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Can the Digital Euro beat Bitcoin?

In a world where money and society have significantly influenced and shaped each other, we find ourselves in a focal point of shift in the currency realm, shift brought about by the digital evolution. Technologies are gradually changing the way money is perceived and used, moving from physical forms to more abstract ones: digital money[i].

In the realm of digital currency two main development stands out:

The first one is Cryptocurrency[ii], an innovative decentralized currency, with Bitcoin being the most notable among the 22,000 created over the past years.

The second one is still a working process of the European Union: The Digital Euro, the European central bank digital currency (CBDC).

In our analysis we will compare these two very different forms of money, Bitcoin and the Digital Euro, aiming to discern whether the Digital Euro can match or surpass Bitcoin's functionalities and acceptance in the dynamic realm of digital finance.

First the characteristics, roles and weaknesses of the two currencies will be analyzed in detail, to achieve a wider picture of the matter, and finally a comparison between the two will allow us to address the main question.

Digital Euro

The Digital Euro represents a significant initiative by the European Union to introduce an electronic equivalent to cash, issued and regulated by the European Central Bank (ECB), and

accessible to everyone within the euro area. The ECB ’project responds to the shift from cash to digital transactions recognizing the need to adapt to digital and social changes with modern public money that aligns with current consumer behaviors.

However, this initiative aims not only to adapt and evolve but also to protect the role of public money and the ECB in an era where bank accounts and other digital payment methods are becoming more prevalent, potentially diminishing the use of Central Bank money (cash).

Although it might initially appear as an anti-competitive measure, the Digital Euro is designed to complement the existing monetary system rather than disrupt it. It introduces a safe, regulated currency option that maintains the privacy attributes of cash, mitigates the risks associated with bank deposits, and facilitates digital transactions. In fact, to safeguard banks that might face challenges[iii], there will be holding limits. Also, Intermediaries, such as payment service providers, which could be banks or public entities, will play a crucial role in distributing the Digital Euro and interacting with consumers[iv].

If on one hand, the Digital Euro is designed to foster innovation in the payments sector, adapting to societal trends and preferences, it is also strategically aimed at enhancing the autonomy of the European financial system. By introducing an official digital currency, the ECB intends to reduce the euro area's dependency on non-European payment service providers, ensuring that the euro remains a strong and stable force in the global economic landscape.

A pivotal question remains: Will the Digital Euro work as a widely used payment method, as an actual currency?

The European Union has designed incentives making the Digital Euro particularly appealing, especially for consumers who will not pay interest. Additionally, the fee paid by merchants will be lower than those imposed by current credit systems, with the Euro system not taking any commission. This unique benefit, only possible through an institutional currency, is anticipated to significantly encourage the widespread adoption of the Digital Euro.

Also, the way Digital Euro will fulfill the roles of money will impact its success and widespread: the Digital Euro is designed to be a day-to-day medium of exchange, being easy to use, efficient and the only digital currency universally accepted as cash within the eurozone. The European Central Bank (ECB) plans to ensure it is accessible and usable by all, integrating it with existing payment systems and making it compatible with bank accounts and digital wallets. This compatibility is expected to facilitate its use in all types of transactions, enhancing its convenience and utility.

In its role as a unit of account, the Digital Euro is designed to offer the stability needed for pricing and accounting and supporting long-term financial planning. It is anchored to the traditional euro, and the Central Bank’s regulation provides this necessary stability.

The Digital Euro could also serve as a stable store of value, thanks to its stability. However, to maintain financial system stability, the ECB plans to impose limits on the amount that can be held or converted, ensuring it supports, rather than destabilizes, the broader economy. This could compromise its role as store of value, role that is instead fulfilled better by other currencies.

Moreover, Digital Euro's main strength is its potential recognition as legal tender, as it would mandate its acceptance for all transactions within the euro area, making it a compulsory method

of payment. Although not yet recognized as legal tender under current EU statutes, which primarily focus on physical currency, anticipated legislative changes could extend this status to digital forms, enhancing its functionality and integration into daily financial activities.

In summary the Digital Euro will be a new digital public money, secure, risk free, convenient,

efficient and available for everyone in the eurozone, offline and online, crafted as an easy and inclusive Central bank digital currency. (see Figure 1 for a more comprehensive overview).

Bitcoin

Bitcoin, launched in 2008 by the unknown Satoshi Nakamoto pseudonym, marks a significant shift from traditional currency systems, introducing the first entirely digital currency, that does not rely on any institution or third party.

Its innovative feature is that it works thanks to a technology called blockchain, which is a public decentralized ledger of all transactions. The entire system operates on a peer-to-peer network, in which users are connected via the internet. This technology is run through a process called mining, where the transactions are verified and then added on the blockchain by solving complex time-consuming mathematical puzzles, for which miners are rewarded with a new bitcoin. This process is secured by cryptographic techniques, including hash functions and proof-of-work, providing a level of transparency and security in transactions that challenges traditional financial systems, and this enhances trust and integrity.

Bitcoin’s technology was a response to the financial situation of 2008, the well-known Great

Recession, that led to a general distrust towards banks, in fact its institutional free system, along with its privacy and security was the cause of its success.

However, these features come at the expense of other characteristics: Bitcoin is highly volatile, due to the lack of homogeneous and comprehensive regulations, which make it unsuitable to be a unit of account. Then, its high level of anonymity was exploited to promote illegal activities. Additionally, due to the proof of work mechanism, transactions are difficult, time consuming and power consuming, raising environmental challenges, and making it unsuitable to be a widely used medium of exchange. Finally, Bitcoin fees have risen due to increased demand for transactions on the blockchain, which has led to a congested network. Since users pay fees to have their transactions prioritized by miners, higher demand naturally leads to higher fees as users compete to get their transactions confirmed more quickly. Additionally, significant price increases in Bitcoin can motivate more transactions and trading, further straining the network and driving up transaction fees.

These drawbacks have retained the widespread adoption of Bitcoin, a currency that is still not widely accepted and recognized, in a society that still needs the security of institutions like governments and central banks.

Although, these characteristics have shaped Bitcoin to be a suitable store of value. The currency is in fact, increasingly taking ground as a form of investment, thanks to its potential for high returns, its decentralized nature, and its function as a hedge against inflation with a supply capped at 21 million coins.

Comparative analysis

The information above has highlighted that Digital Euro and Bitcoin structures, purposes, and potential impacts on global finance are significantly different. They could even be considered as two extremes of the digital currency realm, as the former is completely reliant on the Central Bank, but also banks and credit institutions, while the latter is instead completely decentralized. This difference lies not only in their design, but also their aim, as the first aims to strengthen the euro and the European Central Bank in the eurozone, by being the first digital currency to be issued and therefore regulated by the ECB. On the other hand, Bitcoin, the world's first decentralized cryptocurrency, aims to ensure autonomy and mitigate censorship or control by any single entity[v], that is why it operates outside traditional financial frameworks, having even its own monetary policies, to foster autonomy, transparency, in a trustless environment, reducing the risk of centralized corruption or failure.

Because it functions outside of traditional financial systems, its legal status varies significantly from one country to another, and this lack of uniform regulation presents challenges in monitoring and controlling its use across borders.

In contrast, the Digital Euro is being developed within the well-established regulatory and legal frameworks of the European Union. It has been said that details on the currency are specified in the digital euro rulebook, and AML policies will be adapted to welcome the new currency, ensuring that it adheres to laws designed to prevent financial crimes. The Digital Euro thus has the benefits of digital currency technology while ensuring robust user protection and seamless integration into the existing financial system through strict regulations.

The lack of comprehensive regulation in Bitcoin's ecosystem has led to its characterization as a highly volatile asset. This volatility is not just a reflection of shifting market perceptions but also a consequence of its regulatory vacuum which can be manipulated by large stakeholders or external events in the crypto space. Such fluctuations make Bitcoin less ideal for use in everyday transactions. On the other hand, Digital Euro is designed to be risk free, exactly like cash.

Moreover, being designed recently, Digital Euro converges all the benefits of different currencies, also reflecting user’s needs, and privacy protection aspect. For instance, it is a peer-to-peer system as well as Bitcoin.

Being one of the most discussed issues in nowadays society, the European Union placed significant importance on the currency privacy, retaining the minimum amount of data needed to comply with regulations for online transactions, and being almost as private as cash for offline transactions, levels that Bitcoin has not reached.

One more aspect that penalizes Bitcoin is its increasingly expensive fees, incomparable with the cheap fee system of Digital euro. As it happens, by reducing or eliminating fees associated with bank transfers and other financial services, the Digital Euro provides a more cost-effective alternative for individuals and businesses to conduct transactions compared to Bitcoin, which incurs higher transaction fees.

Furthermore, transactions with the Digital Euro are instant, allowing for immediate transfer of funds without the delays associated with traditional banking processes. In contrast, Bitcoin transactions can take anywhere from 10 minutes to an hour or more to confirm, depending on

network congestion and the fees paid by users. This makes the Digital Euro a faster alternative for transferring funds.

In addition, the Digital Euro holds the status of legal tender across the Eurozone, obligating its acceptance for settling all forms of debts and financial obligations. In contrast, Bitcoin does not share this status[vi]. Typically, Bitcoin's acceptance for payment is really low, as it depends on the discretion of individual merchants or the specific terms of a contract, without any legal obligation for acceptance.

This comparison highlighted that in terms of widespread adoption, Digital Euro is prospected to have more success than Bitcoin, as it has many beneficial characteristics that make the currency more efficient, convenient, safe, and easy to use everywhere within the Eurozone, offline and online.

However, the question 'Can the Digital Euro beat Bitcoin?' reflects a common misconception about the nature and roles of these digital currencies. It presupposes a competition where there might be none, due to the fundamentally different purposes and mechanisms underlying each. The Digital Euro will never, by construction, try to appeal to the users of Bitcoin, and other cryptocurrencies. They are not competing in the same space. Even if they are considered both digital currencies, they fulfill different roles: as already explained above, the digital euro's primary role, as a central bank digital currency, is to act as a medium of exchange within the eurozone. It is intended to facilitate daily transactions and payments digitally, mirroring the function of physical euros but in a digital format.

Additionally, the regulations of the European Central Bank ensure that it remains stable and reliable as a means of exchange.

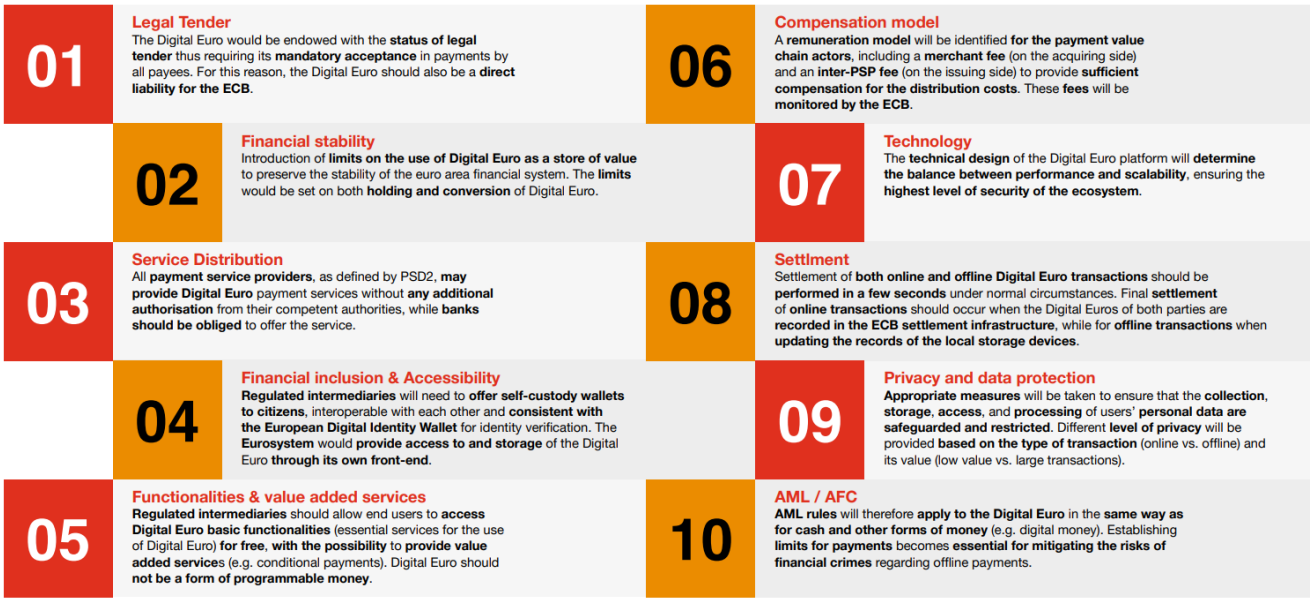
Whereas Bitcoin, as said before, has increasingly been viewed as a store of value. In the mid-2010s, in fact the term "digital gold" was coined, as the similarities with gold are multiple, they indeed share the same characteristics that make them suitable for investments: The Scarcity, durability, they can be held personally and is not dependent on any single authority, thanks to Bitcoin's decentralized network, reducing its susceptibility to government or institutional manipulation. Finally, Bitcoin exists on the blockchain, making it durable in the sense that it cannot be physically damaged or destroyed.

Conclusion

In summary, rather than viewing the Digital Euro and Bitcoin as competitors, it's more accurate to see them as different tools within a larger financial toolkit, each with specific uses tailored to different aspects of economic life. The Digital Euro could be used widely for transactions and payments, ensuring stable and efficient digital transfers of money across the European Union.

Meanwhile, Bitcoin can continue to serve those looking for an investment or a decentralized alternative to traditional currencies, appealing to users who value its decentralization and potential for significant returns. Indeed, their coexistence and cooperation could potentially lead to a more robust, versatile, and innovative financial landscape, as a matter of fact it's also possible that the implementation of the Digital Euro could leverage blockchain technology, which underpins Bitcoin[vii].

Figure 1 *General Overview Digital Euro*



Source: PricewaterhouseCoopers Business Services Srl. *Digital Euro.* 2023. Print.

Endnotes

[i] The shift is also revealed by recent statistics: cash payments have decreased from 72% to 59%, while card payments have risen from 25% to 34%, showing a growing preference for the convenience of digital payments.

[ii] cryptocurrency is a new form of money defined as a token intended to be used as a general or limited-purpose medium-of exchange, issued via a cryptocurrency system, and which are accounted for using an often collectively maintained digital ledger making use of cryptography to replace trust in institutions to varying extents. Pernice, Ingolf Gunnar Anton and Scott, Brett, Cryptocurrency (May 20, 2021). Internet Policy Review, Glossary of decentralized techno social systems, Volume 10, Issue 2, Available at SSRN: https://ssrn.com/abstract=3899258

[iii] Banks are one of the few players that would lose with the introduction of the Digital Euro due to a preference shift towards the Digital Euro wallet over traditional deposits.

[iv] The exact rules will be listed in the digital euro rulebook, if interested read the draft on https://www.ecb.europa.eu/euro/digital_euro/timeline/rulebook/html/index.it.html

[v]Nabilou, H. (2019, January 1). *Central Bank Digital Currencies: Preliminary Legal Observations*. Social Science Research Network. https://doi.org/10.2139/ssrn.3329993

[vi] In June 2021, El Salvador officially recognized Bitcoin as legal tender. This made it the first country in the world to do so, allowing Bitcoin to be used for any type of financial transaction within the country alongside the U.S. dollar, which is also legal tender there.

[vii] If interested, more information can be found on Klein, Manuel, Jonas Gross, and Philipp Sandner. *The Digital Euro and the Role of DLT for Central Bank Digital Currencies.* FSBC Working Paper, 2020. Print.

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