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**Central bank digital currency:
a regulatory perspective on
the future payment instrument
in the European Union**

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Abstract

In recent years the economy has seen an expansion of various methods of payment, more and more digital possibilities are offered to customers in order to pay their bills at stores, restaurants or simply when they are shopping on Amazon at home. The digital world is taking over not just the single phases of the transaction, but also the means itself behind that said transaction. Digital currencies in fact are no longer an abstract concept or futuristic tool, they became a reality. For this reason, central Authorities, such as the ECB, can no longer disregard the matter, but should develop their own digital payment instrument. With this paper we are going to address how the issuance of a central bank digital currency will affect the current EU regulation system and which changes should be made to the normative framework.

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Introduction

What defines a currency is the fact that it can be a medium of exchange, a unit of account and a store of value altogether at the same time, right now virtual currencies such as cryptos lack the last one. Moreover, privately issued digital currencies do not have the fundamental characteristics of legal tender, associated with a common currency such euro or dollar, that allows to be accepted as payment of monetary obligations. The absence of legal regulations behind this type of currency seriously threatens their spreading and application. The possibility for the privately issued digital currency to overcome their trading-asset nature depends on two aspects. The adjustment that will be made to the legal system if it is decided to accept this kind of currency and the ability to acquire the necessary feature required from a currency to have legal tender.

What is considered the most problematic aspect of the digital currencies, refers to the lack of proper features, specific of a currency, that guarantee a certain level of safety with respect to the stability of the system. In general, state issue currency offers a higher level of security that you may have with a privately issued digital currency. The latter are not backed by any form of state reserves, thus insuring the stability of the coin. If due to some market fluctuation the value should dropped, then any subject (private or public) involved would suffer a loss. Under such circumstances a state authority cannot risk investing public money on a similar currency, thus is quite probable that in the next years an ever greater number of countries will ban or at least restrict the use of privately issued digital currencies.

The next focus of this paper will be assessing the possible effects of the substitution of the physical banknotes with digital ones. The analysis will review the decrease of cash in the economy and the shift towards a cashless world. Will be considered the various functions provided by the banknotes and whether they could be provided by a digital form of money. It will analyse the current European legal framework and how it could be adapted to facilitate the possible introduction of electronic currency. Focusing on the legal challenges that such issuing may brought. Furthermore, will be considering the legal tender issue associated with this new kind of money.

Under such circumstances the legal framework should not be set in stone, instead it should try to evolve itself in relation to the new digital coin, embracing the new technical developments and at the same time keeping the financial stability. There is in fact no reason why laws should disregard such powerful tool as a digital currency just because it does not respect certain parameters, that were established with the payment instrument of the banknotes. The goal is to keep the financial system safe without excluding any progress advantage. Hence the legal structure should: move around the digital coin, understating its weak points, take any safeguard measures in order to reduce the risk of financial instability, create specific institutions (or expand the existing ones) to monitor the activity conducted with such currency and at the end guarantee the financial safety of the market's operators.

On this note the most promising tool that most likely will be implemented is the central bank digital currency or CBDC, a digital currency issued by a central bank. Before discussing in detail what are the CBDC we are going to focus on whether the European legal bases are sufficient to support and offer the CBDC's implementation. Each EU institution, financial and otherwise, presents a series of powers that are limited by powers of other institutions in terms of monitoring and operations. The principles that dictate this complementary degree of supervision among different EU institutions are subsidiary, conferral and proportionality. Considering the ECB, it has a clear mandate to operate in specific fields, exploiting specific tools in specific circumstances, it is quite evident the limitations pattern under which the European Central Bank operates. Thus, when thinking of issuing CBDC, it might be wise to take in consideration the precedent that would set and if this issuing may cause an overlap, in terms of powers, between European organizations.

We are going to see that the possibility for the ECB of issuing CBDC relies on the price stability mandate, that justifies any issuing as long as is in line with the monetary policy and promotes a smooth payment system. Addressing then the legal tender issue, we will observe how issuing digital euros is not the same as issuing euro banknotes. Even if someone may think that they are just digital manifestation of banknotes, a digital coin is a programmable money that present a different nature from their physical corresponding, banknotes and coins. By possessing this feature, the CBDC can and will provide more

functions which will have to be monitored by the issuing institution, ECB. Thus, granting more powers in the hands of the central bank, in terms of surveillance over transaction and the possibility to impose negative interest rate. Such extension of powers may not be totally in agreement with European public laws, which tend to set and encourage a limitation of powers and areas of operation to reduce any financial stability risk.

In addition to the issuing capacity the ECB is entitled to promote any measure that would improve the payment system for the better. Taking this in consideration it may seem that issuing CBDC could, in a certain way, help the ECB with this function. In particular, issue digital currency would make the payment system more efficient. By providing an easier traceable instrument, the monitoring function for the ECB will be facilitated and at the same time a more secure payment system would be presented. Again, it would seem that the legal basis behind the ECB's powers would encourage the issuing of the CBDC, with a not appreciated overlap of functions.

Nevertheless, a similar activity would have unintended effects with regards to banking disintermediation, efficient credit allocation and new powers to the ECB. Leading to new standards of accountability for the central bank and its monetary policy. A quite simple example, that we are going to analyse in detail later, refers to article 127 of the TFEU, where it is stated that “the ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119”.¹ The issuing of CBDC would most likely lead to a centralization of the credit allocation, thus violating the previous article that instead encourage an efficient allocation and open market. However, most of the legal challenges seen up until now depend on the design of the CBDC (centralized or distributed ledger) that will be analyse later in the paper. The possibility for the CBDC of having the legal tender feature relies entirely on the fact that only the ECB can issue money with legal tender inside the EU. Hence this crucial aspect to the existence of the CBDC depends on the powers of the ECB. We are going to see how and why the European central bank can provide coin with such characteristic, upon which depends its functioning and spreading.

¹ See also Art. 127 TFEU - Art. 2 ESCB/ECB Statute.

Even though in Europe and the US the CBDC have not yet seen the light, there is one example in a major economy of the world of this new type of monetary object. The first real digital coin issued by a central bank of a sovereign state, is the Digital Yuan, issued by China's government, showing quite a potential as a digital currency. Defined as a digital currency – electronic payment (DCEP), the Digital Yuan has been designed as a tool to reduce the use of cash and at the same time improve the efficiency in the payment process. At this moment it is used by banks and large technology firms, with the possibility of being exploited, in the future, by the public using digital wallets. Once the DCEP will be implemented on a large scale, the payment system will be completely revolutionized. For the first time will be achieved a degree of interoperability never seen before, among private business providers and large banks, that will use the same electronic payment tool.

I° Chapter – Central Banks Digital Currency and its functionalities

Believing that digital currency will not be at the centre of the payment system in the future it is just illogical. It is natural to ask ourselves if and whether central banks could issue electronic currency (CBDC), in this way addressing the markets and their madness for digital currencies.² Like with regular cash, this would provide a solid legal background to the digital currency and the possibility to manage the monetary policy with new issue and withdrawn. Before addressing the modification to the legal system brought by a hypothetical central bank digital currency, we need to understand the reasons behind the issue of a similar currency.

1.1 A cashless world

1.1.1 Cash dynamic

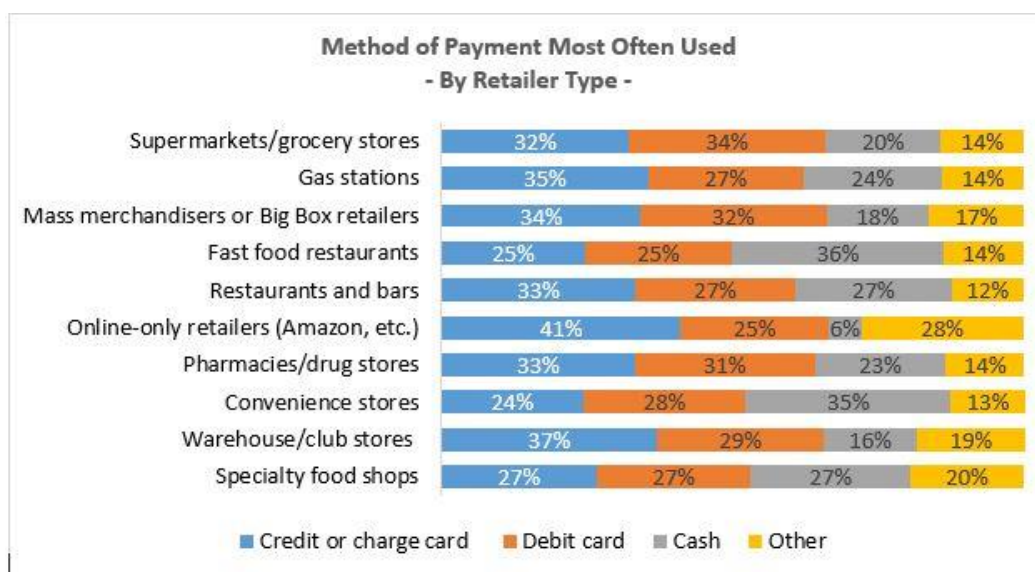


Fig 1. Use of cash³

In recent years has been observed that the use of paper banknotes as form of payment has dropped dramatically.⁴ As shown in figure 1, the use of cash has seen a sensitive reduction in different sectors, with smaller levels compare to the others payment instruments.

² See also IMF, *The Rise of Digital Money*, (July 2019).

³ See also <https://www.paymentsjournal.com/the-use-of-cash-im-not-dead-yet/>

⁴ See also M K. Brunnermeier, H. James and J. P. Landau, *The Digitalization of Money*, (September 2019).

This has led to a decline in the demand of cash, leaving an open market to various possibility, among which digital currencies.⁵ There are several factors behind such a steep decrease, some starting not so recently.

The first reason because we see a lesser use of cash is related to public law position. In particular the possibility to pay taxes in a cashless form and the ceiling imposed on the material circulation of cash to fight money laundering, the terrorism's financing and the tax offences have caused a serious decline of cash implementation.⁶

Another point in favour of a cashless economy may come from a monetary law, when markets experience too much volatility in cash changeovers people might prefer to keep their money in bank deposit instead of a more liquid form, so their value is stored and secured.⁷

The starting point in the decline of use of cash can be associated with the creation of the deposit possibility in a commercial bank. People throughout history passed from a need of "touching" their money to the need of storing their money in banks where they would have access to the sum of cash deposited.⁸ For starters, the necessity of transporting the money with the associated risks was all but eliminated moreover the spread of "fake" money was stopped. In the last years the banks that offered the possibility of booking a deposit entirely electronically have seen a strong rise.⁹

Besides commercial banks could exploit a freedom and a flexibility in granting new deposits associated with loans that a central bank could not have, due to monetary powers associated with the public Authority.¹⁰ This push towards a cashless market that needed strong restrictions after the crack of 2008.

⁵ See also D. W. Atner, R. Buckley, D. A. Zetsche and A. N Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (2020).

⁶ For the same reason we have seen the disappearance of high value banknotes, substituted by safer and easily traceable electronic payment.

⁷ See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies*, (July 2016).

⁸ This mechanism offered only advantages, to both the banks and the depositors.

⁹ This due to the benefits that were brought to the customers (easy access, rapidity, convenience).

¹⁰ See also P. L. Athanassiou, *Digital Innovation in Financial Services – Legal challenges and Regulatory Policy Issues*, (2018).

In the same direction we may find the cost dynamic under which a commercial bank generally operates.¹¹ This, hence, encourages the creation of more deposit accounts.

If in strong economy conditions we may see a rise in the spread of commercial bank's deposits with all the benefits associated and a decrease in the circulation of cash, in times of crisis we may encounter another force that have a similar effect.¹² During difficult times people tend to increase their savings due to the fear of future situations and in doing so they keep out from the economic cycle a large amount of money.¹³ Those economic circumstances push people to keep for "themselves" their money causing a shortage in the system, where eventually its production will fall behind and enters a negative cycle. Either way the amount of liquid cash circulating in the system will be less.

1.1.2 A normative perspective

When considering this dynamic and the possible realization of an electronic substitution for cash it would be wise to consider the consequences to the system, not only from a macroeconomic point of view, but from a more normative perspective.¹⁴ This might offer a deeper focus on the safeguards that this new kind of money would offer, for instance in times of crisis.

The normative aspect reemerges when dealing with the possibility for the public to switch to a digital money in a non-domestic currency or to a private digital money. Following a pattern similar to the unofficial dollarization, where people hold foreign currency deposit to protect themselves from high inflation of the domestic currency.¹⁵ This alternative money could be issued by the State and be backed by reserve from a central bank, or issued by a private business, thus relating its value to a certain currency (euro, dollar,

¹¹ By exploiting the economies of scale related to the giro services, when transferring money from one financial institution to another, the costs sustain by the banks drastically reduce, when the quantity of book money increases.

¹² See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies*, (July 2016).

¹³ What is interesting to notice is the presence of two types of saving strategies. One characterized by the lack of cash in the economy on a short- medium time horizon caused by circumstances, where there is already enough liquidity in the system and adding more would mean a suboptimal allocation of the money. The second saving approach, defined as hoarding, sees again a lack of cash in the system but this time due to a fear of the economic conditions.

¹⁴ See also C. Barontini and H. Holden, *Proceeding with caution: a survey on central bank digital currency*, (January 2019).

¹⁵ Basically, searching for a financial heaven to store their value.

etc.), being a stable- coin.¹⁶ There is an exception, where a private digital currency is backed by public reserves, improving its stability.¹⁷ In general, these two options (central bank's guarantee and physical backing cash) would be preferable when the benefits offered in exchange for the outflow to foreign state digital money are similar to a financial safe haven or a money globally accepted.

An alternative to the “state backed” digital money is the private issue digital money or virtual manifestation of fiat money, backed by high quality assets, provided by the same issuing private institutions (i.e. *Libra*).¹⁸ One main advantage that this possibility may offer is the creation of an all-around environment throughout the digital money.¹⁹ Moreover, this category of digital money is widely accepted and redeemable in various currencies. This helps not only in terms of spreading the use of this money, by creating an original framework on which it may be possible to introduce CBDCs, but also allows a constant virtual circulation of money.²⁰ Hence avoiding the need to cash out and use material money.

One concern that might arise from the exploitation of the private issue digital money is that only big players in the fintech sector could issue such coin. Only those companies in fact would have access not only to the tech knowledge to realize such coin, but also have the financial resources to backed and guarantee the digital money. The widespread of this type of money depends, in a crucial way, on the authorization of the governments, which require the highest possible standards in terms of security.²¹ It seems that the time for

¹⁶ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

¹⁷ This last scenario would be possible only if the private company offering private digital money, grants access to their balance sheet to the central bank. Transferring then the funds, held for the customers through commercial banks, to central banks where the said funds would be backed by central bank's reserves (i.e. *Alibaba and WeChat cases with NetsUnion and China UnionPay*).

¹⁸ See also D. W. Atner, R. Buckley, D. A. Zetsche and A. N Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (2020).

¹⁹ This enables users to exploit an easier application in cross-border activities and an additional layer of preservation when dealing with emerging markets investments.

²⁰ See also Banque de France, *Central Bank Digital Currency*, (January 2020).

²¹ This condition will probably transform the digital money, backed by the highest quality assets, in a semi-kind of deposit almost free of every risk.

material cash is running out, since the more this digital money is used the more it will spread substituting the real money that will not be necessary in any form.

1.2 Private virtual currencies and their practical use

On a different note in these last few years, the shift towards a cashless world has been followed by a steep increase in the development and trade of private virtual currencies.²² This financial instrument is often confused by the public for a real currency, even though it lacks the most relevant feature of a currency, the legal tender. The development of digital currencies is pushed by two main drivers: the technological progress, which is trying to improve the evolution of payment processes, making them smoother and easier and increase the rapidity with which a transfer of fund is made.²³ Moreover, for an external regulator the traceability of any operation involving the transfer of funds is not easy at all, thanks to the structure of the ledgers among which the operations are recorded and the code of information that enables them.²⁴ The low level of traceability associated with such instrument has pushed private issued digital currencies near the money laundering reality and the same time towards the hostility of monitoring Authorities.²⁵

1.2.1 Tax regulation

One of the authorities facing the legal issue regarding the virtual currencies is the IRS (Internal Revenue Service). In its guidance on private digital currencies the IRS specifies the as “*a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value and does not have legal tender status in any jurisdiction*”²⁶. Furthermore, under a tax perspective, digital currencies are considered as

²² See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

²³ See also Center for Latin American Monetary Studies (CEMLA), *Key Aspects around Central Bank Digital Currencies*, (May 2019).

²⁴ See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

²⁵ Starting in 2021 various countries are considering, if they have not already done it, a ban on private virtual currencies due to their shady nature. It is not difficult to see why they may be a challenge to the legal system.

²⁶ See also IRS Virtual Currency Guidance: Virtual Currency Is Treated as Property for U.S. Federal Tax Purposes; General Rules for Property Transactions Apply.” IRS Virtual Currency Guidance | Internal Revenue Service.

property, thus the tax principle applied to any electronic currency's transaction should be the one applied on property transaction.²⁷

1.2.2 Money laundering

As we said before virtual currencies provide a high degree of flexibility when it comes to monitoring activity from the regulator. Any fund transferring is outside the traditional banking system and the structure underneath any e-currencies transaction has been developed to assure the safety of the parties involved, including their anonymity from an external operator/ supervisor.²⁸ If from the user perspective this might be very helpful, it also presents an opportunity for those who conduct illegal activities and are trying to “wash” their money.²⁹

To counter this pattern that is emerging especially in the US, the American Regulator has issue at federal level two laws: 18 U.S.C. §1956³⁰ and 18 U.S.C. §1957³¹. The first one address the problem by stating that anyone is convicted for being involved in money laundering activity, when he conducts any financial transaction that is originated from an illegal activity, with the intention of promoting and preserving that said activity. The second law focus on the good or bad faith of the user, where is considered a crime when the subject completes the transaction knowing that the funds come from a criminal activity and the sum is above 10.000 USD. These legal principles seen above are not very different from the European regulation in anti-money laundering scenarios. In the European Union we find the “Commission delegated regulation (EU) 2019/758” and

²⁷ This approach helps avoiding tax evasion since, in order to comply with IRS principle, every digital currencies' owner must keep tracks of any profit and loss that comes from the said virtual currency.

²⁸ See also P. L. Athanassiou, *Digital Innovation in Financial Services – Legal challenges and Regulatory Policy Issues*, (2018).

²⁹ The anonymity factor added with the ease and rapidity with which fund are transferred on a blockchain structure, provides the perfect tool to launder money.

³⁰ See also U.S.C. §1956

<https://www.gpo.gov/fdsys/granule/USCODE-2011-title18/USCODE-2011-title18-partI-chap95-sec1956>

³¹ See also 18 U.S.C. §1957

<https://www.gpo.gov/fdsys/granule/USCODE-2010-title18/USCODE-2010-title18-partI-chap95-sec1957>

“Directive (EU) 2019/1153 of the European parliament and of the council” which present almost the same focus on the money laundering problem as the US federal laws.³²

In addition to the legal framework just analysed there might be another possibility for the public authority to track illegal activities and stop the money laundering process, conducted using private digital currencies.³³ It has been observed by a research group of Princeton University that the anonymity of the users is not totally secure. In particular, in the various steps required to complete the transaction the identity of the parties involved could be leaked. In the conversion step between fiat currency and virtual currencies, where could be asked the identity of the user, or in the subsequent transferring steps, when the general information of the operators is required.³⁴

1.2.3 evasion

The anonymity failure associated with a current virtual currencies may hit not only the money laundering activity but also the tax evasion reality. Lately electronic currencies have risen to success because they provide a potential anonymity in the transaction and because those transactions were conducted outside of the banks circle, thus being less traceable.³⁵ Moreover, any transaction could be completed in a cross - border dimension without rising any suspicion on the regulator’s detector.³⁶ On the other side being a private trade asset, without any legal support and no backed asset from the banks scares conservative investors away. This causes the formation of different patterns³⁷ to elude the legal framework:

³² These regulations were drafted following the principle of price stability and efficient resource allocation of the assets. There were not developed to obstruct the private business of digital currencies, rather to help and ensure the solidity of the system.

³³ See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

³⁴ In those moments the information is vulnerable to potential external attack. The public regulator may exploit these phases to identify the subjects involved in the illegal activity, thus stopping the laundering process. For these reasons financial professionals and security experts has started to define the anonymity feature more as Pseudonymity, since it is not guaranteed at 100%.

³⁵ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

³⁶ Hence destroying the fiscal policy implemented in these last years to fight offshore tax evasion.

³⁷ See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

- Saving account: by creating numerous saving accounts, used as wallets where people only store their money, the chances of getting caught by a monitoring authority decreased rapidly.³⁸
- Transaction division: this strategy involves the break into small sum of the original large amount of funds, in doing so a sum that is consider highly – risk goes under the bar of detection. The break-off of the original sum can be done following three similar schemes: the fork and merge scheme breaks the transfer of virtual currency into smaller transfers, deposited temporarily in different wallets, possessed or controlled, before moving everything to a final destination. The long chain scheme is quite similar, since it consists in breaking the transfer into smaller amount destined to multiple wallets possessed by the user. If every break corresponds to half of the amount contained in the old wallet, then it would be the binary tree-like distribution strategy.³⁹
- Inter-digital currency conversion: this approach is based on never making the conversion between fiat currency/ real currency and digital currency, instead converting virtual currencies with other virtual currencies accepted for certain goods and services. Since tax are paid only when digital currencies are converted in real currencies or vice-versa, this strategy avoid them completely.⁴⁰
- Tax exempt agent: this strategy involves a third party, external to the original transaction, the agent who is tax exempt being a buying agent. In this situation the investor wants to buy stocks without paying tax on dividends.⁴¹
- Foreign transaction: another strategy that was exploited more in past due to some financial regulation adopted at international level, is the transaction from real/fiat currency to virtual currency. This operation is conducted through a foreign bank

³⁸ This strategy is based on the fact that if someone has only one account with a large sum and various transaction it would be more probable a financial assessment from a supervisory Authority.

³⁹ See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

⁴⁰ An attempt to solve this loophole has been made by Trump administration with their tax proposal that included taxation for every transaction made with e-currencies, thus considering also inter-digital currency conversion.

⁴¹ In particular, the investor sign and equity swap contract in virtual currency with the agent, who buys the stock shares in real currency for an amount equal to the dollar value of the virtual currency that he has received. Subsequently, the agent transfers in digital currency the total volume of dividends that he has received from the shares to the investor.

hoping that the bank's secrecy regulation, under which the financial intermediary operates, would prevent any leaking of information to the Home Authority.⁴²

After seeing how private virtual currencies could easily become financial instruments that encourage tax evasion and money laundering, thus facilitating illegal activity, is not difficult to understand how they may present a legal challenge for any country jurisdiction. In particular if we consider the functions that a e-currency provides in absolute terms, they do not offer any particular function associated with a normal currency.⁴³

The reasons behind the steep rise in the spread of digital currencies relies on several other factors. The technological potential shown, the trading activity conducted, especially during the Covid pandemic, and the possibilities offered in relation with money laundering and tax evasion are the real reasons for the rapid spread of e-currency.⁴⁴ In any case these are not the main functions for which a currency is created,⁴⁵ hence the hostility of governments regarding this financial instrument is justified, especially if we considered the encouragement towards illegal operations. On this note the potential issue of a CBDC might not be consider as an issue of a substitute financial instrument, more like a complement product.⁴⁶

Moreover, by introducing such instrument it would be provided a partial competitor for the private digital currency when it is used as a payment instrument. In addition, it would be exploited the technological potential associated with a similar innovation without

⁴² This scheme has seen a great decrease after the US have prepared the so called FATCA (Foreign Account Tax Compliance Act), a regulation that holds foreign financial institution responsible to provide the relevant information to the monitoring Authority (IRS) in the US. This act has been negotiated with various foreign government in order to assure both the compliance with the national regulation and with the needs of the IRS.

⁴³ The few cases in which a virtual currencies are accepted as payment, cannot be taken as examples of their "normal" features.

⁴⁴ See also D. W. Atner, R. Buckley, D. A. Zetzsche and A. N Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (2020).

⁴⁵ The key functions are related to the payment activity and being a source to store personal value. The functions associated to the private digital currencies are not near the potential of a currency such as the Euro.

⁴⁶ Central banks such as the ECB, should consider the possibility of issuing CBDC in order to introduce those modification to the legal framework necessary to operate with digital currency, meanwhile bypassing the dangerous aspects of private virtual currencies.

allowing any criminal activity, since the monitoring process would be carried out by the same institution that issued said instrument.⁴⁷

The final step of the issuing process would be the ban of the private digital currencies. Once the legal framework has been modified and the Central Bank Digital Currency has been developed to assure the same level of security in the transaction offered by private e-currency, a ban would allow the wide spread of CBDC.⁴⁸ If private digital currency and CBDC would be allowed to coexist the phenomenon of money laundering and tax evasion would not see a stop, due to the constant monitoring on the central bank digital currencies that would force any illegal activity to operate on the private reality.⁴⁹

In the end a legal ban may seem an extreme measure but the related benefits are much greater than the losses that would be suffered.⁵⁰

1.3 Digital Coins

1.3.1 General aspects

After envisioning private virtual currencies' dynamic and which may be the causes behind the decrease in the use of cash of recent years, we'll observe the possible substitutes of physical money and its digital representation. What constitutes physical cash in the current state of events is for the most part banknotes.⁵¹

Keeping in mind the security and traceability principles we now focus on the digital alternatives of the banknotes, and their definition. If, in fact, a digital money should substitute the material money, the new electronic currency should possess not only the

⁴⁷ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

⁴⁸ See also <https://fortune.com/2022/01/04/crypto-banned-china-other-countries/>

⁴⁹ See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

⁵⁰ The trading activity can be done on a lot more assets than just private issued virtual currencies.

⁵¹ A piece of paper to which is associated a certain value and that possess specific characteristics (serial numbers, etc.) whose function is allowing the traceability of the single banknote and avoiding possible counterfeit attempts.

convertibility and wide acceptability features⁵², but should also respect specific security criteria.⁵³

The security profile offered by a digital coin might be even superior to the one presented by physical cash. To demonstrate this we could consider the words of the founder of Bitcoin. He defined an electronic coin as “a sequence or a chain of digital signatures”⁵⁴ that is formed by the process of each transfer, from the previous owner to the next one. In this way creating a chain in which the identification of the owner is easy enough as well as the coin, but at the same time provides a structure that is almost impossible to decodify from an external user.

1.3.2 Definition

The problem that may arise from such definition is that it does not specify what an electronic coin is, rather than saying how it is structured, transferred and used. Anyhow it gives to the coin a specific characterization in terms of entity instead of a generic definition that depends on the associated economic or monetary value.⁵⁵ The risk with a “digital value” definition, for an electronic coin, could be find in a too broad perspective which might place side by side a digital coin and a basic credit account to a commercial bank whose access relies on a digital instrument.⁵⁶

The credit account whose access is guaranteed by a digital instrument that allows also for payments through digital means is defined as e-money. In the Directive 2009/110/EC of the European Parliament and of the Council this instrument is defined as a stored monetary value that represent a claim on the entity that issued the e-money, based on a receipt of funds necessary for payment transaction and which is accepted by another entity, natural or legal, different from the issuer.⁵⁷ On the other hand CBDC is not a digital representation of physical money, rather its digital transposition. In fact, digital euros

⁵² See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

⁵³ In order to guarantee and protect the nominal value that they represent.

⁵⁴ See also S. Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, (November 2008).

⁵⁵ See also S. Jafari, T. Vo-Huu, B. Jabiyev, A. Mera and R. Mirzazade farkhani *Cryptocurrency: A challenge to legal system*, (May 2018).

⁵⁶ Such definitions, especially for a regulatory purpose, should be considered unsatisfactory and therefore excluded from the following analysis.

⁵⁷ See also art. 2 (2) of Directive 2009/110/EC of the European Parliament and of the Council.

could be issued only by the ECB or a National Central Bank of Member States same as physical euros. E-money instead can be issued by a series of entities⁵⁸ among which we can find the ECB and NCBs, but only if they are not acting as a monetary authority or other public authorities. In addition, like with physical cash the CBDC could potentially be stored in digital wallet instead of bank's account, with the difference that there would be no limit to the storing capacity. Hence the role of commercial banks as account storer could become less relevant, with the possibility of losing this role and suffer a radical change in its business model as we will see later on.

A more correct definition should focus on the digital coin as a specific entity and consider it as a token that represent a certain asset. It is composed by a scheme of data collected, forming a matchless string of bits that correspond to a certain amount of value.⁵⁹

Moreover, since electronic coins should be equivalent of physical cash, they do not necessarily need the intermediation of banks in order to complete a payment in a simple purchase operation.⁶⁰

Thankfully the code of data that is behind each single coin is almost impossible to replicate and counterfeit allowing a good level of security when completing purchase/selling operations online.⁶¹ Right now these kinds of operations are finalized using only a transfer of money, which is actually more vulnerable than electronic coin to stealing and counterfeit attempts.

The system that would allow a complete exploitation (issue, transfer and redeem) of the digital coin can be defined as digital currency which do not correspond to the coin itself but comprehend all the process that follows the utilization of the coin.

What has been seen up until today in terms of digital currency comes almost entirely from a private reality, right now exist only one official state - issue digital currency.⁶² However,

⁵⁸ See also art. 1 (1) of Directive 2009/110/EC of the European Parliament and of the Council.

⁵⁹ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

⁶⁰ They work at once, like a digital transfer of funds exploiting the cyber space, so in terms of functioning are more similar to a movement of funds over the net and thus they present vulnerabilities to possible cyber-attacks.

⁶¹ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

⁶² See also the Digital Yuan. The CBDC issued by China's Authorities in April 2021.

some specifics regarding the nature of digital currencies have been developed.⁶³ Of course, the digital coins composing the digital currency need to be safely stored, this can be obtained by using digital key wallet or having the digital representation of what is actually concrete cash on centralized or distributed ledgers.⁶⁴

1.4 Digital coin operative framework - ledgers

As we said the level of security with digital currency is higher than with regular cash, this because we know that the traceability of a digital coin is easier than concrete money, thanks to the nature itself of the electronic coin.⁶⁵

You can find centralized or distributed ledgers, depending on the scheme under which the digital currency is developed and used. If any central bank should decide to issue a form of digital coin in the market the best course of action, at least at the beginning for a state issue digital currency, would be a centralized ledger.⁶⁶

1.4.1 Centralized ledger

Nowadays centralized ledgers are used in the corporate world to store all the valuable data (accounting and otherwise).⁶⁷ They are considered as general recorders that store all the information regarding transactions, liabilities, assets, equity and revenues that need to be analysed and safely guarded. With the help of technology, a computerized central ledger such as Enterprise resource planning have been developed, thus allowing the creation of a bigger network of recording.⁶⁸

⁶³ in particular you can have a digital currency anchored to the value of an official unit of account such as euro or dollar, thus fluctuating with respect to that value (cryptocurrency). Or you can find Stable - coins which are digital currencies considered in terms of a certain amount of currency or commodity and can be backed partially or fully by those same currency or commodities.

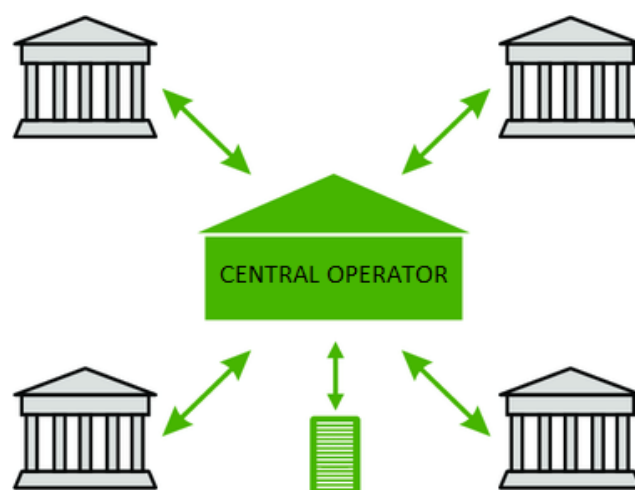
⁶⁴ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

⁶⁵ All the data regarding a specific digital currency are in fact recorded in ledgers where the information is stored and is almost impossible to substitute or modify.

⁶⁶ The protocol regarding transfer and convertibility process would be centralized.

⁶⁷ See also R. Auer and R. Bohme, *The Technology of retail central bank digital currency*, (March 2020).

⁶⁸ In particular all the data collected through various subledgers each specific for the nature of the data stored, reposit the information in the central ledgers, in this way becoming the pillar of the company.



Centralised ledger

Fig. 2 Centralised ledger⁶⁹

Investing in such ledger may present some challenges, since it would mean putting the eggs all in one basket. Thus creating a dangerous situation for the external operators who do not have access to the centralized ledger's information.⁷⁰ We now consider a firm such as bank that exploit this kind of ledger. The bank has complete control over the ledger and can in any moment decide to shut down the general recorder. In this situation no transaction will be processed and completed, all without any warnings to clients or external users, that could be finalizing business operations. Moreover the bank could decide which transaction can be listed on the ledgers since the control is left to one entity.⁷¹ The users might find themselves charge with an unexpected fine or their funds move under different account due to a private and mono-direction control and supervision.

Even though it may present some critical points the central ledger tool should not be disregarded when discussing possible application to virtual currency. Especially if we think of an electronic currency issue by the European Central Banks (ECB).⁷² If we think also in terms of analysis a centralized ledger would provide an easier access to all the data

⁶⁹See also https://www.researchgate.net/figure/Traditional-centralised-ledger-and-a-distributed-ledger_fig1_327867089

⁷⁰ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

⁷¹ The freedom to decided which data should be posted left only to the recording entity, opens to the possibility of weak position for the external users.

⁷² In this situation the concentration of all data in one general recorder would endorse an easier and stronger supervision from the Authority.

needed to develop a complete macroeconomic policy, in which the traceability of cash is immediate.

It is interesting to stress this point of traceability because a unique ledger controlled by the central bank would allow an easy access to all the information behind each single digital coin, thus creating a system in which using this kind of money to launder cash for any criminal or terroristic activity would almost be impossible.⁷³

1.4.2 Distributed ledger

On the opposite front we can find the distributed ledger, whose function is the same as the centralized ledger but shows a systematic different functioning.⁷⁴ Like a centralized ledger the decentralized is used as a recorder where it is possible to store information and all kind of digital data. The main difference can be observed in the structure of the ledger itself, is in fact missing a central/general recorder controlled by a single administrator. A distributed ledger operates as an asset database with the possibility of being shared among multiple sites, from a business or a geographical point of view.⁷⁵ Every modification applied to the data stored is reflected in all the copies in matter of seconds so that each participant has access immediately to the changed information.⁷⁶ The nature of the assets listed in the ledger goes from financial to electronic and are protected from outsider attacks thanks to encryption.⁷⁷

⁷³ In addition following the electronic coins with such easy way would probably reduce the tax fraud phenomenon, with a strong collaboration among the ECB and national authorities.

⁷⁴ See also Manoj Kr. Singh *Digital Currencies Choices: Challenges for financial supervision and monetary system*, (February 2020).

⁷⁵ This means that whoever can have access to the ledger possess a copy of the recorder which is equal for all the network of the participants.

⁷⁶ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

⁷⁷ A technique that makes almost impossible to reverse-engineer the data stored, thus guaranteeing a sound level of security.

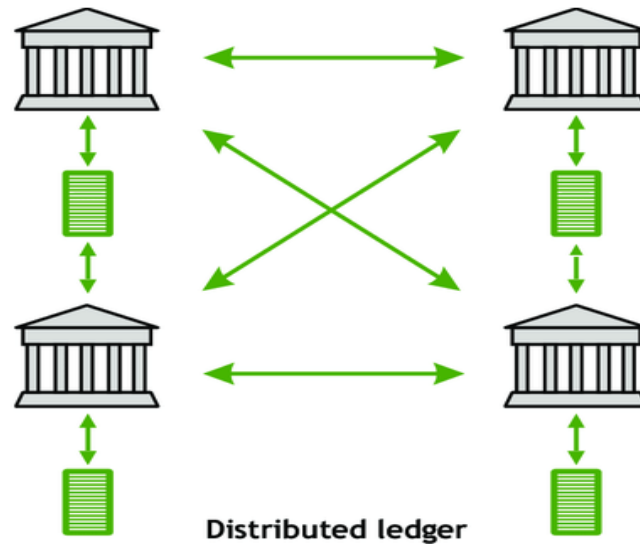


Fig. 3 Distributed ledger⁷⁸

An advantage associated with the distributed ledger is the possibility of operating without a third-party supervision in any business transaction. Thanks to the traceability of all operations and their immediate nature, the counterparty risk is completely avoided and so there is no need for an external Authority.⁷⁹ Another strong point in favour of distributed ledger can be found in the strength against malicious cyber-attacks, which are avoided thanks to the distributed network structure behind the ledger.⁸⁰ The fact that all the information is not stored in just one place helps not only in terms of security, but also transparency.⁸¹ We can consider as example of distributed ledger the block chain.⁸²

1.4.3 Best application – mixed ledger

On the other hand, for a digital currency where the electronic coins are issued by a central bank the most adaptive model would probably be the centralized ledger. A 360° supervision and monitoring are guaranteed. Not only in terms of the basic issue of money

⁷⁸ See also https://www.researchgate.net/figure/Traditional-centralised-ledger-and-a-distributed-ledger_fig1_327867089

⁷⁹ As we said the information and data are immediately recorder on the ledger and no one can modify them once they are listed.

⁸⁰ See also M. Kr. Singh *Digital Currencies Choices: Challenges for financial supervision and monetary system*, (February 2020).

⁸¹ See also R. Auer and R. Bohme, *The Technology of retail central bank digital currency*, (March 2020).

⁸² We can see how the data once they are listed cannot be change and any additional information that is stored, regarding a specific item, is immediately communicated to all users that have access to the item on the block chain. In these terms distributed ledgers are more users friendly.

but also the possibility to always know in which activity (illegal or not) a certain amount of money is invested.⁸³

The best course of action if any central bank, such as ECB and Federal Reserve, should decide to issue an electronic currency, would be a mixed form of both ledger category. One where the supervision and traceable capacity of the centralized ledger are guaranteed in order to have a constant monitoring, but at same time a general recorder that offers the same flexibility, transparency and security of a distributed ledger.⁸⁴

On the same note of security if a central bank digital currency should be issue, it would be wiser to involve in the process an encryption model.⁸⁵ Moreover the role of the vigilant Authority would need to be reclassified. Since the control over the digital euros is provided by the nature itself of this kind of coin and cryptographic procedure behind. The need for such Authority would still remain, since digital currencies presents some issues related to a low flexibility of past data.⁸⁶

1.5 The evolutionary process – from cash to electronic currency

Now that we have seen what instruments might be exploited to allow the creation and then the storing of data specific to a digital coin, we need take in consideration if the existing digital currencies can be included in the current definition of cash.

It is true that the definition of banknote has evolved throughout the years, at the beginning even banknotes were not so easily accepted.⁸⁷ They started from a promise to pay, becoming then a consolidated stored of value. What made it possible was the support, thus a guarantee, from a central bank.⁸⁸ The Central Bank “approval” and the possibility for the central institution to actually issue, are crucial for a potential coin to become real money with legal tender.

⁸³ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

⁸⁴ A complete model would also foresee the possibility of adding any change regarding the data stored by the users of the network.

⁸⁵ This would help avoiding any counterfeit attempts and allow an easier verification of the money used in a payment transaction, thus creating a safer environment for the users and their businesses.

⁸⁶ The central presence of a monitoring Authority would be crucial to manage the riddle behind the cryptographic techniques that makes them so secure.

⁸⁷ See also IMF *The Rise of Digital Money*, (July 2019).

⁸⁸ When in fact banknotes were issued by central banks, they acquired legal tender and the possibility to be converted and widely accepted.

In the case of electronic coin the central bank approval would mean the issuing of digital currency that possess legal tender and so a digital equivalent to physical cash.⁸⁹ In order to make this final step is fundamental a strong and well-developed normative structure.

What might be best is an adaptation of the current regulatory framework, as an evolutionary process, to cope with the new markets demands and instruments such as electronic coin.⁹⁰ The system has seen an evolution of not only the mean itself (banknote) but also of the regulations behind the acceptance and control of the money. With improvement in the printing phase and the possibility to add and enhance the security features (i.e. serial numbers) the circulation of cash has become more secure and accepted throughout the years.⁹¹

The concept of written money has evolved, the meaning itself of “written” has changed completely and the original “promise to pay” has fallen behind. What has remained is the safety associated with such “type” of money, in terms of integrity, permanence and attribution of the sum of money. Right now the progress that technology has made and the objectives that it has reached allow those features to be shifted to new and more advanced instruments such as digital currency.⁹²

Once these instruments have been created and secured, there would be no real reason to keep using written money, in the same way we do not feel the need to keep use metallic money instead of written cash nowadays. What must considered as a relevant aspect, that must be kept in mind, when addressing the nature of money and its possible format is not the form itself, but which is the level of safety associated with that form and if it is possible to maintain and maybe enhanced the level of security.⁹³ Once that those are guaranteed we can develop all sorts of money in every format possible.

⁸⁹ What most of all the existing digital currencies are lacking is the backing of a central bank, thus leaving them only as asset to trade or accepted only from private institutions.

⁹⁰ This does not mean accept all the digital currency already existing, but create a new instrument that comply with a new evolved regulatory structure. In the past we have already seen a similar process when the so called writing money was introduced in the market as a promise to pay.

⁹¹ See also D. W. Atner, R. Buckley, D. A. Zetsche and A. N Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (2020).

⁹² See also R. Auer and R. Bohme, *The Technology of retail central bank digital currency*, (March 2020).

⁹³ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

It is interesting to notice how when we consider the universal definition of money and its concrete representation, banknotes, the tangibility requirement is never mentioned or taken in consideration.⁹⁴ It was wrongly assumed that the writing requirement must always follow the money, instead it was unnecessary that the writing form has seen such predominance.⁹⁵

The technological progress has now led to the creation of the cyber space. This is something intangible and yet offers the possibility of storing an unlimited amount of data guaranteeing the writing requirement and safety associated with it. It allows the digital coin to become a perfect substitute to the material cash.⁹⁶

If we consider, for instance, the necessity for a banknote to be authenticated through a signature or a specific serial number, with a digital coin this necessity falls. The ledger provides a perfect record for any transaction related to that specific coin, who were the previous owners and thus allow a permanent dynamic circulation of the payment mean with almost no liability associated with the authentication profile.⁹⁷

1.6 The functions of the digital coin

We saw that digital coins may represent a substitute for the banknotes. In order to assure that, we should address the capacity of the electronic coins to cover all the functions that are associated with banknotes.

We know that banknotes possess both the functions of chattel and obligation. They offer the right of paying for something as medium of exchange but only if you have the possession of the said document (banknote).⁹⁸ Hence it forces the possessor to use it only for certain transaction, depending on the amount involved. At the end, the transfer of the title (obligation) comes with the conclusion of the transaction.

⁹⁴ See also article 128 of the TFEU.

⁹⁵ Before electronic era in fact there was no other way to record the value of asset on intangible means, thus leading to the spreading of the so called “written money”.

⁹⁶ This substitution is possible thanks to the features proper of digital coins which in more than one way represent an improvement on the banknotes.

⁹⁷ See also M. Kr. Singh *Digital Currencies Choices: Challenges for financial supervision and monetary system*, (February 2020).

⁹⁸ The obligation correlated to the banknote is instead inherent to chattel itself, since it is specified by the value associated with the banknote.

A digital coin to be considered a proper instrument of payment as a banknote and thus being able to replace them, needs to possess these functions. Not only it must present a specific value embodied permanently in a virtual chattel, but it must exist a virtual object whose property can be detained by someone.⁹⁹ Like with the piece of paper representing the concrete banknote. Furthermore it must exist the possibility to transfer or move the virtual object/ digital coin from one owner to the next one, guaranteeing the exclusive control once the digital coin has been stored in a “digital wallet”.¹⁰⁰ In the end in order to reach a widespread distribution of the electronic substitute it must be guaranteed all the previous features associated with the banknote and, where there is room for improvement, allow new developments.

1.6.1 Intangibility

More in detail the feature of property can be seen as intangible right associated to an intangible/ virtual object. It is recognised by common law as property right as long as it can be identified by third parties, defined by its nature and present a certain level of stability and permanence.¹⁰¹

When we are in debt, we owe money to someone defined as creditor or owner of the debt. Even though we are dealing with an unsecured obligation it is extremely easy to recognise the owner, to whom we must give the money, and the property right behind the obligation. In the same way it should be possible to see the bond of property behind a digital coin and its owner.

1.6.2 Transferability

The second crucial feature previously seen refers to the possibility of transfer from one owner to the next the digital euro.¹⁰² The payment mechanism depends on how the digital

⁹⁹ See also R. Auer and R. Bohme, *The Technology of retail central bank digital currency*, (March 2020).

¹⁰⁰ See also M. Kr. Singh *Digital Currencies Choices: Challenges for financial supervision and monetary system*, (February 2020).

¹⁰¹ An example of such intangible right can be observed in other financial matters different from the digital world. Debt is a perfect example of such intangible financial instrument.

¹⁰² In order to fully understand how this characteristic is guaranteed we need to focus on the payment mechanism and how it is managed and allowed by the legal framework.

coin is designed and its underlying operating structure, you can have digital coin blockchain based or just a digital representation of FIAT currency.

FIAT currency being a payment instrument, with usually the form of banknote, which is not covered by any kind of reserve, gold or otherwise, and so it has no intrinsic value, but it is guaranteed by a state and thus has a certain value.¹⁰³ This form of currency though can assure almost the 100% of financial stability only if is backed by a state authority and even in that case it may present some vulnerabilities.¹⁰⁴

Regardless of the underlying mechanism there are some common specifics such as the communication network and the availability of an intermediary that validates the transaction.¹⁰⁵ Currently to provide payments with digital currency you must dispose of different combination between telecommunication network and intermediary¹⁰⁶: one solution offers the possibility of transfer the digital coin from the payer to the payee through a digital device, after that the payee should validate the coin using a “mint”, a certificate that guarantees the authenticity of the coin and the transfer of the property. Another possible solution involves a digital coin represented by an UTXO or unspent transaction output which initially belongs to the payer, but it is then transfer and transform into another new UTXO that belongs to the payee. At the end of the transaction if the payer has not consumed entirely the value of the UTXO transferred, then the UTXO is split and a part equivalent to the amount of the transaction remains to the payee as payment, the rest of the balance returns to the payer’s wallet. The last possible combination that you may exploit is based on the association of a digital coin with a specific internet domain. For this domain exist a “single operator” that, following the payer’s instruction, transfers the digital coin to the payee, thus shifting the possession and so the property to the payee.

¹⁰³ It is possible to find some cases of FIAT currency that were “issued” by a private authority, once a large enough community accept it as payment.

¹⁰⁴ If the issuing authority is a private organization, then the currency (virtual or material) is riskier since it is associated with the business risk underlying the organization.

¹⁰⁵ Both of these two steps are crucial in the payment process in order to avoid double payment and at the same time are total pointless when using banknote as means.

¹⁰⁶ See also D. W. Atner, R. Buckley, D. A. Zetsche and A. N Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (2020).

Due to a lack of real central bank digital currencies we do not already know which set of mechanism might fit best a CBDC. From a normative perspective there is still no recommendation regarding the best solution to adopt.¹⁰⁷ What is certain are the principles that should lead to the correct mechanism. The financial stability of the system and a smooth and secure payment process.

1.6.3 Storing value

What is interesting to notice, in relation to a possible future CBDC, with regard to the currently private issued digital currencies (Wingcash, Bitmint, Bitcoin, etc.) is that all the amount contained in the wallet could constitute a coin.¹⁰⁸ This because the identity and value of virtual money is strictly related to the sequence of bits inside the coin. If we modify the content of our wallet, we possess a “different” coin with a different value, in other terms a different sequence of bits.¹⁰⁹

Keeping this digital structure in mind, if and when a central bank, like the ECB, should decide to issue a digital version of the Euro, it would probably be best to create an electronic coin composed by a sequence of bits.¹¹⁰ Both identity and value of a single coin would still depend on the sequence of bits, but each coin would possess a specific sequence instead of having a part of the total sequence. It would probably improve the monitoring process and at the same time give the possibility of having a certain sequence for each value of the coin.¹¹¹

With this structure you would have more coins inside the digital wallet instead of just “one” coin. When you would complete a transaction, the total amount of your wallet would decrease of the same amount of the payment represented by the transfer of a number of

¹⁰⁷ See also P. L. Athanassiou, *Digital Innovation in Financial Services – Legal challenges and Regulatory Policy Issues*, (2018).

¹⁰⁸ It is the sequence of information inside the coin that provides the identity and the value. Only a specific sequence of bits allows the digital coin to have a certain value. Thus if we use digital coin to complete our transactions, we end up with a different coin in our wallet at the end of the payment process.

¹⁰⁹ See also R. Auer and R. Bohme, *The Technology of retail central bank digital currency*, (March 2020).

¹¹⁰ In order to assure a high level of security and monitoring and at the same time have also the possibility to distinguish the identity and the value, split from this sequence.

¹¹¹ Similar to the specific characteristics of banknotes with different values.

digital coins. From a practical point of view, it shows no difference with respect to the current structure of cryptocurrencies.¹¹²

1.6.4 Model Law on Electronic Transferable Records

In any case the key point under which payment is permitted refers to the control transfer of the digital coin. In the same way as the transfer of a banknote from one subject to the next. Recalling this principle is interesting to observe how it has been developed in the “Model Law on Electronic Transferable Records” or MLETR.¹¹³ The digital coin instrument is based on an electronic transferrable record, it would be interesting to take in consideration some of the most relevant aspects addressed in the MLERT.

In article 2 of the MLERT we are given a definition of “electronic record” as a cluster of information generated, transferred and stored through electronic means. Then at article 10 it becomes an electronic transferable record, in which you may find the kind of information that you usually have in a transferrable document or instrument. At the same article it is also stated that there is a specific method which allows: to identify the record, to manage its control with respect to its effects and validity and to retain its integrity.¹¹⁴

All three aspects seem quite relevant if we considered them in relation to a possible digital Euro. Thus the ECB should keep in good consideration the MLERT.¹¹⁵ Furthermore the possibility to invalidate or stop any effects associated to a specific digital Euro, related for instance to some illegal activity, is quite game changing. Moreover, guarantee the integrity of the digital coin must be a priority.

¹¹² In both cases the wallet would decrease of the same amount. However it would be helpful for the public, presenting them with an easier transaction from regular Euros to their digital version.

¹¹³ The MLERT has the purpose of creating, or at least developing, a legal system in which is possible to operate with electronic transferable records as documents or instruments, both domestically and across borders.

¹¹⁴ See article 2 and 10 of the Model Law on Electronic Transferable Records.

¹¹⁵ The role of the ECB must, at all times during the circulation of a digital euro, be central. The identification of the specific record on which it relies a certain electronic Euro is crucial for monitoring purposes.

Following the course of the MLERT we see that at article 11 it analyses the control features of a digital coin. It states that an exclusive control of an electronic transferable record can be considered equivalent to the possession of a transferable instrument or document.¹¹⁶

A perfect example of such equivalence can be observed with a banknote case. A banknote is considered a signed transferable document, it gives the holder the right to claim a certain performance from the signer, who is obliged to perform it. Its digital representation shows the same potential, since the one that has the exclusive control over it, can force in any moment the obligation contained on the other subject involved in the transaction.¹¹⁷

In order to guarantee the so-called exclusive control over the electronic record, is necessary to apply a method that not only assess the exclusivity feature but also takes in consideration the person entitles to the control and her or his legal possibility to access such right.¹¹⁸

1.7 Monetary law: approach the new form of coin

Having seen theoretically how good a digital coin can fit the role covered, up until now, by banknotes it is only natural to expect an adaption of the legal framework, rather than a ban, toward digital currency. We have already seen how at first even banknotes suffered a certain level of rejection, that with time completely disappeared. We have seen how the money market follows the evolution dictated by technological and scientific progress, therefore the discussion should focus more on the features of the digital coin itself, comparing them with what the current system is offering.¹¹⁹

Keeping in mind that the market modifies and recreates the concept of money, by addressing its needs in dependence of the historical time that is “living”, the legal system should recognise the changes and modifies laws *ex post facto* considering the dynamic nature of the money instrument.¹²⁰

¹¹⁶ Its possession gives the right to the holder to claim any type of performance directly related to the obligation contained in the document.

¹¹⁷ See also R. Auer and R. Bohme, *The Technology of retail central bank digital currency*, (March 2020).

¹¹⁸ All things considered from a strictly functional point it seems that a digital coin can cover all the various functions that a banknote may offer.

¹¹⁹ There is no rational reason to be hostile towards electronic currency.

¹²⁰ See also P. L. Athanassiou, *Digital Innovation in Financial Services – Legal challenges and Regulatory Policy Issues*, (2018).

No legal text can in fact predict with absolute certainty all the possible developments related to such argument, thus it is only obvious to expect changes in the legal framework with a fast pace changing process.¹²¹ By its nature the electronic currency requires an, if not equal at least similar, adaptive legal framework to allow its implementation, especially in the EU area where the private initiative cannot be stopped and barely contained.

In the end we can say that the role of the monetary legal system is to accommodate the market needs and instruments, brought forward by progress. Any legal set in stone paradigms that froze the monetary system should be disregarded immediately.¹²²

The right choice, as always, is a just balance between the stability of the legal system and the dynamic of an innovation such as digital currencies. After seen such a background referred to the digital coin world, we are rightly tempted to include the CBDC/ e- banknote in the term “banknote” of article 128 of the Treaty on the Functioning of the European Union.

¹²¹ There is no need to experience the same slow process of legal integration that we have seen with banknotes. Especially since the offer of digital money comes from a virtual reality that present itself as a flexible, rapid and quick to evolve world.

¹²² Leave out and rejecting any technical developments just because they may go against some legal prejudice, will cause more damages and brought more disadvantages than any benefit guaranteed by the legal stability. Plus the principles of price stability united with the “forward looking” perspective of the ECB must always be able to address the new market opportunities. Disregarding the digital currencies could be dangerous for the financial stability itself.

II Chapter- Normative justifications to the issue of CBDC

In the former chapter we have seen which are the functionalities and the main features of CBDCs, in the next we are going to analyse the operative transposition of the normative dictates regarding a potential issue of digital Euros. In the following pages we are going to examine the said normative disposition from a constitutional perspective, in relation to a potential issue of CBDCs.

The bulk of the discussion originates with article 128 of the TFEU. The normative text poses as both the base of the competence that allows the ECB to issue an e- banknote and the source of the limitations for the same competence. In particular, in the first paragraph of the article¹²³ the ECB is conferred the power of issuing or authorize an issue of banknotes, that will be released in the financial system. Only metal coins are excluded from the issuing powers of the ECB.¹²⁴ On the other hand what concerns the ECB is a widely accepted monetary objects.¹²⁵

The same article that gives to the ECB the competence to issue cash, also imposes specific limitations on the degree of competence with which the ECB may carry out its issuing duty of the CBDCs.¹²⁶ There are, in fact, some limits imposed with respect to the design of the digital currency in terms of features and functionalities. These observations can be inferred not only by article 128, but also by article 16 of the Statute.

2.1 E-banknotes under the interpretation of article 128

In order to understand if a digital currency could one day be issued by the ECB, we need to analysed deeply the normative framework that support the issuing activity in general. If we examine article 128 of the TFEU and article 16 of the Statute we see that in the text there is no direct reference to a specific form under which banknotes may be issued. In

¹²³ See article 128 (1) of the TFEU

¹²⁴ This is related to the fact that there are very few coins circulating into the system, hence the authorization from the NCBs is sufficient to deal with this monetary object This dynamic depends on the fact that any issue of coins into the system won't cause any concern with the monetary policy, due to the small weight that coins' value has with respect to the whole financial system.

¹²⁵ The objects that are directly linked with the monetary policy implementation, in fact, are the main reason why the ECB is responsible for its issuance.

¹²⁶ These limitations are in line with the ECB principles of preserve the functioning of the transmission mechanism.

other words paper may not be the only mean used to issue Euro currency in the financial system. The analysis will move from a historical and systemic interpretation of the legislative text in order to better comprehend which were the conditions under which the hypothesis of CBDCs developed.

At the time of the Maastricht treaty, which established the ECB and its main goals, internet and the whole digitalization process had not yet struck the economic and social system on a wide scale. Hence is it quite obvious that those called to draft the normative text had thought of paper as medium onto which issue the banknotes¹²⁷. In any case, there was no evidence that excluded certain means as base to issue cash.¹²⁸ Even later when the internet was booming in the first 2000s and the contemporary Lisbon treaty (2007) was submitted a state issued digital currency was not planned.¹²⁹ Not even in the private dimension no one knew their technological potential and the effects that they might have had on the central bank and the implementation of its policy. At that time CBDCs were not even on the radar of those who drafted the treaty.¹³⁰ Therefore those same underwriters did not made provision regarding the CBDC and implicitly did not excluded them from the perimeter of article 128 of the TFEU.

To give a proper interpretation of article 128 is necessary to understand which are the goals behind the normative writing. In particular the interpretation of the article needs to consider the intention of creating a constitutional framework for the EMU (Economic and Monetary Union) that possess enough flexibility to adapt to any social, economic and high-tech changes.¹³¹ Hence the legislative text should not be read as in open conflict with the technological progress brought by a digital currency. Instead, if the interpretation follows an open mind philosophy the digital currency venture should be accommodated if not encourages.¹³² As matter of fact, the CBDCs may represent an opportunity to beat

¹²⁷ See ECB, *Report on the legal protection of banknotes in the EU Member States*, November 1999, p. 41.

¹²⁸ Even though there was a silenced accord regarding the paper based banknotes.

¹²⁹ This because, even if in the markets there were the first private issued digital currencies they were in their earliest days.

¹³⁰ In line with the principle of focusing on the medium term, the ECB could not address something that was not there. Not due to lack of imagination or a voluntary exclusion, but just because such instruments were not developed yet, hence it was quite difficult to include them in a medium term objective.

¹³¹ See the principles of be forward looking indicated in the ECB guidelines, in order to ensure a quick grasp on the market's innovations.

¹³² *Ibid.*

the private-issued digital currencies. This financial instrument, in fact, could threaten the use of Euro as a single currency, therefore could damage the strength of the Union itself on a socio- economical level.¹³³ Thus a wider interpretation of article 128 could help strengthen the EMU by allowing, with a high degree of certainty, the issue of a Central Bank Digital Currency.¹³⁴

The only real constraint that the normative require with respect to cash is that it is written. In order in fact to ensure the permanence, hence the security, of a transaction, the mean used to conduct that transaction need to be permanent. Therefore it is only natural that by looking at the evolution of cash we consider the digital medium as its final step.¹³⁵ Since the digital support is perfectly capable of ensuring the permanence needed to the means of payment and the paper based is not a defining features of banknotes, hence the digital alternative must be considered.¹³⁶

By reading article 128 it emerges that a defining feature of the banknotes is related to the function of the notes itself. In particular we know that a banknote needs to be a risk- free means of payment and a store of value always available to the public. There is actually no indication regarding which medium might be used to issue the banknotes, except for the permanence criterion.¹³⁷

The same normative disposition that defines, as said above, the banknotes, also places the ECB in charge of the issue or of the authorization of the issuance of the money.¹³⁸ Even if the ECB covers a position of leader with respect to the issue activity of banknotes, the same defining functions of the banknotes limit the competence of the ECB to issue a

¹³³ See Carel C. A. van den Berg, *The Making of the Statue of the European System of Central Banks, An Application of Checks and Balances*, Chapter 2.

¹³⁴ In addition, a wider perspective could be seen as a prior defense mechanism against any threat from the private dimension. It is better to address the problem before it becomes dangerous for the strength of the Union.

¹³⁵ See S. König, *The evolution of money, from Commodity Money to E-Money*, June 2001, p. 13.

¹³⁶ In line with the broadly based principles of the ECB which encourages a perspective that does not exclude any changes that may affect the Union policy, whether it is wanted or not.

¹³⁷ Hence the mean can and needs to adapt to the technological changes or the market demand.

¹³⁸ It is no surprise since the banknotes are the instrument with which the European Central Bank implement and enforce its monetary policy decision. No other Authority should be held responsible for the decision on this matter.

digital currency.¹³⁹ In particular, e-banknotes possess an intangible nature which makes them much more resourceful in terms of features and practical exploitation than physical banknotes.¹⁴⁰ Some features may not yet be known due to the high level of innovation associated with a similar financial instrument. The effects that CBDCs might have on the monetary policy, for instance, could revolutionize the strategy behind the monetary policy itself.¹⁴¹ The possibility of associating an interest rate to the digital Euro, even a negative one, could be exploited not only to guide the interest in the market but also as a form of tax. This aspect however will be addressed in the next chapter.¹⁴²

Having focused on the potentialities of a digital currency, we can say that article 128 of the TFEU does not allow for much of this potential. Actually, the normative text restricts the functions that a digitally currency might have. In particular, from a legal perspective allows only for function that are already associated with physical banknotes, such as means of payment and store of value. In other words, in order to be included in the financial instruments considered by article 128, that can be issued by the ECB, the digital euros must have a design of functions that are equivalent to those of the paper banknotes.¹⁴³ Every other functionalities, like the interest bearing feature, might be excluded. Thus not permitting the monetary policy tool feature.

The separation between a monetary policy application and the Central Bank Digital Currency seems to be sustained also by the systemic interpretation of the article. Both the TFEU and the Statute consider as two independent subjects the issuance of cash, regardless of the form under which is issued, and the goals of the monetary policy. This approach seems to be confirmed also by the fact that the legitimacy of the ECB to issue banknotes, independently of the form, is given in article 128 of the TFEU, while the

¹³⁹ The functions here mentioned refer to the mean of payment and store of value features, also including the stability effect on the financial system.

¹⁴⁰ A digital currency could have a design with a high degree of versability that would allow for wider use in terms of functions with respect to paper based banknotes.

¹⁴¹ The changes that will be seen in the monetary policy dynamic are considered in the medium term focus of the ECB. Such changes that may impact on the process of transmission of the policy are addressed in order to ensure a low unnecessary volatility into the real economy. The principles underlying the ECB are built to guarantee the solidity of the system.

¹⁴² An interest rate currency is however scarcely encouraged due to the challenges that could cause, as we will see in the following chapter.

¹⁴³ This design is suggested by the interpretation of article 16 of the Statute “*The ECB shall respect as far as possible existing practices regarding the issue and design of banknotes*”.

monetary policy tasks of the ECB are presented in article 127.¹⁴⁴ Hence by following the systemic interpretation of article 128, the limits of the issuing activity are highlighted.

This logic looks at the e-banknotes excluding the role of monetary policy instrument. It rather focuses on the digital euros more as a necessary condition, dictated by technological advancements, to implement the monetary policy.¹⁴⁵ In other words, without a means of payment and a store of value there could be no implementation of a monetary policy. Therefore any design that will be proposed in the future will need not only to respect the defining features seen above, but also it should consider the limitation implicitly imposed by article 128¹⁴⁶.

2.1.1 Scope of ECB legitimacy

Under article 128 we have seen that the ECB has a certain degree of competence that allows for the issuing activity of digital euros. Those e- banknotes need to possess a design equivalent to the one of physical banknotes in terms of functionalities. The issuing power it is directly contained in the right of the ECB to issue power. In short, the ECB does not need any other legislative act that authorizes the exploitation of its issuance power banknotes.¹⁴⁷

If we consider what is stated in article 133 of the TFEU:

Without prejudice to the powers of the European Central Bank, the European Parliament 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. Such measures shall be adopted after consultation of the European Central Bank.

¹⁴⁴ This is also confirmed in article 3 of the statute and by the draft of the Maastricht Treaty. In the document it was specified that one of the basic tasks of the ESCB was the issuance of banknotes, however prior to the publication this task was removed.

¹⁴⁵ In line with the stability goal of the ECB, which has the duty to ensure the stability objective with the implementation of any mean necessary but also with a starting condition that allows for the reach of those goals. The mean needs to have the ability to read the market's condition from its introduction.

¹⁴⁶ See also ECB, *Innovation and its impact on the European retail payment landscape*, (December 2019).

¹⁴⁷ See also D. W. Atner, R. Buckley, D. A. Zetsche and A. N. Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (June 2020).

we see that the European parliament and the Council are responsible in terms of decision regarding measures necessary to implement a proper use of the Euro as single currency.¹⁴⁸ However those measures would be adopted only after the ECB has been consulted and has given the green light. In addition all those measures are submitted to the fact they must not cause any prejudice to the powers of the European Central Bank. Hence the design of the banknotes, digital or otherwise, is totally left in the hands of the ECB that should developed the features in accordance with the legal definition of banknotes.¹⁴⁹ In particular, the normative notions in article 133 provide competence for the EU Authorities to issue minor legislative acts regarding specific issues in the use of the single currency. Thus, being secondary to the issue of the banknotes, they do not have any say in the matter and so cannot affect in any way the constitutional power given to the ECB.

The reason behind those secondary legislative acts can be found in a necessity related to the introduction of the Euro as single currency.¹⁵⁰ At the time of said introduction there was a need for a comprehensive legal framework that would help with the transition from the national currencies towards the Euro and that would address any practical issue that may arise from the process.¹⁵¹

Furthermore, in that context the NCBs of each members state retained only the competence to issue coins, whose volume was still decided by the ECB. Meanwhile to the EU legislators were derogated the regulation regarding the denomination and other technical specifics of Euro coins.¹⁵² On the other hand, all design aspects regarding the Euro banknotes, also involving denomination, technical specifics and security are considered related to the issuing activity. Therefore, in accordance with article 128, it seems logic that those aspects should fall under the ECB's jurisdiction.¹⁵³

¹⁴⁸ See article 133 of the TFEU

¹⁴⁹ The hedge presented in article 133 refers to the tasks that EU parliament and Council have regarding the use of the Euro, they do not have any say in the matter of how the banknotes are designed and the issued.

¹⁵⁰ See Council Regulation (EC) No 1103/97, June 1997.

¹⁵¹ The principle of “forward looking” that characterize the ECB was present right from the introduction of the Euro. Therefore, those secondary normative acts are merely a concretization of the principle.

¹⁵² See Council Regulation (EU) No 729/2014, June 2014.

¹⁵³ Since the ECB is responsible for the monetary policy decisions, which are based on the price stability principle, it is no surprise that the design of the instrument of monetary policy is still in the hands of the ECB.

2.1.2 Exclusivity of the ECB competence

After seeing the competence of ECB to issue, or allow the issuance of, the Euro currency, we now focus on whether that competence is exclusive or can be own also by other central banks among the Union. In other words, we are going to understand if it possible for the NCBs of the member states to issue banknotes, digital or otherwise.

On this note, according to paragraph 2 of article 128 Central Banks of the member states are allowed to issue euro coins. Thus following the current disposition it may seem that they would be allowed to issue a digital form of Euro coins as well as the ECB is competent to issue e-banknotes. Hence, at first it seems like the degree of exclusivity referred to the ECB competence is not overall.¹⁵⁴ However this interpretation appears to ignore the fact that the peculiarity that elapses between physical coins and banknotes cease to exist when considering their digital equivalent.

On this regard the e-euros will be stored inside digital wallet as book money in the bank account, under the concept of lump sum. Therefore inside the wallet there will be no real difference between 50 cents or a 50 euros piece. Consequently the possibility of issuing coins for the member states will need to be revised under the change brought by the digital condition.

In particular, the separation of competence designated at European degree for the banknotes and at national level for coins, cannot be maintained with the digitalization of the financial instruments. Since there would be no real difference between banknotes and coins, due to the lack of a materiality feature that would come with a digital currency.¹⁵⁵ The fact that it would not be possible to distinguish digital coins from digital banknotes may lead someone to think that Member States could also issue e-euros. This, however, would mean that the ECB and the Member States possess equivalent competence to issue or authorise the issue of a digital Euro, a scenario that is entirely in violation with the normative disposition of article 128 of the TFEU.

¹⁵⁴ What must always be considered in the picture of the analysis is the obligation that the ECB has to respect and preserve, as far as possible, the national identity. In line with the principle of cooperation within the Union rather than elimination of a national tradition.

¹⁵⁵ See Banque de France (2020) p. 30.

The rationale behind the exclusive competence of the ECB to issue physical banknotes can be found in the need to avoid any possible situation that might cause confusion inside the Union or may weaken the strength of the single currency.¹⁵⁶ Therefore, having only digital euros it cannot be allowed to the member states to issue even a small volume of digital euros, even if that correspond to the amount of coins formerly issued. Otherwise, we would have a situation of confusion in which users would have great difficulties to understand which e-euro was issued from which NCB, and where for sure the single currency concept would be lost.

This is why it was decided that the member states would leave the monetary sovereignty to EU institution with the peculiarity of leaving the issuing activity of the single currency and the decision of monetary policy to the ECB.¹⁵⁷ Except for the coin issue activity, that with the introduction of the digital Euro would be totally overcome. In addition, from a practical point of view an eventual parallel issue activity of digital euros from both the ECB and the member states would be costly and with no real reason.¹⁵⁸ It would create confusion and would be almost impossible to distinguish whose authority issued a certain e- banknote.

In reality the actual situation is relatively simpler. Since article 128 states that is still the ECB that authorise the volume of coin that each member states can issue. Therefore the same conduct could be implemented with the digital version of euro coins.¹⁵⁹ Regardless, an additional reason of historical nature might confirm the practice of leaving the issuing activity of CBDCs to the ECB.¹⁶⁰ From an operative perspective the CBDCs are much closer to the concept and the use of banknotes rather than coins, which can be consider a subsidiary form of cash. The issuance of the coin was usually left to the treasury of state, hence was for this reason that when the single currency was introduced that same issue was left to the Member State. Therefore due to proximity in practical terms between

¹⁵⁶ We must keep in mind what was stated before regarding the impossibility of splitting digital coins and digital banknotes.

¹⁵⁷ See C. Proctor, *Mann on the Legal Aspects of Money* (2012), Chapter 31.

¹⁵⁸ See Claus D. Zimmermann, *A Contemporary Concept of Monetary Sovereignty* (2013).

¹⁵⁹ The principle of price stability to which the ECB is voted and must always respect, force to adopt and implement strategies that cannot endanger the price dynamics. Therefore, every factor that may have an effect on the price stability needs to be monitor, even the issue of coins and their limited weight on the whole system.

¹⁶⁰ Again, the legacy principle returns. The ECB works and operates following those lines that were in place when the European Central Bank was not yet a reality.

physical banknotes and digital currency, it would be more in line with the regulatory dispositions to leave in charge of all the issuing activity the ECB.¹⁶¹

In light of the above, it may be wise to consider an adjustment of the legislative disposition in article 128. We know that the statement in paragraph 2 of the said article allows Member States to retain a small fraction of power by allowing them the issue of subsidiary monetary object. Disregarding for the moment that in a digital dynamic the need for such object would be totally lost, the only reason for permitting those powers to the Members States lies within the need to give those country a residual portion of national monetary sovereignty.¹⁶²

Initially, the competence to issue coins was also meant to be transferred at EU level, same as banknotes, but after the Maastricht treaty the negotiations allowed the governments to retain that power. Merely because historically it was the government that was vested with that kind of authority.¹⁶³ If we then add that in the modern economy the weight and importance of coins was marginal compared to the ones of banknotes, it is no surprise that the IGC¹⁶⁴ agreed with keeping that tradition in Member States hands. Furthermore, even if coins would not have a minor monetary relevance the ECB could always monitor and control the volume of coin issued, therefore ensuring the price stability objective imposed by article 127 of the TFEU.

Following this logic it would seem that the interest to issue coins that members states maintain up until today is purely of symbolical and historical legacy. Moreover with the arrival of a digital currency that, by definition, lack the exhibition of “national features” such as famous portraits and national monuments, the Member States’ symbolic interest would be overcome. The only consistent reason that would justify the emission of coins at the hands of Member States resides with the gain that those states would obtained from

¹⁶¹ With the issue of the CBDC the centralization of the ECB increases due to the disappearance of certain symbolical functions that were left to Member States. This aspect will be examined more in detail in the following chapter. It needs to be said however that this does not pose any threat to the national independence of each state.

¹⁶² See also Claus D. Zimmermann, *A Contemporary Concept of Monetary Sovereignty* (2013).

¹⁶³ See also D. W. Atner, R. Buckley, D. A. Zetsche and A. N. Didenko, *After Libra, Digital Yuan, and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems*, (June 2020).

¹⁶⁴ Inter-governmental Conference

the seigniorage practice.¹⁶⁵ With the implementation of CBDCs however those gains would be lost since the coins would be substituted by e-euros. A solution that may solve all the doubts and scepticisms regarding this loss could involve a compensation from the ECB to the member states. In particular, each year, at the least for the introduction period of the single digital currency, the ECB could accredit each member state with an amount of digital Euros equal to the value of the volume of coins that would have been issued.

Nevertheless, even this last solution seems to confirmed and encourage the exclusivity in terms of competence of the ECB with respect to the issuing activity. If up until now, with the use of physical cash, the competence to issue coin allowed to the member states was a symbolic gesture to maintain a portion of national monetary sovereignty¹⁶⁶, with the digital euros that necessity will be entirely exceeded. Hence the digitalization of the monetary object will probably brought to a total exclusive competence of the ECB in the matter of issuing and authorising the issue of digital banknotes. A process that began in 2002 with the issue of the single currency will see its fulfilment with the coronation of the ECB as an exclusive authority in the issuing activity. This could consolidate the strength of the Union and be the next step towards the removal of any dangerous nationalism sentiment.¹⁶⁷ In the end a normative update of article 128 (2) might be taken into account.¹⁶⁸

¹⁶⁵ See R.W. Click “*Seigniorage in a Cross-Section of Countries*” (May 1998)

¹⁶⁶ See Claus D. Zimmermann, *A Contemporary Concept of Monetary Sovereignty* (2013).

¹⁶⁷ In line with the Unity principle under which the ECB had always operated, the focus on reaching such really move forward the Union in terms of managing and deciding as one entity and not a group of states.

¹⁶⁸ The flexibility principle, which allows for an easier reading of the market, determine the normative framework’s adjustment. In particular it needs to include if not in the banknote definition at the least in the monetary object category, that the ECB can issue, the digital Euro.

2.2 Implicit powers of the ECB

In the next paragraph we are going to address a series of causalities sustaining the hypothesis that e- banknotes are the direct evolution of physical paper banknotes and therefore must be considered in article 128 of the TFEU. This thesis stands only if the digital euros are implemented limiting their usage to the functions of physical cash.

First of all, it is in the range of ECB's powers the competence to issue digital euros even if this form of currency is not yet covered by article 128 in its definition of banknote and it is considered a different type of monetary object with respect to banknotes and coins.¹⁶⁹ This argument lies specifically on the ECB's obligation to comply with its monetary responsibility regarding the price stability as indicated in article 127 of the TFEU.¹⁷⁰ The powers given to the ECB are, in fact, necessary to ensure a price and thus systemic stability. Inside those implied powers we found the capacity to issue banknotes. However the issuing power is not referred directly to banknotes, but any monetary object that could be of use in order to guarantee the fulfilment of the mandatory monetary requirement.¹⁷¹

Having said that, the choice has relapsed on banknotes, as object to be issued in the system, due to the fact that the public has always used them to conduct business. Therefore, in time banknotes have become an indispensable factor needed to implement a strong monetary policy. However the indispensable relation that has come to pass between banknotes and monetary policy was never really essential. In particular, we see that monetary policy requires a monetary object as vector to be implemented, but that object may not necessarily be a banknote.¹⁷² In other words, monetary policy could be

¹⁶⁹ Even though the digital Euro would be a different kind of monetary object with respect to banknotes and coins, it would still possess the same monetary value. It would be still capable of being used as a mean of payment or a store of value. Those would be the starting point features upon which the CBDC would be developed.

¹⁷⁰ This obligation can actually provide the justification for the implied powers of the ECB. The Court of Justice of the European Union allows implied powers to a certain Authority only if those powers are necessary to carry out its tasks and responsibilities. This is the case for the ECB and its CBDCs.

¹⁷¹ See article 128 (1) of the TFEU.

¹⁷² The drive in this case may be found in the market reading and flexibility principle that is proper of the ECB. The capacity of the ECB to anticipate any changes in the market and adapt to them is key for the issuing process.

conducted using a monetary object that has no relation with the concept of banknote, but presents sufficient features to be used in the monetary policy matter.

Ideally, any form of money, whose access is granted to the general public, could be used to conduct monetary policy. Here are implicitly excluded those currency developed and issued by a private provider, which is not capable of delivering the same level of backing securities as a central bank.¹⁷³ It would be impossible to ensure the same degree of stability required from article 127 to the European Central Bank.¹⁷⁴ Therefore, the digital euros issued or authorised to issue by the ECB could serve as vector for the monetary policy, regardless of their qualification as banknotes, here intended in the restrict sense of the term.

Article 128 however sets some problems with respect to the definition of banknotes itself. If it is true that from a logic and strategic perspective the digital euros may be helpful from a monetary policy point of view, they are not covered by the normative definition.¹⁷⁵

Moreover digital currency fall within those kind of outside form of money that do not have specific features of banknotes. Namely, the identity of the banknotes' user is independent from the issue and then transfer of the banknote itself. Therefore ensuring a high level of privacy to the market operators. In addition, alongside the high degree of privacy we can found a high degree of transferability, showed by the easiness with which every exchange of banknotes is made. These two features are based on the token nature instrument that are the banknotes. In particular we know that thanks to that characteristic it is impossible for the issuer to keep a record on its balance sheet regarding information of individual accounts.¹⁷⁶

¹⁷³ A. N. Didenko, D. A. Zetzsche, D. W. Arner & R. P. Buckley, *“After libra, digital Yuan and Covid-19: central bank digital currencies and the new world of money and payment systems”* (June 2020).

¹⁷⁴ The non-profit principle of the ECB and its goals of financial stability guarantee the safety needed for a monetary object to operate in the market.

¹⁷⁵ The adjustments to the normative framework are not of systemic nature. What the legislative act should consider is also a possibility of CBDC integration in the system and thus wider definition that addresses not only the banknotes but monetary object in general.

¹⁷⁶ It is only possible to register the value of the volume of banknotes issued, like it has been done with reserves.

This standard feature of banknotes is crucial for the user's privacy and at the same time do not allow the ECB to have the power of issuing a digital currency that is capable of recording and providing the account's user information.¹⁷⁷ As said before, in fact, banknotes or their digital version are not and cannot be used as a monetary policy tool and a specific source of information regarding the users.¹⁷⁸ The single currency was not introduced for such a purpose and so it is only natural that its digital form should not present a similar function. The implied power of the ECB needs to also consider the social implications that the introduction of a similar financial instrument could have, regardless of the normative framework foreseen.

In general, when a central authority such as the ECB is given implied powers similar to those described above regarding the issue activity, they become crucial in order to complete the task and achieve the goals established by the normative. There could, in fact, be certain market's condition under which a proper degree of flexibility is needed. In those situations it is good to be backed by a solid regulatory framework that ensure stability, but it is also necessary to have an Authority that is capable of market analysis and development of strategy.¹⁷⁹

In front of the current market's situation, with respect to the digital currency dynamic, the ECB must enforce the normative acts that are currently standing. But it also needs to implement those implied powers to control and shape the future structure and opportunities that the market will offer in order to achieve the stability objective. In this sense implied powers become indispensable to the Central Authority for the purpose of reaching the normative goals.

For instances, if we take into consideration the decreasing pattern that is characterising the physical cash,¹⁸⁰ we see that the stability effect that come with its use would no longer

¹⁷⁷ See also R. Auer, R. Böhme "*The technology of retail central bank digital currency*" (March 2020).

¹⁷⁸ The privacy theme is something very sensible, which the CBDCs' issue cannot easily address. With the *General Data Protector Regulation* (GDPR) all the digital data stored cannot be used and needs to be preserved from any dangerous leaking. The ECB cannot use and allow an easy surveillance with respect to the information that would be provided by the digital euros.

¹⁷⁹ In line with the principle of forward looking and medium term perspective, the ECB ensures the solidity of the legislative framework and at the same time the ability to relate with an excessive stagnation of the normative reality.

¹⁸⁰ See the previous chapter where it is presented the cash decreasing trend.

be available. This situation could cause a loss in terms of confidence towards the monetary system and hinder the conduct of the monetary policy. However, if the ability to issue e- banknotes were to be considered inside the implied powers of the ECB, then the central Authority could exploit the wave of digital currencies that is spreading in the markets not only to regain or strengthen the single currency presence, but also to ensure the stability of the system in front of the digital revolution.¹⁸¹

If anything, the issue of digital euros could become necessary to the ECB in order to achieve and implement its monetary policy objectives. On this note we must remember that, even though article 128 shows resistance with respect to e- euros and the normative definition of banknotes, article 130 of the TFEU grants a certain level of independence to the ECB.¹⁸² This independence must be used to implement any measures necessary to reach the goals of price stability set in articles 127.¹⁸³ In other words, the normative framework must be respected and enforced, but it is equally relevant to be able to read the market signals and bend the legislative dispositions towards the goals achievement. Therefore digital euros cannot be discharged only on the base of a legal definition.

Moreover the independence under which the ECB operates grants a certain level of freedom in the practice of its monetary powers, implied and otherwise. Therefore the European Central Bank cannot and must not accept any instructions coming from other European legislator.¹⁸⁴ There would be no authority capable of overturning an implied power such as the one referred to the issuance of a digital Euro. Regardless of the fact that it is not laid down in article 128, the ECB's independence preserves its own decisions and authority. Any secondary legislation that attempts to limit or restrict the ECB's independence would be a violation of article 130 and therefore not admissible.

¹⁸¹ The reason behind a similar strategy stands on the broadly based principle. In other words, the ECB to work needs to have a wide perspective and be ready to get the opportunities that the market offers in order not just to dominate them but also to incorporate in the system.

¹⁸² See also article 7 of the Statute.

¹⁸³ Take in consideration the price stability principle and the steady inflation expectations that follows.

¹⁸⁴ Here the independence principle is linked with the cooperation principle. It is true that the ECB cannot follow the instructions of any Authority, however the reality has more than just one general operator. Therefore, the mechanism of collaboration needs to be maintained.

Hence considering the significant decrease in the use of cash, previously seen, a digital substitute will most likely be developed. This is already happening in the private reality, where different issuers are trying to fill the void left by physical banknotes.

In this scenario the ECB has the duty of anticipating any systemic changes, such as this one, in order to preserve the stability of the system.¹⁸⁵ If we consider the network effect that may follow the digital currency, we see that for each new consumer that uses the digital euros their utility increases.¹⁸⁶ Thanks to this, their spread could follow an increasing steep trend. Hence the Central Banks must act at the very beginning of the spread in order to protect the single currency and avoid the formation of any cluster of users that implement a different private issued digital currency.¹⁸⁷ Therefore the ECB cannot attend for the normative framework to catch on. Usually the legislative acts are drafted and issued only when the change has already occurred. However, by then the consequences could have shocked the entire financial stability of the system.¹⁸⁸

In addition the issuance of a digital currency falls within the implied powers of the ECB, due to the necessity to implement an instrument that would help achieve the monetary policy goals.¹⁸⁹ Thus there is no need for an external authorization of the issue by the Council or a Treaty amendment. Being a token based instrument helps this form of outside money to be accepted from a legal perspective. If instead the Central Bank Digital Currency would have an account based logic, then all sensible information would have been stored inside the digital currency. In this case it would be necessary an additional normative act that would authorise such instrument and a design capable of dealing with sensible data and the owner's privacy¹⁹⁰.

¹⁸⁵ Again, it returns the “be broadly” based principle of the ECB which encourage no exclusion of the opportunities that the market presents.

¹⁸⁶ See also See R. Auer, R. Böhme “*The technology of retail central bank digital currency*” (March 2020).

¹⁸⁷ The medium term principle forces in a sense the ECB to concern herself with the CBDC issue in a medium perspective. In order to ensure the stability of the financial system, the focus on short time consequences cannot be helpful, instead since the digital currencies are a new instrument, thus leaving the long term effects unknown, the medium term effects might be the more logical and best strategy.

¹⁸⁸ Ibid

¹⁸⁹ See article 127 of the TFEU.

¹⁹⁰ See article 8 of the Charter and article 16 of the TFEU.

2.3 Legal tender status for EU CBDCs

The legal tender status is a feature possessed by any mean of payment, recognised as such by the law, used to settle a debt or any other financial obligation. In other words is any monetary object that can legally be used to pay, thus deemed safe and secure enough to ensure the trust in the conduct of business.¹⁹¹ In a sense, the law backed that particular financial instrument so that there would an object fungible and at the same time safe to settle any contract.¹⁹²

Having consider the above, e- banknotes may have the legal tender status depending on who is their legal issuer or which entity has authorise their issuance. Moreover the design is relevant in terms of legal tender status, since central banks digital currency presents specific architecture and issuance models that differ from the ones of private digital currency.¹⁹³ Which in some cases might not even have an issuance model. Article 128 is very specific with regards to which banknotes may have the legal currency status. It states that only the notes issued by the European System of Central Banks possess the legal tender status within the Union.¹⁹⁴

In accordance, we can see that there is a primary law that gives the legal tender feature by definition to banknotes issued by the ECB or other National Central Banks. Therefore thanks to what is presented in the former paragraph, we can transfer the same legal tender status to the e- banknotes issued by the ESCB. In addition since the CBDCs issuance is an implied power of the ECB there is no need for additional legislative dispositions that justify the operation and its legal tender status.¹⁹⁵

There is however a case, considered in article 128, in which the authorization of the ECB to issue banknotes, or their digital version, does not grant to those same banknotes the

¹⁹¹ See <https://www.bankofengland.co.uk/knowledgebank/what-is-legal-tender>

¹⁹² The need for a similar feature in a financial instrument is related to financial stability that must always be ensure. However, in the following pages will be considered both the possibility of having a legal tender instrument or not having it.

¹⁹³ These models are developed and designed according to the general principle of preserving the European transmission mechanism used to transpose the monetary policy objective into the markets.

¹⁹⁴ See also Article 10, second paragraph, Regulation 974/98.

¹⁹⁵ What these circumstances calls for is an update of the normative framework, no systemic adjustment.

legal tender status. In particular, it is the case in which the ECB grants to a commercial bank the possibility to issue e- banknotes, but since they are not issued directly from the ESCB then article 128 explicitly excludes the legal tender status for those electronic notes.¹⁹⁶ This specification made in article 128, deals with the possibility of having commercial banks issue banknotes that may be backed by currency with a legal tender status. Thus regardless of a lack of direct legal tender they present a status comparable to the one of the banknotes issued by the ESCB. It is a measure needed to ensure the stability of the currency from one side and on the other offering a certain level of security to the commercial banks' issued banknotes.¹⁹⁷

The way in which the legal tender aspect is presented in article 128 might leave some room to further interpretation, regarding which objects may possess the said status. In particular, we see that the legal tender status could potentially be given to a monetary object that is not necessarily a banknote.¹⁹⁸

The example of the e- euro can easily explain the case. We have seen in the previous section that even if digital euros do not qualify as banknotes, they can be issued by the ECB and present all the features to substitute the banknotes in all their function. Hence, they can be a new perfect monetary object that can be issued in the system, to whom is assigned the legal tender status.¹⁹⁹ In this way the CBDCs would be finally recognised by a legal perspective as instrument used to settle financial obligations and it would give the e- banknotes a degree of security high enough to be accepted as a mean of payment.

It would not be the first time that to a monetary object different from the banknotes is granted the legal tender status. At the beginning of the Union, member states could, in fact, allow the legal tender status to book money, accounts held in commercial banks rated in Euros.

¹⁹⁶ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

¹⁹⁷ In this situation the goal is maintain the balance between the commercial banks position and the ECB powers. Hence allowing a certain degree of safety to the instrument implemented by the commercial side of the banking system.

¹⁹⁸ Here the term monetary object refers to all those financial instruments used to conduct a business, execute obligations and accepted widely as form of payment.

¹⁹⁹ See also article 16 of the Statute and article 10-11 of Regulation 974/98.

The transitioning process that has seen the arrival point to the status of legal tender given only to those notes issued by the ECB and other National Central Banks, has followed an evolution started in October 1990 with the draft of article 16 of the Statute.²⁰⁰

The Council shall have the exclusive right to authorise the issue of notes within the Community. The notes issued by the ECB and the national central banks shall be the only legal tender for any amount

This statement however could be interpreted as that any monetary object needs the authorisation by the ECB or others NCBs in order to have granted the legal tender status. Therefore in the negotiations, the Dutch delegates encourage for a change in the wording of article 16, that would leave no space to ambiguous situation as a potential loss in terms of legal tender status for the currency adopted in the future. Hence in November 1990²⁰¹ the following words' change was implemented:

The notes issued by the ECB and the national central banks shall be the only notes to have legal tender status.

The change in the statement was made so that member states could still issue account-based monetary object throughout the banking system. In general this object would not have the legal tender status of course, but would possess a certain level of safety comparable to the legal tender notes.²⁰² Hence it would not have been possible to settle debt or other financial obligation within the Union, but still inside the member states those type of monetary objects would have had some value.

Moreover the Member States would not have needed to ask the authorization to issue account based private money in their own jurisdiction.²⁰³ Therefore it was allowed a certain level of freedom in the decision making process, at the least at the very beginning of the Union introduction. This freedom of choice was granted so that the Member States could ease into the logic and strategy of a Union and also adopt the operative models

²⁰⁰ See article 16 of the Statute (October 1990).

²⁰¹ See article 16 of the Statute (November 1990).

²⁰² This adjustment was made in line with the principle of easing into the Union that characterized almost the first decade after the Maastricht Treaty. Such a big transition needed time and effort in terms of the every-day decisions that up until that moment were made by the Authority of each Member State and now were shifted to a Central Authority.

²⁰³ For the same reason behind the issue of coins, this provision was allowed in order to leave to the Member State a portion of national sentiment that could not threaten the strength of the Union and at the same time preserve the national identity.

inside their own. The treaty submitted at the birth of the Union had to bring together the will of a number of states.²⁰⁴

The Dutch delegates, the ones that actually had encouraged for this arrangement, proposed it on the base of their own Dutch Civil Code, enforcing a sentiment of bonding and transmission of the member states internal law onto the community legislative framework.²⁰⁵ In any case, regardless of this specification article 128 does not suggest that the legal tender status may be precluded from a token- based monetary object, such the CBDCs, issued or authorised to be issue by the European Central Bank or other NCBs. There is actually no sign of a similar exclusion in none of the historical or drafted versions of this legislative act.²⁰⁶

In the end, the goal of article 128 in terms of legal tender status was to give the said status to exclusively to the Euro, the new single currency. In this way the national currencies would have been substituted by the Euro, losing their legal tender status.²⁰⁷ In this scenario Member States were forbidden to issue any other national, and otherwise, currency that could potentially be in contrast with the single currency, the Euro. In particular, they could not create a parallel currency, spread by the issuing banknotes, coins and other form of monetary object, not denominated in Euro, with the legal tender status. The reason behind it, are quite clear since the need to strengthen the Euro, especially at the beginning, was so strong, there could not have been room for any national sentiment that would wish to maintain its currency and use it. Forgetting, for a moment, about the benefit that has come with the single currency market, at first there was a need for a push towards the Euro otherwise the whole project of the Union would have failed.

²⁰⁴ The accordance reached had to reconcile not only from an economic perspective, but also from a political view of the monetary policy. Thus it is not unusual that the specification regarding the issuance of banknotes and how that practice may affect the account- based monetary objects has been made.

²⁰⁵ See Article 6:114 of the Dutch Civil Code on how to address the commercial banks money in public laws terms.

²⁰⁶ Hence there is another proof that sustain the thesis according to which digital Euros can be given the legal tender status or be accepted as a mean of payment. There was never a will opposing such argument.

²⁰⁷ In other words, in each member state the national currency, that up until that moment was used as mean of payment and had legal tender status, has been substituted by the Euro, as a single currency within the Union.

In the current state of affairs, the strength of the EU's monetary unity is threatened no longer by national currencies or their old status of legal tender. Instead we find that the major threat comes from the technological progress and private issued digital currency. As of today almost no state²⁰⁸ in the world has granted the legal tender status to private digital currency. Thus there is no concrete threat to the strength of the single currency within the Union. However this progress is a sign that calls for an adaptation of the means of payment adopted in the European reality.²⁰⁹ Moreover even if the digital euros do not present the same features of a monetary objects such as banknotes and coins, they are denominated in Euro. Therefore from a legal perspective they could be granted the legal tender status, being just the digital form of the single currency Euro. This could actually, allow for a greater strength of the Euro.

We can surely say that the primary legislative act does not reject the possibility for equivalent or secondary legislative act to grant the legal tender status to the e- euros. As long as they are issued or their issuance is authorised by the ECB or NCBs there is no reason to prohibit the Euro CBDCs such status. In addition, a digital Euro can be issued in the system, with the legal tender status, only by a Central Authority since it involves the public system. Therefore, a similar activity cannot be delegated to private actors based on the general guidelines that characterized the Union.²¹⁰

Moreover, we need to recall the practice of member states, which could issue monetary objects through commercial banks without the possibility of granting the legal tender status to those same objects, wanted by Dutch delegates at the Union's birth. It must be said that the ECB can, in fact, authorise the issue or issue indirectly a kind of electronic

²⁰⁸ The states that allow the use of the cryptocurrencies permit only the trading activity related and the convertibility in national currencies. The cases in which they accept the cryptocurrencies as a means of payment are extremely limited that cannot be considered in our analysis.

²⁰⁹ The principle of the ECB of being able to read the market is something that needs to be always on and ready to monitor changes and other opportunities. This must be true especially for the digital currencies' phenomenon carried forward by the digitalization.

²¹⁰ The general guidelines here mentioned refer to the recommendation of the ECB to allow the thrive of private business in order to ensure the degree of competition needed inside the Union. However, the competition is considered healthy until it became dangerous for the financial stability of the system. Therefore, the right balance needs to be reached even if it means banning the private digital currencies from the Union markets.

Euro using commercial banks belonging to the banking system, but as was for the Member states, it cannot give them the status of legal tender.

Monetary object	Issuer	Legal tender status
Banknote (Article 128(1) TFEU)	ECB/NCBs	By definition (based on Article 128(1) TFEU)
	Commercial banks (subject to ECB authorisation)	Excluded (based on Article 128(1) TFEU)
Coin (Article 128(2) TFEU)	Member States	Yes (based on Article 11 Regulation 974/98)
Other	ECB/NCBs	Possible (based on secondary law)
	Commercial banks (subject to ECB authorisation)	Excluded (principle of non-delegability of acts of public authority)

*Table 1*²¹¹

By looking at the above chart we see what, in practical terms, the previous statements actually mean. Depending on the interpretation of that we have of article 128, e- euros may be included in the first category as electronic banknotes or in the third one if instead we treat them as a different monetary object. Regardless of the category in which we incorporate them, the legal tender status is certain or almost certain only if they are issued by a central Authority such the ECB or the NCBs.²¹² This is the bulk of discussion in terms of legal tender. No interpretation or argument compromise on the necessity for a monetary object that wish to have the legal tender status, to be issued by the ECB or NCBs.²¹³

²¹¹ See also Center for Latin American Monetary Studies (CEMLA), *Key Aspects around Central Bank Digital Currencies*, (May 2019).

²¹² See also European Legal Tender Expert Group (ELTEG) *Report on the definition, scope and effects of legal tender of euro banknotes and coins* (January 2009), p. 5.

²¹³ If the issuing authority is different from the ones above, then the legal tender status is off the table.

2.3.1 The meaning of legal tender status

In all the normative framework²¹⁴ addressing the Union's monetary policy and structure there is no certainty whatsoever with respect to the meaning or the significance of the legal tender status. In no legislative act there is a specification or a precise definition regarding what is actually a legal tender. Both at European and national level is registered a lack in terms of legal certainty referring to the legal tender issue.²¹⁵

This standard is probably due to a legacy left by the situation before the Euro and the European Union. In that context every Member state had its own definition and understanding of the legal tender concept and how it affected the national currency status. This fractionated interpretation came from a historical, philosophical and law legacy and a lack of legal provision from the government that should have presented a structured definition.²¹⁶

In addition, due to the fact that no authority had tried to present a meaning of legal tender in the past, when the Union was formed to no one occurred that there could be a need for more legal clarity with respect to the issue at hand.²¹⁷ This is the main reason behind the absence of a definition of legal tender status in article 128. The legislative text takes for granted the concept, skipping an aspect that is quite relevant, especially if we are dealing with new issue of monetary objects or an issue of new monetary objects such as digital euros. As of today is still unclear if by non-defining it, article 128 has settle any discordance with respect to the meaning of legal tender in the European context or the national interpretations endured to this day.

On this note, the EU has not yet clarify the matter using its own unique competence on the subject of monetary policy. Also in all the secondary laws framework there is basically no precise indication referring to the Euro currency as a legal tender. When it is actually

²¹⁴ In the analysis here conducted are considered only the official treaties (TFEU, Statute, Charter, ...) and regulations issued by the European institutions (ECB, Commission, Council, ...) in which straight definition of legal tender is not provided.

²¹⁵ Hence the analysis follows a series of interpretations of the current normative framework referring to the legal tender status, with respect to the potential issue of the digital euros.

²¹⁶ No authority had decided to actually frame a proper definition of the legal tender status, all the knowledge came from the previous traditions of the different states.

²¹⁷ See also article 3(1) of the TFEU, where a minority of the ELTEG believed that the legal tender status was already defined, hence there was no need for more clarification.

specified it usually refers to the legal tender status of particular expression of the Euro, without actually explaining plainly the consequences for the Euro's fundamentals. In contrast, the European Commission in 2010 has developed a non-mandatory Recommendation that addresses the understanding of the legal tender.²¹⁸ In particular, with this document it was dealt the scope and the repercussions of the legal tender status for banknotes and coins of the Euro area. It was in fact, directed to the Member states and the ECB itself.²¹⁹

The working group ELTEG after the analysis of the different national traditions and interpretation of the legal tender concept has reached a conclusion in which were detected the three main and most common features characterizing the legal tender. First with the legal tender status there is an implied responsibility to accept the monetary object's legal status. Then the worth associated with the monetary object must be accepted at the full face value. Last, with the recognition of said status the monetary object is accepted as a mean of payment for any financial obligation.²²⁰ These three central aspects can be considered the common denominator for any interpretation or understanding of the legal tender status among the Member states of the Euro area.²²¹

In this light, however it is not yet clear which other aspects may belong to the scope of the legal tender status. We know, with a high level of certainty, that the previous three features are fundamental to the understanding of the legal tender concept. Nevertheless they do not define with an adequate degree of detail which is the complete scope of the concept, hence leaving open the discussion.²²² In any case, the discussion needs to be closed in a short period of time due to the practical applications that follow such concept. The Court of Justice of the European Union (CJEU) will need to conclude the debate and rule with respect to the pending request for a preliminary ruling addressing the matter. In

²¹⁸ See also Commission Recommendation 2010/191/EU (March 22, 2010).

²¹⁹ All the data and information that formed the foundation and the bulk of the Recommendation were gathered and provided by the European Legal Tender Expert Group (ELTEG). A taskforce composed by inter-institutional collaborators that belonged to the Euro area.

²²⁰ See also European Legal Tender Expert Group (ELTEG) *Report on the definition, scope and effects of legal tender of euro banknotes and coins* (January 2009), p. 5.

²²¹ In general, if we should gather the whole set of understanding of the legal tender status that belonged to each country these three features will always emerge among the various facets specific to each nation. For this reason they were included in article 1 of the Commission's Recommendation.

²²² See also Y. Mersch, *The role of euro banknotes as legal tender*, (February 2018)

this contest, article 128 fades into the background since being a primary legislative EU act, it will not be affected by a potential ruling of the CJEU which presents as a secondary legal action.²²³

Even if article 128 can be interpreted from an autonomous and independent point of view the legal tender issue to which it refers is the same as the one on which the previous debate was developed. As a result the degree of independence of a primary EU law as article 128 might not be so high.²²⁴ In particular, in this matter the CJEU would probably arrive at the conclusion that there is no clear definition at hand except for the three main highlights presented above. This lack of a common ground within the Union with respect to the legal tender definition shows that the meaning intended in article 128 is still referring to the old understanding specific to each member state.²²⁵

2.3.2 Should the electronic Euro receive the legal tender status?

After trying to narrow and better comprehend the definition of legal tender, we now are going to see if the legal tender status should be given to the digital euros. In other words, we are going to analyse the reasons behind a possible granting of the legal tender status to the CBDCs, whether it is valid and if it is still necessary.

Usually when someone wants to justify the need for the legal tender existence, he brought forwards the positive effects that comes with the legal tender status. Such elements being an improvement in the financial stability, an expanding- trust effects and the possibility to facilitate specific economic freedoms. If we think about the banknotes' case, their legal tender status helped in a series of public services. In this scenario therefore, the ECB since is responsible for the issuance or its authorization of euro banknotes, regardless of the form, feels the need to protect and ensure the legal tender status of the Euro and its uniqueness.²²⁶ In doing so, the ECB has guarantee the presence of the Euro and its legal

²²³ Therefore article 128 can be intended in an autonomous perspective.

²²⁴ With respect to the influence that it may suffer from the condition under which the digital euros will operate in the market. On paper, article 128 is independent in practice slightly less.

²²⁵ The fact that there the concept is in accordance with the past laws and practices across the Euro area again support the open understanding that we have of the legal tender.

²²⁶ This approach is adopted not only to preserve the Euro and improve the strength of the Union, but also is in line with the principle of price stability that calls the ECB to do whatever is legally possible to guarantee that goal.

tender status under the financial evolution that may characterise the reality of the means of payment.

However, disregarding for the moment the positive effects that follow the legal tender status, it is unclear if for means of payment and monetary objects that serves as a store of value is mandatory to possess the legal tender status in order to fulfil their fundamental functions. In addition, it remains also unclear if should occurred relevant drawbacks in case the public should no longer dispose of a legal tender such as cash in the current situation.²²⁷

From a policy perspective in general policy makers had always prefer to maintain a legal tender in the system throughout all the history of monetary policy. It seems almost necessary to maintain a legal tender inside the system to ensure the financial stability of the same. For policy makers the financial stability of the system is crucial to guarantee the practical transposition of the policy's disposition. In particular, without the stability feature the monetary policy would encounter much more difficulties when implemented. Therefore ensuring that the system has some kind of monetary object that possess the legal tender and has as unvoluntary externality a positive effects in terms of financial stability is something that policy makers would definitely hope for.²²⁸

Moreover, if we consider the historical origins of the legal tender we find that the need for it resides in a network effect that it has on the community. In particular, we know that due to the trust issue a currency might spur its demand basing itself on a legal tender object. In this way, the government will accept it without any prejudice, since it is its own currency and private players will accept if no better and safer option is proposed. Therefore for these motives, it is desirable that the e- euro when issued possess the legal

²²⁷ In other words, it is uncertain if substituting the whole physical cash with a form of digital Euro that may lack the legal tender status, could cause major negative effects on the stability and trust among the European system.

²²⁸ It is no surprise that in the period right before the issuance of the Euro when there was no legal tender at Union level, the national currencies where considered as minor category of the euro in order to ensure the legal tender in the Union taken as whole. In this scenario, each national currencies had the legal tender status only inside their national territory limits, but this would ensure a general legal tender within the Union. At least until the Euro was introduced on the 1st of January 2002.

tender status. Hence, regardless of its qualification, it should be issued by the ECB or any other National Central Bank belonging to the ESCB.

In contrast, we find that the legal perspective does not deem mandatory the status of legal tender for a CBDC.²²⁹ We also know that this monetary object must be issued or authorised to be issued by the ECB. In addition this form of public money must possess the key functions of a risk-free means of payment and store of value. Instead what it must not necessarily be is a physical form of monetary object or possess the legal tender status.²³⁰

On this note, if the digital Euro should not possess the legal tender status then the legislative framework could require other possible alternatives in order to cope with the lack of an enhancing stability agent, such as legal tender.²³¹ For example a non-legal tender digital euro could be used as payment by the general public to settle public debts, such as taxes or other utility fees, only if the ECB, in accordance with a specific normative act, allows for a direct payment in e-euros for those specific obligations.²³²

If on the other hand the public authority, government, should not accept electronic euros as a means of payment, then the NCB of that country could accredit the reserve account of the government for the same amount. However it may be only a temporary solution. A third possible strategy involves physical banknotes.²³³ If for instance at the beginning of the e-euro's issuance, physical banknotes are still circulating, then it would be possible to bind the non-legal tender status of the digital euros to the actual legal tender status of physical notes. By doing so the ECB would keep open the possibility to convert electronic currency in physical cash at any time. With this strategy the trust and safety associated with legal tender physical notes would in part transfer indirectly to the e-euro, a sort of transitive property for those features.

²²⁹ In particular, we know that in order to ensure a stability inside the financial system is fundamental to have an object that covers the role of retail public money.

²³⁰ These features are something not required by the European normative framework that addresses the nature of a monetary object implemented as a means of payment or a store of value.

²³¹ The ECB in particular must work to ensure the stability of the financial system. Following its principle of price stability, it may offer or develop other strategies that ensure the same goal.

²³² In a sense it could be seen as a legal tender status limited to the settlement of certain financial obligations.

²³³ See also Article 9 Regulation 974/98.

2.3.3 CBDCs and the rights to conduct a business

What has been seen up until now shows that the Central Bank Digital Currency could be issued with some adjustment to the normative framework or introducing a certain degree of flexibility when addressing the legal tender issue.

In any case the ECB could encounter a set of limitation of business nature that possess some not negligible effects on its power to issue the digital currency.²³⁴ In particular, a CBDC issue could have a strong impact on a line of business related to the private issued digital currencies.²³⁵ The position that the e- euro would come to cover may have dramatic repercussion on the private sector of the digital currencies, since it poses as its direct substitute. Moreover, if we consider the article 16 of the Charter that states the irreplaceable right of conducting a business, we see that a certain limitation to the spread of CBDC comes from the normative framework itself. The point raise concern the relationship that would be created between private businesses responsible for the issuance of its own digital currencies and the public issued digital currency, that could potentially annihilate the need for a private virtual currency. This dynamic is, in fact, discourage within the Union from the same principle on which the Union was founded, where the innovations and the healthy competition that brings those innovations are strongly encouraged.²³⁶

The main concern arises from the possible direct intervention that the ECB could have, with the issue of a digital currency, into the private sector up until now dominated by commercial banks and private digital currencies. Hence the perception of this new potential dynamic may be felt as a bit of an intrusion.

²³⁴ See also C. M. Kahn, F. Rivadeneyra and T. Wong, *Should the central bank issue e-money?* (October 2018).

²³⁵ At the current state of affairs, the only real central bank digital currency has been issued by China and it is the Digital Yuan. As of right now, in America and Europe the market is totally dominated by private issue digital currencies. However, the effect that a public issue may have need to be taken in consideration considering the medium term perspective that characterize the ECB.

²³⁶ The ECB must always respect and follow the price stability principle, however it must also respect the market principle and allow for a high degree of competition within the Union. Thus, ensuring the level of innovation needed for the business. Therefore the role of the CBDCs might be revised in order to respect the right to business of any activity, that brings benefit to the whole system.

If we leave aside for the moment the violation to the fundamental right to conduct a business of the commercial banks, there is also the role covered by those same banks as intermediaries for the ECB and its policy that is at risk.²³⁷ Therefore, the entrance of the ECB in the digital currency business, even though it is not profit related and thus it may seem not in direct competition with a private issued digital currency, still has some consequences that require adjustment.²³⁸ A radical change in the business model and process of the ECB's main intermediary²³⁹ could pose some challenges to the ECB itself in carrying out and fulfilling its own tasks. Henceforth the public authority should prevent any disruptive conditions caused by the issuance of the digital Euro in order to safeguard the transmission process of the monetary policy.

This last suggestion does not depend on common sense, but it is require from the EU principles of cooperation and respect among European institutions and its own intermediaries. When the ECB operates and implement its tasks, has a mandatory obligation to respect the rights of other businesses, private or otherwise.²⁴⁰ Hence, in this case with CBDCs the impacts that may hit the banking system need to be weighted not only for the consequences that may have on the commercial banks, but also for the risk that the ECB may encounter after the introduction of a digital single currency on the monetary policy mechanism.

The loss of the intermediary position for commercial banks could seem tragic, however as we will see in the next paragraph could present an opportunity for both the parties after an adjustment in the business strategies. In contrast, the phenomenon of digital runs might pose a serious threat to the banking system whole. A digitalization withdrawn of the money could cause a series of failures that may break the banking system and thus leave a hole in the monetary system.

²³⁷ The mechanism behind the transmission of the policy disposition is crucial for the implementation of the monetary policy itself. Therefore, the ECB when will decide to issue its own digital currencies should also consider the effect on the banking system as its own policy mechanism.

²³⁸ It cannot be ignored the fact strong changes might occur to the market conditions under which commercial banks has operated up until today.

²³⁹ The banking system

²⁴⁰ In other words, any initiative taken by the ECB must be justified by its purposes and obligations, but must also considers the impacts that those initiatives may have on right of counterparties.

2.4 Disintermediation as a possible scenario

In practical terms a scenario in which the commercial banks are no longer the intermediaries of the ECB could happen, depending on the design and the purposes under which the digital euros are issued.²⁴¹ The negative effects on the financial institution may translate into a revolution of business models and strategies, that will need to cope with an increasing presence of the ECB in the digital currencies market. For instance, the public may implement the CBDCs more as a deposit alternative rather than a cash substitute.²⁴² This would affect the account based position of most commercial banks. Even if it would be a public e- banknote the degree of interaction, hence of competition, would far higher than any other private issued digital currency.

The reason behind, can be found in the demand of the public for a digital banknote. The convenience associated with such instrument is unparalleled. Hence any digital version, public or private, is well accepted by the market operators of modern economy. However, the public one possesses a feature that the private one lacks. There is no insolvency risk associated with the CBDC.²⁴³

Consequently the banking system would be affected in a certain number of ways. First of all, the concept of deposit would be lost and also the instrument of the deposit would lose its function as mean of payment in the transferring of funds. Then all the information, still related to the payment dynamic would be also lost.²⁴⁴ Next, all the funding kept inside the deposit would be gone and with them also the instrument that the bank used to refinance and keep a stable environment in uncertain situations. Last the discipline under

²⁴¹ See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies* (July 2016), pp. 9-12.

²⁴² See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies* (July 2016), p. 19.

²⁴³ The general public will chose the less risky or the more trustier in order to safeguard against possible financial crisis situation. In addition the data stored by the Central Authority are not used for commercial purposes as instead the private issuer would. Thus the level of privacy is higher.

²⁴⁴ Therefore any insights regarding the creditworthiness of the depositors would be no longer available and the bank could lose its capacity to predict and adjust to the risk associated with the credit world.

which banks usually operates would suffer an improvement or a possible decline, depending on whether the current deposits may transferred in e- banknotes' deposits.²⁴⁵

The operative relationship between the current banking system and the Central Bank Digital Currency will be further analysed in the following chapter. With a specific examination we are going to address the advantages that may follow the introduction of a public issued digital currency. Especially, after seeing in the current chapter how the normative framework as of right now, is theoretically capable of welcoming the issuance of a digital Euro that would substitute physical cash and maintain the system stability whole.

²⁴⁵ If the e- banknotes are transferred into deposits like it is right now for book money, then the bank would not experience solid changes in term of discipline. However, if the digital euros would be stored in specific wallets external with respect to the banks, then the fear of losing the client in any moment would force the banks to ensure the maximum level of transparency and the best behavior.

III° chapter- Practical implementation of the CBDC

In the previous chapters we presented the digital currency, its basic definition, its functions and which could be its potential use in the near future. We have analysed digital currency in terms of safety features. We reviewed the structure underneath the operations conducted using digital currencies. Focusing on two main types of ledgers and presenting a possible alternative in case the ECB should decide to issue a CBDC.

We have seen the difference between generic virtual currency, issued by private organizations and central bank digital currency. In particular we analysed the legal tender issue, which are the constitutional rationales behind the potential issue of CBDCs and what kind of legal basis are needed. In this chapter, focusing on the powers of the ECB and the other national Authorities we will consider, more in detail, the legal framework from a more operative point of view, analysing articles 127,128 and 130 of the TFEU. In addition we will see how the monetary policy measures will possibly cope with an issue of Central Bank Digital Currency.

3.1 ECB centralization

On this note we are going to address the normative framework and its perspective in relation to central bank digital currency: which are the powers inside each central institution that would allow such issuing, what is the regulatory justification that allows a similar concentration of powers in such few institutions and whether in the near future this concentration may give rise to possible monetary policy issues.²⁴⁶

The concerns of market operators that arise from these regulatory developments are understandable. If we consider the goal of ECB²⁴⁷ the CBDC are the optimal financial instrument to achieve it. Unfortunately the regulatory framework underneath the CBDC and its centralization development around few European Authorities may threaten the free

²⁴⁶ All the above considerations are made in light of the principles guiding the ECB strategy. The price stability as the main one, the instrument that ensures the financial stability needs to be the priority for the ECB. Also, the medium term perspective and the forward looking perspective must always be exploited to avoid any great shock to the system, especially with the introduction of the CBDC in the banking system.

²⁴⁷ The creation of the perfect economic environment where financial stability and safe transactions are the key point.

market principle and the high degree of competition²⁴⁸. Those are key aspects that guarantee fair market opportunities and profitable transaction for all.²⁴⁹

In order to better understand how much the ECB's powers extends and to weigh their fairness with respect to other supervisory European institution, we need to analyse the legal framework and normative background that sustain the current monetary structure in the EU.

3.1.1 Independence

“When exercising the powers and carrying out the tasks and duties conferred upon them by the Treaties and the Statute of the ESCB and of the ECB, neither the European Central Bank, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Union institutions, bodies, offices or agencies, from any government of a Member State or from any other body. The Union institutions, bodies, offices or agencies and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the European Central Bank or of the national central banks in the performance of their tasks.”

Article 130 TFEU, presented above, takes in consideration the independence associated with the powers of the ECB. In particular the independence principle refers only to those powers conferred by the European Treaty and the Statute²⁵⁰.

Moving forward, this principle may seem in contrast with the accountability and democratic legitimacy values to which the ECB is bound to²⁵¹. We know that even though being a powerful institution, the ECB still has to be accounted for and respect specific statutory objectives, such as price stability, imposed by monetary policy²⁵².

Thus the independence features may be difficult to exploit in all terms and it would be wiser to read this independence as an influence, free state of affair rather than a possibility of doing whatever is decided²⁵³.

²⁴⁸ As indicated in the dictates of article 119 of the TFEU.

²⁴⁹ Again the concerns of investors and others market players, whether too many powers should be granted to almost just one Authority are justifiable.

²⁵⁰ See also article 130, TFEU.

²⁵¹ See also article 127 (1), first sentence TFEU.

²⁵² Ibid

²⁵³ We have to keep in mind that for all the actions and directives put in place, the ECB can be held accountable. Thus even though there is no direct supervision above, there are still some contingencies in the others European institutions and committees.

The powers granted to the ECB are not omnipotent, since they are implemented for specific goals and so bound to results of monetary and regulatory nature.²⁵⁴ In terms of independence, with the implementation of the CBDC, you might have two different scenarios.

On one side this type of tool would allow a more strict supervision not only on those who use the digital currency, but also on those who issue it.²⁵⁵ Every operation could be recorded on the ledger²⁵⁶ and so even “how” this currency is used for monetary policy purposes is traced, making easier at the end of the day to verify if ECB and the ESCB has acted on behalf of common interest. However the risk of centralization, already seen in chapter one, associated with a single Authority issuing CBDC, probably based on a centralized ledger technology, could be greater than the benefits that would follow.

Especially if we consider the users point of view, from which there could be very small privacy.²⁵⁷

A wise move could be the introduction of an external committee, devoted to the correct and secure implementation of the digital currency tool. Basically, by setting a limited number of uses for the CBDCs it could be avoided a scenario where the ECB could, in 24 hours, overturn completely the monetary policy of the European system.

3.1.2 The code of conduct of the ESCB

In the previous chapter we discussed a series of reason why a digital currency is not dissimilar to a “classic” currency, stating that the rationale and the uses behind this new

²⁵⁴ If those results are not reached there would be no reason to have a similar Authority in place.

²⁵⁵ The traceability of this object is easier both for the owners and the issuers. For instance, with physical cash is almost impossible to track money that has been stolen, hence the owner when lose an amount of cash is very likely that he has lost it for good. With CBDC the design and the implementation of the digital currency could allow for a higher degree of traceability. For the issuers’ side, the traceability of the issued CBDC may not be so ethical as we will see later or, however this tool offers higher potentialities in terms of monitoring process with respect to physical cash, also for the ECB.

²⁵⁶ See also the first chapter, paragraph “*centralized and distributed ledger*”.

²⁵⁷ Even though the privacy principle is not among the funding and main principle guiding the ECB, the Central Authority has to respect and ensure a certain level of privacy for the data belonging to the general public.

form of coin are the very same that we find with normal cash.²⁵⁸ We have already seen all the potential shown by a similar financial instrument and how from a legal point of view they are the same. Also we have already demonstrated that central bank digital currencies are the same as the current used currencies in terms of implementation²⁵⁹, if anything they offer a higher degree of monetary security.

This allowed the possibility for us to include the CBDC instrument in the banknote category described in article 128 of the TFEU. Article 128(1) states:

“The European Central Bank shall have the exclusive right to authorise the issue of euro banknotes within the Union. The European Central Bank and the national central banks may issue such notes. The banknotes issued by the European Central Bank and the national central banks shall be the only such notes to have the status of legal tender within the Union.”

In this first paragraph we see no reference to the form in which a coin should be issued, we see that only the ECB and national central bank, can issue a Euro currency. Only those banknotes (virtual or otherwise) possess the legal tender status within the Union²⁶⁰. In this section we see a first indication regarding the ECB powers with respect to the issuing activity and how only ECB’s issued currency possess the legal tender features necessary to be accepted in any transaction conducted inside the European Union.²⁶¹

In the second paragraph of Article 128 (2) it is stated:

“Member States may issue euro coins subject to approval by the European Central Bank of the volume of the issue. The Council, on a proposal from the Commission and after consulting the European Parliament and the European Central Bank, may adopt measures to harmonise the denominations and technical specifications of all coins intended for circulation to the extent necessary to permit their smooth circulation within the Union.”

In this part it is clarified the role covered by the ECB inside the ESCB, in particular it is clear how not only the ECB has the power to issue any legal form of banknotes, but also that it is required its approval with respect to the amount of coin that each Member State

²⁵⁸ See also chapter 1 where it is analyzed that the substantial different comes in the form with which the money is presented, but then again it is most likely determined by the technological progress of these last few years.

²⁵⁹ See also chapter 2, par. *“the implicit powers of the ECB”*.

²⁶⁰ With respect to the constitutional perspective see chapter 2.

²⁶¹ As previously discussed, the legal tender status might not be necessary with the introduction of the central bank digital currency. In chapter 2 we have seen different strategies to cope with a potential lack of legal tender from the CBDCs. As of right now physical euros do possess the legal tender feature in order to be accepted as a mean of payment inside the Union.

may issue. If this issue involves CBDC, the traceability of the product would be easier²⁶². Hence allowing a more direct control over the national central banks issue activity.²⁶³

This may lead to a stronger sense of centralization and control of the European Central Bank over the national authorities, but at the same time the monitoring activity and supervision would allow for a safer ESCB.²⁶⁴ In any case there could be implemented some forms of safeguards against the potential monopoly of control from the ECB, such as external committees or councils, as indicated before.²⁶⁵

Then again, the presence of external authorities that monitor the ECB operations might be needed only in specific circumstances. Since the ESCB has its own specific objectives²⁶⁶, those alone may serve as statutory restrictions on the ECB's operations, similar to an unwritten code of conduct.

Considering for instance article 127 of the TFEU, it states that the primary objective of the ESCB is maintaining the price stability inside the European Union. All the economic policies put in place by the central banks shall be achieved without causing any damage or threatening the price stability created by the ESCB. The European central bank must act following the principles of an open market economy. Thus any form of implementation regarding the CBDC shall respect certain criteria of free competition and efficient allocation of resources.²⁶⁷

²⁶² See also <https://www.quora.com/Is-digital-currency-traceable>

²⁶³ With this kind of currency it would be possible to digitally issue those coins only by the ECB and then transfer them, in a matter of second, to one of the National Authorities inside the union, without the need for any of them to issue directly.

²⁶⁴ See also C. Barontini H. Holden, *Proceeding with caution: a survey on central bank digital currency* (January 2019).

²⁶⁵ Here the role of external committee would be of supervising nature with no direct power over the ECB action. It would be more of active vigilance in order to alert the other European Authorities (Council, Committee and Parliament), whenever the ECB decision become dangerous to the system or go over its normative dictates.

²⁶⁶ See also article 127 of the TFEU.

²⁶⁷ This means that even if the issue of such instruments may be completed by only one issuing authority (ECB), there would be no risk of too much power's centralization. The principles at the core of the ESCB would not allow for a similar situation, showing that some sorts of safeguards are already in place.

3.2 The basic tasks of the ECB and other National Authorities

3.2.1 Smooth payment

Now that the doubts regarding the risk associated with a stronger centralization of the ECB powers have been cleared, we shall address how a possible CBDC's issue may affect the basic task carried out by the ECB and the others national central banks describes in the article 127 (2).²⁶⁸ With the introduction of the CBDC the goal of promoting a smooth payment system would be easily fulfilled, since this particular financial instrument presents all the features that would improve the current way in which regular cash has shaped the payment system. The rapidity associated with the transfer of a digital currency, the record capacity, thus the level of security, with respect to every single transaction.²⁶⁹ However these aspect will be further analysed later on in this chapter.

3.2.2 An operative approach to the monetary policy

With respect to the monetary policy of the union the implementation of the CBDC may seem not very helpful. Since from a macroeconomic point of view the economics laws that move the markets are not affected by the form in which euros are issued rather from the liquidity amount that can be found circulating in the financial system.²⁷⁰

Then again, a similar financial instrument could allow for an easier monitoring practice, not only on a security level, but also for research and study purposes.²⁷¹ It would improve the analysis work behind a correct monetary policy definition and the following implementation. Thanks to the high degree of traceability the CBDC would allow to find where the most economy stressed situations could be found and the main reason behind them. In addition all the information stored inside the digital currency's ledger represent

²⁶⁸ See also article 127 of the TFEU.

²⁶⁹ All the features seen in the first chapter shows the degree of improvement with respect to regular money and how all these characteristics will definitely enhance the smoothness of the payment system.

²⁷⁰ This being generally true, later on in the chapter we will see in more detail which could be the implications for the monetary policy of the Union and how the ECB may cope with them.

²⁷¹ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

the real prize behind this kind of innovation, especially for the use, in monetary policy terms, that an authority such as the ECB could have²⁷².

3.2.3 Managing foreign reserve

Moving to the next task foreseen by article 127 for the ESCB, we find in paragraph 2 holding and managing the official foreign reserves of the member states. The impact that the central bank digital currency may have on this particular objective is most likely oriented to improve the capacity of holding and managing the foreign reserve.²⁷³ Thanks to the blockchain technology the ECB could manage the member states' reserves directly without withholding any information since, if a distributed ledger type technology would be adopted, each national central bank would have access to the information/instructions and thus guaranteeing a high-level of transparency²⁷⁴. This would be feasible only if each NCB would be a node of the ledger with access to the information and no possibility to alter them.²⁷⁵ Basically the performance in managing the foreign reserve would be improved, at once eliminating the necessity for a National Central Bank to issue any money. Thanks to the digitalization of the process associated with the CBDC, the NCBs would work more as monitoring authorities while all the issue process would be dealt by the ECB. This would allow to move towards a stronger sense of unity among the member states thus ensuring a greater financial stability inside the Union.²⁷⁶

3.2.4 Foreign exchange operations

The last basic task considered by article 127 for the ESCB is related to the foreign-exchange operations that must be consistent with the requirements of article 219²⁷⁷. By implementing the CBDC we could look at similar advantages that we have already seen with the previous tasks. In particular due to the technological improvements associated with the digital currency and a possible revision of the code of conduct in foreign-

²⁷² See also Nabilou H., *Central Bank Digital Currencies: Preliminary Legal Observations* (par. Central bank's policy instrument), where is indicated that since the ECB is a non-profit oriented business, it can implement the data gathered only for research purposes.

²⁷³ Thanks to the rapidity feature the ECB could implement any monetary decision in matter of second and with a high degree of security.

²⁷⁴ See <https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210714~d99198ea23.en.html>

²⁷⁵ Each NCB would receive the information as it is, thus avoiding any possible misinterpretation of the ECB's directives.

²⁷⁶ The principle of price stability, under which the ECB operates, is constant that remains in any situation. This is why the implementation of the CBDC will always be design with the focus of price stability among all the priorities.

²⁷⁷ See also article 219 (1,2,3) of the TFEU.

exchange operations there could be obtained some advancements in terms of sound financial stability.²⁷⁸

3.2.5 Prudential supervision

Another relevant point where the CBDC shall possibly affect the European System of Central Banks, by addressing the monitoring process within the system, refers again to the financial stability and can be found in article 127 (5-6). In particular the great capacity of the digital currency in terms of information stored can be extremely helpful when applying the prudential supervision to credit institution, in order to guard the financial stability of the system.²⁷⁹

What must be kept in mind is the correlation between financial stability and the smooth conduct of policies inside the union.²⁸⁰ A smooth regulation system ensures a safer supervision among the financial players with the resulting mitigation of the credit risk. The ECB may receive special tasks from the Council in order to reduce any credit risk among the financial institutions²⁸¹.

All this could be possible thanks to the blockchain technology, where all the information related to the single digital euro and register on the ledger cannot be modified. At the same time those information can be accessed by any operator, which corresponds to a node of the chain, without any particular authorization. This aspect may be adopted in order to seek a financial stability goal and respecting any privacy regulation.²⁸²

What article 127 presents is a situation referred to the whole ESCB where at the top you may find the ECB taking the major decision, implemented then by the National Central Banks. This scheme is then resumed in article 128 (2) where any issue of new euros has to be authorized by the ECB, the necessity of following its internal guidelines is justified

²⁷⁸ The blockchain technology behind digital currency offers a security level unparalleled, thus presenting a stronger financial instrument that could be exploited in uncertain foreign exchange agreement with third countries.

²⁷⁹ See also Center for Latin American Monetary Studies (CEMLA), *Key Aspects around Central Bank Digital Currencies*, (May 2019).

²⁸⁰ The implementation of the CBDC could guarantee a direct entry of the information necessary to the ECB when carrying out their monitoring activity, easily highlighting where the most financial risks may originate inside a credit institution.

²⁸¹ See also <https://www.ecb.europa.eu/ecb/orga/decisions/govc/html/index.it.html>

²⁸² The amount of information to which the ECB could have access would be very high and sensible, and in order to avoid any violation of the free-market competition principle specific safeguards should be put in place, like the ones offered by the blockchain system.

by ensuring the financial stability of the system.²⁸³ The ECB's authorization is embodied in specific issue quantity and quota allocation, meaning that how much and where new currency should be released in the market is all up to the ECB. What remains to the NCBs is the so called derived competence of issue, the National Central Banks still possess the power to issue new currency but in order to proceed they need the authorization from the ECB, thus the term *derived*.²⁸⁴

3.3 A market for digital currency

3.3.1 Public interest

The tasks seen before, referred to the financial stability and the possibility to intervene whenever it is needed, place the ECB and the NCBs in a central position that benefit the public by providing an issuer that guarantees the general public interest and a series of other advantages²⁸⁵. In particular, with the drop in physical cash use, having a sponsor of general interest that covers and offers to the public a service such as the digital currency, thus ensuring the financial stability of the system and the smoothness of the payment process, is quite relevant.²⁸⁶

If we consider a situation where private suppliers were to provide to the public, monetary instruments like digital currency without any degree of competition from a central authority, such as the ECB, the results could not be encouraging. A private supplier by definition is more self-oriented, with a strong focus towards its own personal profit and shareholders' interests. Thus the public concern and the stability of the system would risk to be put in second place with a high possibility of serious damage to the economy whenever crisis condition would emerge.²⁸⁷

²⁸³ The guidelines refer to operational aspects such as data governance, price stability and monetary supervision. All of whom will be drastically affected by the implementation of the digital Euro.

²⁸⁴ The term here is referring to the ability of the NCBs to eventually issue new currency in the financial system.

²⁸⁵ See also Banque de France, *Central Bank Digital Currency*, (January 2020)

²⁸⁶ The development of the ECB's principles has been made following the interest of the public. Therefore, any implementation and design of the digital currency will need to follow this logic if it is wanted to spread and have success.

²⁸⁷ By definition a private operator in order to survive must priorities the profit above everything else, otherwise the business would fail. Therefore, in a crisis situation the public would not be safeguarded.

Article 127 is very specific when, referring to financial stability and a smooth payment system, says that should be the main goals of the European System of Central Banks. Only a public operator can in fact address those issues without letting its business interests affecting any decision taken.²⁸⁸ This leads to the necessary entering of the ECB and the others public authorities into the financial digital world by issuing a digital currency (CBDC), in order to compete with private players and ensure the stability of the system. If not, the following negative consequences may occur.

3.3.2 The case with a private issuer and the benefits of a public intervention

Considering the financial market without a public competitor, may help better understand the dangerous consequences of having only private players. First of all, private providers will probably tend to internalise the minimum amount of systemic disruptions.²⁸⁹ Due to their mainly profit focus, their interest would be shifted towards obtaining a gain from the provided service rather than ensuring a sound financial stability²⁹⁰. The mandate under which a private provider of digital currency operates would be strictly personal before being of public interest.²⁹¹

Moreover the decision driver in the private dynamic as we've already said is profit, instead for a public authority the profit is not necessary included in its business model. Thus the data stored through the digital currency would not be held for sale or exploited with a different scope than public good²⁹².

In addition a public authority such as the ECB has the further goal of price stability alongside with the financial stability of the system. Thus the monetary value represented by the digital instrument of payment must be preserved with a specific issuance strategy and secure investment that would prevent any operational failure associated with the new digital mean. Furthermore the TFEU, in no article, states that the public actor has to run

²⁸⁸ In this case it is not encourage for a public authority to conduct a failing business that makes no profit at all, but the priority is shifted to the public since if the public interests are lost, then also the public authority does not exist.

²⁸⁹ See also Mancini-Griffoli et al (2020) pp. 11-12.

²⁹⁰ Otherwise, there would be no need for Directive 2014/92/EU that has forced bank to open accounts with basic properties.

²⁹¹ In a private reality, with no public competitor, there is in fact no article 127 TFEU that would set the goals in order to guarantee the pursuit of the system's financial stability. There is no article 130 TFEU that ensure the independence in the decision- making process.

²⁹² See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

a profitable operation, but only ensure an efficient allocation of resources²⁹³. Thus the central authority can offer digital equivalent of money that is designed to guarantee a payment system where all the operations are run smoothly.²⁹⁴

A second reason why a public actor should be responsible for the issuing of a digital financial instrument of payment lies within the market conditions associated with the service provided when there are only private players.²⁹⁵

Unfortunately, for the payment market has been observed that a higher number of private providers does not ensure a high quality service.²⁹⁶ The providers can, in fact, exploit strong community externalities, economies of scale and economies of scope where you can obtain greater profit the larger your audience of user is²⁹⁷. Thus the role of a provider is close to the one of a monopolist due to the great number of people served that use its payment instrument service. The presence of a high number of private providers could not ensure a high quality standard of the monetary object. Again a public operator would be preferable to guarantee a sound and smooth payment system.

Moreover a market with a close monopolistic business dynamic will tend to hinder any new provider from entering the market itself, with an always growing concentration among the already well established players.²⁹⁸ Plus any innovation that could improve the payment system will be difficulty achieved, since there would be no real driver that pushes the providers interest in that direction and for sure any social cost will not be internalise for the same reason²⁹⁹.

It is not the primarily job of the public operator to offer a service that respect the previously listed aspects, but it is its job to ensure that those who provide such a monetary object should avoid the creation of a monopolistic payment system. Then again if a public

²⁹³ See also article 127 (1) of the TFEU.

²⁹⁴ In practical terms there would be no delay in the re-payment of debts or excessive fees to conduct any operation, a scenario that a private provider most definitely could not offer due to the profit need and the implied market laws of competition.

²⁹⁵ The market conditions under which the digital currency instruments are offered may depend on the degree of competition among the providers.

²⁹⁶ The payment system, by its nature, tends to move towards a monopoly situation, since in order to create profit, the providers are forced to reach a larger audience of users, thus setting all the business condition.

²⁹⁷ See also Mancini-Griffoli et al (2020) p. 11.

²⁹⁸ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

²⁹⁹ See also Armelius, Guibourg, Levin and Söderberg (2020) p. 13.

Authority such as the ECB should issue its own digital currency all the problems previously seen would be non-significant, since, above all, the public interest of a smooth payment system and financial stability will be guaranteed.³⁰⁰ A monopoly would be avoided and any, private issued, monetary object would have the same opportunity to satisfy its market share. Plus all the incentives that would follow high degree of competition would be achieved such as high rate of innovation and low social costs.³⁰¹ A similar dynamic would also respect the precepts of articles 127 of the TFEU by ensuring an efficient asset allocation and a balance level of competition in the market and at the same time smooth the sense of strong centralization related to the central authority and its issuing activity³⁰².

A third reason that would justify the presence of a public operator in the market of digital currency and their issuing it is related to the last point seen above. In particular a dynamic where there is the right balanced between private providers and a public authority that issue the monetary object ensure a safer market agility.³⁰³ If we then consider that digital currency world is currently in development, any form of regulation will present some weaknesses trying to predict the issues that may arise³⁰⁴. Moreover regulatory procedures are too complex and rigid to embrace any innovation, with the risk of addressing a positive innovation as a negative one, thus disregarding possible productive enforcement.³⁰⁵ In contrast, the physical presence of a public issuer of digital currency could allow for an easier and faster detection of the stressful situations.

At the same time offering a monetary instrument that is safer than the ones provide by private issuer presents some benefit from an operational risk perspective. Basically it is a financial instrument untied with any business risk. In this manner the public would dispose of risk-free payment instrument suitable as a store of value which the article 128 (1) of TFEU allows the ECB to issue.

³⁰⁰ See also article 127 (1) of the TFEU.

³⁰¹ See also ECB, *Innovation and its impact on the European retail payment landscape*, (December 2019).

³⁰² See also article 127 (2) of the TFEU.

³⁰³ In general regulation alone has always found practical difficulties when applied directly to the market without considering its dynamic.

³⁰⁴ See also Armelius/Guibourg/Levin/Söderberg (2020) p. 15.

³⁰⁵ The stiffness of the normative framework could not be able to predict unseen side-effect and negative externalities related to this new digital- financial system, since it is the first time that any legal entity sees something like this.

3.3.3 E-banknote as promoter of a sound payment system

From the above considerations, it emerges that the issuing activity is not simply a right possessed by a public Authority. It can, in fact, be exploited by the same public operator as an instrument to preserve public interests and guarantee the soundness of the payment system.³⁰⁶ By issuing a digital currency the central Authority pose itself as a direct competitor of the private providers and, in doing so, create “natural” safeguards for the users.

However if the dispositions stated in article 128 (1) are interpreted with a narrow perspective, by considering the possibility of issuing only physical cash, the task of protection and safeguards offered to the public in a digital payment system could not be implemented.³⁰⁷

Thus, due to the strong digitalization that is characterizing all the processes, payment system included, and the advantages of having a central authority as a digital currency provider, article 128 (1) should be read in a more wider perspective.³⁰⁸

In this logic the duty of the ECB should be the one of proposing a digital equivalent for the physical cash, even though some evidence show that the need for cash seems to be decreasing³⁰⁹. There is, in fact, a decreasing trend regarding the paper banknotes, but people still need a payment instrument to conduct and conclude transaction. With the strong rate of digitalization that is characterizing ever more aspects of life, a digital monetary object should be provided by the central Authority, even without considering all the perks seen above of having a public operator in the market.³¹⁰

3.4 The payment system framework

In order for the Central Bank Money (CeBM) to fulfil its objective it is crucial that there is an infrastructure behind the payment system. The digital version of CeBM is no

³⁰⁶ Almost in a Machiavellian sense the ECB can implement any means that it deems necessary or helpful in the pursuit of its goals of financial stability. Due to the digitalization progress the CBDC are this mean.

³⁰⁷ See also Nabilou H., *Central Bank Digital Currencies: Preliminary Legal Observations*.

³⁰⁸ In particular it should be included in the issuing activity of a digital equivalent of the physical banknote.

³⁰⁹ With respect to the decreasing use of cash see chapter 1.

³¹⁰ Especially if we consider all the risk associated to the banks' deposit that we are going to see later on. If we add to the picture the benefits of state-issued cash previously described, there should be no doubt whether article 128 should include a digital form of money in its description and thus including a CBDC in the ECB issuing powers.

exception, it requires a strong management framework to ensure a stable conduct in the transaction inside the payment system.³¹¹ Only with intermediary figures it is possible for the digital money to be used as an instrument of payment or be exploited for storing value. Moreover such elements are fundamental in central banks and counterparties relationship, to guarantee a quiet settlement of the monetary policy among the system and its effective translation in the real economy³¹².

To further validate this point we should consider article 22 of the Statute, where it is stated that the ECB and the other national Authorities should provide resources and the ESCB enact regulations in order to consolidate the payment system among EU countries and extra EU states.

The same thesis is brought forward by article 34 of the Statute, in which the ESCB has been given a series of powers to issue regulations and provide recommendations with the purpose of ensuring a sound and efficient payment system³¹³. The transposition of these normative disposition to the digital dynamic does not suffer any change. Also in this case it is necessary for the central authorities to implement tools, such as ledgers for the data registration and safeguards for the transferring of digital money, capable of ensuring an efficient, if not more efficient, payment system.³¹⁴

3.4.1 Payment Service Directive

In order to develop the proper digital tool to sustain a possible issue of central bank digital currency, the central Authority needs to better focus on what actually the payment system is and how it can be improved. We, then, referred to the Payment Service Directive that defines the payment system as “*a funds transfer system with formal and standardised arrangements and common rules for the processing, clearing and/or settlement of payment transactions*”³¹⁵. With this we consider the term “clearing” in the definition

³¹¹ If the price stability is maintained and preserved by the implementation of proper monetary objects, it is also true that the strength of the frameworks is equally relevant for price stability purposes.

³¹² See also ECB, *The role of the Euro-system in payment and clearing systems*, (April 2002), pp. 47-60. With this consideration in mind, it is easier to actually understand what is stated in article 127 (2) where it says that the ESCB has to promote smooth operations in the payment system, not only in instrument terms but also with an operative framework.

³¹³ Ibid.

³¹⁴ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

³¹⁵ See also Directive (EU) 2015/2366 of the European Parliament and of the Council, November 2015; payment services in the internal market.

alongside with the term “settlement”, thus we can relate all the tasks conferred to the ECB by the fourth indent in article 127 (2).³¹⁶

3.4.2 Smoothness of the system

The second characteristic proper of an efficient payment system must be the smoothness in every transaction conducted inside the system. Defining a payment system as smooth, implicate that not only it ensures an efficient business process in relation to the operations conducted,³¹⁷ but also a secure one.³¹⁸

In the development of such a system the ESCB could cover two position as the one that directly operate the system or the one that promotes the first two properties seen above. The duty of promotor of such payment system is foreseen in article 127 of the TFEU.³¹⁹ Thus it emerges a binary situation in which the ESCB is both supportive, in relation to basic functions of the payment system, and at the same time operative when ensuring the actual finalisation of the service provided inside the payment system³²⁰.

The binary condition just seen, leads to complementary dynamic with respect to the central Authority in relation with the tasks fulfilled in and by the payment system. The ESCB in fact covers an operative role as participant in the system, a monitoring role as auditor of the activity conducted, an enabling role as promoter of the previously seen operations and at last a shaping role as regulator that ensures the rightness of the system³²¹.

³¹⁶ With the clarification brought forward by the directive we can include the clearing and settlement activities that seemed to be excluded from the payment system’s operations by article 127 TFEU.

³¹⁷ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

³¹⁸ The level of security would increase with the implementation of digital monetary object, that could exploit a series of basic features related to the traceability aspect far powerful than the physical chash

³¹⁹ The duty is intended not as end in itself, instead as a task necessary to enable note issue and monetary policy responsibility of the ESCB.

³²⁰ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

³²¹ Ibid.

By covering all these functions, the European System of Central Banks poses itself inside the payment systems' world as both the issuer of the payment instruments and the pivotal of the banking system.³²²

3.5 The Euro system of payments

Keeping in mind the position just described, we can say that Central bank money, as its digital version, has always needed the payment system to circulate.³²³ The advantages that central bank money possess are related to the strength that a national system can offer to its own payment instrument, instead of a private issue.³²⁴ The major market player is of course represented by the public operator but this is due to the historical legacy that would give strength only to state issue money and thus allowing its spreading³²⁵.

Nowadays even if you find private issue payment instrument³²⁶ alongside with central bank money, there is still a strong presence of the public representative.³²⁷

In particular the organizational feature, in which the ESCB is involved, reemerges when considering the harmonization objective of the Euro payment system. Which in concrete terms sees the ECB as a direct supervisor of the National Central Banks and all their cash services' activities³²⁸. Moreover the NCBs are responsible for the release of cash in the circulation of their own country throughout the banking system and all the monitoring activities that follows the issue.³²⁹

³²² On one side it is responsible for the issue of the Euro notes and on the other by being the bank of banks, it has the duty of ensuring that the liquidity level is guaranteed, implementing the right amount of reserves.

³²³ See also A. N. Didenko, D. A. Zetsche, D. W. Arner and R. P. Buckley “*After libra, digital yuan and covid-19: central bank digital currencies and the new world of money and payment systems*”, (June 2020).

³²⁴ The payment system on the other hand is considered, in this regard, as more an organizational infrastructure rather than a technical one with all its range of services.

³²⁵ See ECB (2010) p. 151. The historical legacy left by the birth of the modern European States was almost always focused on the central role of the state in the economy. Therefore, the only relevant currency has been the state issued one.

³²⁶ See for example cryptocurrencies such as (Bitcoin, Libra, ...).

³²⁷ The national Authorities are sensed in the payment systems even though, in the ESCB's case, they are responsible only for the Euro system, which does not necessarily correspond with the whole payment system.

³²⁸ See also article 128 (2) of the TFEU.

³²⁹ See also ECB, *Innovation and its impact on the European retail payment landscape*, (December 2019).

In particular because all the market's payers transfer and store the amount of money that they are entitled to via the private banking system, the funds that are recirculated need to be moved following specific standards developed inside the Euro-system to ensure the correct functioning of the money distribution scheme.

Those same operational standards implemented for the circulation Euro banknotes and that ensures the harmonization of the system has been developed in recent years for the electronic payment.³³⁰ The transfer of digital funds, which is something totally different from the issue of a digital currency, requires a stronger infrastructure than physical cash in order to settle the payments. On this matter, it has been implemented, inside the Euro-system, the TARGET2 mechanisms³³¹. An instrument developed to help banks manage all kind of payment operations, from bank-to-bank dealings to commercial transactions, in the processes of submitting, conducting and settling the payments in central bank money.³³²

Since November 2018, alongside TARGET2, it has been adopted an additional tool defined as TARGET instant payment system, or TIPS, which helps in terms of settlement's and transaction's rapidity of the payment³³³. On both these mechanisms the European Central Authorities carry out their oversight practice following article 12.1 of the Statute.³³⁴

All the previous measures, specific to the Euro-system, have been implemented in order to satisfy the need for harmonization throughout the payment process and ensuring the correct settlement of the transactions. In addition, the standards fixed by the ESCB work to reduce the fragmentation of the payment system and allow a smoother transfer of funds, thus the risk related to the market's complexity would be, at least, mitigated.

³³⁰ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

³³¹ See <https://www.ecb.europa.eu/ecb/educational/explainers/tell-me/html/target2.en.html>

³³² The process is then completed throughout a central bank account.

³³³ See [https://www.ecb.europa.eu/paym/target/tips/html/index.en.html#:~:text=TARGET%20Instant%20Payment%20Settlement%20\(TIPS\)%20is%20a%20new%20market%20infrastructure,very%20day%20of%20the%20year](https://www.ecb.europa.eu/paym/target/tips/html/index.en.html#:~:text=TARGET%20Instant%20Payment%20Settlement%20(TIPS)%20is%20a%20new%20market%20infrastructure,very%20day%20of%20the%20year).

³³⁴ The supervision consist of an easy-going monitoring approach towards the financial market infrastructures, implemented as alert mechanism rather than a detective one.

By exploiting all the digital potential it has been possible to develop the so called SEPA project.³³⁵ The introduction of CBDCs could actually help the finalisation of the project SEPA, thanks to the basic features of the digital currency.

On this regard, the Central Bank Digital Currency may present a resourceful alternative. Since it combines all the opportunities related to the digitalization of the monetary object, the infrastructure used with the electronic transfer of funds and the concept of the Euro currency followed by its stability features that comes from being a state issued currency.

When we talk about the combination of the above factors what must be kept in mind is that as of right now there is no real digital infrastructure that could sustain a potential issue of CBDC in the Euro-system. What is consolidated, at the current state of affairs, is a strong framework, both legal and operative, for the conducting of electronic payments.³³⁶

Following the logic of article 22 of the statute, a distributive infrastructure implemented for the settlement of CBDCs should be put in place inside the Euro-system, regardless of which type of technology will be behind the digital currency. The development of such infrastructure should be made not as an end in itself but rather it should possess a supportive nature towards the tasks of the ESCB.³³⁷

3.5.1 A private and public cooperation

Considering the strong externalities that would accompany any payment system in its development and operations, the infrastructure that the Euro-system would put in place should consider a balance between the private intervention and services provided.³³⁸

Hence the goal should be the creation of a cooperative environment in which the ESCB is responsible for the core infrastructure of the payment system alongside with the digital

³³⁵ See <https://www.ecb.europa.eu/paym/integration/retail/sepa/html/index.en.html>. The Single Euro Payments Area is an initiative focused on the strengthening of the Euro-system of payment with the aim of eliminating any market's payment option that would endanger the security of the payment system and its users.

³³⁶ Unfortunately the difference that passes between an electronic transfer of funds and a coin of Central Bank Digital Currency is the same as the one that elapses between the same electronic transfer of funds and physical Euro banknotes.

³³⁷ The term supportive intended in the sense of helping the fulfilment of the duties foreseen in article 127 and 128 of the TFEU, implement singular monetary policy and issue of digital notes respectively. In this way the operative infrastructure would be shaped in line with ESCB's primary objectives, thus becoming indispensable for the digital money's circulation.

³³⁸ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

monetary object issued and private players would provide specific payment services based on the CBDC.³³⁹ In addition by reducing the concentration of few private players and the risk associated with it, it could be possible to mitigate the dominance inside the market and allow more innovative opportunities to grow³⁴⁰.

Furthermore if European Central Authorities were in charge of the structuring of the new operative CBDC circulation network, it could be exploited as an even benchmark level. From this common playing field all private providers could start and develop innovative payment services following the legal requirements³⁴¹ and allowing for the necessary monitoring activity.³⁴²

The adaptation of a proper infrastructure for the payment system of the Euro-system is needed not only to ensure the respect of normative dictate, but also to help throughout the transition from physical to digital currency.³⁴³

3.5.2 Limits to the Euro system

The Treaty on the Functioning of the European Union does not specify any limits or impositions regarding the infrastructure that should be implemented in the Euro-system of payment.³⁴⁴ However there are some limits, referring to the CBDC, that might affect indirectly the system. We see in fact that article 128 (1) enforces specific limits with respect to the design of CBDCs.³⁴⁵

However those same limits do not apply directly on how the Euro-system of payment should function or in what way CBDCs can be exploited to reach monetary policy's goals within the system. In other words, it could be possible, by relying on article 127 (1; 4) of the TFEU, to give to the Central Bank Digital Currency a design which present features,

³³⁹ In this way the risk related to private issue digital currency would be all but eliminated and all the benefit originated from market competition would be maintained.

³⁴⁰ See also BIS Annual Economic Report 2020 (part III) pp. 67, 73, 75.

³⁴¹ The legal recommendations that ensure the price stability and an efficient asset allocation required by the ECB principles.

³⁴² The direct supervision of the banking system carried out by the ECB, but also the supervision referred to the ECB action and models. No decision should go unchecked.

³⁴³ A solid operative framework is needed in order to successfully issue something innovative as could be a Central Bank Digital Currency.

³⁴⁴ See also P. Wierds and H. Boven, *Central Bank Digital Currency: objectives, preconditions and design choices*, (April 2020).

³⁴⁵ The limits here inferred refers to the lack of qualification that the CBDCs may have with respect to the features possess by the banknotes. In practical terms digital euros do not have the same qualifications of banknotes.

not necessary in line with article 128. Such functionalities would not, “de lege lata”, be admissible.

For example the possibility of bearing interest could potentially be allowed to a CBDC.³⁴⁶ Although this could become an obstacle in the day to day functioning of the payment system. If the coin should bear interest, the holder of that coin would be entitled to that interest gained, thus being the owner of that specific coin. This could become problematic if that same coin should be used in a payment transaction, due to the far reaching repercussion that a similar condition would have.³⁴⁷

Being fungible is one of the most relevant feature for a currency, hence any design should maintain the basic characteristics that respect article 128. The smoothness of the payment system is affectable not only by the design of the currency and the system itself, but also by how the features of the currency have an impact on the same system.

3.6 Financial stability

How to plan the design and a potential issue of the CBDCs should also interest the financial stability of the system.³⁴⁸ The CBDC could be exploited as enhancer for the resilience of the system, since they may back-up, in time of financial crisis, the electronic saving or paying activity.³⁴⁹ CBDCs could, in part, unbundle the double function of deposits in commercial banks as means of payment for the depositors and an instrument to refinance the bank itself.³⁵⁰ In doing so the banking system would be safer, hence all the financial system would benefit from it.

3.6.1 Risk in the banking system

The introduction of a digital currency, on the other hand, might cause too strong changes in the business models and strategies of commercial banks. This could push towards the disruption of the banking system as we know it. The banks may prefer to “run” for it leaving the market, or failing it, with a solid possibility of enhancing the financial risk on

³⁴⁶ See also Center for Latin American Monetary Studies (CEMLA), *Key Aspects around Central Bank Digital Currencies*, (May 2019).

³⁴⁷ If the money is transferred, then the owner is changed without necessary knowing who is now entitled to interest associated.

³⁴⁸ In other words the topic regarding the strength of the financial stability may well affect the design of a potential digital currency.

³⁴⁹ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

³⁵⁰ See also D. Johannes, *Overview of Central Bank Digital Currency – State of Play*, (April 2020).

a very large scale, thus pushing towards an ever larger presence of the ECB in the financial system.³⁵¹ The effects on short or long terms are at the moment unknown due to the lack of a real case, what is certain is that the financial stability risk will suffer some kind of consequence.

Considering the scenarios scene above and the regulatory dictates contained in the TFEU, referred to the financial stability of the system, is clear that any future issue of CBDCs has to be prepared.³⁵²

As said before, if the ESCB should decide to issue a new digital form of euro, so called e-euro, the ECB as leading Central Authority should address all the possible implications, regardless of the positive or negative externalities associated. By considering the regulatory principles that are at the base of the ECB's operativity, we see that a direct intervention to mitigate the financial stability risk must always be accounted for, depending on the market condition. Thus, even though it is true that the ECB is directly responsible only for the monitoring activity regarding the banking system, it needs to take in consideration also the indirect hit that might come from the issue of a central bank digital currency.³⁵³

The disruption of the banking system, as a financial stability threat-event, cannot be allowed. It does not matter that the banking system is formed by a majority of private entity. The risk associated with a possible failure of the banking system due to a new digital monetary object is too great, to be disregarded by the ECB. Hence any issue or decision regarding the design of a potential CBDC needs to take in consideration the effect that could provoke on the banking system.³⁵⁴

By ensuring the monetary policy agenda, in fact, the ECB would be promoting a price stability objective, thus in the end ensuring once again the financial stability of the

³⁵¹ See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies*, (July 2016).

³⁵² It cannot be allowed to the ESCB to have an always larger presence in the market because it would be in violation of not only the principle regarding the competition, but also the one securing the financial stability risk.

³⁵³ The final goal set in the normative framework is to guarantee the financial stability of the system, also involving and studying the implication on the commercial banks of the system that may be invested by the effects, both negative and positive.

³⁵⁴ This is crucial not only with respect to the obligation that the ESCB has to preserve the financial stability among the system, but also because the banking system is a valid instrument to spread the monetary policy agenda.

system.³⁵⁵ Considering the dwindling of physical cash and the different digital alternatives that are rising in the latest period, the issue of the e-euro may be used as a safeguards against the possible disruption of the banking system.³⁵⁶ If in fact the digital currency is issued by the ECB, the latter, as direct supervisor of the most relevant banks inside the EU, might be able to mitigate the damages and ease the transition towards CBDCs.

In any case the short term negative externalities of some other digital currency issue might cause interference with the tradition business model of commercial banks, thus losing the long term benefits in terms of financial stability.

3.7 Monetary policy

On the monetary policy note it might be interesting to involve the CBDCs in the discussion and how they may mitigate the risk associated with the monetary policy's objective. In particular how the ESCB, supported by the current normative framework, could make use of Central Banks Digital Currencies to improve the monetary system.

The final goal of the monetary policy is price stability. Having price stability in the system allows for a higher general level of prosperity that otherwise there would not be³⁵⁷. In any event, price stability is a market variable very sensible, that not always the adopted regulatory measures are capable of safeguarding.³⁵⁸ The high degree of sensibility and the risk that comes with it, depends on a large number of monetary object, which determine the performance of price stability.

3.7.1 The Monetary object development

Monetary object here intended as: “*all objects, including tangible and intangible symbols and records that represent the currency unit as well as its quantity*”³⁵⁹. As of right now examples of monetary object are banknotes, coins and book money. In the last category, we do not

³⁵⁵ So it seems only natural that ECB concerns itself with the smoothness and security of the channels, banking system, that are implemented to transmit into reality the monetary policy as indicated in the normative framework.

³⁵⁶ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

³⁵⁷ See also Armelius/Guibourg/Levin/Söderberg (2020) p. 8.

³⁵⁸ See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies*, (July 2016).

³⁵⁹ See also Bank of England, *Central Bank Digital Currency: Opportunities, challenges and design*, (March 2020).

find credit or debit cards, since they are only a representation of what a monetary object is, instead we consider reserve and deposits respectively held with central and commercial banks. In order for a monetary object to circulate in the system it needs to possess specific features without whom it could not be used.³⁶⁰

3.7.2 Nominalism

First of all the nominalism criterion must be respected. Regardless that is a digital currency or regular cash, market operators need to rely on monetary object whose face value is true and reliable.³⁶¹ Hence a monetary object is preferable if is risk free or almost risk-free. Else any operation conducted with said monetary object could be inefficient due to the risk associated with it.

3.7.3 Uniformity of money

The next feature needed to keep the payment system smooth, and it is already adopted for current banknotes, otherwise the system would fail, is the uniformity of money.³⁶² In other words, when circulating the monetary objects need to have a specific nominal value which is the one associated with a certain currency³⁶³. If monetary objects present different providers, similar to the recent situation of various private issued digital currency, then it would be almost impossible to reach the uniformity of money. Thus creating an economic environment in which certain (digital) currencies present safer monetary object than others, forcing market's participants to switch from one to another and creating an unstable environment.³⁶⁴

³⁶⁰ The same features need to be respected by a potential central bank digital currency if issued.

³⁶¹ The nominalist criterion is crucial because on that, depends the trust the people give to the single currency object. If the nominal value should not be guaranteed anymore, then it would be useless to use an object without the capacity of maintaining its value necessary to settle debts and obligations.

³⁶² See also Armelius/Guibourg/Levin/Söderberg (2020) pp. 1,10-12.

³⁶³ See also ECB, *The Payment System: Payments, Securities and Derivatives, and the Role of the Euro-system* (2010) p. 45.

³⁶⁴ In addition the supervising and monitoring activity of central authorities, recommended in article 128, would much more complicated.

3.7.3 Systemic risk factors³⁶⁵

As said before in order to create a stable payment system without any circulation deficiencies for the monetary objects, they need to be risk free or almost risk free. Nowadays a large part of monetary objects is composed by deposits in commercial banks, which can be used as immediate payment means thanks to the banking system. Only a small portion of monetary object is made by coins and banknotes, whose nominal value is certain and without any risk.³⁶⁶

In addition central banks could potentially issue other banknotes if needed, hence avoiding a liquidity crisis. As for the major part of M1, which is composed by deposits in commercial banks, there are two type of risk associated: credit and liquidity risk.³⁶⁷ In any case, regardless of the credit risk associated, deposits are accepted as means of payment and for this reason they become the most used payment resource.

The high degree of fungibility that characterized deposits as mean of payment is reached thanks to a series of factors implemented by central authorities such as the ECB, which allow for a mitigation of the credit risk.³⁶⁸ First of all are needed measures that make binding any contract involved in the backing asset on the balance sheet, creating a situation in which the risk of default is extremely low since the debtors to the bank cannot cheat the obligation.

There are also measures developed by the EBA in case of liquidity crisis. Whenever the financial institution, where the deposit is stored, might face a condition of illiquidity then the lender of last resort intervene³⁶⁹, acting like a bridge in favour of the bank in distress and passing the necessary liquidity.³⁷⁰

³⁶⁵ See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies*, (July 2016).

³⁶⁶ This is due the fact that banknotes as coins are redeemable and so they can be used as claim check object.

³⁶⁷ The general risk in this case is originated in the category under which those deposits are considered. In particular they consist in debts of individual operator, which are backed in the balance sheet of the bank by other asset whose risk is not necessarily close zero.

³⁶⁸ See also ECB, *Innovation and its impact on the European retail payment landscape*, (December 2019).

³⁶⁹ See also <https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/what-is-a-lender-of-last-resort.en.html>

³⁷⁰ The problem with a liquidity crisis is that it can easily transform into an insolvency condition for the bank at which point the lender of last resort becomes useless and other regulatory schemes, needed to curb the damages, would take place.

Other possible measures, exploited by financial institutions to prevent case of insolvency or credit risk in relation with the deposits, involve supervision, regulation and authorization from European regulatory Authorities³⁷¹. Such regulatory frameworks include liquidity coverage ratio and other indicators, whose level needs to respect a specific range of values in order to ensure the solvency of the deposits and increase the trust in the banking system³⁷². Following these strategies, it could be possible to reduce to the minimum the default/ failure situations.

In general the banking system tends to mitigate risk among different commercial banks by keeping a certain amount of asset as reserve in order to guarantee the settlement of payment operations between financial institutions.³⁷³ Nevertheless the mitigation of risk is related only to the banking system³⁷⁴.

For the deposit's owners the risk of credit and liquidity towards the bank still exist. The previous measures safeguard only the commercial banks. However the last financial crisis, after which a lot more safety measures were implemented³⁷⁵, has shown how a large part of the market players tend to elude regulation. They do not necessarily break any law or commit something illegal, but if a bank believes that can "avoid" a certain guideline or recommendation and at the same time gain a benefit, then the situation could be become again riskier³⁷⁶.

The only real monetary object free of any risk as we said before is banknotes. Actually it is the only one that requires very few regulation to operate, especially if we compare it with all the regulatory framework needed to manage and settle payment through deposits.³⁷⁷

³⁷¹ See Handbook of central banking: financial regulation and supervision after the financial crisis, Edward Elgar Publishers, (2011) pp. 328-336.

³⁷² See also Armelius, Clausen and Hendry (2020) p. 28.

³⁷³ The risks related with credit capacity or liquidity would be eliminated, since there would be the reserve as a physical guarantee to avoid the failure of the system or the fear of the payee's bank.

³⁷⁴ See also CPMI/IOSCO, *Principles of Financial Market Infrastructures*, (2012) p. 7.

³⁷⁵ See in Basel III how the regulation of the banking sector has been strengthening in order to avoid the same situation before the 2008 crisis where the commercial banks had created a situation in which a possible crash could have consequences for all the financial and economic system.

³⁷⁶ See also Armelius, Guibourg, Levin and Söderberg (2020) p. 15.

³⁷⁷ The advantages related to banknotes or coins, in general physical and eventually digital cash, are originated in the nominalism feature which is always respected. The value associated with a certain banknote is always the same and cannot lose its nominal worth. Moreover it respects the

3.7.4 The demandability criterion

Unfortunately the pattern referred to the decreasing dynamic of the physical cash's usage seem to continue, hence the ECB may have an opportunity to invert this trend with the issue of the CBDCs. The main difference, which is also cause for the higher level of risk, between deposits and euro notes can be found in the claim- check feature.³⁷⁸ As we said the nominal value is the key for the risk free property of banknotes and it is exactly for this reason that when someone withhold a banknote or a coin is entitled to claim the worth indicated on. All the measures and the regulatory frameworks listed above, referred to the deposits, are devoted to ensure the same possibility for those type of monetary object. Unfortunately as we have already seen is not always possible. The demandability provision is the main reason why banknotes are risk free and deposits are not.³⁷⁹

3.7.5 The effect of CBDC on market's participant

Since banknotes benefit from this convertibility on demand, the ECB should exploit the opportunity to fill the gap that is forming due to the disappearance of physical cash with an issue of digital Euros. In doing so the ECB would make a more stable financial environment and smoother payment system. In addition it would have available a monetary object capable of implementing the monetary policy as dictated by the ECB itself.³⁸⁰ In concrete terms an actual issue of Central Bank Digital Currency will have two main effect.

First with respect to the depositors it will give them a stronger sense of control over the deposit itself, making it less risky. If depositors believe that they can actually convert into digital money their deposits whenever they desire, they will tend to avoid that scenario thus enhancing the financial stability and avoiding the so called "run for it" phenomenon. On the other hand in case a financial crisis should erupt, the possibility of withdrawn of

principle of uniformity and there cannot be any credit worthiness or liquidity problem when the payee holds the cash.

³⁷⁸ See also ECB, *Innovation and its impact on the European retail payment landscape*, (December 2019).

³⁷⁹ When monetary objects' owners are confident that on demand, they can convert the monetary object and use it as payment, they tend to feel safer and less exposed to risk. On the other hand the lack of such confidence in terms of convertibility may enhance the risk associated with the monetary object and initiate a vicious cycle.

³⁸⁰ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

the deposits thanks to a large amount of digital Euros could definitely help in limiting the damages and keeping a certain degree of stability among the system.³⁸¹

Second in relation to the other counterpart of the deposit, the bank, the issue of CBDCs could prove as a self-restraint factor encouraging a proper line of conduct. If in fact a bank should adopt an unsatisfactory strategy or an unlawful line of business the depositors could withdraw their money³⁸². This possibility is more threatening than a transfer throughout the banking system, since with a transfer of deposit, it would mean not addressing the problem rather shifting towards something slightly safer.³⁸³

Hence the ECB by issuing CBDC would address two potential instability's factors. The lack of cash in the system and it could implement a form of restraint on the too much volatile monetary object of the deposit.³⁸⁴

In general cash has a positive effect on the markets as monetary object.³⁸⁵ Regardless of the form in which is issue, physical or digital, the outcome would be the same. The presence of cash in the markets, which is something that is fading away in this last period, is something that the ESCB should seek to maintain. It enhances trust of depositors towards the banking system, thus keeping the financial environment stable and at the same time disciplines the banking system by the threat of possible withdrawn³⁸⁶. With these being the two main effects, there could be less need for all the measures, previously seen, adopted in order to guarantee the financial stability.

If in fact ESCB should implement a similar strategies, it would work in favour of two of its main task: the guarantee of the financial stability and the monitoring activity on the banking system.³⁸⁷

³⁸¹ Indeed only cash offers that certain level of financial certainty, making it the perfect monetary object to implement monetary policy goals and respecting the regulatory framework that encourage financial stability.

³⁸² See also Wierds and Boven (2020) pp. 13-14.

³⁸³ The tendency of banks of extending credit and keeping money under deposits form could enhance the resonance of the damages related to a financial crisis.

³⁸⁴ There is actually no regulatory recommendation that impose limitation on the amount of influence that a monetary object can have on the financial system.

³⁸⁵ See also J. Barrdear and M. Kumhof, *The macroeconomics of central bank issued digital currencies*, (July 2016).

³⁸⁶ See also Norges Bank, *Central bank digital currencies*, (May 2018) p. 17.

³⁸⁷ See also article 127 of the TFEU.

3.7.6 Operative strategies for the CBDC

It is true that the spread of cash could have side effects and encourage illegal behaviour, such as tax avoidance or fraud³⁸⁸, but the issue of a digital alternative could put a stop to them. An e-banknote possess among the different features that defines it, a traceability aspect that transform the banknote in a source of information³⁸⁹. Something that could never be obtained through physical cash. Hence the supervision activity, required from the ESCB, would actually become easier and more accurate. So a digital currency would benefit all market's participants and the market itself.

We have already seen how a central bank digital currency can become a receiving end for monetary policy's impulses.³⁹⁰ By developing a certain design for the e- banknotes it would be possible to make them bear interest. With a similar feature it would be possible for the ECB to monitor and control the demand of digital coin by managing the interest rate. It would help with the financial stability of the system, hence with the normative disposition of the ESCB.³⁹¹ Moreover having an interest associated to the digital currency would affect the risk- free status that should characterize state issue digital banknotes.³⁹²

In addition there is no record of a sufficient legal basis that would allow for such monetary object with interest bearing features. De lege lata, in fact, physical cash has always been interest free, in order to respect the risk- free criterion.

A third possible design may present the e- banknotes as a digital version of the current physical cash with no particular features, if not the digitalization of the processes and of the storing of the digital euros. By issuing a similar monetary object the ECB would still be in charge of the issue and how much digital liquidity would be in the system but it would be the market's participant that would decide the demand for cash. Following this issuing strategy a scenario in which the public jump on other currencies, different from

³⁸⁸ See also chapter 1.

³⁸⁹ See also Bergara M./Ponce J., *Central Bank Digital Currency: The Uruguayan E-Peso Case*, (2018) pp. 82-90.

³⁹⁰ See also Center for Latin American Monetary Studies (CEMLA), *Key Aspects around Central Bank Digital Currencies*, (May 2019).

³⁹¹ That kind of situation has been disregarded since it would become almost impossible to exploit such instrument as a payment instrument due to the lack of fungibility that would follow that particular design.

³⁹² To ensure a risk free condition for the digital cash on the markets it could be possible to impose negative interest rate. However a similar strategy could drive away from the use of digital cash the public, since no one would be willing to pay in order to use digital euros. Especially if it is not a financial crisis situation.

euro, would be avoided.³⁹³ In this way allowing the ECB and other central banks to not lose their grip on the monetary policy objective set in the TFEU. Therefore the e-banknotes would not only be a monetary policy instrument but it would also allow for an effective use of the strategy implemented.

The goal in this case is to present the public with digital monetary object that is not only a payment's means and a store of value but it is also a euro instrument that attracts market's participants and prevents their possible migration towards other currencies for payment operations. The traditional deposits in commercial banks are not sufficient to avoid a similar situation, instead a state issued digital euro might be the solution. It would offer depositors a safer alternative, with the same practical benefits of deposits that come from digitalization and in the end, on a more larger perspective, enhance the stability of the financial system by increasing the presence of digital cash in the markets.

³⁹³ See also G. Calle and D. Eidan, *Central Bank Digital Currency: an innovation in payments*, (April 2020).

Conclusion

Throughout the drafting of this paper have been taken into account several aspects related to the Central Banks Digital Currency. In particular we have considered what has led to the creation of private and state issued digital currency, the main differences that arise from these two type of digital currency. We have seen how the regulatory framework could adopt and allow the spread of CBDCs without strong adjustment to the normative dimension. Moreover, the analysis presented the consequences in operative terms for the public operator (ECB and other Authorities), but also for the private reality of the banking system. Which could possibly be the effects on the commercial banks world and what kind of measures the European normative framework could adopt to cope and guarantee the financial stability. It is true that the CBDC is a great technological advancement, but it also could have serious consequences for the financial stability of the Union. Hence the ECB following the dispositions given in article 127 of the TFEU must ensure certain stability priorities when implementing new monetary object such as digital currencies.

First of all we have seen what were the market conditions that have brought to a potential issue of a digital currency by the European Central Bank. Two main forces are currently in play. From one side we can find the technological progress that had always dictated the changes on the socio-economical level. Throughout history had always been the technological progress that brought the strongest changes to society and with respect to those changes the regulatory framework had to adapt and adjust. As of right now the potentiality behind the technology associated with virtual currencies are a lot. The blockchain with its strong security feature and the distributed ledger model are considered one of the greatest break-through of the last decade. The challenges that have followed such technology are quite relevant from a legislative perspective. Regulators are trying to develop normative acts capable of accepting said technology and at the same time excluding all the dubious aspects that comes with it. Especially if we think of the private digital currency dimension and the illegal activity associated.

Following the technological push towards virtual currencies, the second market force that is inducing the spread of digital currencies we have seen to be the decrease in the use of physical banknotes. In recent years, in fact, the physical means of payment have lost ground to electronic forms of payment such as credit and debit cards. This dynamic has

move the market in the direction of developing a form of electronic payment that could actually be a virtual version of a currency, rather than a representation of physical cash stored in banks account. The implementation of digital currencies has been realized almost only in the private reality, as of right now in fact exist only one CBDC issued by a major economy, the digital Yuan or Digital renminbi. Such implementation has been possible thanks to the technology of ledgers, distributed or centralized, capable of storing an enormous amount of data and at the same time of ensuring a high level of security of the data stored.

In the second chapter we have analysed if and how the current regulatory framework of the EU should be adjusted to a possible issue of digital currency by the ECB. We have taken in consideration article 128 of the TFEU and the theoretical dispositions given with respect to the digital currency, its definition, its design and whether the ECB can actually issue or authorise the issuance of said monetary object. In particular, we have seen that a potential e-banknote to qualify as a digital version of the Euro need to possess certain qualifications in relation to its functionalities. It has to possess features of mean of payment and store of value like physical banknotes. In addition the design of digital currency cannot include interest beating functions, this would cause the rise of a series of problems related to the risk-free nature of the single currency Euro, which would require negative interest rate and undermine the fungibility feature of the e-banknotes.

Moving to the scope and legitimacy of the ECB to issue Central Bank Digital Currency, we have seen that the ECB in order to ensure the objectives presented in article 127 of the TFEU has to guarantee the stability of the system. In order to do so, it can implement any means that are legally admissible and that if disregarded can negatively affect the Union and its financial stability. For this reason the ECB must be able to read the market and predict possible changes that may come from the private dimension of business. This is why even if the digital currencies are not directly included in the scope of the ECB powers as foreseen by article 128, they may still be implicitly involved in the issuance activity of the ECB. The European Central Bank must act before the privately-issued virtual currencies threaten the strength of the Union and of the Euro.

As for the physical euros also for their digital equivalent we have argued that the legal tender status should be granted. This feature is actually the substantial difference between

CBDCs and the privately-issued digital currencies. This status would make the CBDCs more secure and helpful to the normative goals set in article 127 and 128 of the TFEU. We have seen that the legal tender is not necessary to the issue of a currency, however if the legal tender status would be granted a series of positive externalities would follow the issued currency. Positive effects that have been observed include more trust in the system, an easier and wider acceptance of the currency and last but not least a stronger financial stability of the system. That is why, as was specified by the European legislative dispositions for physical cash, also for digital euros this status should be allowed. Since there would be no real difference between physical banknotes and their digital equivalent it should cause no concern the eventual adjustment of the normative text to the Digital Euro. On the condition that the design of the digital currency respect the criteria and functionalities of current physical cash.

The CBDC design development has become relevant also in the third chapter. We have addressed the position that the ECB would come to cover with an issue of digital euros, how its powers would change in practical terms and which would be the consequences for the banking system. It is true in fact that CBDCs would have various not negligible effects on the commercial banks sector.

The design of the Digital Euro concerns the powers of the ECB due to the nature of the currency itself. Being digital brings a series of possible feature that a physical currency could not possess. The main one and possibly the most relevant is the amount of data that would come with the implementation of the CBDC and that would be available to the ECB. This would definitely strength the position of Central Authority within the Union and could cause the rise of concerns from other European Authorities. We have seen that the concerns are justified, however they could be dealt with external committees that would monitor the work of the ECB.

The threat that would affect the commercial banks is also related to the design of the digital euros. Depending on the model under which the virtual currency would be issued, the commercial banks could lose their role of intermediary for the implementation of the monetary policy. The nature of this monetary object could cause a strong phenomenon of withdraws from the banks and enhance the risk of failure of the commercial banks' business models. For this reason the ECB when deciding if and how the CBDC should be

issued in the system should value the consequence on the whole system. Especially considering the dictates of article 127 of the TFEU that impose specific tasks in terms of financial stability of the system.

In any case the digital currencies phenomenon is happening whether the European Authorities want it or not. Hence, the ECB should make the adjustments and the updates to the regulatory framework of the Union, article 128 of the TFEU in particular, in order to being able to issue its own digital currency. Thereby, it would be avoided a scenario in which the strength of the Single Currency is undermined and the financial stability is guaranteed. Thus, also maintaining the precepts of article 127.

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