

THE DIGITAL EURO

A FEW MATTERS FOR THOUGHT

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MOTIVATIONS OF THE DIGITAL EURO (1)

1. Contrast the decline in the use of cash/banknotes caused by digital **private** bank money, mostly cards.

But...there is a “cash paradox” to be explained:

- 2020-2023, Euro Area, Banknotes +27,3% (nominal GDP + 10,6%)
- euro banknotes in circulation **1,560 billion** (4,470€ per capita)
- ECB estimates that :
 - each consumer in the euro area holds cash for 500€ so consumers would globally hold 150 billion
 - about 350 billion€ circulate outside the area



About **1,020 billion** are unaccounted

TECHNICAL FORMS OF DIGITAL EURO

A. ONLINE ACCOUNT-BASED DIGITAL EURO

1. The Payment Service Provider (PSP, **authorized** intermediary) opens the encrypted D€ accounts at the ECB on customers' request, after KYC verification
2. The PSP manages all operations according with the holders' orders and communicates them to the ECB for execution, registration and settlement, **shielding customers' identities**
3. The D€ account is a liability of the ECB; the account holder is **identified by a code/alias**
4. The PSP acts simply as a delegate and only on behalf of its customer
5. Through the D€ account the holder can make/receive all payments/transfers
6. The transfer circuit is centralized: owned, controlled, operated by the Eurosystem
7. De facto, **commercial banks** will assume status and functions of PSPs
8. The **basic** services of the D€ will be offered **cost-free**. PSPs will be remunerated by the Eurosystem

COMMENTS AND OBSERVATIONS

- All operations of the online D€ accounts are coded/ encrypted and traceable and will be protected by privacy procedures (but the full anonymity cannot be technically guaranteed)
- PSPs will be able to **improve** the D€ accounts, offering advanced services
- Given its design, the **online** account-based D€ is not an equivalent of cash and banknotes: it provides a larger functionality, but it does not guarantee full anonymity
- **Rather, it appears to be an efficient and competitive substitute of the overnight bank deposit**, with two significant differences:
 - one positive, it is riskless
 - one negative, it can't offer credit facilities (overdraft and credit cards)

TECHNICAL FORMS OF DIGITAL EURO

B. OFFLINE D€ WALLET

- An electronic device which allows P2P in/out transfers offline and in proximity;
- The wallet must be **preloaded** with D€ obtained by paying cash or by transfer from a D€ account at a PSP...**necessary holder's identification**;
- Settlement of offline D€ payments shall occur when the records of D€ (the wallets) are updated.

...ALL THIS SAID LEAVES A FEW PROBLEMS ON THE TABLE...

1. Both proposed forms of D€ **do not attain the original objective**, which was the digitalization of cash. Therefore, the D€ - not being a “cash equivalent” - is **unlikely to substitute the existing stock of cash**.
2. Then the issuance of D€ will derive from the transformation of bank oversight deposits if their holders will have convenience to use D€
3. A large transformation of bank deposits into D€ accounts would:
 - **destabilize banks: loss of reserves** consequent to deposits transformation
 - **reduce banks' revenues** gained from payment services
 - **reduce the capacity of banks to grant new loans**

THE ECB WILL IMPOSE TWO RESTRICTIONS

- D€ account balances **will not earn interest**
- **strict holding limits** will apply to all D€ accounts:
 1. A cap ranging from 1,000 to 3,000 € on personal account balances;
 2. A **zero cap** on accounts held by **non-personal entities**:
Corporations, businesses, public administrations will not be allowed to hold D€.

**THE UNLIMITED USE OF D€ AS A MEANS OF PAYMENT
WILL BE ALLOWED BY THE WATERFALL/REVERSE MECHANISM.**

THE WATERFALL MECHANISM

ANY D€ ACCOUNT WILL TRANSFER AND RECEIVE ANY D€ AMOUNT:

- any out-going payment **exceeding the lower limit** will be funded by an automatic and cost-free transfer from a **linked bank deposit (reverse-waterfall)**
- any in-coming payment exceeding the upper limit will be de-funded with an automatic and cost-free transfer to a linked bank deposit (**waterfall**)

BECAUSE OF THE WATERFALL ARRANGEMENT:

- The D€ will not be a store of value
- ...funding and de-funding of D€ accounts will continuously imply conversion of bank private money into D€, and vice versa



CRYPTO: A GLIMPSE INTO THE FUTURE

The journey begins
Roma 04/03/2025

Bitcoin: a peer-to-peer electronic cash system

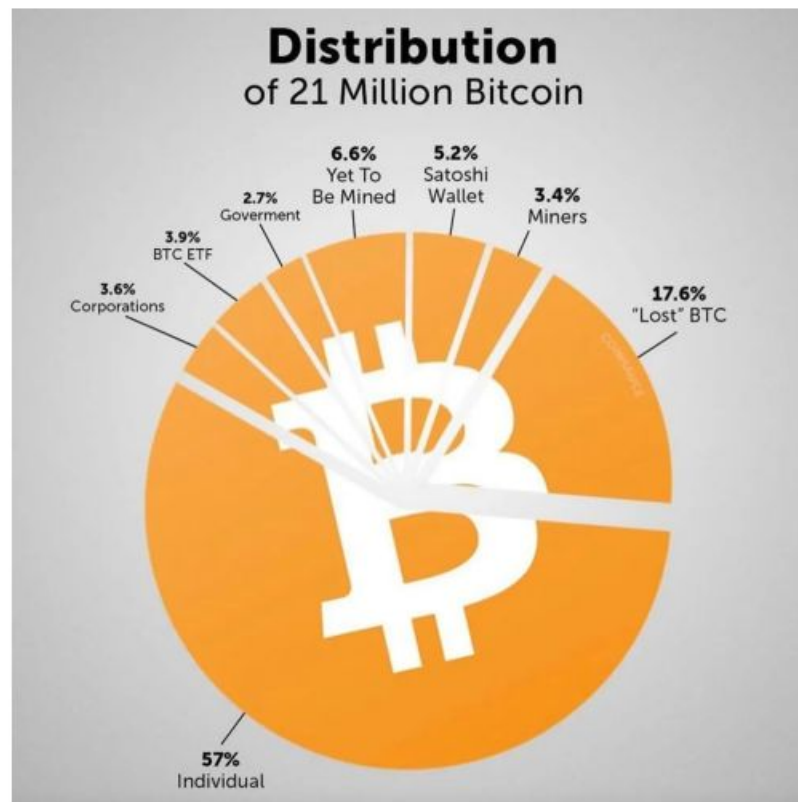


Data: Coinmarketcap ([link](#))

BITCOIN

- Asset class: Commodity / Currency
- Comparison: digital gold
- Mkt Cap: ~ 1.7 T USD
- Circulating Supply: ~ 19.82 M BTC
- Max Supply: 21 M BTC
- Release year: 2009
- Consensus mechanism: PoW

Who Owns Bitcoin?



Ethereum: platform for decentralized applications (Dapps)

Ether (ETH) = the currency to transact on Ethereum



Data: Coinmarketcap ([link](#))

ETHEREUM

- Asset class: Commodity / Currency
- Comparison: digital oil
- Mkt Cap: ~ 288 B USD
- Circulating Supply: ~ 120 M ETH
- Max Supply: ∞
- Release year: 2015
- Consensus mechanism: PoS

Smart Contracts: Code is Law



Self-executing Contracts that enforce the terms of the agreement between the parties

Pros: no intermediaries, secure, fast, not subject to interpretation

Cons: Hard/impossible to upgrade, bugs can cause undesirable effects.

Start off on the right foot

A diversity of blockchains are attracting builders, including Ethereum and its network of Layer 2¹ scaling solution plus other alternative Layer 1 chains as Solana, Bitcoin, Avalanche and others

Builder interest by blockchain

The blockchains that founders say they are – or are interested in – building on



Projects by Chain

Top 5 by change in total share

2023		2024	
5.1%	Solana	11.2%	+6.1
7.8%	Base	10.7%	+2.9
2.6%	Bitcoin	4.2%	+1.6
19.7%	Ethereum	20.8%	+1.1
0.4%	Zora	1.3%	+0.9

Data: A16Z State of Crypto 2024n ([link](#))

¹Layer 2 (L2) networks are designed to increase capacity and lower onchain transaction costs. This may exclude some onboarding and exit costs.

Why Stablecoins

Capabilities



Instant, interoperable payments



Transact tokenized bonds and equities



Cross-border transactions



DeFi collateral



Smart contracts compatible

Usage snapshot



The value of stablecoins has **exceeded \$220 billion** with extraordinary success in emerging countries ([Data link](#))



Stablecoin issuers are the **18th largest buyer of American t-bills**, surpassing numerous sovereign states including Germany ([Data link](#))



In countries like Turkey, **4% of GDP is used to buy stablecoins** ([Data link](#))

**“NFTs are unique cryptographic tokens
that exist on a blockchain and cannot
be replicated”**

Investing.com

**“Crypto is money in the Metaverse.
NFTs are stuff in the Metaverse”**

Cameron Winklevoss – President, Gemini