

European Payments in the Digital Age

Abstract

As long as there are online users, secure and fast electronic payments are essential. More recently, the pandemic has also accelerated the digitalisation of payments and changed the general view of e-payment systems, not only in the EU but around the world. Consumers fear the risk of virus transmission and government directives to increase the number of non-cash payments have together resulted in a decrease in the amount of cash as a form of payment. At the same time, commercial entities in the private sector proceeded to issue new types of private digital currencies; stablecoins, in addition to bitcoin and other cryptocurrencies.

The decline of cash and the rise of new private digital currencies has pushed public authorities, especially central banks, to look for other alternatives, such as issuing new public central digital currencies. In order to increase the supply of payment services and provide the public with a different money delivery option as a result of changing payment habits, central banks around the world believe that issuing a central bank digital currency is increasingly likely. Like other regions, the Eurozone is no exception in terms of launching and testing its digital currency, the digital euro. The main concern is whether the Eurozone is ready to use this type of currency – whether technically or legally – and whether the digital euro will be used by consumers as the next form of payment.

Keywords: e-payments, digitalisation, digital currency, CBDC, digital euro

I Introduction

Electronic payment (e-payment) is a process of paying for transactions without using cash by using an e-payment system or medium instead. The use of e-payment has expanded as

* Narmin Miriyeva is a PhD Candidate in Law and Political Sciences at the Institute of Comparative Law and Legal Theory, Faculty of Law and Political Sciences, University of Szeged (Hungary) (emails: mir-nermin@hotmail.com; miriyeva@juris.u-szeged.hu).

the use of internet-based banking and e-commerce has grown. In modest international commercial transactions, e-payment frequently replaces using a credit or debit card.¹

The common denominator of every major innovation is the promise of faster and more efficient payments, cost savings, pan-European coverage and greater functionality to meet today's consumer and central bank needs. The next stage in this development will be the digital currency of the European Central Bank (ECB) – a digital euro. A central bank digital currency (CBDC) could be a crucial step in keeping the Eurosystem relevant on a rapidly changing global stage, perhaps leveraging new technologies and capabilities created and nurtured in the field of open blockchains, as well as ideas honed by larger private companies.²

In order to get a better understanding of user preferences as part of the digital euro project, the ECB recently published the results of a study it commissioned on citizens' attitudes regarding digital payments. The report demonstrates a strong preference for payment mechanisms with pan-European reach and universal acceptability in physical shops and online. The ability to make fast and contactless person-to-person payments, independent of platform or device, was highly desired by participants. Respondents were concerned about safety and security, and they wanted assurances against fraud and hacking, as well as secure and dependable payment authentication procedures. Although the respondents had minimal experience with the digital euro, they all believed that banks or central banks would be the safest and most trusted providers.³

The digital euro concept is a response to a greater change: the digitalisation of money. A new type of money is forming, one that is based on virtual units of value that move across the internet, referred to as 'digital cash' in general. It can be saved on a computer or a mobile device and can be used to pay directly from one person to another, such as peer-to-peer (P2P), regardless of distance. The digitalisation of money leads to significant changes. To begin with, money is becoming more varied. It is simple to create money in a digital format. It can be made to fit practically any shape or use. It can be controlled via a wide range of ledgers and protocols. Finally, the monetary market is becoming more competitive. Anyone with a basic understanding of cryptography and computer science may make money in a digital world. Nowadays, experiments with private money are flourishing.⁴

Throughout the article, the focus is on whether the euro area is ready for new digital payments and to what extent there is a need for them. For this reason, EU payments, in general, will be discussed, especially with regard to the impact of digitalisation on payments and different types of digital currencies. The most interesting thing about digital currencies

¹ Sang M. Kim, *Payment Methods and Finance for International Trade* (Springer Nature Singapore Pte Ltd. 2021, Singapore) 65.

² George Giaglis et al., *European Union Blockchain Observatory and Forum Thematic Report 2021: CBDCs and a Euro for the Future* (July 22, 2021) 6.

³ ECB Press release, 'ECB publishes report on payment preferences as part of digital euro investigation phase' <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220330~309dbc7098.en.html>> accessed 28 April 2022.

⁴ M. Brunnermeier and J. Landau, *The digital euro: policy implications and perspectives* (Publication for the committee on Economic and Monetary Affairs, European Parliament 2022, Luxembourg) 7.

is that countries around the world are in a kind of ‘marathon’ of digital currencies, especially in terms of adoption, implementation and fulfilment in everyday life. That is why the EU, being one of the main financial centres of the world, is also trying to maintain its leadership in digital currencies. In the course of the article, considering e-payments and their regulation in the EU, some attempts will be made to find the reasons, necessity and readiness of the EU to launch digital euro projects in general.

II E-payments in Europe

In today’s payment systems, payments are made by reducing a customer’s account balance and increasing the balance in the recipient’s account by an equal amount – a procedure that has not changed in a century. The distinction is in the technology used to keep track of balances and transmit them between institutions. Over the last 50 years, technological advances have had two major impacts on payment systems. Initially, paper records and ledgers were replaced with e-records and ledgers, which boosted transaction speed and reduced operational hazards. Moreover, the development of low-cost technology has enabled the introduction of new payment methods, such as mobile money programs. Despite the adoption of modern technology, the essential structure of centralised payment systems has not changed.⁵

The European Union (EU) retail payments landscape has been altered by technological innovation, regulatory reforms and the rising digitalisation of people’s daily lives, and this trend is expected to continue. The Eurosystem serves as a catalyst for EU market integration, in addition to its role as an operator. The Eurosystem is actively involved in analysing the ensuing changes in retail payments, recognising trends, establishing rules, engaging with partners and supporting innovation in this capacity. The Eurosystem’s approach to retail payments must adapt in line with the evolving world of digitalisation to promote sustainable open dialogue with stakeholders and drive change in a way that benefits all EU citizens. This altered approach does not imply that the Eurosystem will take on a new role, but that its current catalytic role will be adjusted instead within the existing mandate. The results of a fintech survey among EU central banks, as well as the subsequent policy debate inside the Eurosystem, formed the basis for this altered approach. The findings revealed a number of broad patterns that are driving the EU’s present retail payment transition. These include a growing number of parties, including fintech start-ups, competing but also cooperating in the payments business, as well as a stronger spread of technology used to initiate and execute payments.⁶

The way consumers and businesses pay for goods and services has changed dramatically over the last two decades. The fast growth of e-commerce has fuelled these changes, with

⁵ Bank of England, *Innovations in payment technologies and the emergence of digital currencies* (Quarterly Bulletin 2014) 263.

⁶ ECB, ‘E-Payments in Europe; The Eurosystem’s Perspective’ (Issues Paper 2002) 2.

new payment systems being developed to accommodate online transactions. More recently, the widespread use of smartphones and mobile internet has prompted the development and implementation of new creative payment solutions, including for classic payment scenarios such as at the point of sale. In some situations, these new solutions are offered by existing financial industry firms, but others are provided by new players with a better history in innovative technologies. The implementation of new EU legislation allowing third-party access to payment accounts, real-time payments and other technological innovations, such as distributed ledger technology and artificial intelligence, is still evolving.⁷

1 Digitalisation of Payments

Together with globalisation and demographic trends, digitalisation is one of the fundamental structural factors affecting the operation of the euro region and the global economy. Digitalisation is a long-term technological shock that has intensified since the 2003 strategy review,⁸ not least as a result of the coronavirus pandemic. Its overall implications on measurement, productivity, labour market results, and inflation must be watched continuously, and more conceptual and empirical study of the mechanisms and impact of digitalisation must be made.⁹

The terms – digitisation and digitalisation – are almost interchangeable but differ in only two letters. Whereas digitisation focused mostly on data and various converters, digitalisation emphasised the automation of numerous business processes and operations, as well as information processing. There is also digital transformation, a newer and more understandable word; however, it causes semantic difficulties. Digital transformation tries to overcome the terminological ambiguity by assuming an umbrella function that includes digitisation and digitalisation as constituent components and views them as small but necessary milestones in the overall digital transformation of a company.¹⁰

Economies are being transformed by the digitalisation revolution, which is ‘virtually everywhere.’ From a central banking perspective, the amount to which digitalisation affects the economy is a critical issue. In terms of monetary policy, achieving an inflation target may become more difficult as the digital economy evolves if there are mechanisms in place, such as increased online competition, that lead to lower inflation in the short term. Although there are notable digital success stories across the EU, many nations’ positions may need to be strengthened, because not all of them are on the cutting edge of digital

⁷ ECB – Eurosystem, *Implications of digitalisation in retail payments for the Eurosystem’s catalyst role* (2019, July) 4–5.

⁸ ECB, ‘The ECB’s monetary policy strategy’ 8 May 2003, <https://www.ecb.europa.eu/press/pr/date/2003/html/pr030508_2.en.html> accessed 16 November 2022.

⁹ ECB, ‘Work stream on digitalisation, Digitalisation: channels, impacts and implications for monetary policy in the euro area’ (Occasional Paper Series, No 266, 2021) 5.

¹⁰ Dobrica Savic, *From Digitization, through Digitalization, to Digital Transformation* (Online Searcher 2019) 37.

technology diffusion and adoption, and the vanguard of the digital revolution is typically found outside the EU.¹¹

Some of the advantages of digitalisation are undeniable and evident. Payment systems in retail have been forced to develop and innovate. Instant payments are being developed and heavily promoted by governments in the EU. The aggregation of money and data will heighten citizens' privacy worries, which are a key feature of the digital era. The role of public money is the key policy dilemma addressed by digitalisation. Money is issued by central banks and is retained by commercial banks in the form of cash and reserves. The monetary system's foundation is public money. Because all types of money eventually become public, the currency is 'uniform': all monetary instruments with the same nominal value trade at the same rate in all circumstances. Public money also functions as a unit of account, serving as a measure of value for all economic transactions and contracts. As a result, monetary sovereignty is preserved, which is defined as governments' power to control the unit of account under their jurisdiction in order to manage the macro-economy.¹²

New technologies, aided by advancements in encryption and network computing, are transforming the global economy, including the trade in products, services and assets. The emergence of virtual currencies has been a significant advance in this process. Virtual currencies are private-sector platforms that, in many circumstances, enable P2P exchanges without the use of traditional central clearing houses. The future landscape for virtual currencies and associated technologies, particularly distributed ledgers based on blockchains, is difficult to predict.¹³

Blockchain technology has the potential to revolutionise business paradigms by allowing them to be digitalised and automated. It also permits unique use cases that necessitate the adoption of a blockchain-based digital currency – preferably, a blockchain-based euro. Nano payments, or sub-cent payments, or streaming money use cases, where payments are made steadily based on actual consumption rather than on a discretionary basis, are examples of these use cases. The usage-based 'consumption' of online articles or music streaming is one example of how nano-payments and streaming money might be integrated. The consumer would be charged based on their actual usage, i.e., for every second that they read the article or listen to the music. Nano-payments and streaming money applications would also enable unique corporate use cases, such as electricity consumption in logistics or production networks that may be broken down to individual devices. Other use cases include usage-based invoicing for all types of consumer goods that are not used on a regular basis and require payments in the sub-cent range.¹⁴

¹¹ ECB: Anderton Bob et al., 'Virtually everywhere? Digitalisation and the euro area and EU economies: Degree, effects, and key issues' (Occasional Paper, No.244, 2020, Frankfurt a. M.) 4. <https://doi.org/10.2139/ssrn.3638069>
¹² Brunnermeier et al. (n 4) 7.

¹³ IMF Staff Team, Virtual Currencies and Beyond: Initial Considerations, IMF Discussion Note (SDN/16/03,2016) 5. <https://doi.org/10.5089/9781498363273.006>

¹⁴ Philipp Sandner, Jonas Gross, 'The digital euro from a geopolitical perspective: Will Europe lag behind?' (FSBC Working Paper, 2022) 7. <https://doi.org/10.2139/ssrn.4035740>

2 Different Forms of Digital Currencies

Although digital currency is frequently heralded as a solution to long-standing problems in the currency and payments ecosystem, there has been no careful assessment of its fitness for purpose and profitability. Consumer protection, education, and privacy, as well as technical and regulatory interoperability, are all concerns that have yet to be answered in relation to digital currencies. The advantages and disadvantages of digital financial inclusion have yet to be assessed adequately. With a number of central banks evaluating the concept of CBDCs in various forms, as well as the independent emergence of ‘stablecoins’, technological, governance, and regulatory frameworks are required to fill in the gaps and guide digital currency selection and implementation.¹⁵

A digital currency scheme combines a new decentralised payment system and a new kind of money into one package. All of the schemes have a publicly available ledger that is shared over a network of computers. A crucial defining element of each digital currency scheme is the mechanism through which its users come to agree on modifications to its ledger that is, on which transactions to accept as valid. Most digital currencies are ‘cryptocurrencies,’ in the sense that they seek consensus via cryptographic techniques. The use of a ‘distributed ledger,’ which allows payments to be made in a decentralised manner, is a significant innovation of digital currency systems. When a user wants to make a payment, they send out payment instructions to the rest of the network. Users can verify that the transaction is valid – that the would-be payer holds the currency in question – using standard cryptographic procedures. ‘Miners,’ or special users on the network, collect blocks of transactions and compete to validate them. Miners that successfully verify a block of transactions receive an allocation of freshly minted money as well as any transaction fees given by parties to the transactions in question in exchange for their services.¹⁶

According to Girasa, a digital currency is an e-type of intangible currency that allows payments to be sent between parties using existing technologies. It can be used for payments made between individuals or between entities for common purchases of goods and services, both domestically and internationally, or it can be limited to gaming or social media. This could be a fiat (actual) currency such as e-money or a non-fiat currency like bitcoin. It is borderless and happens instantly, just like email communication, but it is subject to governmental controls and access. The term ‘digital currency’ is often used interchangeably with ‘virtual currency,’ but the former refers to any currency that is stored in an electronic format. A virtual currency, on the other hand, is a digital representation of value that is not issued by a government or central bank, may be digitally traded, and serves as a medium of exchange, a unit of account or a store of value. It is often not commonly used or circulated and has no official backing, unlike the legal tender of a fiat currency, such as real coins or

¹⁵ World Economic Forum Digital Currency Governance Consortium, ‘Vision for 2021 Deliverables Briefing Paper’ (Briefing paper 2021) 4.

¹⁶ Bank of England (n 5) 266.

bills. It differs from e-money, which is a fiat currency that transmits value via electronic methods yet has legal tender status.¹⁷

Beyond fiat currency-based payment systems, the expanding use of digital currency provides for faster, more flexible and more inventive payments and financing of products and services. The term ‘cryptocurrency’ refers to a subset of the term ‘digital currency.’ In its purest form, cryptocurrency is a P2P version of e-cash. It enables internet payments to be transmitted directly from one party to another without the need for a banking institution to process them.¹⁸

Depending on whether it is used as a noun, adjective, or in relation with specific techniques of study, the word ‘crypto’ has a variety of implications. When it comes to currencies, it is referred to as a ‘cryptocurrency’, which is defined as a digital decentralised convertible currency or medium of exchange that uses encryption technology to authenticate its exchange and prevent counterfeiting. It is anonymous, mined at a mathematically controlled rate, relies on public and private keys to exchange value on a P2P basis, and its supply is determined by free market demand. Convertible, decentralised virtual currency is a term that is frequently used interchangeably with it. Bitcoin and Ethereum are two of the most well-known cryptocurrencies.¹⁹

Coins and tokens are two concepts that have been used interchangeably in the cryptocurrency realm. So, are they the same? To begin with, ‘a coin’ is defined as an asset that is unique to its own blockchain. Bitcoin, Litecoin and Ether are examples of coins. Each of these coins has its own blockchain. ‘Tokens’, on the other hand, are produced using blockchains that already exist. Ethereum is the most popular token platform, allowing developers to build their own tokens using the ERC20 standard.²⁰

‘Stablecoins’ are a relatively new payment innovation that has already sparked a lot of discussions – especially in the past few years. They are defined as digital units of value that differ from existing forms of currency and rely on a set of stabilisation methods to minimise price volatility against a currency or a basket of currencies. Some stablecoin initiatives pledge to retain monies or other assets against which stablecoin holdings can be redeemed or exchanged in order to maintain a stable price. Stablecoin arrangements serve a variety of purposes, from maintaining the value of stablecoins to transferring wealth and interacting with users.²¹

¹⁷ Rosario Girasa, *Regulation of Cryptocurrencies and Blockchain Technologies: National and International Perspectives* (Palgrave 2018, Switzerland) 6. <https://doi.org/10.1007/978-3-319-78509-7>

¹⁸ David Lee Kuo Chuen (ed), *Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data* (Elsevier 2015, London) 6–8.

¹⁹ Girasa (n 17) 6.

²⁰ Wei-Meng Lee, *Beginning Ethereum Smart Contracts Programming with Examples in Python, Solidity and JavaScript* (2019, Singapore) 258.

²¹ ECB, ‘Crypto-Assets Task Force, Occasional Paper Series, Stablecoins: Implications for monetary policy, financial stability, market infrastructure and payments, and banking supervision in the euro area’ (No.247, 2020) 3.

In recent years, there has been a surge in interest in CBDCs. CBDC has the potential to become a new type of digital central bank money, distinct from reserves or settlement balances held by commercial banks at central banks. The degree of anonymity (varying from complete to none), operational availability (ranging from current opening hours to 24 hours a day, seven days a week), and interest-bearing features (yes or no) are all factors to consider when designing a CBDC. CBDC can take many forms, each having various implications for payment systems, monetary policy transmission and the financial system's structure and stability. Wholesale CBDC and general-purpose CBDC are the two most common types. The wholesale variation would restrict access to a certain set of users, but the general-purpose variant would be open to everybody.²²

The issuing and design of CBDCs are sovereign decisions that each jurisdiction must make. In conjunction with governments and stakeholders, central banks will make this decision for their jurisdictions. A CBDC could be an important tool for central banks to continue to provide a secure means of payment as people's daily lives become more digitalised. Public confidence in central banks is essential for monetary and financial stability, as well as the provision of a single unit of account and secure store of value for the public welfare. A central bank should act thoughtfully, cooperatively and collaboratively to maintain trust and determine whether a CBDC offers value to a jurisdiction.²³

III Regulation of E-payment Systems in the EU

The EU provides a viable institutional setting for studying the evolution of money governance. Indeed, the EU, which bills itself as a 'unique economic and political partnership,' has not established a clear definition of money, but Member States have been transferring sovereignty, particularly monetary sovereignty, in a variety of ways. There are many levels of regulatory activities when it comes to monetary sovereignty. To begin with, since the 1980s, a series of regulatory acts on scriptural money have been implemented at the Community legislation level in order to create an internal (or single or common) market for payment services.²⁴

1 The Role of the ECB in Payment Systems

In terms of the monetary legal system, the EU specified in its main principles that all limitations on the free movement of capital and payments between MS and third countries

²² CPMI, 'Markets Committee Papers: CBDCs' (No.174, 2018) 1.

²³ BIS, CBDCs: foundational principles and core features, Report no 1 in a series of collaborations from a group of central banks (BIS 2020) 2.

²⁴ Gabriella Gimigliano (ed), *Money, Payment Systems and the EU: The Regulatory Challenges of Governance* (Cambridge Scholars Publishing 2016) xii.

are forbidden.²⁵ However, the freedom of capital and payment has always been fraught with legal questions about its immediate applicability and scope. Perhaps this is why the majority of the soft and mandatory legal acts passed to develop the internal market for payment services have invoked freedom of establishment and services.²⁶

According to Article 3(1) of TFEU ‘the Union has exclusive competence in the field of monetary policy for MS whose currency is the euro’. Article 282(1) of the TFEU further shed light on which banks should implement the Union’s monetary policy, specifically noting that the ECB, together with the national central banks, constitute the European System of Central Banks (ESCB). The main purpose, ‘basic tasks’ and some other prudential supervisions carried out through the ESCB are revealed in the TFEU. Article 127(1) TFEU clarified the main goal of the ESCB as being to maintain price stability. Later in Article 127(2) TFEU the ‘main tasks’ to be carried out through the ESCB were listed as a) defining and implementing the monetary policy of the Union; b) conducting foreign exchange operations in accordance with the provisions of Article 219; c) holding and managing the official foreign exchange reserves of the Member States; and d) contributing to the smooth operation of payment systems. The TFEU also declared that while the main goal of the ESCB is to maintain price stability, there is also a secondary goal, to support the overall economic policy in the Union. The ECB has the exclusive right to authorise the issuance of euro banknotes within the Union. The banknotes issued by the ECB and the national central banks shall be the only such banknotes to have the status of legal tender in the Union (Article 128(1) TFEU). Member States may issue euro coins subject to the ECB’s approval of the scope of the issue [Article 128(2) TFEU].

In general, the legal foundation of the ECB is based on various articles and provisions of treaties, protocols and regulations. Articles 3 and 13 of the TEU serve as a legal basis, followed by the primary provisions of Articles 3(1)(c), 119, 123, 127–134, 138–144, 219, and 282–284 of the TFEU. Protocol No. 4 on the Statute and Protocol No. 16 on specific provisions relating to Denmark are two of the most important Protocols in the ESCB and ECB’s legal framework. With Council Regulation (EU) 1024/2013 conferring specific tasks on the ECB concerning policies relating to the prudential supervision of credit institutions, also known as the ‘Single Supervisory Mechanism Regulation,’ and Regulation (EU) 806/2014 on establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms, also known as the ‘Single Resolution Mechanism Regulation,’ the list of the ECB’s legal bases is complete.²⁷

²⁵ Consolidated Version of the Treaty on the Functioning of the European Union [2012] OJ C326/47 (TFEU).

²⁶ Gimigliano (n 24) xiii.

²⁷ Dražen Rakić – ECB, Fact Sheets on the European Union 2021 (2021) <https://www.europarl.europa.eu/ftu/pdf/en/FTU_1.3.11.pdf> accessed 28 April 2022.

2 Regulation of Retail Payments

The first mover piece on retail payments was Directive 97/5/EC on cross-border credit transfers, which laid down rules in the area of transparency and performance of cross-border payments. This Directive sought to follow up the progress made towards completion of the internal market, in particular towards liberalisation of capital movements, with a view to the implementation of economic and monetary union. The purpose of this Directive was to improve cross-border credit transfer services and thus assist the European Monetary Institute in its task of promoting the efficiency of cross-border payments with a view to the preparation of the third stage of economic and monetary union. This Directive aimed to contribute to reducing the maximum time taken to execute a cross-border credit transfer and encourage those institutions which already take a very short time to do so to maintain that practice.²⁸ Despite an unusually long implementation period – 30 months and unacceptably high bank charges for cross-border credit transfers – this directive pioneered the creation of EU payment legislation.²⁹

The European Commission's (Commission) vision for retail payments in the EU consists of several factors. To begin with, a variety of high-quality payment solutions, backed by a competitive and innovative payment market and a secure and accessible infrastructure based on it, can bring many benefits to citizens and businesses in the EU. Competitive local and pan-European payment solutions are available to support the EU's economic and financial sovereignty and, in order to sustain the euro's international role and the EU's 'open strategic autonomy', the EU is making a significant contribution to improving cross-border payments with non-EU jurisdictions, including remittances. One of the focuses of this strategy is solutions for digital and instant payments, as well as innovative and competitive retail payment markets with pan-European reach. As payments are at the forefront of digital innovation in finance, the implementation of this strategy will help the Commission achieve its objectives of eliminating market fragmentation, fostering market-oriented innovation in finance and addressing new challenges and risks related to digital finance.³⁰

3 Regulation of Cross-border Payments

Regulation (EC) 2560/2001 on cross-border payments in euro was enacted in order to facilitate the functioning of the internal market and to bolster confidence in the euro. It laid down rules on cross-border payments in euros to ensure that charges for those payments

²⁸ Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers [1997] OJ L43/25.

²⁹ Commission of The European Communities, Report from the Commission to the European Parliament and to the Council 'on the application of Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers' COM (2002) 663 final.

³⁰ ECB – Eurosystem, Study on the payment attitudes of consumers in the euro area (SPACE, 2020) 7.

were the same as those for payments in euros within MS. It had the scope to apply to cross-border payments in euros of up to 50 000 EUR within the Community. The regulation defined the categories of cross-border payments (credit transfers, e-payment transactions and cheques) and payment instruments (e-payment, remote access and e-money). For cross-border e-payment transactions in euros, the principle of equal charges was to apply as of 1 July 2002. It was also important to envisage improvements to facilitate the work of payment institutions, according to which standardisation was to be promoted through the use of the International Bank Account Number (IBAN) and Bank Identifier Code (BIC), as they were necessary for the automated processing of cross-border credit transfers.³¹

The European Payment Council (EPC) was founded in June 2002, and drew up a broad work programme for a Single Euro Payment Area (SEPA), including recommendations for significant changes in how payment services were organised throughout the EU.³² The SEPA Scheme was a set of rules, practices and standards to achieve interoperability for the provision and operation of a SEPA payment instrument agreed upon at the interbank level. This document drew on the accumulated experience of the EPC with respect to credit transfers and in particular the convention on credit transfer in euro and the EPC Resolution on Receiver Capability (sec.0.3.).³³ Credit transfers, direct debits and payment cards were among the primary retail payment instruments covered by the SEPA project. It was designed to serve as a springboard for developing a competitive and innovative EU payments industry in two ways, based on this foundation. The initial way was the ever-increasing use of online or e-payments as well as mobile payments.³⁴

4 Regulation of Payment Services

The need for a legal framework for payment services from the financial sector's initiative for a single euro payment area led the Commission to adopt Directive 2007/64/EC on payment services in the internal market, often referred to as the PSD. According to Directive, as consumers and enterprises were not in the same position, they did not need the same level of protection. In the interest of transparency, harmonised requirements were needed to ensure that necessary and sufficient information was given to payment service users with regard to the payment service contract and payment transactions. It was also noticeable that the main part of Directive generally put more emphasis on three important topics, with regard to payment service providers (PSPs), namely transparency of conditions; information

³¹ Regulation (EC) 2560/2001 of the European Parliament and of the Council of 19 December 2001 on cross-border payments in euro [2001] OJ L344/13.

³² Commission of the European Communities, Communication from the Commission to the Council and the European Parliament concerning a 'New Legal Framework for Payments in the Internal Market' COM (2003) 718 final.

³³ European Payments Council, SEPA Credit Transfer Scheme Rulebook (EPC125-05 Ver. 7.0,2014).

³⁴ European Commission, 'Green Paper Towards an integrated European market for card, internet and mobile payments' COM (2011) 941 final.

requirements for payment services; and rights and obligations in relation to the provision and use of payment service.³⁵

Although Regulation (EC) 2560/2001 had actually reduced the fees for cross-border payment transactions in euros to the level of national fees, a number of changes were proposed, so it was replaced by the new Regulation (EC) 924/2009 in order to prevent fragmentation of the payments market, facilitate cross-border payments by PSPs, speed up the implementation of the SEPA direct debit scheme and ensure that this Regulation was legally compatible with Directive 2007/64/EC. Regulation 924/2009 also gave some insights into the payer's accounts 'reachability' while executing the direct debit transactions, which seemed a logical execution of SEPA scheme rulebooks.³⁶

Later, EU legislators adopted Regulation 260/2012 for a quick transition to SEPA, since it was necessary to create an integrated market for e-payments in euros without distinguishing between national and international payments for the internal market to function normally. Since technical standardisation has been a cornerstone of network integration, the SEPA project attempted to build EU-wide payment services to replace existing national payment services. From a certain date, all relevant transactions had to comply with the standards developed by international or European standardisation bodies. IBAN, BIC and the financial services messaging standard 'ISO 20022 XML' were examples of such mandatory standards in the context of payments. This Regulation established standards for euro-denominated credit transfers and direct debits within the EU when both the payer's and payee's PSPs were based within the Union, or when the only PSP participating in the payment transaction was located within the Union. Article 3 of that Regulation provided information on the application of the reachability requirement, stating that

a payee payment service provider reachable for a national credit transfer (or direct debit) under a payment scheme should comply with the rules of a Union-wide payment scheme for credit transfers (or direct debits) initiated by a payer through a payment service provider in any MS.

Article 4 of this Regulation also set some conditions for PSPs to carry out credit transfers and direct debits in compliance with interoperability by specifying that

(a) their rules are the same for national and cross-border credit transfer transactions within the Union and similarly for national and cross border direct debit transactions within the Union; and (b) the participants in the payment scheme represent a majority of PSPs within a majority

³⁵ Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC [2007] OJ L319/1.

³⁶ Regulation (EC) 924/2009 of the European Parliament and of the Council of 16 September 2009 on cross-border payments in the Community and repealing Regulation (EC) No 2560/2001 [2009] OJ L266/11.

of Member States, and constitute a majority of PSPs within the Union, taking into account only PSPs that provide credit transfers or direct debits respectively.³⁷

Regulation (EU) 2015/751 on interchange fees for card-based payment transactions was enacted by EU legislators to avoid fragmentation of the internal market and severe distortions of competition caused by differing laws and administrative decisions. In accordance with Article 114 of the TFEU, it was necessary to take steps to solve the problem of high and diverging interchange fees and allow PSPs to provide services across borders and enable consumers and merchants to access cross-border services. It established uniform technical and business requirements for card-based payment transactions conducted within the Union, where both the payer's and recipient's PSPs were situated. This Regulation applied to cross-border and domestic issuance and acquisition of card-based payments in order to maintain the smooth operation of the internal market for card payments for the benefit of consumers and merchants. According to the impact assessment, a ban on interchange fees for debit card transactions would be better for card acceptance, card usage and the growth of the single market, and would bring more benefits to merchants and customers. The prospect of exporting the interchange fee model to new, innovative payment services such as mobile and online systems was also addressed by limiting interchange fees for debit card transactions.³⁸

The EU legislators adopted Directive (EU) 2015/2366 on payment services in the internal market,³⁹ often called Payment Service Directive 2 or PSD2. Recent developments had created significant regulatory challenges, according to a review of the Union legal framework on payment services, including an analysis of the impact of Directive 2007/64/EC and a consultation on the Commission Green Paper of 11 January 2012, titled 'Towards an integrated European market for card, internet, and mobile payments'. It had been found difficult for PSPs to launch innovative, safe, and easy-to-use digital payment services and provide consumers and retailers with effective, convenient, and secure payment methods in the Union because significant areas of the payments market, particularly card, internet, and mobile payments, remained fragmented across national borders. This Directive established a neutral definition of payment transaction acquisition, to cover not only traditional card-based acquisition models, but others including those involving multiple acquirers. Article 1(2) of the Directive also established rules concerning: (a) the transparency of payment service conditions and information requirements; and (b) the respective rights and obligations of payment service users and PSPs in relation to the provision of payment services as a regular

³⁷ Regulation (EU) 260/2012 of the European Parliament and of the Council of 14 March 2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009 [2012] OJ L94/22.

³⁸ Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions [2015] OJ L123/1.

³⁹ Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC [2015] OJ L337/35.

occupation or business activity. In addition, this Directive intended to establish a broad right to a refund for all euro-denominated direct debit transactions in the Union. Member States needed to be able to maintain or introduce limits or prohibitions on unilateral changes to the terms of a framework contract in the customer's best interests in order to guarantee a high level of consumer protection. Payment service consumers needed to understand the real costs and charges of payment services in order to make an informed decision that would increase consumer trust in a harmonised payment market, and the amount of risk involved in the payment service should be compatible with the security measures. Since there were a number of changes that needed to be made to Directive 2007/64/EC, it was repealed and replaced. As this Directive required the harmonisation of several provisions currently in the legal systems of various Member States, the Union decided that it would be more effective if the Union took measures in accordance with the principle of subsidiarity, as stated in Article 5 of the TEU and required Member States to pass and publish measures by 13 January 2018, effective as on that date.⁴⁰

A number of encouraging developments took place, such as the establishment of the European Payment Initiative (EPI) project on 2 July 2020, by a consortium of 16 European banks, with the goal of developing a pan-European payment system by 2022. The Commission and the ECB had supported this work from the beginning and congratulated it on its successful launch. Parallel to this, many projects led by the Euro Retail Payments Board and the European Payments Council (EPC) sought to develop uniform European schemes and norms, with the goal of facilitating the emergence and interoperability of instant payment solutions in stores and e-commerce. On 24 September 2020, the EC adopted the 'Retail Payments Strategy for the EU'. Its goal was to create a highly competitive payments market that benefited all Member States, regardless of currency, and in which all market participants could compete on fair and equal terms to provide innovative and cutting-edge payment solutions while adhering to the EU's international commitments.⁴¹

As can be seen from the legal regulation, they all relate to payment services, as well as to retail and cross-border services. Legal certainty is needed to protect users as consumers in the use of both private and public money.

⁴⁰ Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC [2015] OJ L337/34.

⁴¹ European Commission, Communication from The Commission to The European Parliament, The European Council (Euro Summit), The Council, The ECB, The European Economic and Social Committee and The Committee of the Regions Towards a stronger international role of the euro, Brussels, 5.12.2018 COM (2018) 796 final, 6-8.3.

IV The Digital Euro as the Next Eurozone Currency

1 The Introduction of Euro

As stated in Article 3(4) of the TEU, the Union shall establish an economic and monetary union whose currency is the euro.⁴² Article 119(2) TFEU also specified that ‘as provided in the Treaties and in accordance with the procedures set out therein, these activities shall include a single currency, the euro’. Later, Article 133 TFEU notes that ‘without prejudice to the powers of the ECB, the EP and the Council, acting in accordance with the ordinary legislative procedure, shall lay down the measures necessary for the use of the euro as the single currency’.

In accordance with Council Regulation (EC) 974/98 on the introduction of the euro, monetary policy operations would be carried out in the euro unit by the ESCB, and the euro might also be the unit of account of the ECB and the central banks of participating Member States. This Regulation also defined the euro transition period as the period starting on 1 January 1999 and ending on 31 December 2001.⁴³

The introduction of euro banknotes and coins in 2002 marked a pivotal moment in EU history, putting a tangible symbol of EU integration into the hands of millions of people. The euro has strengthened the EU’s leadership and autonomy by fostering deeper economic cooperation and quickly rose to become the world’s second most valuable currency, and it is increasingly being used in crucial countries for future expansion. Indeed, in 2021, over half of all green bond issues worldwide were denominated in euros. The ECB is the euro’s custodian, and among its tasks are to keep banknotes safe and ensure the supply of euro cash in the economy, as well as to look into new and complementary payment methods.⁴⁴

While the euro’s international role has been largely determined by market forces, prudent national fiscal and growth-stimulating policies, a strong financial sector and commitment to the EU’s economic and fiscal framework provide the foundation and have been important for the credibility of the single currency. The Commission has published ‘Communication... Towards a stronger international role for the euro’, which sets out initiatives to strengthen the international role of the euro in three areas: (a) the EU financial sector – to provide deep and comprehensive euro-denominated financial markets; (b) the international financial sector – where a stronger role for the euro would contribute to global financial stability; and (c) in key strategic sectors where the euro could further strengthen its roles, such as energy, commodities and aircraft.

⁴² Consolidated Version of the Treaty on European Union [2008] OJ C115/17 (TEU).

⁴³ Council Regulation (EC) 974/98 of 3 May 1998 on the introduction of the euro [1998] OJ L139/1.

⁴⁴ Speech by Christine Lagarde, President of the ECB, at the plenary session of the European Parliament, 20th anniversary of the entry into circulation of euro banknotes and coins, Strasbourg, 2022, <<https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220214~2c44645ea0.en.html>> accessed 28 April 2022.

In the eurozone, euro banknotes and coins are legal tender, and cash is the only form of public money to which anybody has direct access. Together with the banking industry, the ECB and national central banks, often known as the Eurosystem, have a fundamental obligation to assure a continuous supply of cash and to make it easier for people and businesses to utilise cash in payments. For retail payments, the majority of individuals in the eurozone still prefer to use cash. Ensuring that cash is accepted everywhere is an important aspect of the payment system, and it is also consistent with its legal tender status. It gives consumers the opportunity to choose how they want to pay and ensures that those without access to e-payments are not disadvantaged. Unless the two parties have already agreed on another method of payment, retailers, traders, and other private companies cannot refuse cash payments. Unless otherwise authorised by law, public authorities and service providers must also accept cash.⁴⁵

The ECB conducted a survey on consumer payment attitudes in the euro region in 2019 (SPACE). The findings revealed that, in the last three years, cash usage for day-to-day transactions has decreased from 79% to 73% of payments. For at least some consumers, the existing coronavirus epidemic appears to have strengthened this trend. This appears to be supported by the findings of a separate poll on the impact of the pandemic on cash trends, conducted on behalf of the ECB in all euro area countries in July 2020. When asked if they had used less cash since the beginning of the pandemic, 40% said they had, and nearly 90% said they would continue to do so when the pandemic ended. The decline in the use of cash to make payments raises concerns regarding cash availability and acceptance as a payment instrument.⁴⁶

2 The Introduction of the Digital Euro

The purpose of the Eurosystem includes providing citizens with risk-free money for their payments; euro banknotes have been available for almost two decades. While cash remains the most popular payment method, new technologies and a growing consumer desire for immediacy are changing the way people pay in the EU. This is evidenced by the growing importance of fast e-payments. The Governing Council of the ECB has decided to accelerate work on the possible issuance of a digital euro – an electronic form of central bank money available to all citizens and businesses – to ensure that consumers continue to have unrestricted access to central bank money in a way that is in their best interests in the digital age. The digital euro will be introduced in addition to cash, not instead of it.⁴⁷

A digital euro would ensure that citizens in the euro region have free access to a simple, generally acknowledged, safe and trusted means of payment in this new era. The digital

⁴⁵ ECB, 'The Eurosystem cash strategy' <https://www.ecb.europa.eu/euro/cash_strategy/html/index.en.html> accessed 28 April 2022.

⁴⁶ Regulation (EC) 2560/2001 (n 31) 344/13.

⁴⁷ ECB Report on a digital euro (2020) 2.

euro would still be a euro: it would function similarly to banknotes, but it would be digital. A digital euro would provide consumers with more payment options and make it easier to do so, thus increasing accessibility and inclusion. The effectiveness of a digital payment instrument would be combined with the security of central bank money in a digital euro. It would aid dealing with situations where individuals no longer prefer cash, as well as avoiding reliance on digital payment methods issued and controlled outside the euro region, which could jeopardise financial stability and monetary sovereignty. Experts from the ECB have outlined a number of essential needs for a digital euro, including easy accessibility, robustness, safety, efficiency, privacy and legal compliance. These will all assist in shaping the characteristics of a digital euro. It will be designed to function in tandem with private payment solutions, making pan-European solutions and additional services more accessible to consumers. The reason that a digital euro would not be classified as a crypto asset is that the latter are fundamentally different from central bank money: their prices are often volatile, making them difficult to use as a payment method or units of account, and they are not backed by any government. People who use a digital euro should have the same amount of confidence as those who use cash, because they are both supported by a central bank. A digital euro, like currency, would be accessible to all and give individuals more options in terms of how they pay.⁴⁸

3 The Legal Tender of Digital Euro

Article 28 of the TFEU, in the chapter on monetary policy, establishes the legal tender status of euro banknotes. The Union has exclusive monetary policy authority for Member States whose currency is the euro, according to Article 3(1)(c) of the TFEU. The euro coins are the only coins that have the status of legal tender in the participating Member States, according to Article 11 of Council Regulation (EC) 974/98 on the introduction of the euro.⁴⁹ The Commission adopted Recommendation (2010/191/EU) on the scope and effects of legal tender of euro banknotes and coins because there was apparently considerable confusion at the euro area level regarding the scope of legal tender and its repercussions. The main findings of a study conducted by the Ministries of Finance and the national central banks of the euro area shaped the basis of this Recommendation. By providing a single definition of ‘legal tender,’ this Recommendation indicated the three characteristics of legal tender: ‘mandatory acceptance’, ‘acceptance at full face value’, and ‘power to discharge from payment obligations’.

‘Mandatory acceptance’ meant that, unless the parties agreed on another method of payment, the creditor of the payment obligation cannot refuse euro banknotes and coins. The monetary

⁴⁸ ECB, ‘A digital euro’ <https://www.ecb.europa.eu/paym/digital_euro/html/index.en.html> accessed 28 April 2022.

⁴⁹ Council Regulation (EC) 974/98 of 3 May 1998 (n 43) 139/1.

worth of euro banknotes and coins is equal to the amount indicated on the banknotes and coins, which is known as ‘acceptance at full face value’. A debtor can release themselves from a payment obligation by tendering euro banknotes and coins to the creditor under the ‘power to discharge from payment obligations.’⁵⁰

While this Recommendation specified the amount of legal tender for euro banknotes and coins, it did not mention any other form of money. It was preferable to investigate various money form possibilities in order to find common ground between legal tender and central bank digital money. Directive 2009/110/EC clarified the definitions of e-money and its institutions. As stated in this Directive, ‘electronic money’ (e-money) means ‘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 as defined in point 5 of Article 4 of Directive 2007/64/EC, and which is accepted by a natural or legal person other than the e-money issuer’. It should be noted that, under this Directive, the definition of an e-money institution means ‘a legal person authorised under Title II to issue e-money’.⁵¹ The provisions of this article are similar to the exclusive right of another legal entity to authorise the issuance of euro banknotes within the Union independently, namely the ECB.

Two German residents who owed the Land of Hesse (Germany) a radio and television licence fee volunteered to pay it in cash to *Hessischer Rundfunk* (HR). HR declined their offer and sent them payment reminders, citing its regulations on the mechanism for paying radio and television licence payments, which excluded any option of paying the licence fee in cash. The controversy reached the *Bundesverwaltungsgericht* (Federal Administrative Court, FAC), when two Germans filed a lawsuit against the payment notices. The inability to pay the radio and television licence fee using euro banknotes, as granted by HR’s payment procedure regulations, violates a higher-ranking provision of federal legislation, according to which euro banknotes are to be unrestricted legal tender. However, the FAC questioned whether that provision of federal legislation is compatible with the EU’s exclusive monetary policy competence for Member States using the euro, and submitted the case to the Court of Justice for a preliminary judgement. It also inquired whether the legal tender status of euro banknotes prevented public authorities in Member States from ruling out the possibility of a statutorily imposed payment obligation being discharged in cash, as is the case in the Land of Hesse for the payment of the radio and television licence fee.⁵²

This case is significant, not least because of the ramifications for the constitution. It entails determining the scope of the EU’s exclusive monetary policy competence, which

⁵⁰ Commission Recommendation of 22 March 2010 on the scope and effects of legal tender of euro banknotes and coins [2010] OJ L83/70.

⁵¹ 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 amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/E [2009] OJ L267/7.

⁵² Case C-422/19 & C-423/19 *Dietrich & Haring v Rundfunk* EU:C:2021:63

raises problems about the distribution of powers between the EU and the Member States, as well as how their separate powers are exercised. It necessitates, in particular, the formulation of criteria for limiting the actions of Member States when, although not infringing on an area of exclusive competence of the EU, their actions still touch on concepts that lie within that domain. Furthermore, this case presents new issues that are of critical practical importance for the euro as a single currency, both now and in the future. The Court is being asked to interpret elements of monetary law that it did not have a chance to decide on before, particularly the concept of legal tender. All of this occurs in a complex environment, in which the success of scriptural and e-money, as well as technological progress, all of which have the potential to disrupt the use of money, is accompanied by the existence of a significant number of vulnerable people who still lack access to basic financial services.⁵³

According to the above-mentioned *Dietrich and Häring v Rundfunk* case judgement, the CJEU refers to banknotes as the only legal tender. The CJEU, on the other hand, does not consider cash notes to be the only legal tender. As stated in the same CJEU judgement,

the meaning and scope of the concept of ‘legal tender’ referred to therein, that concept is a concept of EU law that must be given an autonomous and uniform interpretation throughout the EU, which interpretation must take into account not only the wording of the provisions in which it appears but also the context of those provisions and the objective pursued by them.

The CJEU also stated that

It should be noted in that regard that the concept of ‘legal tender’ of a means of payment denominated in a currency unit signifies, in its ordinary sense, that that means of payment cannot generally be refused in settlement of a debt denominated in the same currency unit, at its full face value, with the effect of discharging the debt.⁵⁴

As stated by Opinion Advocate General Pitruzella, the legislature of the EU, like many, if not all, national legislatures, lacks a definition of the term ‘currency’. The idea of ‘funds’, as defined in Directive (EU) 2015/2366 on payment services, appears to be the most similar to the concept of money in Union substantive law. The harmonised framework for payment services under that Directive is concerned with the transfer of ‘funds’, a concept for which the Directive does not provide a precise legal definition. However, Article 4(25) of that Directive lists the ‘funds’ that may be the subject of payment services, stating that they include ‘banknotes and coins, scriptural money, or e-money’ as defined in Directive 2009/110/EC. Money, and thus the euro, exists and circulates in the economy of the euro area in different forms. In that context, it should also be noted that although the EU has not explicitly

⁵³ Opinion of AG Pitruzella in Case C-422/19 & C-423/19 *Dietrich & Haring v Rundfunk* 29 September 2020 para 3–4.

⁵⁴ Judgment in Case C-422/19 and C-423/19 *Dietrich and Häring v Rundfunk* [2021] EU:C:2021: 63, para 45–46.

assigned the status of legal tender to forms of currency other than cash, it has nevertheless comprehensively regulated payment services (Directive 2015/2366) and the issue of e-money (Directive 2009/110) within the framework of internal market regulation. In this context, the EU itself has favoured the use of electronic means of payment.⁵⁵ That is why, through the prism of electronic means of payment, the CBDC – the digital euro – can be considered as e-money with the legal tender status.

In effect, granting legal tender status to the digital euro would involve its use in any location and under any conditions in order to allow for the unconditional acceptance of payments. Legal tender status would necessitate that users be able to receive incoming payments in ways that are as user-friendly as banknotes, such as by utilising a simple physical device that can also be used offline or, if the legal tender status applied to online payments, an open digital wallet service. A digital euro with legal tender status would be more easily accepted if there were a set of common end-user solutions.⁵⁶

4 Experimental Work and Impact of Digital Euro

The Eurosystem’s High-Level Task Force on CBDC began experimental work on a digital euro in September 2020, with the goal of analysing and learning more about the technological feasibility of design choices indicated in the Report on a digital euro. The experiments, which were divided into four work streams, involved experts from euro area national central banks and the ECB. These development streams looked at four main design elements: the digital euro ledger, privacy and anti-money laundering (AML), constraints on digital euro in circulation, and end-user access. The goal was to address the key design concerns left unanswered by the Report and which required consideration in terms of technical feasibility, as well as to gain a general knowledge of how the various design options complied with the Report’s principles. The experiments were placed in a multidisciplinary setting with participants from academia and the corporate sector, and they were undertaken without advocating any single solution. The findings of the experiments show that there were no substantial technological constraints for any of the issues examined, implying that the resources are available to meet the design requirements described in the Report. The findings need to guide a variety of relevant topics, ranging from policy to legal issues. Some solutions will also need to be examined to confirm that they could be implemented in a form that is suitable for a retail digital euro targeted to the general public, taking factors such as safety, dependability, speed, convenience and cost-effectiveness into account.⁵⁷

The ECB released its first Report on a possible launch of the digital euro in October 2020, stating that it would be ‘for use in retail transactions available to the general public – that is, citizens and non-bank firms – rather than being available only to traditional

⁵⁵ Ibid, para 76–97.

⁵⁶ ECB (n 48) 33.

⁵⁷ ECB ‘Digital euro experimentation scope and key learnings’ (2021) 1.

participants (typically banks) in the large-value payment system managed by the central bank.' The ECB announced in July 2021 that a two-year inquiry phase into a digital euro project would begin on 1 October 2021. The anticipation that CBDCs will be produced in the future underlines the advantages of keeping central bank money in a world where customers and merchants increasingly choose the convenience of e-payment.⁵⁸

On the basis of present Eurosystem rules, certain basic guiding principles for the construction of a digital euro can be established. To begin with, a digital euro would just be another means of supplying euros, rather than a separate currency. As a result, it should be convertible in the same way as other forms of euro, such as banknotes, central bank reserves, and commercial bank deposits. Furthermore, a digital euro would be a Eurosystem liability, and so risk-free central bank money by definition. The introduction and circulation of a digital euro should not expose the Eurosystem to unnecessary financial risks. This implies that the Eurosystem must always have complete control over the quantity of central bank money released in the form of digital euro. Moreover, prospective users in all euro area nations need to have equal access to the digital euro, and supervised private intermediaries should be able to apply their expertise and participate in the supply of payment services. Finally, just like any other form of the euro, a digital euro must be trusted, and efforts must be made to ensure that trust is established from the beginning and maintained thereafter.⁵⁹

Issuing a digital euro must correspond with both the objectives and powers of the Eurosystem, given the concept of conferral and the requirement for the ECB to act within its mandate. As a result, the creation of a digital euro would achieve two important policy goals. First, a digital euro would assist in meeting the ongoing demand for a form of public money that has the characteristics of currency. The euro provides an essential public good for EU citizens by giving free access to a simple, universally acknowledged, credit-risk-free and trustworthy means of payment and store of value. Additionally, a digital euro would provide an alternative to 'stablecoins' for EU retail payments, preventing widespread adoption of private digital currencies. A digital euro would assist the security of the monetary transmission mechanism and consequently the ECB's authority over monetary policy by supplementing the anchor role of actual euro cash.⁶⁰

What would be the impact of releasing a digital euro on the Eurosystem's balance sheet and fundamental responsibilities? Initially, a digital euro needs to be so designed to minimise any negative implications regarding its introduction, avoiding any negative effects on monetary policy and financial stability, as well as on banking sector service provision, and eliminating any dangers. Furthermore, excessive usage of the digital euro as a form of investment must be avoided, as should the possibility of big rapid changes

⁵⁸ Ulrich Bindseil, Fabio Panetta and Ignacio Terol, 'ECB Occasional Paper Series: CBDC: functional scope, pricing and controls' (No.286, 2021) 3. <https://doi.org/10.2139/ssrn.3975939>

⁵⁹ ECB (n 48) 7–8.

⁶⁰ Seraina Neva Grünewald, Corinne Zellweger-Gutknecht and Benjamin Geva, 'Digital euro and ECB Powers' (2021) 58 *Common Market Law Review* 1029. <https://doi.org/10.54648/COLA2021066>

from bank savings to the digital euro. Even when exempted, the Eurosystem should strive to comply with regulatory norms unless it is plainly in the public interest not to. Finally, in comparison to other options, the digital euro should be a more efficient approach to meeting the Eurosystem's goals. Conditions for utilising it outside the Eurozone should be specified, and digital euro services must be highly immune to cyber threats.⁶¹

Aside from the effects on the Eurosystem's core objectives, the digital euro could have an impact on a few other aspects that are not on such a list. On the one hand, the digital euro may provide a substantial boost to the EU's digitalisation by allowing EU intermediaries to offer a broad range of services for their consumers, which would not only benefit the financial system as a whole but, ultimately, all citizens. On the other hand, from a strategic standpoint, this would also enhance the EU's independence from corporate and public bodies that claim to be providers of widely used payment systems. The EU's digital currency should aim to have a low environmental impact; this is the first indication of how a digital euro could be the first step toward a more widespread decrease in the environmental costs of payment methods and instruments.⁶²

5 Future Scenarios and Types of a Digital Euro

According to the ECB's first Report, a digital euro could be a viable option for the Eurosystem in a variety of future scenarios in order to achieve the objectives related to core central bank functions (Sec.2.1) and general EU economic policies (Sec.2.2), provided that its design meets scenario-specific requirements. A digital euro could be issued (a) to support the digitalisation and strategic independence of the EU economy, (b) in response to a significant decline in the role of cash as a means of payment, (c) if there is significant potential for foreign CBDCs or private digital payments to become widely used in the euro area, (d) as a new monetary policy transmission channel, (e) to mitigate risks to the normal provision of payment services, (f) to foster the international role of the euro, and (g) to support improvements in the overall costs and ecological footprint of the monetary and payment systems.⁶³

In its study, the ECB conveys the idea that the future digital euro will be distributed through monitored institutions such as banks. This would have a variety of benefits, including allowing commercial bank money to be converted into central bank money and vice versa. It would also mean that commercial banks might rely on customer authentication and client relationships to respond to customer enquiries and problems. When designing a digital euro from the ground up, the temptation is to provide the most extensive and cutting-edge capabilities possible, based on the most cutting-edge technology. For example, it has been suggested that a digital euro should (a) allow for fully anonymous payments

⁶¹ Ulrich Bindseil 'Issuing a digital euro' in ESCB Legal Conference 2020 (2021) 173–174.

⁶² Emanuele Urbinati et al., 'A digital euro: a contribution to the discussion on technical design choices, Mercati, infrastrutture, sistemi di pagamento (Markets, Infrastructures, Payment Systems)' (No.10, 2021) 13–14.

⁶³ ECB (n 48) 9.

to protect privacy while adhering to AML rules; (b) allow for offline payments; (c) allow for instant credit transfers and direct debits; (d) be programmable and allow for ‘smart contracts’ for advanced use cases in industry and commerce; and (e) ensure financial inclusion (meaning potentially usable by non-banked and non-mobile phone users).⁶⁴

Based on the description of possible properties of a digital euro, it appears that two types that would meet the specifications outlined in the research can be identified. Offline use is possible with the initial type. It may be utilised without the involvement of a third party, hence it should be made available only through specified user devices that could be distributed or paid through supervised intermediaries and be safe against both hacking and inadvertent usage. In concept, offline digital euro transactions would be anonymous and could only be compensated at a fixed, non-negative interest rate. Moreover, proper technical constraints in the payment device should be used to set limits on the use of the offline digital euro, notably in respect to its potential anonymity function. The qualities of an offline digital euro would be completely consistent with those required for legal tender status. Finally, an offline digital euro’s architecture would be *de facto* identical to that of current e-payment alternatives. The other sort of digital euro could be used online and is remunerated at a variable rate. Compensation would be an effective tool for monetary policy applications, as well as for limiting movements from private money to the digital euro. Advanced functionality and opportunities for supervised private intermediaries to offer value-added services could be included in a digital euro that can be used online. Its use would not be restricted to a single device, and the responsible parties may govern access to all digital euro services at any moment. On the other hand, this online digital euro would eliminate the potential anonymity of users.⁶⁵

A digital euro could be offered as a web-based service or via dedicated physical devices, such as smart cards. The opening scenario could allow for the use of a wide range of devices, but an internet connection would be required. The next scenario would necessitate the usage of certain suitable devices that could also be used offline by both the payer and the payee.⁶⁶

The underlying back-end infrastructure for providing a digital euro can be either centralised, with all transactions recorded in the central bank’s ledger, or decentralised, with some responsibilities delegated to users or supervised intermediaries, allowing for the provision of a bearer digital euro. Regardless of strategy, the central bank must be in charge of the back-end infrastructure. The role of the private sector is the major distinction between a direct and an intermediated approach. While supervised intermediaries are only gatekeepers in a direct model, they would play a larger role in an intermediated one, including that of settlement agents. The private sector would be able to create new enterprises based on digital euro-related services in both scenarios. End-user access to

⁶⁴ Katrin Assenmacher, Ulrich Bindseil ‘The Eurosystem’s digital euro project: Preparing for a digital future’ in Dirk Niepelt (ed), *CBDC: Considerations, Projects, Outlook* (CEPR Press 2021) 113.

⁶⁵ ECB (n 48) 34.

⁶⁶ Ulrich Bindseil (n 61) 176.

a digital euro infrastructure might be provided by hardware, software, or a combination of both. Front-end access solutions, in any event, require strong consumer authentication and identification. End-user solutions and any private systems participating in the provision of digital euro services need to interface with the central bank's back-end infrastructure in such a way that the danger of unjustified creation of digital euro units without the central bank's permission is minimised.⁶⁷

6 Technique and Design of a Digital Euro

The experiments that looked at blockchain ledgers found a wide range of possibilities that might be utilised to improve end-user privacy options and showed that blockchains could easily be changed to support different levels of privacy. One-time pseudonyms are a technique that has been examined, in which a different pseudonym is used for each transaction in which users participate, making it difficult for recipients to link the various pseudonyms to the sender's identity. The other technique is a payment channel network, which is a network of bilateral channels in which the level of anonymity varies depending on which agents are permitted to join in the network. The next technique is transaction mixing, which comprises a protocol or service that allows many users to mix their transactions to avoid pseudonym linkage and traceability, linking the sender and recipient.⁶⁸

The primary EU law that will be utilised to issue the digital euro will be determined by the design of the digital euro and the purpose for which it is issued. If the digital euro were to be issued as a monetary policy instrument, similar to central bank reserves, and only accessible to central bank counterparties, the Eurosystem could use Article 127(2) of the TFEU in combination with the first sentence of Article 20 of the Statute of the ESCBs as the legal basis. If the digital euro were instead made available to households and other private entities through Eurosystem accounts, the Eurosystem might utilise Article 127(2) of the TFEU in conjunction with Article 17 of the ESCB Statute as the legal foundation. The most expedient legal foundation for issuing the digital euro as a settlement medium for specified sorts of payments, handled via a dedicated payment infrastructure exclusively accessible to approved participants, would be Article 127(2) of the TFEU in conjunction with Article 22 of the ESCB Statute. Finally, if the digital euro is issued as a banknote-equivalent instrument, the most practical legal foundation for its introduction would be Article 128 of the TFEU in conjunction with the first sentence of Article 16 of the ESCB Statute.⁶⁹

The Eurosystem has yet to decide whether to proceed with a digital euro initiative and, if so, whether cross-border payments using a digital euro would be possible. If this is the case, a digital euro could aid in the adoption of the euro in cross-border payments by lowering the frictions and costs associated with euro-denominated cross-border transfers.

⁶⁷ ECB (n 48) 36.

⁶⁸ ECB (n 57) 6.

⁶⁹ ECB (n 48) 9.

This, however, would not be a reason to issue a digital euro, and the impact it would have would be determined by design decisions. Furthermore, the adoption of a digital euro will not necessarily transform the euro's international position, which will continue to be influenced by fundamental factors such as stable economic fundamentals, size, and deep and liquid financial markets. A digital euro could help improve the euro's worldwide appeal, but it would not affect the basic forces that shape the currency's international status.⁷⁰

Preliminary versions of the regulatory framework for regulating cryptocurrencies⁷¹ indicate that the EU takes this work very seriously and tries to keep up with other regions in the regulation of private money. The ECB and national banks are interested in adopting and implementing a digital euro, as evidenced by their work on public money, particularly experiments and consumer surveys throughout the EU. Despite the fact that the ECB is still in the research and development phase of a digital euro, more work in this field will provide fruitful outcomes.

V Conclusion

Digitalisation is spreading all over the world, and its consequences cannot be overlooked by the speed and convenience of e-payment systems. As digitalisation advances, more consumers and businesses are choosing digital card payments over cash transactions. This process leads to a reduction in cash payments, and therefore governments, institutions and central banks around the world are trying to find some solutions to reduce its impact on monetary and fiscal policy.

It can also be noticed that not only the EU payment sector, but the whole world is currently overflowing with both private and public initiatives and projects in the field of digital currency in general. Since private digital currencies (bitcoins and other cryptocurrencies) are not supported by any authorities, they are entirely decentralised. However, in fact, they also have a global scope in design, which indicates the advantage of using them in the future. On the other hand, public CBDCs are more centralised and subject to decisions made by central banks regarding their jurisdiction. For better or worse, the CBDCs are in their early stages of introduction, development, and adoption, which gives the central banks some time to explore potential gaps for its future use. That is why, for smooth monetary and payment stability and to maintain confidence in the public welfare, central banks must join forces with both stakeholders and governments.

⁷⁰ Massimo Ferrari and Arnaud Mehl 'CBDC and global currencies: Special features' in ECB, *The international role of the euro* (2021) 63.

⁷¹ EP News, 'Cryptocurrency dangers and the benefits of EU legislation, 2022' <<https://www.europarl.europa.eu/news/en/headlines/economy/20220324STO26154/cryptocurrency-dangers-and-the-benefits-of-eu-legislation>> accessed 28April 2022.

Today, the central banks believe that the launch of the CBDC seems competent and efficient in terms of the economic and social well-being of consumers and businesses. Maintaining the same position, the ECB is also experimenting and testing the possibility of a digital euro for the Eurozone market and for its participants. Despite the technical and legal readiness, the entire introduction of the digital euro requires a two-year investigation phase. The decision on the digital euro will be made based on the results of this stage: whether it will really meet the needs and requirements of consumers and businesses, and whether it can be evaluated as the currency of the next form in the future are already a matter of time.