# Digital finance for the European economy

**Position paper from the Digital Finance and Use Cases Committee**
**led by Marianne DEMARCHI**

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## Digital Finance and Use Cases Commitee
## Paris Europlace

Starting in 2019, with the PACTE law, France has a legal framework that facilitates the development of digital asset activities. The law establishes a framework for fundraising through the issuance of tokens (or ICOs) and digital asset service providers (DASPs) offering the services listed in Article L54-10-2 of the Monetary and Financial Code. This unique legal framework, one of the first in Europe and the world, is flexible since it is optional depending on the activity, making France a benchmark in this new market.

By 2024, the European MiCA (Markets in Crypto Assets) regulation on crypto assets will come into force. This regulation introduces two new categories of crypto assets, namely asset-based tokens, and electronic money tokens, commonly known as Stablecoins backed by a legal tender.
In addition, a second European regulation, the so-called pilot regime, provides for a tnsitional regime to market infrastructures based on Blockchain/DLT[1], with targeted exemptions from the European MiFID2 regulation for financial instruments and CSDR for central securities This regulation will allow the listing and admission to trading of digitised financial instruments (security tokens)

through DLT market infrastructures and will come into force in 2023.

To support this regulatory work, two working groups have been set up under the leadership of Paris Europlace :

- A regulatory and legal group on the MiCA regulation and the digital euro, as part of the European commission and ECB consultations

- A monitoring and think-tank Committee. This group has set itself **the goal of identifying the main use cases of digital finance, the benefits and risks, as well as the conditions for promoting the emergence of a powerful and competitive digital ecosystem in France and Europe, as part of the "Digital Decade of Europe"[2].**

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[1] DLT : Distributed Ledger Technology – Blockchain is a DLT
[2] https://eur-lex.europa.eu/legal-content/FR/TXT/HTML/?uri=CELEX:52020PC0594&from=EN

## Main recommendations of the working group

**French and European financial industry has a major card to play in the use of Blockchain and digital assets. It can position itself favourably in a global race to digitisation, which has already begun. And thus maintain its autonomy and its driving role in financing of the economy and the development of a unified capital market:**

- **In the issuance and cross-border distribution of French and European digitalised (tokenised) financial securities by capitalising on the pilot scheme[3]**
  o Develop the financing of the economy through the issuance, listing and settlement of tokenised assets (bonds, shares, funds registered on a Blockchain)

  o Develop market infrastructures based on the Blockchain, enabling the exchange and processing of post-trade transactions of these assets

  o Improve the liquidity of securities by enabling the rapid and secure execution of transactions between eligible counterparties, regardless of their location

  o Democratise access to investment through fractionalisation, i.e. the possibility to invest small amounts in fraction of shares

  o Capitalise on these experiments to facilitate the updating of current texts (AIFM, CSDR, UCITS, MIF2...)

- **In the use of a tokenised CBDC[4] or a settlement coin issued by the Central Bank in a Blockchain/DLT for the settlement of digitised assets**
  o Supporting the development of digitisation of assets worldwide via a settlement asset equivalent to "central money"

  o Distributing European securities widely on Distributed Ledger Technologies while guaranteeing the finality of transactions within the Blockchain

  o Ensuring European autonomy on the Blockchain

  o Optimise a few foreign exchange operations and cross-border trades

- **In asset management, to capitalise on French and European leadership and enable investors to benefit from the know-how of regulated professionals with expertise in risk management**
  - Making the token form of financial instruments, units of collective investment schemes or other products/services commonplace through European regulation (which plans to include asset management)

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[3] https://eur-lex.europa.eu/legal-content/FR/TXT/HTML/?uri=CELEX:52020PC0594&from=EN

[4] Tokenised CBDC (Central Bank Digital Currency) should be understood as central bank money issued from a RTGS towards a DLT, under the form of a token, as settlement asset for settling financial assets on a DLT.

- Initiate the necessary reflections on the "tokenised" form of collective investment schemes with all the benefits that this form offers (subscription/redemption mechanisms by "smart contract", subscriptions and redemptions in kind, cohort mechanism on variable management fees, etc.)

- Encourage the inclusion of crypto assets in certain types of funds and in life insurance contracts as allowed by the PACTE law (Art 88) and thus offer an alternative to buying crypto assets directly

- Act to ensure that current European regulations adapt the definitions and responsibilities of custodians, registrars, and depositories in the context of Blockchains

- Communicating with the governance bodies of financial professional associations

- Pooling the monitoring of technical issues (particularly interoperability) to adapt infrastructures and offers according to the evolution and stabilisation of standards

- Bringing the taxation of crypto assets closer to that of financial instruments

The Paris Europlace working group supports the European Commission's ambition of the **"Digital Decade for Europe"** which maps out the European path towards greater digital autonomy by 2030 and **would like to see Blockchain and digital finance included in this roadmap.**

## Context

Digital finance, based on the digitisation of assets and blockchain technologies, is a global innovation, the scale of which is such that it is important to position ourselves. Crypto assets have undergone an incredible development since the emergence of Bitcoin in 2008, reaching 3 trillion dollars in November 2021[5].

**The year 2021 was marked by a fourfold increase in the market capitalisation of digital assets, or crypto assets, the gradual institutionalisation of the market, an influx of capital for project financing and the very strong growth of decentralised finance** (see Table1) [6].

According to Fidelity Digital Assets[7], 56% of European institutional investors indicated to have some level of exposure to digital assets, up from 15% in 2019 and 70% of trading volumes on the Coinbase platform in 2020 came from institutionnals[5].

Gartner recently published its Emerging Technology Cycle report and considers that crypto assets and blockchain have moved out of the "disillusionment phase" and entered into the "slope of enlightenment"[8]. Gartner projects that by 2023, 35% of Blockchain applications used by enterprises will be integrated with decentralised applications and services.

### Table 1: Key milestones in 2021 for the Blockchain & crypto industry

| Surge of crypto markets and larger institutional participation | Key leading institutions entering the digital asset space space | Growth of DeFi |
|---|---|---|
| • +340% of market cap (vs 2020 – From $500bn to $2.2bn, nov 21)<br>• Peak of $3tn in Nov 2021<br>• $14tn of crypto assets traded globally (almost equivalent to world trade ~ $18tn per year)<br>• Coinbase Q3 21 trading figures: ~ $300bn, 70% of institutions[1]<br>• $30bn invested in the crypto industry, of which 25% coming form the US (only 4% from Europe) | • Tesla, Microstrategy, Square invest in Bitcoin<br>• Visa, MC, Paypal launch crypto services<br>• Security tokens (bonds, structured products) by SG Forge, Santander, Goldman Sachs<br>• CBDCs & Euroclear experimentations<br>• Deutche Boerse / Clearstream launch D7 digital post-trade platform<br>• SIX digital Exchange placed CHF 150m digital bond<br>• Euronext lists crypto ETNs, 1st bitcoin index fund on NYSE | • Total assets in Defi raised from $18bn to $260bn[3]<br>• Stellar rise of stable coins for payments in Defi applications[2]<br>• Top 3 DeFi applications: exchanges (ex: Uniswap), lending platforms (ex: Aave) , asset mgmt. (ex: Yearn.Finance)<br>• Fraud growing accordingly (Badger, Cream Finance etc.) |

| 8% of French hold crypto assets and 37% have the intention to (Adan) | |
|---|---|

| • China to ban Crypto currency<br>• Salvador make Bitcoin legal tender | |
|---|---|

ADAN website- 1: Goldman Sachs & Coinbase public filing - 2: Tether (USDT) cap: from $4.3bn in 2020 to $74bn end 2021 ; DAI: from 0 to $6.5bn – 3: 2022 Digital Asset Outlook, The block

In March 2020, the Banque de France launched an experimental programme for interbank Central Bank Digital Currency (CBDC wholesale)[9]. These experiments were carried out with innovative procedures for the exchange and settlement of digitised or tokenised financial assets, based on new Distributed Ledger

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[5] PwC : « Crypto assets: paradigm shift or short term rend?", February 2022

[6] ADAN website- 1: Goldman Sachs & Coinbase public filing - 2: Tether (USDT) cap: from $4.3bn in 2020 to $74bn end 2021 ; DAI: from 0 to $6.5bn - 3: 2022 Digital Asset Outlook, The block

[7] Fidelity Digital Assets: "2021 Institutional Investor Digital Assets Study"

[8] https://www.blockchainireland.ie/gartner-publishes-hype-cycle-for-blockchain-2021/

[9] https://www.banque-france.fr/communique-de-presse/la-banque-de-france-publie-son-rapport-des-experimentations-de-monnaie-numerique-de-banque-centrale

Technologies (DLT). Many financial players participated and tested these new technologies, whether for fund units (IZNES), sovereign securities (Euroclear France, AFT), supranational securities (Société Générale - FORGE), SME securities (LiquidShare), listed securities (SEBA Bank) or multi-currency and cross-border trading operations (MAS, JURA, HSBC experiments).

**These experiments have shown the potential of these new distributed technologies to make smoother operations, facilitate the distribution of financial securities to investors, deal with data reconciliation issues, speed up settlement and reduce costs.**

The new European DLT Pilot Regime, with its implementation in 2023, will allow for the creation of three distinct types of DLT market infrastructure for tokenised financial assets: DLT MTF for admission and trading of security tokens, DLT SS for delivery and settlement and DLT TSS, an infrastructure that combines both market and post-market activities. It should be an accelerator of innovation.

This legal framework will facilitate the emergence of fully digital end-to-end solutions, without technological debt and natively adapted to constraints and rules of cross-border transactions. These solutions will be able to emerge and demonstrate their value to issuers and investors without a technological or legal "big bang", limiting the systemic risk and financial instability induced bsome new schemes.

**We are convinced that Blockchain technology**, thanks to digital identity, transparency, the possibility of exchanging value from peer to peer, the uniqueness of transactions (trading and settlement in a single exchange) **will be a catalyst for profound changes in regulated financial services and markets** (as already shown by examples in the unregulated world such as decentralised finance[10] or AMM[11]).
This transformation is likely to be multi-faceted, like the recent initiatives in Metaverse involving the adaptation of financial and payment services.

**The French and European financial industry has a major card to play in the use of blockchain and crypto assets. The regulatory initiatives taken by the European Commission (pilot regime, MiCA) have made it possible to build up a unique legal and intellectual capital.**
**French and European companies can now position themselves favourably in a global race to digitisation that has already begun, and thus develop their autonomy and their driving role in financing the economy.**

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[10] Automated « Smart contracts » providing repo or lending services

[11] Automated Market Makers

## Zoom: Focus on the French ecosystem

**Regulation**

- Pact Law providing a regulatory framework for digital assets (excluding security tokens) and the DASP (Digital Assets Service Provider) regime[12]

**Initiatives**

- Dedicated subsidiaries (Société Générale - FORGE), LabChain by Caisse des Dépôts, Practices by major consulting firms (PwC, KPMG)
- Equity investments (e.g. Euronext in Tokeny; Euronext and Euroclear in LiquidShare)
- Issuance of security token and first listing on the stock exchange by Societe Generale - FORGE
- Ongoing initiatives by major French banks
- 2 French unicorns (Ledger and Sorare)
- Many new commers (Coinhouse, Just mining, Tezos etc.)

**Ecosystem**

- Growing interest from financial institutions, lawyers and consultants
- A thriving ecosystem with the creation of ADAN, a new association representing digital finance players (over 120 members, including a dozen PSANs registered with the AMF)
- Recognition by major international players of French ecosystem
- Committee and community led by Paris Europlace

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[12] Known as PSAN in French (Prestataire de Services sur Actifs Numériques)

## Paris Europlace Committee "Digital Finance and Use Cases

- Created in April 2021, in addition to the first legal working group on MiCA regulation and the digital euro
- Brings together an ecosystem and a community of some twenty players:
  - Financial institutions
  - Market Infrastructures
  - Lawyers, associations (AFG, ADAN, AFTI)[13] and consultants
  - Start-ups and new players

- **Objective: to identify the conditions for strengthening the competitiveness of France and Europe in the field of digital finance and to formulate recommendations**
  - Extend Paris Europlace's actions on legal and regulatory aspects
  - Identify and analyse the use cases of digital finance, their benefits and the best conditions for their development
  - Make recommendations

| Domain & Use Cases | Description of use case & objectives | Participants |
|---|---|---|
| **Blockchain & Tokenization** | | |
| Asset digitalisation or tokenisation | Identify the benefits of Blockchain to simplify/optimize the issuance and settlement of financial assets | **Euronext & PwC** ADAN, Banque de France, BNPP, Euroclear France, Paris Europlace, PwC, SG Forge |
| Asset and holders traceability | Identify the benefits of Blockchain and distributed ledgers for real-time traceability and knowledge of securities holders (traditional and digital financial assets) | **Euroclear France & OFI AM** AFG, Euronext, Jones Day, PwC |
| **Use of Digital / crypto assets** | | |
| Asset management in digital/crypto assets | Identify the conditions for a UCITS fund to gain exposure to digital/crypto assets and provide solutions to the problem of holding/recording positions | **AFG & Tobam** Accuracy, AFG, Coinhouse, Euronext, KPMG, Kramer-Levin, Napoleon AM, PwC, SGSS/AFTI |
| Payments/settlements | MNBC or stablecoins for wholesale payments and settlements (transactions of tokenized assets, cross-border etc.) | **Paris Europlace & France Payments Forum** BNPP, Banque de France, SG Forge, Euronext, Euroclear France, KPMG, PwC |
| **Projects 2022** DLT Pilot Regime: enabling the French market to remain in "Pole Position" DeFi & Metavers | | |

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[13] Note: The French Banking Federation (FBF) did not participate in this working group

## Zoom: Blockchain in a few words

- Blockchain is a new technology to store and transfer information and data securely and works without central entity or intermediary
- As money or value (financial assets, loyalty points, art...) cannot be duplicated, we rely on intermediaries (banks, notaries, central banks, CSDs, etc.) to certify ownership and the transfer of value
- With the Blockchain, this transfer of value without a trusted intermediary is possible thanks to cryptography and consensus mechanisms allowing to securely attest the transfer of ownership
- Blockchain creates digital property and becomes **the reference technology for the transfer of value as the Internet is for the transfer of information**

## Blockchain in detail :

- In concrete terms, the Blockchain is a protocol installed on nodes, i.e. several computers or virtual machines (VM)
- There are several types of Blockchain: public Blockchains (the best-known being Bitcoin and Ethereum, which, in order to function, create crypto assets to "compensate" the computers that validate blocks and maintain this large database by investing computing power) and private Blockchains, which function with a limited number of participants, who each have the power of validation
- The nodes use the Internet to synchronise with each other and make the protocole create blocks, which are memory spaces
- In these blocks, information -transactions- can be entered and will be carried out from an address A to an address B.

- The Blockchain is a large register consisting of a set of addresses through which value will be exchanged. When a transaction is made on the register, it will be created by the Blockchain protocole that runs on all the nodes
  - o Those who record transactions in the blocks are the validators (miners on Bitcloin, bakers on Tezos, a French-initiated Blockchain)
  - o When a validator creates a block and records transactions, the computer protocol creates cryptocurrency (protocol token) to reward their involvement in the network
  - o On a **public blockchain, anyone** can deploy a node and start storing information, become a validator; transactions are visible to all
  - o On a **private blockchain**, only private network actors can validate and view all transactions/operations that take place on the registry
  - o A private network can be deployed on public blockchains like Ethereum or Tezos.

- Finally, just as the http: protocol underpins the Internet, the Blockchain protocol enables the development of decentralised applications. Bitcoin was the first of the Blockchain protocols.

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**Benefits of Blockchain**

- Security and immutability
- Cost reduction
- Transparency and accessibility (same information seen by all)
- Accelerated payment/transfer
- Automation (with smart contracts)
- Traceability

**Possible applications of Blockchain**

Just as the Internet allows many applications (email, website, mobile applications, payment etc.), the applications of the Blockchain are multiple:

- **Transfer of value**: crypto assets, digitised financial securities (security tokens), NFT (Non-Fungible Token, such as art) - *See table 2*

- **Traceability of goods** (e.g. Ownest, Arianee) or transactions on the ledger (e.g. Chainanalysis, Sorechain)

- **Programmability** via smart contacts with automatic execution of the terms of a" contract"

- **Programming of "traditional" disintermediated financial services**: Automated market making (e.g. Uniswap, Sushiswap), lending-borrowing (e.g. Aave, Compound), derivatives (e.g. UMA, dYdX), insurance (e.g. Unsplashed, Nexus Mutual)

- **Programming of "new" financial services**: decentralised staking (e.g. Lido), DEX aggregators (e.g. Paraswap, 1Inch)

**Table 2: Blockchain's Assets**

| Crypto-currencies | Security Tokens | Utility tokens - ICO | Stable coins & CBDC | NFTs |
|---|---|---|---|---|
| • Bitcoin, Ethereum, Ripple etc.<br><br>• 10 000 crypto-assets (Jan 2022)<br><br>• Created as an incentive to maintain public Blockchains<br><br>• 2tn$ market cap (40% Bitcoin & 20% Ethereum) | • Equity, bonds, real estate, derivatives, funds<br><br>• **New EU DLT Pilot Regime should enable trading & settlement** | • Used to access a specific product or a service<br><br>• Use the blockchain of the platform they are based on, like Ethereum | • Cryptoasset whose price is pegged to fiat like $ or €.<br><br>• Ex: Tether (USDT), Lugh<br><br>• Central Bank Digital Currencies | • Non fungible Tokens, representing digital collectibles, Art, song, digital image, video etc. |

**Crypto assets are purely digital assets that use distributed ledgers to prove ownership**

## Opportunities of DLT/Blockchain technologies for financial services and capital markets:

- **Benefit from an infrastructure that offers a large distribution channel**: Blockchain is natively cross-border and solves the problem of access to international investors for an issuer

- **Use an innovative technology** whose use has been proven to carry out financial transactions (issuance of tokenised financial instruments by Société Générale - FORGE, Banque de France experiments)

- **Benefit from the traceability and record-keeping properties** of DLT technologies, which make it possible to strengthen and streamline the issuer/investor relationship

- Enable the development of tokenised securities**, linked to sustainable development, a better traceability** of these investments or integrating impact measures into payoffs based on reliable and transparent indicators.

- **Start the hybridisation of assets** (traditional assets & digitalised assets), thanks to the use of the Blockchain for settlement

- **Address global settlement issues** by aligning pre-trade and post-trade mechanisms, thereby providing:
  - Speed, efficiency gains, cost reductions
  - Standardised data management and sharing, without the need for reconciliation

- **Facilitating access to financial markets through the fractionalisation of digitalised** (or tokenised) **securities**

- **Allow**, in the case of public DLTs, **a bridge** between **digital asset offerings and financial instrument offerings**

- **Facilitating AML and transparency** through better knowledge of Financial Beneficiary Owners (FBOs)

- **Enable peer-to-peer trading of financial securities registered in the blockchain**

- Reduce the number of intermediaries and steps required to manage the issuance and settlement of securities with an **overall simplification of processes and a reduction in costs**

## Blockchain / DLT enables the interconnection of the actors of the eco-system

The classic chain of financial intermediaries should evolve towards a structure of inter-connectivity of stakeholders



capitalising on existing relationships.....
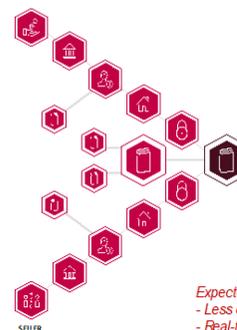
the market could be restructured around natural eco-systems

SELLER

Expected benefits:
- Less cascading reconciliations between operators
- Real-time data sharing
- Better execution of transactions
- Pre-requisites to reduce the Trade-Settlement cycle to T+1 or T+0 EOD

## Key challenges for adoption by financial market participants

- **Scalability of the technology**
  - Ability to carry out a large number of transactions per second while ensuring a high level of security: technical maturity to be achieved: technical maturity to be achieved

- **Energy consumption**
  - The energy consumption of a Blockchain network can vary considerably depending on its consensus protocol[14]. Some networks have a low energy consumption (e.g. proof-of-stake blockchains such as Solana, Avalanche, Tezos or most private blockchains)[15]. The energy consumption of proof-of-work networks is necessary to provide a high level of resilience to the network
  - The Bitcoin proof-of-work network is more than 50% decarbonised and a strong trend of reducing the use of non-renewable energy is identified[16]
  - Blockchain developments must be in line with the objectives of the ecological transition

- **Privacy and data protection**
  - Technical solutions to ensure that transactions on the public Blockchain can be kept confidential while remaining accessible to regulators.

- **Network stability and security**
  - A Blockchain is a digital ledger that is difficult/impossible to falsify because it is distributed in several points (on multiple computers)
  - On the other hand, faulty coding can lead to undesirable and unintended (need for smart contract audits)

- **Governance of a public Blockchain**
  - A Blockchain is a decentralised and shared protocol, therefore a set of computer rules that can be complex to govern (protocol update, token creation/cancellation, etc.).

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[14] Adan, *Les protocoles blockchain et leur empreinte énergétique*, septembre 2021

[15] PwC: Study of the environmental impact of the Tezos blockchain - Life Cycle Assessment of the Tezos blockchain protocol, December 2021
[16] The Bitcoin Mining Network - CoinShares Research

## Main use cases analysed by the Paris Europlace "Digital Finance and Use Cases" working group

**1** Asset digitalisation / tokenization

**2** Wholesale CBDC (or CB settlement coin)

**3** Traceability of Assets and holders

**4** Investment funds in Crypto and digital assets

### 1) Digitalisation or tokenisation of assets

Tokenisation allows financial assets or real assets to be digitised and a digital representation of these assets to be created on a Blockchain. These assets and their rights (e.g. coupon distribution) are written on a token, which can be distributed and traded. According to HSBC and the World Economic Forum[17], the momentum for issuing these digital assets is expected to accelerate rapidly in the coming years, with amounts that could reach $24 trillion by 2027.

**The digitisation of financial securities will be encouraged by the European pilot scheme** which allows trading of equities, bonds and funds on three types of distributed ledger technology (DLT)

**We believe that French issuers and banks need to position themselves on the tokenisation of assets** to capture the benefits of these new technologies:

- Access to financial securities through **open and globalised channels** allowing circulation to secondary markets and thus the opportunity to distribute French and European securities

- **Democratisation of access to investment through fractionalisation** (ability to acquire 1/10th or even 1/100th$^{\text{ème}}$ of a share). Today, by contrast, several months of savings may be necessary to invest in the largest market capitalisations[16]

- **Accessibility and trading of generally illiquid asset classes** through listing and fractionalisation, such as private equity, private debt, infrastructure, natural resources, or real estate, which are expected to grow and represent between 18% and 24% of global assets[18][19]

- **The tokenisation of collective investment schemes** allowing a streamlining of the subscription and redemption processes in the primary interest of investors. The interests

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[17] HSBC: "The 10X potential of tokenization, democratizing investment opportunities", and WEF:
https://www3.weforum.org/docs/WEF_GAC15_Technological_Tipping_Points_report_2015.pdf

[18] BNPP AM, CAIA Association, Liquefy: "Tokenisation of Alternative Investments
[19] CAIA Association: "The next decade of Alternative Investments".
https://caia.org/nexct-decade

are numerous, and we can mention for example: the capacity of subscription/redemption in kind 24/7 (for funds with digital assets), better management of performance fee mechanisms (through the automation of the cohort mechanism), possibility of setting up a secondary market on the fund's units/tokens, etc.

- **Automation of** a predetermined transaction (e.g. dividend payment, collateralisation etc.) thanks to smart contracts

- **Weekly or daily distribution of** dividends or bond coupons

- **The inclusion of data, particularly extra-financial data** (e.g. bond issue with a coupon that depends on credit rating or ESG criteria)

- **Standardisation of processes** and therefore more efficient distribution to under-addressed market segments: for example, small issues (<€5M) which are often non-standardised and therefore less liquid

**To facilitate settlement and delivery natively on the blockchain, we support the creation of tokenised settlement assets (tokenised CBDC) that make money available from existing systems (T 2 and T2S) to DLT.**

# Equities

| 1 Challenges / Issues | 2 INTÉRÊT DE LA BLOCKCHAIN / SOLUTIONS |
|---|---|
| **Listed securities**<br>• Fragmented trading across multiple trading venues<br>• Multiple service providers in the processing chain meaning need to reconcile many databases to come to an exhaustive picture (for instance on shareholder identification for CSDs with aggregated accounts – no such a problem in disaggregated model as in Denmark)<br>• Settlement delay meaning potential high transaction costs to handle counterparty risk exposure management, but also meaning increased netting capacities (and hence lower execution costs), short-selling capabilities, and ability for fund managers to reconcile more easily passive and active parts<br>• Access to markets only available via regulated players<br><br>**Non-listed securities**<br>• Non-transparent market<br>• Manual, presumably unsecured processes and costly to administer for corporates<br>• Lack of secondary market liquidity | **For issuers and investors alike:**<br>• universal source of truth, meaning higher transparency and no more reconciliation needed: relevant for registry maintenance, but also to side operations (tracking of lending and borrowing for instance)<br>• automated processes meaning potentially lower transaction costs<br><br>**For investors**<br>• Peer to peer access (with however a question open on how to apply AML/KYC checks, provide safeguards to investors, market integrity and systemic risk. |

| CONCLUSION | |
|---|---|
| • Leverage DLT to foster more operationally secure private markets (aligned with French law on DLT)<br>• Carefully test benefits and limits on listed segments<br>  ➢ Example LiquidShare<br>  ➢ Going forward: DLT pilot regime | • Key considerations<br>  ➢ Consensus model: balancing environmental footprint with risk of control by a limited set of parties of the underlying tech<br>  ➢ Access model: permissioned vs. permissionless<br>  ➢ Ecosystem readiness, big bang vs gradual approach on markets that need to be accessible to all<br>  ➢ Minimal provisions applicable for investor check and protection, counterparty and systemic risk prevention, conflicts of interest prevention |

# FX

| 1 INTRODUCTION |
|---|
| • DLT technologies would have multiple applications for foreign exchange markets<br>• The Banque de France has conducted a number of experiments with foreign exchange operations, and the private sector is also already active on specific aspects |

| 2 Current | 3 Challenges / Issues | 4 NTEREST OF BLOCKCHAIN / SOLUTIONS |
|---|---|---|
| • The foreign exchange market: $7 trillion daily and 40% of volumes come from asset management<br>• Fragmented market due to the number of players, currencies and products classified as illiquid, but nevertheless efficient<br>• Operational processes are cumbersome<br>• Regulation remains "light" due to fragmentation | • Market opening (cut-offs, public holidays)<br>• Time to market<br>• Inherent risks: credit, counterparty, settlement, market<br>• Transparency (custodian margins)<br>• Data | • Blockchain could provide solutions to each of the identified issues<br>• Some recent or ongoing experiments have shown its ability to address specific issues<br>• Market fragmentation remains an obstacle |

| 5 CONCLUSION |
|---|
| • What are the conditions for this value brought by blockchain to be realised / for these use-cases to be industrialised / developed?<br>• Regulatory: INTEROPERABILITY<br>• Operational: INTEROPERABILITY<br>• Technical: INTEROPERABILITY<br>• Dissemination of knowledge / Information / Training: INTEROPERABILITY<br>• Standardisation: INTEROPERABILITY<br><br>  ➢ Only the development of interoperability solutions would make it possible to interface the multiple existing ("legacy") and/or future environments, blockchains/DLTs |

9

## 2) Tokenised CBDC or settlement asset available as € token used for the settlement of digitised securities transactions

The tokenised CBDC experiments carried out by the Banque de France with numerous players in the ecosystem have validated the capacity to:

- Issue and control central bank currency on the different types of Blockchain used
- Carry out settlement against delivery of tokenised or non-tokenised financial securities and payment against payment transactions
- Optimise the value chain, including end-to-end processing of financial securities, which can take a long time to settle, and meet new needs related to tokenisation
- Make cross-border payments and gain in transparency, fluidity, speed, and cost reduction

**The Paris Europlace work group supports a wholesale tokenised CBDC to foster the deployment of use cases for:**

- **Anticipating the development of the digitalisation of assets around the world**
- **Making European securities widely accessible on distributed ledger technologies**
- **Optimising certain foreign exchange transactions**

In anticipation of the creation of a future tokenised CBDC, if such tokenised CBDC is not available quickly, it would be interesting if a settlement coin, which is not limited to "intra-day", i.e. "persistent", could be created and issued by the Central Bank on a distributed register.

## 3) Traceability of assets and their holders

Blockchain and DLT technologies enable the traceability of securities and their holders. The benefits of DLT technology must be understood in both directions between issuers and investors, i.e. in relation to the information to which issuers have access but also to the information to which investors should have access.

**Traceability means:**

- The ability of the issuer - or a third party mandated by the issuer - to know the holders of its securities at a given time and to access information on these holders

- The ability of the investor to access information about the securities held and the activities of the issuer

- In practice, record-keeping of financial securities (equity securities, debt securities or units or shares of collective investment schemes) refers to the keeping of securities accounts by an issuer: either directly or by using the services of a subcontracted service provider (regulated custodian account holder). For securities offered to the public, issuers must comply with the specifications of the custodian account holder, set out in the AMF General Regulation

- In France, traceability has a different meaning depending on the form of the security: **"bearer" securities and**

**"registered" securities** (*See Annex 1 for more details on the different detention regimes in France*):

o **The 'Bearer' form** is the only form that allows public trading of securities. Its main advantage lies in the operational efficiency of the financial ecosystem that manages bearer securities. However, the **traceability of securities remains complicated** to implement and relies on tedious collaboration between intermediaries. Furthermore, the management of loyalty premium and double voting rights is not possible

o **The registered form allows the** continuous **traceability of securities** through the positions of the holders registered in the issuer's ledger. Among other things, it allows the exercise of double voting rights and the granting of loyalty premiums. On the other hand, the limitations of the registered system are the **operational complexity** related to the management of "BRNs"[20] (registered shares messages: need for reconciliation, error management, etc.) as well as to the management of general meetings and securities transactions (e.g. loyalty bonuses). In addition, traceability of foreign holders (registered intermediaries) is limited

o **The High Legal Committee of the Paris Place reflects on the adaptation of the form of tokenised financial securities** at the time of entry into force of the European pilot regime. The possible adoption of a new

legal mode for these securities is also considered, to take full advantage of the new technologies.

▪ **The traceability of assets and their holders** allows direct communication with investors and a better knowledge of their profile, but also a follow-up of the investments made. For example, ESG investments and how they have contributed to environmental, societal or governance projects.

▪ **What can Blockchain and DLT technologies bring to this area?**

The "historical" model of registry keeping has many constraints. An evolution towards a distributed ledger model based on Blockchain technology would allow for developments that would benefit the various players.

o As DLT technology is **a single, reliable, and secure source of data shared between all stakeholders**, it would avoid the numerous reconciliations that are currently necessary between the various players. These reconciliations require time and resources without providing any real added value.

o DLT technology can provide **added value in terms of data security**. Current use cases are turning primarily to private blockchains, which guarantee the confidentiality of data and grant validation power to accredited parties within the network

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[20] BRN : Bordereau de référence nominative or Registered Shares messages

- o **By construction, the securities issued in a distributed register ensure real-time traceability of transactions** which are all recorded chronologically.

## Identification of share holders

The traceability of transactions allowing the identification of holders is one of the applications of DLT technology. The large number of intermediaries today makes it difficult for an issuer or a management company to have a complete view of its holders. In a DLT environment, since the information can be disseminated to all members of the network, the company can have a precise knowledge of its shareholder base. This could be applied in the following ways, some of which remain hypothetical at this time:

- **Direct communication between companies and all shareholders.** This communication is currently only possible for major shareholders

- **Possibility of strengthening shareholder democracy** by addressing all shareholders directly. Today, a majority of small shareholders do not vote at general meetings

- **Possibility for companies to monitor investor positions in real time**

- **Potential to improve financing conditions** by directly addressing investors involved or likely to be involved. Issuing companies could address investors directly and disintermediate the distribution of securities, thereby reducing financing costs.

- **Possibility to make choices regarding its shareholding** and to exclude certain types of investors. This could concern companies/countries under sanctions or in application of ESG criteria (today it is mainly investors who apply ESG filters). Can we envisage companies setting up eligibility criteria for the purchase of their shares?

- **Improvement of the financing conditions of SMEs** whose securities, by nature illiquid, are currently subject to the same procedure as for large groups. DLT technology would reduce friction and therefore costs, and could promote the financing of the economy

- Liquidshare offers a service for managing transactions in financial securities via DLT technology. In particular, it offers management of the company's register and profit-sharing plans.

## Identification of fund unit holders

The traceability of fund unit holders is very complex today because it requires many intermediaries (custodian, administrator, transfer agent, etc.). This has negative consequences on commercial management (how to take good care of one's clients if clients are not known) and on regulatory aspects (KYC management in the context of the fight against money laundering). With the use of a DLT register, management companies would have a real-time view of their liabilities with concrete applications:

- **Reduction of regulatory risk with a complete and real time knowledge of liabilities**, allowing the rigorous

application of KYC and AML processes. It is also questionable whether this would allow better identification of beneficial owners who are sometimes hidden behind a cascade of intermediaries.

- **More focused sales strategy** with precise monitoring of individual customer positions

- **Optimisation of asset/liability management,** particularly in terms of liquidity

- **Enhanced management of corporate actions** with better traceability and immediate dissemination of information

- IZNES offers a fund distribution solution with a DLT process, integrating existing players such as custodians. This is a concrete example of the application of DLT technology to mutual fund distribution.

## Traceability of transactions

The move towards DLT technology would also make it possible to improve the settlement and delivery processes. The cumbersome nature of the current process leads to additional time costs (most settlements/deliveries are made on D+2) and financial costs, considering the fees of the various intermediaries. The use of DLT technology would allow a simplified process.

- **Faster and cheaper settlement/delivery of transactions**
  - In the long run, we could imagine instantaneous settlement for all financial securities, even if this currently faces operational problems
  - and even avoid situations where one of the counterparties is short the securities and therefore cannot make delivery.

- The real-time traceability of transactions could also have tax applications with **real-time taxation of certain operations**. This is still subject to many questions, but by allowing the tax authorities to have access to the data, there would no longer be any need for declarations to the tax authorities. The calculation of taxes on a transaction would be immediate and the administration could set up a deduction at source for financial transactions.

## Illustration by a variety of possible use cases

The table below is a summary of the various significant use cases for financial centers.

For each use case, we determine a "feasibility score". This score determines whether this use case could be quickly implemented, or whether it is still a hypothesis whose application remains uncertain.

**This score ranges from 3 (easily implemented) to 1 (use case still hypothetical).**

Implementing these use cases would allow to **answer the recurrent request of issuers of financial securities** (equity securities, debt securities or units or shares in collective investment undertakings) to see progress in the efficiency of financial centers in terms of :

- **identification of holders** (whose issues are reaffirmed by the SRDII directive[21])
- **modernising the management of registered securities** (ageing infrastructure and complex processes)
- **harmonisation of processes at European level**

**For these use cases to develop, a clear and evolving regulatory framework will be needed that allows actors to use DLT as a vehicle for representation and transfer of ownership.**

| Use case | | Use case definition | | Feasibility score |
|---|---|---|---|---|
| Shareholder traceability | | Real-time identification of all shareholders by an issuer | | 3 |
| Lower regulatroy risk for asset management firms | | With effective identification of holders, management companies could more easily apply the KYC and AML processes and thus reduce their regulatory risk | | 3 |
| Corporate actions management | | With the identification of holders and the sharing of information to all actors, the management of TSOs will be facilitated | | 3 |
| Settlement-delivery process | | Improvement of the current highly intermediated settlement/delivery process to offer a faster and cheaper service | | 3 |
| Strengthening shareholder democracy | | Encourage voting by all shareholders with targeted communication to holders | | 2 |
| Improving financing conditions | | Targeting investors for capital raising and disintermediating the sale of primary securities. Facilitating SME financing with simplified capital raising | | 1 |
| Application of exclusionary filters by companies towards their investors | | With the identification of the purchasers of shares, companies could eventually implement ESG exclusion criteria and thus exclude certain types of investors from their capital | | 1 |
| Tax traceability | | Real-time taxation of financial transactions with a withholding tax | | 1 |

[21] Shareholder Rights Directive

## 4) Crypto asset management

The widespread (17% of French people have or plan to have crypto assets and 60% of Americans)[22] and perfectly legal distribution of tokens is developing rapidly.

A recent study by ADAN[23] states that 8% of French people have invested in crypto assets, a higher percentage than holding shares directly (6.7%).

**However, crypto funds managed by regulated asset management professionals are not accessible in France**. Though it would be useful for investments to be made through crypto asset funds managed by regulated asset management companies.

France is the **euro area leader in asset management with a 36% market share in terms of assets under management** (€4 trillion)[24]. One French asset management company, the first non-US leader in the world ranking of asset management companies, and three French asset management companies are among the five largest in the European Union.

**France is also a centre of excellence in asset management, the crypto assets sector and mathematics**: 10% of French unicorns are in Blockchain, global crypto giants are recruiting massively in France.

**However, the development of crypto asset management in France is limited by the current regulations:**

- **Management companies** (SGP) **are not allowed to manage funds** - UCITS or AIFs - or mandates, aimed at professional and retail clients, **invested in** *both* **traditional financial instruments and crypto assets, or** *exclusively* **in crypto assets;** although the PACTE Law expressly allows certain AIFs to invest directly in crypto assets.

- **Mandate management in crypto assets, or mixing crypto assets with traditional assets is impossible** due to the heterogeneity of the taxation of crypto assets (tax base difficult to understand, no carry forward of +/- capital gains, no fungibility of +/- capital gains), while the tax rates are the same as for financial instruments

- **Combining the services of a regulated management company** (AIFM) **and a digital asset servicer is currently not possible**

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[22] https://www.ifop.com/publication/bitcoin-jusquou-va-t-il-monter-les-cryptomonnaies-entre-revolution-technologique-et-bulle-speculative/

[23] ADAN and KPMG: "Crypto in France: structuration of the sector and adoption by the general public", February 2022
https://adan.eu/wp-content/uploads/La-crypto-en-France-structuration-du-secteur-et-adoption-par-le-grand-public.2.pdf

[24] source AFG. https://www.afg.asso.fr/wp-content/uploads/2020/09/afg-competitivite-200918-web-2.pdf)

- **The absence of custodians offering** their services as a collective investment scheme custodian and as a crypto asset custodian

- **The definitions of CSDs, registrars and custodians are not adapted to the use of Blockchain in the current regulations** (notion of safe-keeping which implies the return of assets; custodians can only operate as account keepers for crypto assets whose holding is linked to the private keys of investors)

- **Decentralised financial players,** who may offer services similar to asset management, **are not regulated in the same way as portfolio management companies[25].**

**At the same time, asset management is developing in several financial centres:**

- Singapore offers tax exemptions for digital assets funds that are set up locally with their management teams[26].
- Canada, UK, Switzerland, Germany allow investment in crypto assets in funds [27][28]

**France must be able to capitalise on its leadership in asset management to position itself as a major player in the ongoing digitalisation of the economy, while allowing savers to benefit** from the know-how of regulated professionals who are experts in risk management.

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**Zoom: What is crypto asset management?**

- Crypto asset management consists of **building a portfolio composed, partially or exclusively, of crypto assets**. Crypto assets are diversification vehicles in portfolio allocation. These can be :
    - Security tokens such as stocks, bonds, shares in tokenised funds,
    - Asset-referenced tokens, tokens representing physical assets and having a stable value
    - Other active cryptos such as utility tokens
    - E-money tokens , tokens whose value is stable with reference to the currency they represent
    - Crypto currency like bitcoin or ether.

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Crypto asset management has benefits for the various stakeholders and needs to be supported to develop further.

**For investors:**

- **Benefit from diversification into crypto assets by professional portfolio managers:**

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[25] On the other hand, it should be noted that the regulation of decentralised finance requires a new regulatory approach that will have to be adapted to the nature of this ecosystem which is inherently disintermediated.

[26] https://sbr.com.sg/financial-services/commentary/digital-financial-assets-and-fund-management-in-singapore%25E2%2580%2595what-more-co

[27] https://www.mackenzieinvestments.com/en/media-centre/press-releases/_2021/2021-november-04-

[28] https://fr.cryptonews.com/news/starting-today-4-000-german-funds-can-start-investing-in-cry-11193.htm

- The French asset management company TOBAM shows that the risk/return ratio is optimised with a maximum 2% allocation to bitcoin in a fund[29].

- Dutch asset manager Robeco says that to optimise return, risk and correlation between Bitcoin and other asset classes, Bitcoin can be up to 2.5% of the portfolio and 1% would be an appropriate weighting in diversified portfolios[30]

- French asset management company Napoleon AM shows that Bitcoin can enhance a conventional portfolio using convex strategies.

- CoinShares explains[31] [32] that:
  - Bitcoin, and digital assets more broadly, represent the birth of a new asset class, which is rarely the case, so there is no yardstick for comparing their volatility
  - Long-term trends suggest that Bitcoin's volatility will decline to levels similar to those observed in other asset classes by around 2025.
  - Bitcoin's lack of correlation with other assets makes it a useful alternative asset that can help reduce exposure to economic cycles.
  - Allocation to bitcoin has a positive impact on risk-adjusted returns and diversification compared to other alternative assets.

- **Accessing opportunities in asset classes that are difficult to access** (real assets) through the tokenisation of private equity funds, funds of real assets and even hedge funds thanks to lower unit prices and possible trading (cf. DLT pilot regime). Note that AIFs are not eligible for the pilot regime (only UCITs are)

- **To be able to process in real time** 24/7 **subscriptions/redemptions** made on a Blockchain

- **To benefit from the security** provided by the asset manager, particularly in terms of **risk control**

- **Receive income** (dividends and coupons) **from the crypto assets** invested by the funds or mandates on a **daily, weekly or monthly basis** versus on a semi-annual or annual basis.

**For issuers:**

- **Have a domestic market of crypto asset managers**

**For management companies:**

- Develop investment in crypto assets to fulfil their **mission of financing the economy and accessing new markets that are immediately global** (through tokenisation)

- **Linking** on a Blockchain **with the end investor**

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[29] TOBAM Institutional Bitcoin CO2 Offset Fund

[30] Bitcoin, a singular asset to enhance portfolio construction – Napoleon AM - 30.09.2019

[31]Bitcoin's role in an investment portfolio – CoinShares - 8th September 2020

[32] Volatility: The Price of Opportunity – CoinShares - 17th February 2021

- Reduce the distribution costs associated with direct distribution between management companies and investors using blockchain and pass these savings on to the fund's management fees. Currently, the management fees paid by the investor finance more than 50% of the cost of distribution
- Benefit from the reduction in transaction processing time and the number of manual reconciliations
- Benefit from lower operational costs due to the reduction in the number of processing steps in fund liability management.

**For the development of digital asset management in France and Europe, it will be necessary to:**

- **Make the token form of financial instruments, units of collective investment schemes or other products/services commonplace through regulation:**
  - Ensure that the European regulation allows for the harmonisation of the legal qualifications of non-financial crypto assets in Europe
  - Ensuring that third-party asset management is included as an active crypto service under the final version of the EU regulation
  - Initiate the necessary discussions to integrate the concept of "tokenised collective investment scheme" into European regulations and ESMA's doctrine
  - Improve the transparency of assets

- **Encourage** the dissemination by traditional players of the devices authorised by the PACTE law allowing **the inclusion of crypto assets in certain types of funds and the possibility of including them in life insurance contracts** - Art 88 of the PACTE law allows :
  - SPFs with no asset limit, FPCIs up to 20% of assets, to invest in digital assets, for professional investors
  - FIVGs can hold up to 10%,
  - To include these FIVG funds in life insurance contracts as unit-linked policies

- **Act to ensure that current European regulations adapt the definitions and responsibilities of custodians, registrars, and depositories in the context of blockchains**
  - Promote and/or encourage projects within the framework of the DLT SS or DLT TSS pilot regime, so that these experiments can facilitate the updating of current texts (AIFM, CSDR, UCITS, MIF2, etc.)

- **Communicate with the governance bodies of financial professional associations and** regulators through educational presentations on:
  - The importance of the commoditisation of the token form,
  - The value of diversifying portfolios with crypto assets and the risks involved

- **Draft an educational booklet for the risk and compliance departments of banks and insurance companies** to explain the real risks, for an investor, related to a fund invested in crypto assets and approved by the AMF

- **Pool the monitoring of technical issues** (particularly interoperability) in order to adapt infrastructures and offers according to the evolution and stabilisation of standards

- **Bringing the taxation of crypto assets closer to that of financial instruments.** A tax deferral regime for the contribution/sale of tokens, similar to the regime applicable to shares, would be an undeniable asset for the attractiveness and financing of projects.

*\*\**

**For the French and European financial industry to benefit from DLT/Blockchain technologies and participate in the digitalisation of the economy, it will be necessary:**

- **To have a clear and evolving regulatory framework that** allows players to use DLT as a vehicle for representation and transfer of ownership. The DLT pilot scheme addresses this concern and should be reviewed in the light of market needs

- That Blockchain-based services generate **sufficient** savings and/or **gain** for the technology to be massively adopted by the ecosystem

- **To master the current limits of technology** (deployment of low latency, low energy consumption and clear governance protocols), as investors will be attentive to the fluidity or even instantaneousness of transactions and their settlement under optimal security conditions. As such, the market will need **trusted organisations to hold tokenised assets securely**

- **That European trading and settlement players**, under the pilot regime, **develop**

- To have a recognised means of payment to support the emergence of Blockchain solutions, in the form of **CBDC or a settlement asset in DLT** issued by "central bank money institutions

- **That the financial industry develops a financing and services offer** to French and European Blockchain and crypto players, within an established normative framework, to help businesses grow[33]

- **To give issuers and management companies the ability to offer new products**, easily accessible, with an appropriate regulatory framework - while ensuring transparency on the holders of their capital, debt or liabilities

- **Interoperability issues** between existing systems and DLT/Blockchain based systems and between different Blockchains be resolved

- Finally, we will have to **overcome our cultural biases**: unconsciously, thinking is based on knowledge of existing models until we have a better understanding of DLT technology and how it could positively affect organisations and businesses.

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[33] ADAN : "Manifesto to the candidates for the 2022 French presidential election – Section on Business Growth"

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**Annex 1**
**Reminder of the different detention regimes in France**

**"Bearer securities**
- The bearer form is possible in all cases where the registered form is not imposed by law or the articles of association.
- The owner of the securities is not registered in the issuer's register.
- Intrinsically, therefore, the issuer does not know the identity of the owners of the securities it has issued.
- Traceability is made possible by the Shareholder Rights Directive (SRDII) - fully transposed into French law - which gives an issuer the right to request identification of shareholders at a chosen date. Where applicable, financial intermediaries holding positions have a legal obligation to transmit to the issuer information on the owners of the securities.

**Registered shares**
- These are securities that circulate and are held in registered form, registered in the name of the holder in the issuer's register

- The registered form is mandatory when the issuer is responsible for keeping the account or when the securities are not admitted to the operations of a central depository
- The issuer is therefore aware at all times of the identity of the owners of the securities it has issued.
- The issuer performs the sole activity of account-keeping without carrying out any custodial activity, since the securities are not otherwise represented with a central depository (except, where applicable, in the issue account that would be opened with the central depository when the securities are admitted to it) or with another custodian-account keeper (except in the case of intermediary registered shares).

Technically there are two categories of registered securities:
- Essentially registered (securities are held only in registered form by law or by the articles of association)
- Occasionally registered (securities are held in registered or bearer form at the holder's option)

  And buyers of these securities can hold the registered securities in two different ways:
- Pure registered: registration in the issuer's books.
- Administered registered: administration of the account in the issuer's books by an account keeper (TCC).

**Strengths and functional limitations of the two schemes**

**Bearer securities**

**Advantages**
- Only form permitted for trading in securities
- No need to manage a nominative reference slip (BRN) in addition to settlement/delivery
- Operational efficiency (simplified and harmonised management of corporate actions)
- Discharges the issuer from the responsibility for the relationship with the holders which is recognised to the CCT

**Functional limits**
- The traceability of securities remains complicated to implement and relies on a fastidious collaboration between the intermediaries of the holding chain
- The scheme does not offer management of loyalty bonuses or double voting rights

## Registered shares

The CCTs send nominal reference slips (NRS) to inform issuers of securities transfers.

**Advantages**
- Continuous traceability of securities through the positions of holders registered in the issuer's register (through optimised BRN management)
- Management of loyalty bonuses and double voting rights

**Functional limits**
- Operational complexity related to the management of BRNs (need for reconciliation, error management, etc.) as well as to the management of general meetings and securities transactions (e.g. loyalty bonuses)

- Traceability of foreign holders (registered intermediaries)

## Pure registered shares

**Advantages**
- Continuous, real-time tracking of securities through the holders' positions in the issuer's register.
- Management of loyalty bonuses and double voting rights

**Functional limits**
- Maintenance of the register is the responsibility of the issuer (who can delegate it while remaining responsible)
- Operational complexity related to the management of corporate actions and general meetings (multiple entry points for investors). Lack of harmonisation and automation of processes
- Sizing of systems creating limits in terms of volume
- Taxation - ineligibility for PEA benefits

**NOTES**

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