutions; (3) remuneration; and (4) underlying technology.

In an analysis of the legal implications of these characteristics or designs, this paper will focus solely on access types and account or value-based designs. Issues related to

CBDC remuneration and technology will not be considered.<sup>13</sup>

As regards access types, central bankers may decide on whether access to CBDC should function in a similar way to the current access to CeBM, or whether a wider approach should be adopted by making access available to the general public.

Technological developments allow for the implementation of both approaches. Nevertheless, some authors argue that central bankers would not be prepared to deal with the underlying process of account-opening for every citizen and should restrict CBDC accounts to financial institutions alone, eg banks, payment institutions and electronic money institutions. Within this approach, financial institutions could then transfer the amounts of CBDC issued to the general public, thus creating indirect access to CBDC.

Another issue related to the matter of access is whether CBDC should be based on accounts (account-based CBDC) or delivered to the general public through other means. With reference to these scenarios, Sveriges Riksbank's reports on the e-krona project discuss two models of CBDC issuance, namely 'account-based' and 'value-based', stating that the 'E-krona can be described as Swedish krona that can either be held in an account at the Riksbank (account-based) or be stored locally, for example on a card or in a mobile phone app (value-based)'.<sup>14</sup> In the first report, the Sveriges Riksbank uses the terms 'register-based' and 'value-based', mentioning that 'with a register-based e-krona, the balance would be stored in accounts in a central database, while a value-based solution would be more like cash is at present, as the value would be stored locally in an app or on a card'.<sup>15</sup>

Presenting similar categories for CBDC, Yanagawa and Yamaoka define 'account-based' CBDC as the type 'in which the central bank allows ordinary people to directly access its accounts' and 'token-based' CBDC as the type 'in which each user can

charge a certain amount of CBDC to IC [integrated circuit] cards or smartphones and transfer them to other users directly'.<sup>16</sup>

Finally, although more focused on the indirect-access to CBDC, the ECB also refers to these two possible designs for CBDC, and appears to consider that such solutions may have different implications for the legal dimension. In the words of Mersch:

'DBM [digital base money] held by non-banks could either be account-based — in this case, the central bank would open an account for every interested non-bank — or it would be value-based like cash. In this case, interested non-banks would need to be equipped with electronic wallets for holding and using DBM. A transfer of DBM would require that the funds be debited from the payer's electronic wallet and credited to the payee's device without the involvement of the central bank.'<sup>17</sup>

In legal terms, value-based CBDC resembles a form of prepaid value (e-money), while account-based CBDC presents similarities with everyday bank deposits. Sveriges Riksbank, for example, is currently focused on the development of a technical solution for a value-based, interest-free e-krona with traceable transactions, as it considers that such an approach would allow the central bank more room to manoeuvre.

An analysis of the legal implications of both types of CBDC will be discussed in the final section of this paper.

### **CBDC: A new breath of life for the institutional theory of money**

The introduction of the euro, in January 1999, with no intrinsic value or even a physical form (the circulation of euro-denominated banknotes and coins effectively only began on 1st January, 2002), may provide support for the institutional theory.

Moreover, in the context of the creation of CBDC, it would be interesting to discuss

whether the use of account-based or value-based CBDC, even if officially established as legal tender by the EU, could not also be presented as a new breath of life for this theory.

Indeed, neither the state theory of money nor the societary theory of money appear to define this new type of money adequately; however it is its institutional and normative establishment, discussed later in this paper, that is seemingly the key to cementing the trust required for a credit claim against a central bank to be used as 'money'.

Although it is important to understand the extent to which the effective appearance of CBDC might bring new life to the institutional theory, solely from a hypothetical perspective, it appears to be possible that such a new form of money might help dissipate criticism of the institutional theory based on the idea that the concept of central bank independence is not a reality in less advanced economies. In this regard, see Proctor:

'The principal difficulty with the new theory is that, especially in its focus on the requirement for an independent central bank, it cannot provide a universal theory. It is true that this particular requirement reflects developments in the more advanced economies, and especially in Europe, where the concept of central bank independence lies at the heart of the eurosystem. But there are many countries in which the central bank does not enjoy such independence, or where such independence may be more apparent than real.'<sup>18</sup>

In effect, such criticism has failed to perceive that this particular requirement of the institutional theory is not its foundation stone, but rather the ability of the theory to take into account the importance of central banks in establishing and preserving public confidence in money, both in its



physical and dematerialised form (scriptural money).

It may, therefore, be concluded that while state and society regulations regarding money should not be underestimated, it is the action of central banks within a specific normative and institutional framework that will most likely contribute to establishing CBDC as ‘money’, whenever or wherever it appears.

## **THE ARGUMENT FOR A HARMONISED EUROPEAN APPROACH TO CBDC**

### **The current legal framework**

Possible amendments to the European payments legal framework cannot be addressed without prior consideration of the underlying rules related to the issuance of euro-denominated coins and banknotes.

As far as the issuing function of the European Central Bank (ECB), and the legal tender status of euro-denominated coins and banknotes within the territory of the European Union are concerned, the following provisions should be noted: Article 128 (1) of the Treaty on the Functioning of the European Union; Article 16 of the Statute of the European System of Central Banks and of the European Central Bank (the Statute of the ESCB); and Article 10 of Council Regulation (EC) No 974/98 of 3 May 1998 on the Introduction of the Euro.<sup>19</sup>

In addition to this framework, the central banks of participating member states also have specific national provisions in their statutes regulating that, in accordance with the Treaty, it is a competence of the national central bank to issue euro banknotes with legal tender and discharging power.<sup>20</sup>

In fact, the European and national frameworks appear to consecrate the principle of discharging euro banknotes and coins as a means for enabling debtors to discharge their pecuniary obligations through the use of legal currency.

An analysis of these provisions raises the question as to whether they allow the

ECB or national central banks to issue a currency other than the euro. Indeed, as expressly stated by the President of the ECB when questioned on the Estonian project to issue a national cryptocurrency referred to as ‘Estcoin’: ‘no member state can introduce its own currency’.<sup>21</sup> In other words, the only currency of the Union is the euro. Hence, at the present juncture, it is crystal clear that a national cryptocurrency would not be permitted at the Eurosystem level.

The replacement of each participating member state’s currency with the euro was a landmark step in the European Union’s monetary union project. In this vein, the proliferation of different types of CBDC issued by different Eurosystem central banks would serve only to introduce an unwelcomed fragmentation to the monetary union and its harmonised legal framework. Simply put, the lack of harmonised legal rules is a huge challenge within the scope of financial markets globalisation, particularly for property, insolvency and private international law.<sup>22</sup>

Indeed, if the impact of CBDC usage for large-value or retail payment systems may already be regarded as substantial, due to the underlying systemic risk of large-value payment systems, a financial collapse in one member state, owing to the failure of a less secure type of CBDC created at a national level, may easily affect the whole European financial system.

Thus, at the Eurosystem level, the debate should not be extended to the creation of any form of national CBDC to avoid distressing both the Economic and Monetary Union and the safety and efficiency of European payment systems.

### **Amendments to the European payments legal framework for CBDC issuance**

Another question that calls for discussion is whether a CBDC issued by the ECB

would also be in line with the current legal framework.

According to Article 128(1) of the Treaty, which confers to the ECB the exclusive right to issue euro-denominated banknotes within the Union, a broad interpretation of the term ‘banknotes’ (eg including both physical and digital cash), would hardly be admissible. Considering the legal implications of such interpretation, a more cautious approach would be required. Thus, for the sake of legal certainty and given the underlying risks of payment systems, a preferable approach would be to amend both Article 128(1) of the Treaty and Article 16 of the Statute of the ESCB to fully include a CBDC that functions as a digital representation of the euro.

Thus, in a hypothetical scenario of CBDC issuance, the first legal obstacle to overcome would be the possible need to amend both Article 128(1) and Article 16 of the Statute of the ESCB to include an explicit reference to CBDB.

In keeping with this cautious approach, other legal frameworks need to be scrutinised. Hence, this paper will also address the law and regulation of payment services.

The adoption of the first Payment Services Directive (PSD1)<sup>23</sup> sought to establish a uniform framework to ensure an internal market for payment services within the Union.<sup>24</sup> The creation of a single set of common rules on payments and electronic payment instruments used across the whole European Economic Area has, thus, enabled the emergence of a Single Euro Payments Area (SEPA).

Although PSD1 was revised by Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on Payment Services in the Internal Market (the revised Payment Services Directive, PSD2),<sup>25</sup> the framework in place regarding what should be considered a ‘payment’ or a ‘payment service’ has remained unchanged, except for the definition of new types of

services and payment service providers such as ‘payment initiation services’ and ‘payment information services’.<sup>26</sup>

On the one hand, the PSD2 defines a payment transaction in Article 4(5) as ‘an act, initiated by the payer or on his behalf or by the payee, of placing, transferring or withdrawing funds’. On the other hand, the concept of ‘funds’ is defined with reference to ‘banknotes and coins, scriptural money or electronic money’, in accordance with Article 4(25) — thus excluding crypto-assets from PSD2’s scope.<sup>27</sup>

While it is quite clear that CBDC cannot be defined under the umbrella of banknotes and coins, it is far less evident whether CBDC may be considered electronic money or scriptural money. Therefore, the concepts of both ‘electronic money’ and ‘scriptural money’ require discussion.

Regarding electronic money, the definition established in Article 2(2) of Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the Taking up, Pursuit and Prudential Supervision of the Business of Electronic Money Institutions (the Second Electronic Money Directive, EMD2),<sup>28</sup> refers to ‘electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions ... and which is accepted by a natural or legal person other than the electronic money issuer’. The definition of electronic money is technologically neutral and covers electronic money whether it is held on a payment device in the holder’s possession, or stored remotely at a server and managed by the holder through a specific account. It is also intended to cover electronic money products available at the time in the retail payments market, but also products which may be developed in the future.<sup>29</sup>

Once again, the reference to funds emerges as the cornerstone to understanding whether or not CBDC may be regarded

as electronic money. However, there is no definition of funds in EMD2. Nevertheless, considering that there should be uniformity at the Union level regarding payment services market concepts, one may argue that such concept should have exactly the same meaning as that stated in PSD2 ‘banknotes and coins’ along with ‘scriptural money’.

This begs the question of how ‘scriptural money’ should be interpreted. In this quest, no support can be found in the current legal framework, as there is no definition of scriptural money in either PSD2 or EMD2.

However, this does not mean we are at an impasse. In fact, scriptural money has not been defined by the Union legislator in PSD1 or PSD2. In truth, it has always been understood as including funds held in central banks and credit, payment or e-money institutions accounts. The ECB opinion of 26th April, 2006 on a proposal for a directive on payment services in the internal market (ECB/2006/21) sought to make a case for the inclusion of such definition but it was not accepted by the legislator:

‘The term ‘scriptural money’ is used in the proposed directive without being defined, eg in Article 3(b), Article 4(8) of the proposed directive and paragraph 7 of the Annex to the proposed directive. It is suggested that a definition of scriptural money should be established (in the definitions article), bearing in mind that only central banks and credit institutions (which include e-money institutions) may hold such funds’.<sup>30</sup>

At the current juncture, the use of account-based or value-based CBDC to make a payment between private or public entities may be considered under the scope of PSD2 and, as a consequence, is protected by the rules of this legal framework. Conversely, crypto-assets, defined by the ECB as ‘any asset recorded in digital form that is not and does not represent either a financial claim

on, or a financial liability of, any natural or legal person, and which does not embody a proprietary right against an entity’, are not considered electronic or scriptural money either in the form of commercial bank money (CoBM) or of central bank money (CeBM), and under EU law as it stands:

‘crypto-assets as defined in this report do not appear to fit under any of the subject matter-relevant EU legal acts (particularly PSD2 and EMD2 ... As a consequence, crypto-assets as defined in this report and related activities are unregulated, with the exception of anti-money laundering following the adoption of the fifth Anti Money Laundering Directive (AMLD5), which envisages extending the scope of AMLD4 to providers engaged in exchange services between virtual currencies and fiat currencies and custodian wallet providers. For completeness, the Settlement Finality Directive (SFD) — predating the advent of crypto-assets — is not applicable to crypto-asset networks or intermediaries’.<sup>31</sup>

The revised Union legal framework on payment services was complemented by Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on Interchange Fees for Card-Based Payment Transactions (the IFR).<sup>32</sup> The IFR introduced, in particular, rules on the charging of interchange fees for card-based transactions with the aim of achieving a truly integrated market for card-based payments.

Thus, the possibility of CBDC being issued in a value-based form eg ‘card-based CBDC’ may, to a certain degree, be better framed under the IFR rules for card-based transactions. In this vein, for value-based CBDC, the IFR could be seen as complementing payment services rules, as defined by the PSD2, as is currently the case with regular card-based transactions.

Without prejudice to payment services and, more specifically, to card-based



transactions rules, it is also important to understand whether payments made with CBDC would fall within the scope of settlement finality rules, namely due to the systemic risk associated with large-value payment systems.

Directive 98/26/CE of the European Parliament and of the Council of 19 May 1998 on Settlement Finality in Payment and Securities Settlement Systems (the Settlement Finality Directive, SFD),<sup>33</sup> seeks to provide legal certainty to payments and securities transactions made within settlement systems.

As defined by the Committee on Payments and Market Infrastructures in its Glossary on Settlement Systems, the term ‘final settlement’ is broadly understood to be irrevocable and unconditional and enables the parties to discharge their obligations.<sup>34</sup> For the financial market infrastructures, final settlement is a means to mitigate ‘settlement risk’ (otherwise known as ‘Herstatt risk’, after the failure of the German Herstatt Bank), ie to prevent the possibility of a loss resulting from a counterparty default when the other party has already performed its obligations in accordance with the contract or ‘the risk that settlement will not take place as expected’.<sup>35</sup> Therefore, one of the key principles with which sound financial market infrastructures must comply, is the provision of a final settlement, at least by the end of the value date.<sup>36</sup>

As a consequence, any transfer order of CBDC would need to be considered irrevocable and unconditional, meaning that payments with CBDC would need to be considered ‘final’.

In the SFD, a ‘transfer order’ means ‘any instruction by a participant to place at the disposal of a recipient an amount of money by means of a book entry on the accounts of a credit institution, a central bank or a settlement agent, or any instruction which results in the assumption or discharge of a payment obligation as defined by the rules

of the system’ (Article 2 (i) first indent). The expression ‘amount of money’ is not particularly helpful. Would a transfer order made with CBDC be considered an amount of money? This takes us back to the beginning of the discussion, the definition of money. In this sense, if the euro is the only currency accepted as having legal tender within the Union, just a characterisation of CBDC that would pose this currency as a digital form of the euro would enable payment orders executed in CBDC to be protected by settlement finality rules without any margin of doubt.

Effectively, as expressly defined in Article 3(1) of the SFD, ‘transfer orders and netting shall be legally enforceable and binding on third parties even in the event of insolvency proceedings against a participant, provided that transfer orders were entered into the system before the moment of opening of such insolvency proceedings’. Moreover, Article 5 of the SFD states that ‘a transfer order may not be revoked by a participant in a system, nor by a third party, from the moment defined by the rules of that system’. However, in accordance with Article 10 (1), such protection is only granted to transfer orders entered into a system designated under the SFD: ‘member states shall specify the systems, and the respective system operators, which are to be included in the scope of this Directive’.

Thus, only if CBDC were considered money would settlement finality protections apply to transfer orders performed with this digital form of currency (for cryptocurrencies other than CBDC, only a categorisation as currency would ensure settlement finality protection to transfers of cryptocurrencies in designated systems) — and then only if those transfer orders were processed in a designated payment system. As previously mentioned, for reasons of legal certainty, should the Eurosystem decide to issue CBDC, an amendment to the Treaty would be crucial.

This transports the discussion once again to the institutional theory of money and to the idea that if ‘scriptural money has won the day with regard to the basic function of money as means of payment’<sup>37</sup> under an adequate institutional and normative setup, CBDC would also be able to perform that function and be considered as ‘money issued by a central bank in the context of monetary policy’.<sup>38</sup> The abovementioned adjustments to the Treaty would thus be necessary to create the required stability for that institutional framework, but would not affect the identification of CBDC with the legal concept of money or the possibility of European states granting a legal tender status to a more widely available digital form of the euro. In a similar manner, the Sveriges Riksbank is considering whether legal tender should be granted to the e-krona or whether to implement only an obligation to accept this digital form of money.<sup>39</sup>

As a result, regardless of whether it is supported by traditional payment systems or a ‘decentralised’ distributed ledger, CBDC could become mainstream more easily than private cryptocurrencies such as Bitcoin and Ethereum, and address the issue of the decline of cash, due to its connection with a central authority (central bank) that will operate, regardless of the type of CBDC issued, within the scope of a specific legal and regulatory framework (in contrast to transactions through ‘blockchain financial networks’, where the risk of failure will inevitably affect ‘non-adjusting third parties’<sup>40</sup>).

## CONCLUSION

New technologies will challenge existing regulations, and legislators should not adopt a ‘wait-and-see’ approach, as stated by Paech:

‘Therefore, instead of being reactive (as they have been in the past), national legislators and international bodies should

now take a proactive stance ... Early and determined regulatory and legislative involvement is also important, since only a legally safe environment will appeal to the mainstream parts of the financial industry.’<sup>41</sup>

In this vein, although the idea of issuing a new form of money or, more specifically, a digital form of the euro may be rather seductive to those central banks that are part of the Eurosystem, the responsibility that comes with being part of the central banking system of one of the world’s major currencies requires great caution as regards decisions that could affect not only the euro area but the financial system at a global level.

In line with what this paper has sought to establish, the mere idea of CBDC gives rise to interesting discussions on the concept of money, its functions and underlying theories, eg the state, societary and institutional theory of money. It may even be claimed that such an idea may breathe new life into the institutional theory of money.

Moreover, when exploring the legal acts that help to construct the European payments landscape, the relevance of the institutional theory is once again highlighted to demonstrate that a CBDC could be categorised as money.

However, as discussed herein, a more cautious approach to CBDC would recommend the European legislator to adopt a more secure approach towards this digital form of money and if necessary to amend the Treaty on the Functioning of the European Union and the Statute of the ESCB accordingly.

The underlying risks regarding large-value and retail payment systems and the finality of payment orders with CBDC are of particular importance.

Effectively, central banks, namely the Eurosystem central banks, have always adopted a restrained approach towards issues connected with their mandates, and magniloquent words from the financial markets are unlikely to change this approach.

From a legal perspective, CBDC issuance poses interesting questions that will lead to further reflection and analysis on the part of legal practitioners. Whether or not CBDC will be issued is not the important question. The main issue lies in whether the Eurosystem central banks are prepared to act and recognise what legal changes in the European payments landscape must be implemented should any decision to issue a CBDC be taken. It is this question that the present analysis has sought to shed light on.

### AUTHOR'S NOTE

The opinions expressed in the paper are those of the author and do not necessarily coincide with those of Banco de Portugal or the Eurosystem. The author would like to thank Tania Gregg for her valuable comments. Any errors and omissions are the sole responsibility of the author.

### REFERENCES

- (1) Bank of England (2015) 'One Bank Research Agenda', discussion paper, available at: <https://www.bankofengland.co.uk/-/media/boe/files/research/one-bank-research-agenda---summary.pdf?la=en&hash=B2C820FBF6A960C4A625C2DAB5B5B6CE4FEDF120> (accessed 11th December 2019).
- (2) European Central Bank (2012) 'Report on Virtual Currency Schemes', available at: <https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf> (accessed 11th December, 2019).
- (3) Mann, F.A. (1932) 'The Legal Aspect of Money', Clarendon Press, Oxford.
- (4) Knapp, G.F. (1905) 'Staatliche Theorie des Geldes', Duncker & Humblot, Leipzig
- (5) Nussbaum, A. (1950), 'Money in the Law National and International: A Comparative Study in the Borderline of Law and Economics', 2nd edn, The Foundation Press, Brooklyn, NY.
- (6) Vicuña, S. (2010) 'An institutional theory of money', in Giovanoli, M. and Devos, D. (eds) 'International Monetary and Financial Law: The Global Crisis', Oxford University Press, Oxford, pp. 517–532.
- (7) *Ibid.*, p. 519.
- (8) *Ibid.*, p. 525.
- (9) *Ibid.*, pp. 525–526.
- (10) Mersch, Y. (2017) 'Digital base money: an assessment from the ECB's perspective', speech at the Farewell Ceremony for Pentti Hakkarainen, Deputy Governor of Suomen Pankki, Helsinki, 16th January, available at: <https://www.ecb.europa.eu/press/key/date/2017/html/sp170116.en.html> (accessed 11th December, 2019).
- (11) Wood, P. (2008) 'Law and Practice of International Finance', Sweet & Maxwell, London.
- (12) Mersch, ref. 10 above.
- (13) *Ibid.*
- (14) Sveriges Riksbank (2018) 'The Riksbank's e-krona project — Report 2', available at: <https://www.riksbank.se/globalassets/media/rapporter/e-krona/2018/the-riksbanks-e-krona-project-report-2.pdf> (accessed 11th December, 2019).
- (15) Sveriges Riksbank (2017) 'The Riksbank's e-krona project — Report 1', available at: [https://www.riksbank.se/globalassets/media/rapporter/e-krona/2017/rapport\\_ekrona\\_uppdaterad\\_170920\\_eng.pdf](https://www.riksbank.se/globalassets/media/rapporter/e-krona/2017/rapport_ekrona_uppdaterad_170920_eng.pdf) (accessed 11th December, 2019).
- (16) Yanagawa, N. and Yamaoka, H. (2019) 'Digital innovation, data revolution and central bank digital currency', Bank of Japan Working Paper No. 19-E-2, available at: [https://www.boj.or.jp/en/research/wps\\_rev/wps\\_2019/data/wp19e02.pdf](https://www.boj.or.jp/en/research/wps_rev/wps_2019/data/wp19e02.pdf) (accessed 11th December, 2019).
- (17) Mersch, ref. 10 above.
- (18) Proctor, C. (2012) 'Mann on the Legal Aspects of Money', 7th edn, Oxford University Press, Oxford.
- (19) OJ L139/1.
- (20) For example, Article 6(1) of the statutes of Banco de Portugal, approved by Law No 5/98 of 31 January 1998 and Article 7(1) of Decree-Law No 246/2007 of 26 June 2007.
- (21) Draghi, M. (2017) Comments made at press conference, Frankfurt, 7th September.
- (22) Benjamins, J. (2007) 'Financial Law', Oxford University Press, Oxford, p. 513.
- (23) Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on Payment Services in the Internal Market, OJ L319/1.
- (24) Identifying the PSD1 as a step towards the completion of an industry-led initiative for a single Euro Payment Area (SEPA), Mavromati, D. (2007), 'The Law of Payment Services in the EU — The EC Directive on Payment Services in the Internal Market', Kluwer Law, Alphen an der Rijn, p. 3. Also considering PSD1 as the legal basis for the SEPA project, Malaguti, C. (2009), 'The Payment Services Directive Pitfalls between the Acquis Communautaire and National Implementation — European Credit Research Institute Report No 9, p. 3.
- (25) OJ L337/35.
- (26) Revised Payments Services Directive, annex I, points 7 and 8.
- (27) European Central Bank (2019) 'Crypto-Assets: Implications for financial stability, monetary policy and payments and market infrastructures', ECB Occasional Paper No. 223, available at: <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op223-3ce14e986c.en.pdf> (accessed 11th December, 2019).

- (28) OJ L267/7.
- (29) Recital 7 and 8 of EMD2.
- (30) OJ C109/10.
- (31) European Central Bank, ref. 27 above, pp. 7 and 28.
- (32) OJ L 123/1.
- (33) OJ L 166/45.
- (34) Bank of International Settlements, Committee on Payments and Market Infrastructures (2016) 'Glossary of payments and market infrastructure terminology', available at: <https://www.bis.org/cpmi/publ/d00b.htm?&selection=65&scope=CPMI&c=a&base=term> (accessed 11th December, 2019).
- (35) Bank of International Settlements (2012) 'CPMI-IOSCO Principles for financial market infrastructures', available at: <https://www.bis.org/cpmi/publ/d101a.pdf> (accessed 11th December, 2019).
- (36) *Ibid.*
- (37) Vicuña, ref. 6 above, p. 523.
- (38) *Ibid.*
- (39) Sveriges Riksbank, ref. 15 above, p. 22.
- (40) Paech, P. (2017) 'The governance of blockchain financial networks', *Modern Law Review*, Vol. 80, No. 6, p. 1073.
- (41) Paech, P. (2016) 'Securities, intermediation and blockchain — An inevitable choice between liquidity and legal certainty?', available at: <http://eprints.lse.ac.uk/67870> (accessed 17th June, 2019).