

# DO CENTRAL BANK DIGITAL CURRENCIES (CBDC) PROTECT THE CONSUMER OR ARE THEY A MIRAGE?[1]

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## **Summary**

Consumers are using cash less and less, and the use of private money, through companies such as Visa, Mastercard or Paypal, is increasing considerably. On the one hand, cryptocurrencies, such as bitcoin, were created in 2008, and on the other hand, private digital currencies backed by large technology companies are coming onto the market. And right now, feasibility projects for digital currencies are being studied by central banks. Indeed, consumers seem not to distinguish between private and public digital currencies, while giving up their privacy, despite the adoption of the European Data Protection Regulation in Europe.

Do CBDCs protect the consumer or are they a mirage? Can these digital currencies, with their centralization, represent a monopoly? Is controlling money a way of controlling the market, and suppressing the freedom of the individual? This article aims to answer these questions.

## **Keywords**

CBDC, centralization, consumer, monopoly, bitcoin, GDPR.

## I. CONTEXT: THE CBDC

Today, most money circulates in digital form. For example, with respect to US dollars, only 11% of the dollars issued is physical money, and the rest, approximately \$14 trillion, is digital [2]. In the UK, 97% of money is currently created by banks and only 3% is created by the government [3].

The origin of digital currencies, and cryptocurrencies, dates to 1983, when the American cryptographer David Chaum[4] developed an early cryptographic system called eCash[5]. It was conceived as an anonymous cryptographic electronic money [6], or electronic cash system. It was implemented as a micro-payment system in a US bank from 1995 to 1998, although it did not prosper. And credit card payments emerged and became the dominant online payment method.

An important milestone was reached in 2008. Satoshi Nakamoto created the first cryptocurrency, Bitcoin, for a *peer-to-peer* (P2P) digital money system. Bitcoin is a means of payment, a store of value, a unit of account, it is impossible to confiscate, private, portable, censorship-resistant and finite [7]. 21 million bitcoins will be created through the work of miners, who generate the blocks, which are authenticated by the nodes.

In this escalating digital disruption, central banks have begun to study and consider the issuance of centralized digital currencies, controlled by the central banks themselves, and private digital currencies are also emerging, created by large technology companies that centralize the issuance of these new digital currencies [8].

In June 2021, the G7 member countries [9] approved thirteen public policy principles endorsing the creation of digital currencies by the countries' central banks. The G7 intends that "*these digital currencies should guarantee privacy, transparency and data protection*". A central bank digital *currency*, known as a *central bank digital currency* (CBDC), is a new form of central bank money available to the public that can be highly disruptive compared to the traditional system. The more a CBDC competes with traditional bank deposits, the greater the threat to bank funding, with a possible adverse impact on bank lending and economic activity [10]. If developments continue in this direction, banks will have to adapt to survive.

Some central banks have already adopted pilot projects for their own digital currencies, but none of them have yet been fully implemented. On 20 October 2020, the world's first CBDC, the *Sand Dollar*, was put into circulation in the Bahamas for Bahamian residents. The digital version of the Bahamian dollar is issued by the Central Bank of the Bahamas, much like cash and conventional currencies, and residents can access it through a mobile app or by using a physical payment card.

In 2021, Nigeria became the first African nation to launch a digital currency: the *e-Naira*. The virtual currency uses the same blockchain technology as Bitcoin. But unlike the cryptocurrency and its peers, which are decentralized, the *e-Naira* is issued and backed by the Nigerian central

bank. The currency is not a financial asset and derives its value from the official currency. Moreover, transactions in digital naira are, in principle, fully traceable.

The Eastern Caribbean Central Bank has also launched its digital currency, the *DCash*, for Antigua and Barbuda, Grenada, St Lucia, St Kitts and Nevis, with the intention of extending it to the whole region. Similarly, the National Bank of the People's Republic of China made the international debut of its electronic yuan (*e-CNY*) [11] at the 2022 Winter Olympics, and the Bank of Sweden is at an advanced stage of implementing its *e-krona*. Other countries such as Denmark, Norway, Brazil, Ecuador, Cambodia (with *Bakong*), Iceland, South Africa, Ukraine, Uruguay, Israel, and Switzerland are also considering adopting a CBDC.

The digital currency of a state, or central bank, will have similar technological characteristics to other digital currencies, but also important differences. Bitcoin, and other cryptocurrencies, are digital assets that are created from computer operations, and their transactions are recorded and validated in chains of servers (*blockchains*)[12], which operate independently, through a digital ledger (*Distributed Ledger Technology*)[13], secured with cryptography. They are used as a means of payment or exchange, to access a product or service. Coins with stabilising algorithms, those linked to the dollar or, eventually, to a set of currencies, are called *stablecoins* and are intended to be more attractive as a means of transaction and store of value.

A fundamental difference between private and sovereign currencies is that the latter are issued by a central bank. This implies that they must be legal and enforceable tender. The issuer, in this case, must promote policies aimed at maintaining the stability of the currency (as stated in the mandates of central banks) and should have a policy of controlling its own currency against other currencies, dealing with short-term speculative exchange rate variations.

Beyond private digital currencies, which include cryptocurrencies, private digital currencies are being developed that depend on large technological and multinational companies, such as VISA, Mastercard, or even currencies that are being created under the umbrella of other companies, such as Facebook or Amazon [14].

CBDC is a new type of fiat currency, over which the central bank has full control. Such a central bank could come to have detailed control over the monetary base and could easily issue new money. CBDCs would influence not only monetary policy, giving central banks tools not used before in financial history, but also payment systems, which entails risks.

Among the objectives of CBDCs is to create a protocol that ensures faster payments, especially when cross-border payments are involved. A CBDC involves a central regulator who sets the rules of the protocol, and can be changed at will, and as often as necessary, by whoever administers the currency, which can be dangerous. The greater the power of the central regulator, the greater the damage that can be done to the country's economic and financial policy. CBDCs are linked to states, governments or federations and experience shows how these financial tools have been used as weapons between states[15].

## II. CBDC REGULATION IN EUROPE

The European treaties do not explicitly provide for the possibility for the European Central Bank (ECB) to issue central bank digital currencies [16]. Unless it is seen as a technical procedure used to carry out the ECB's normal tasks, the issuance of CBDCs would have to be integrated into the provisions of the existing treaties, to avoid having to amend the legal texts.

However, if it were necessary to amend the treaties, this would, in principle, must be done by means of a new treaty, with the difficulties associated with the need for unanimity and the ratification processes in the Member States.

Exceptionally, under Article 129.3° TFEU, the Statute of the European System of Central Banks and of the ECB may be amended by the legislative procedure. However, the exception is restricted to a limited number of Articles of the Statute, including Article 17 on the opening of accounts, and authorises only marginal amendments to the content.

In the increasingly realistic scenario of a CBDC being issued, not as a mere technical procedure but as a currency, two alternatives would be possible. First, Article 128 of the TFEU gives the ECB the right to authorise the European Central Bank and the national central banks to issue banknotes in the European Union and specifies that the banknotes issued by the ECB and the national central banks shall be the only banknotes that are legal tender in the European Union. The CBDC could also be equated with a digital form of banknotes, according to Article 128 TFEU.

It seems that the legislators never imagined that banknotes and coins could at some point cease to be physical and tangible [17]. And if that were to happen, the jurisprudence of the CJEU could perhaps come to appreciate a looser interpretation of the treaties.

Second, the issuance of a CBDC could be included in one of the basic tasks of the European system of central banks, within the scope of Article 127.2° of the TFEU. In this case, it would have to be demonstrated that such issuance was necessary to maintain the ability to conduct monetary policy, or to promote the smooth operation of payment systems.

With regard to the issuance of legal tender, only banknotes issued by the Eurosystem (Article 128), and coins, (Article 11 of Council Regulation 974/98), are legal tender in the euro area. Assuming it were possible to introduce a CBDC, which would be equivalent to a digital form of banknotes, under Article 128 TFEU, it would automatically be considered legal tender.

If a CBDC eventually becomes legal tender, users will need to have the appropriate technological equipment to be able to use them, which raises issues of inequality. In this respect, it should be up to the public authorities themselves to provide individuals with the material resources to use them.

### III. CENTRALISATION VERSUS DECENTRALISATION

Decentralization implies that power is distributed, and functions do not depend on a central authority, but on many units that do not depend on a single will. Decentralized or peer-to-peer networks are participatory systems that reject single centralised power. When it comes to digital currencies, Bitcoin is the paradigm of decentralization [18].

Initially, digital currencies were created as decentralized systems, but then central bank digital currencies were created to counteract the decentralization process. The creation of CBDCs is a way of returning control to governments, states and the central banks that work with them [19].

The ability to transact reliably without a central authority is not something that centralized financial networks can offer. If central banks are to achieve adoption of their CBDCs, they will need to design a transparent infrastructure that fosters user confidence.

Article 102 TFEU prohibits monopolies when it establishes "*the prohibition of abuse of dominance which may restrict the market...*".

When thinking about central banks' digital currencies, there is a serious threat, resulting from the concentration of power they represent in the decision-makers (central banks), the executive powers (when the independence of the three powers is blurred) and in the large private technological companies, which will be necessary to develop and implement these digital currencies.

On the other hand, CBDCs represent a banking sector with the power to set the prices of digital money, banks issuing deposit liabilities, which can be materialized in cash and CBDCs [20]. Digital currencies issued by the private sector (banks, technology companies and large corporations) could become widely used, which would weaken the effectiveness of public monetary policy, as monetary control would be exercised de facto by the system or institution managing this new currency.

This situation is particularly relevant in the case of private initiatives (Amazon or Facebook), because the market power of these companies can make their digital currency acquire a global reach, and this could lead to the replacement of some state currencies, which would have implications for the economic and financial policy of countries.

However, it is difficult for a country's legal tender to be displaced, only in very exceptional cases could it be considered, and that would be in those cases where the country's own monetary authority becomes very deteriorated [21].

If CBDC were to be introduced through national central banks, the European Central Bank would be competing with private commercial banks [22]. This competition could be considered unfair based on the European Central Bank's exclusive power to issue legal tender, and the public nature of the national central banks.

To close the centralization versus decentralization section, in 2008, Satoshi Nakamoto created the first cryptocurrency: Bitcoin [23]. The Bitcoin protocol is open source, developed without the presence of an owner or coordinator who can dictate changes to the software, which can be freely adopted by users who will or will not update their Bitcoin nodes, and which requires approval by most of the network of nodes to be valid [24].

Bitcoin knows no borders and is the first truly neutral payment network. BTC does not need trusted intermediaries, such as a bank or a central government, because it operates without them. The system's protocol is based on competition between miners, which makes a coordinated attack virtually impossible [25]. Nor will anyone's permission be required to use the Bitcoin protocol. Users will be free to exchange BTC with whomever they want, wherever they want, whenever they want. Bitcoin has an inflexible monetary policy, and is composed of 21 million units, it is finite [26]. BTC represents the financial sovereignty of the individual, is accessible to all and is based on decentralization [27].

#### IV. THE CONSUMER VIS-À-VIS THE CBDC.

The TFEU regulates European Union economic policy as an exclusive competence of the Union. Exclusive competences are those in which only the EU can legislate and adopt legally binding acts. Member States may adopt binding acts only if the European Union expressly authorizes them to do so. Otherwise, they may not do so (Article 2.1° TFEU).

The matters over which the European Union has exclusive competence are "the customs union, *the rules on competition for the functioning of the internal market, the monetary policy of the Member States whose currency is the euro*, the conservation of marine biological resources under the common fisheries policy and the common commercial policy" (Article 3 TFEU). Both economic policy and competition policy are exclusive competences, where the States may only legislate if the European Union does not do so, which represents a significant transfer of state sovereignty to the Union on issues of vital importance for the proper functioning of the market and the economy.

In Europe, the European System of Central Banks (ESCB) comprises the European Central Bank and the national central banks of all Member States. The primary objective of the ESCB is to maintain price stability and act in accordance with the principle of an open market economy with free competition, promoting an efficient allocation of resources (Article 127.1° TFEU).

If governments, through their central banks, incentivize and promote the use of central banks' digital currencies, users will have to be provided with innovative technological mechanisms, in line with the digital currencies themselves, to be able to receive and pay with them. This will create an inequality between individuals that will ultimately oblige the state to provide users with the means to use them, so as not to exclude anyone. Because digital currencies are being created with blockchain technology [28] and it will be the responsibility of states to make it accessible to all users if they continue to encourage and promote its use.

If we think of the consumer, the end user of these central bank digital currencies, we can see how, to use these centralized digital currencies, he or she will have to give up, at the very least, his or her privacy and personal data. A central bank digital currency in anonymity is unacceptable. The digital identity of the person using it will always be required.

Privacy in economic transactions is important because it protects users from the abuse of government surveillance. Mass surveillance programs are problematic, even if individuals believe they have nothing to hide, simply because of the potential for error and abuse, particularly if the programs lack transparency and accountability [29]. Transaction privacy protects users against data exploitation by payment service providers and the counterparty to the transaction, ruling out the possibility of subsequent opportunistic behaviour, or against security risks, due to failures in the protection of customer data [30].

Privacy must be respected in case a CBDC is issued. The applicable data privacy rules, established at European level, must be strictly enforced, as well as several consumer protection rules, which are in addition to the risks linked more generally to the legal liability of the issuer, in general to the legal liability of the issuing central bank [31].

The payment services industry is subject to strong economies of scale and adoption by new users becomes more attractive the larger the number of users in the system. This dynamic inevitably tends to concentrate the market in a small number of providers, potentially leading to natural monopolies [32]. The trend towards a cashless society may ultimately lead to a vulnerable society, if the payments market is concentrated in a small number of players, services, and private infrastructures [33].

If CBDC were to be introduced through national central banks, the European Central Bank would be competing with private commercial banks [34]. This competition could be considered unfair based on the ECB's exclusive power to issue legal tender and the public nature of national central banks.

There is also the risk of creating monopolies by concentrating decisions in a few hands: in the government (executive) and the central bank of a country. Monopolies are infringements of competition policy, which should ultimately protect consumers. By creating monopolies, consumers and users are left defenseless.

The digitization of the economy will continue, which could exacerbate competition problems in markets dominated by digital platforms, including the payments market [35].

It follows from the above that there is a need for specific consumer protection against monopolies and centralization of digital currencies, against risks of financial loss, against security risks for users, and equal access of users to CBDCs.

## V. CHALLENGES AND THREATS OF CBDC.

Digital currencies, which include cryptocurrencies, private digital currencies, and central banks' public digital currencies, have an important competitive advantage, which lies in the technological superiority and convenience of the services they offer thanks to the cross-cutting nature of their operations and data handling. Digital currencies all require technological progress and reduce cross-border transaction costs. They will make paying for international transactions much faster and cheaper.

The introduction of a digital currency has economic and social impacts, including financial inclusion, by reducing the cost of handling cash for low-income households and small businesses that do not operate in the traditional financial system. Digital currencies avoid printing on paper, thus contributing to the environment. They also facilitate currency exchanges and the absence of intermediaries.

Specifically, a central bank digital currency will require a significant infrastructure to channel payments, it will need to work on *ledger sheets* where coins and transactions are recorded, as well as a sufficiently large network of electronic devices for the public to use the currency. The issuance of a sovereign digital currency requires technological and political coordination between states to ensure the interconnection and interoperability of national money and financial markets under new technological conditions. This raises the need for cooperation in the choice of technologies in an international environment. However, it poses another major threat, which is the concentration of state and technological monopolies that will ultimately be able to abolish digital currencies with a single *click* or create new ones.

One financial stability issue that may arise with CBDCs is the disintermediation of the banking sector. The sale and circulation of CBDCs could facilitate the hoarding of large amounts of central bank money. This could negatively affect banks' deposit funding because the public would have less money in the form of bank deposits [36].

Currently, alternative retail payment systems (credit or debit cards) are privately owned and foreign owned. In Europe, most international card payments use Visa or MasterCard [37].

The payment system is a critical infrastructure backbone of the economy. The slightest instability would have severe consequences for society and pose a major threat to national and international security. Currently, private digital money is backed by central banks' (public) cash, but its use is increasingly residual. Depending on their design, central bank digital currencies could serve as a back-up system for the existing private cash-based electronic payment system. This back-up function becomes particularly relevant as digital disruption risks, such as cyber-attacks or operational problems, become more important [38].

Today, the increasing frequency of digital payments means an increase in the use of private money to the detriment of public money. In many cases, consumers do not perceive the difference between the uses of one and the other, due to institutions, such as deposit guarantee



funds, which insure users' private bank accounts. However, this aspect is important to ensure the proper functioning of the payment system and the economy [39]. FinTech and BigTech companies are disrupting the traditional business model of retail banking.

Another threat is the absolute loss of privacy of the individual using them, because while it is presented, by governments, central banks and the media, as an opportunity to prevent money laundering and terrorism, and to achieve transparency and user security, the EU has gone to great lengths to pass European legislation, the General Data Protection Regulation 2016/679 (GDPR), which protects the individual with regard to their personal and private data, and yet then obliges them to hand it over in its entirety because otherwise the digital identity and payment system itself drives them out of the market[40]. It can be used as a political instrument, and this is a worrying prospect if used by an authoritarian government.

A CBDC system is not conceivable without a prior digital identity. A virtual wallet cannot be opened without providing the identity of the subject to the responsible system. The loss of privacy will be absolute. CBDCs are seen as a tool in the hands of governments that will thus be able to increase interventionism in monetary policy, with economic and social consequences that will affect privacy and the rights of the individual. CBDCs have no limit and can be issued and burned at the command of the person administering them, and this entails risks of absolute control and concentration of power never seen in the economic history of any country.

## VI. FINAL CONSIDERATIONS

*First.* There is a trend towards digitalization in everything, and in the economy even more so, and there is no doubt that it has innumerable advantages, such as the inclusion of a certain population, at a poverty level, who cannot access a bank account, but who can access digital currencies. These digital currencies bring environmental benefits, as they do not require paper printing. And they ensure much quicker and cheaper transactions, which are valued in a global trade that reaches everyone.

*Second.* Some individual behaviours, as consumers, it is advisable to continue practising, such as continuing to use (public) cash so that it never disappears. Renouncing cash, and its use, is a way of reducing the subject's independence and autonomy, because it will be *someone else* who authorizes, or not, the use of our digital money. From the moment that one is not the custodian of one's economy, one is not free.

Centralized digital currencies should be very well regulated, precisely so that they are not abused by the executive authorities or central banks. International private law is a discipline that is very protective of consumers. And so does competition policy. Not everything that is adopted in relation to central banks' digital currencies is good for the consumer. The consumer cannot be conditioned to have to give up all his or her personal information to do something. The consumer must be the focus of all legislation that is developed around digital currencies. Much more care must be taken in regulating those digital currencies held by central banks, which are centralized [41] and which can subjugate people by the mere fact that they are the caretakers and custodians of the money earned by individuals. The European Data Protection

Regulation must be strictly enforced. Having to authorize the transfer of our data, and our privacy, for the system to accept us, is a way of unprotecting the privacy and rights of the user.

The creation of a central bank digital currency is not only a technical issue of monetary or financial or technological order, but also not only a question of transparency and cost savings, but it is also not only about agility and cheapness, and it is not only about inclusion of all social strata. The creation of central digital currencies is also about power within nation states, between the state and private financial actors, and between the state and society.

*Third.* If the near future were to lead us to a scenario, quite likely, in which the use of cash would be practically residual, and in which banks would compete fiercely for users' money, a stable digital currency with a global reach could position itself as the main competitor in the means of payment sector. Against this backdrop, traditional banks as we know them would have to transform themselves to survive. With the emergence of Bitcoin and digital currencies recently proposed by large technology companies, central banks face increasing competition from players offering their own private digital alternative to public cash [42].

Ideally, a CBDC could coexist with cash as a common good, respectful of privacy, under the individual control of citizens. And in this way, central banks could avoid significant disruptions to their monetary policies and to the financial stability of their countries.

*Fourth.* Centralization and its possible drift, the lack of privacy of our personal data and the information we provide about our consumption are major challenges. The idea of Chinese social credit [43], if you are a good citizen, we let you have your money, and even give you rewards for it, is being accepted as a matter of course, and it is very dangerous.

In other words, there is a real threat of an absolute power of concentration on a matter that will determine the survival of society and the rights of citizens, because it will be a central authority that will decide on your digital assets and values and will also be able to sanction you, without any authorization or judicial decision, because it has control over the issuing or deletion of these digital currencies, and which are centralized in someone, who should behave with integrity, coherence and solvency....

*Fifth.* Diversification makes sense. Bitcoin symbolizes financial sovereignty and decentralization, representing the most equitable and scalable approach to the economic and financial system possible. Bitcoin is a cryptocurrency that requires nodes to authorize transactions, is incorruptible, unfalsifiable, and impossible to counterfeit, and returns financial sovereignty to individuals. As some authors point out, bitcoin has become a fundamental human right [44]. If we were to reach a cashless society based on CBDC, more and more people would understand the importance of a protocol like Bitcoin, which does not discriminate and guarantees anyone the freedom to transfer value.

*Sixth.* And questions remain to be answered... how will tourists be able to pay in a foreign country that has adopted CBDC?[45] will the payment made by tourists be an exception to the rules promoting digital identity and the fight against money laundering and the financing of terrorism? Will these CBDCs be centralized worldwide? Will the decision-making monopoly be global? will CBDCs have an expiry date, to prevent the subject from saving money, as they are experimenting with the Chinese e-yuan?

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