

DIGITAL INNOVATION IN CAPITAL MARKETS

Blockchain-based bond issuance solution

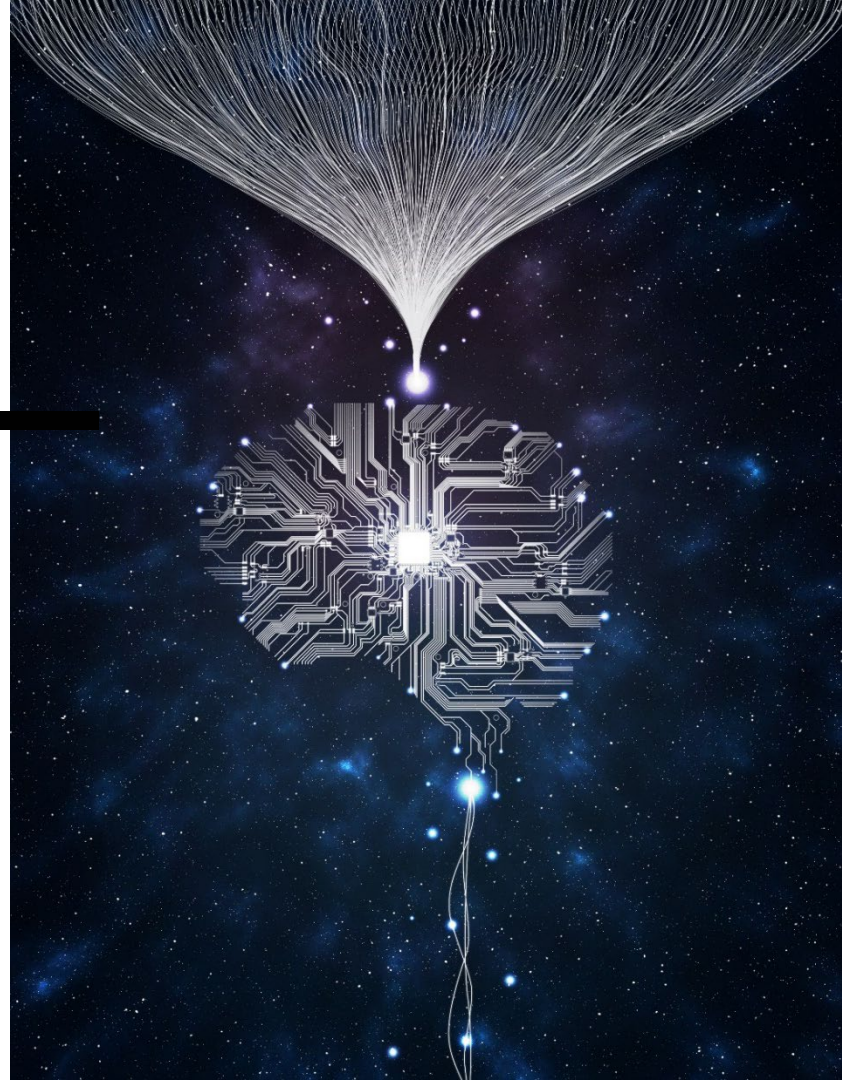


AGENDA

1. **EIB** - Intro on EIB's interest in tokenization which started the project, from the Funding team perspective
2. **SGF** - Overall setup based on SG Forge platform
3. **SGF** - Legal setup, custody approach
4. **SGF** - CBDC & settlement for banks
5. **SGF** - Limits of the setup & next steps : Pilot regime & CBDC
6. **EIB** - Architecture (blockchain, central bank, issuer, settl. Agent, lead managers)
7. **EIB** - Flows – T schemas showing flows of the bond token, cbdc and moves of fiat (minting/burning/transfers)
8. **EIB** - Processing in the issuer legacy systems & integration to achieve an STP
9. **Conclusion, Q&A**

1

SOCIETE GENERALE FORGE



ABOUT SOCIETE GENERALE FORGE

Regulated* since 2021

20+

Security tokens transactions

2

Hybrid products

3

Financial Innovation awards



**BLOCKCHAIN
AGNOSTIC**



**COMPLIANT BY
DESIGN**



**SEAMLESS
INTEGRATION**

(* Regulated in France by the ACPR – All information is available on ACPR's [website](#))

SOCIETE GENERALE FORGE IS A CAPITAL MARKET SERVICE SUITE BASED ON BLOCKCHAIN

Our proposal is an end-to-end service suite leveraging Societe Generale's compliant processes, placement capabilities and a strong network in both regulated and non-regulated space



Societe Generale – FORGE has the **market's strongest track record of real-world transactions** with 15+ primary & secondary trades using public blockchains and native tokens, with or without CBDC



Our services	■ Token Factory	■ Token Brokerage	■ Token Custody	■ Banking Services	■ Token R&D
Description	<ul style="list-style-type: none">✓ Primary market solutions✓ Advisory for structuring new digital assets	<ul style="list-style-type: none">✓ Secondary market solutions✓ Risk management solutions	<ul style="list-style-type: none">✓ Safekeeping & notary solutions✓ Asset servicing solutions	<ul style="list-style-type: none">✓ Client on-boarding & monitoring✓ KYC/AML✓ Bank accounts & cash management, CBDC	<ul style="list-style-type: none">✓ Stable coins✓ New funding solutions (utility tokens)✓ Cross border payments

Link to CAST framework white paper : <https://www.cast-framework.com/white-paper/>

FOCUSING ON PUBLIC BLOCKCHAINS FOR MIFID INSTRUMENTS

We are using a public blockchain which fosters liquidity, and on native tokens which reduces market infrastructure costs

PSAN regulation (FR)	MIFID regulation (FR+UE)
Crypto currencies units of currency operating independently of any financial institution	Security tokens Securities under a form of a blockchain tokens
Utility Tokens Debt instrument based on crowdfunding where return is a right to access to a future service	Settlement tokens Cash under a form of a blockchain tokens (CBDC or stable coin)



MICA

Pilot Regime

- Definition of crypto assets (CC,NFT,ICO..)
- Investors protection
- Listing for security tokens
- Exemptions to EU financial regulations

Impact of the new UE regulation

= Intranet

Private blockchain

- + Speed
- + Private token code
- = Secure the network
- Closed network
- Run costs

= Internet

Public blockchain

- + ww client reach
- + pay per use, no infra
- = Secure the token
- Many standards
- Speed

Asset backed token

Token is an "ownership certificate" synchronized with the underlying security still registered on a CSD or as a real asset (RE, artpiece, car, etc..)

Native token

Security token is a digital-native financial instrument solely registered on a blockchain
No CSD is involved

SG Forge scope

WW security registry fostering liquidity & client reach

Lowest infrastructure & issuance costs



FRENCH REGULATION OF SECURITY TOKENS

- Key regulations: “Macron 2” law of 2015, “Sapin 2” law of 2016, “DEEP” ordinances of 2017/2018, decree of 24 December 2018
- Characterization of blockchain technologies as “DEEP” (« dispositif d’enregistrement électronique partagé »)
- Possibility to record on a DEEP the issuance and the transfer of mini-bonds on a DEEP
- Possibility to represent and to transfer on a DEEP some financial instruments (unlisted equity and debt instruments, negotiable short-term debt, collective investment funds’ units/shares)

FRENCH REGULATION OF UTILITY TOKENS & VIRTUAL CURRENCIES

Provided in the “PACTE” law of 22 May 2019 :

- Legal definition of utility tokens (« jetons ») and of virtual currencies
- Regulatory approvals of ICOs (optional, 6 months’ validity, funds escrow, KYC/AML, right to a bank account)
- Possibility for FCPI and FPS to invest in digital assets
- New regulation/financial regime for PSAN (Service provider on digital assets), designed to be aligned on the French regulatory regime of PSI (Investment service provider)

ACCOUNTING AND TAX FRAMEWORK IN FRANCE

- Regulation of the French accounting standards authority of 10 December 2018 related to the accounting and treatment of digital assets
- Tax rules related to digital assets provided in the French finance law for 2019

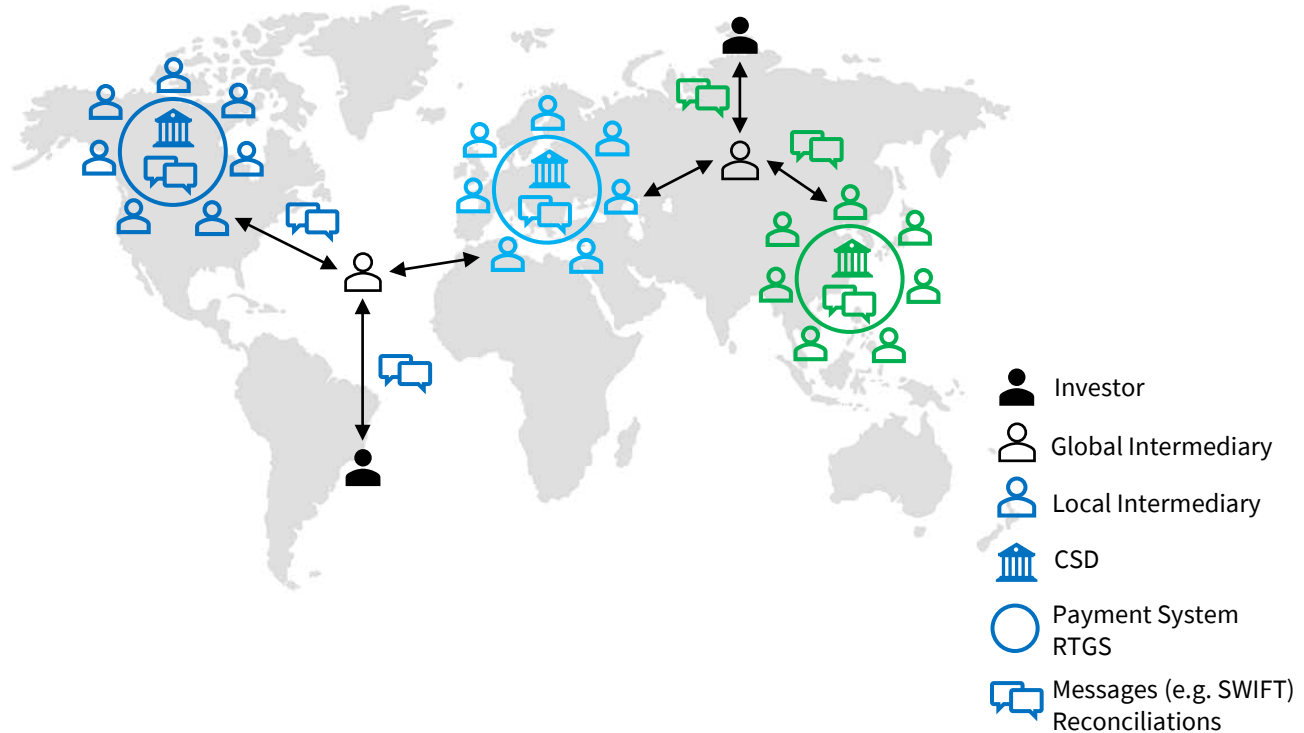
EUROPEAN REGULATIONS

- 5th AML directive: Application to providers engaged in exchange services between virtual currencies and fiat currencies, and to custodian wallet providers
- MiCA regulation (2021): Regulatory approvals of issuances of crypto-assets not covered by EU laws, bespoke regime for crypto-asset service providers
- Pilot regime (2021): Transitional regime providing targeted exemptions to EU financial regulations (CSDR, SFD, MiFID 2) for listed financial instruments issued on distributed ledgers

FROM TRADITIONAL MARKET INFRASTRUCTURES ..

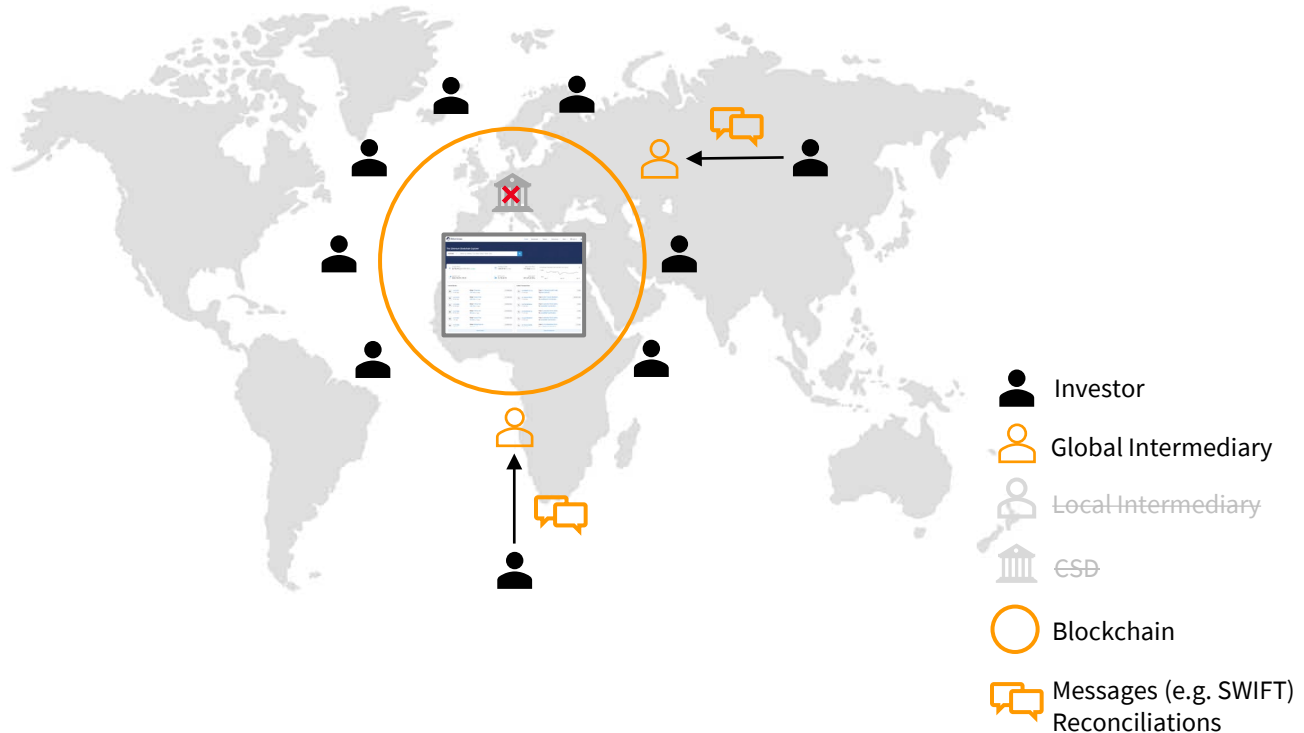
Characteristics

- ✓ Fragmented Market Infrastructures (Payment Systems, CSD & RTGS) for both securities & cash => cash breaks
- ✓ Intermediaries required to access local Market Infrastructures & multiple levels of KYC
- ✓ Local & global reconciliations required across all market participants (Investors & Intermediaries)
- ✓ Low to evolve, high upfront investments and maintenance costs



.. TO BLOCKCHAIN GLOBAL INFRASTRUCTURE

- ✓ Transactional system with data & code (aka smart contract) distributed storage capabilities
- ✓ WW infrastructure acting as a “golden source” for all market participants (transparency, immutability & reduced number of reconciliations)
- ✓ 24/7 monitoring capabilities for public blockchain (public explorer)
- ✓ Same infrastructure for both digital securities and cash (e.g. CBDC) at the target
- ✓ Pay-per-Use
- ✓ Knowledge of the FBO / better AML & marketing capabilities

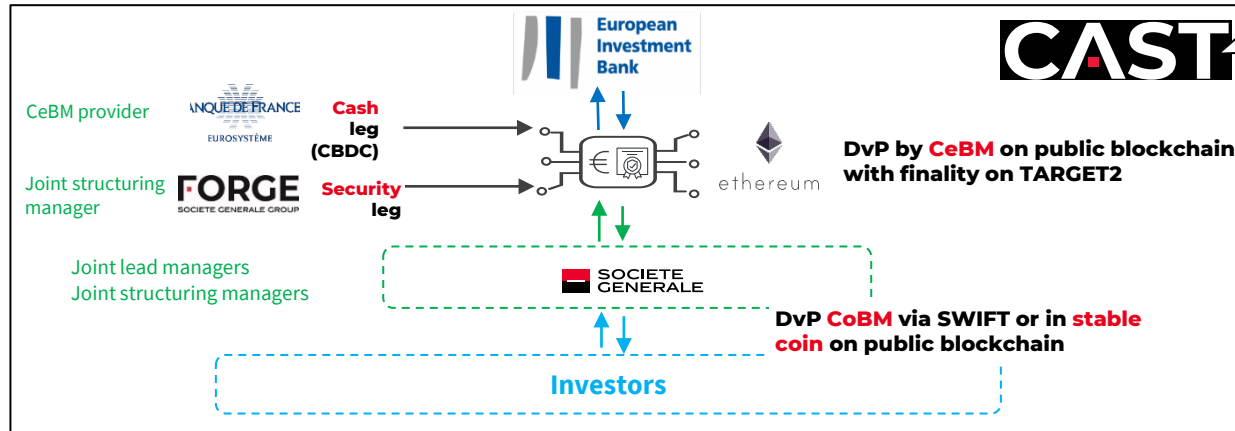


A REAL-WORLD TRANSACTION SETTING STANDARDS FOR BOND MARKETS

The bond issued by the EIB is similar to any other EIB bond except it can be transferred only OTC and is not listed on a regulated market – the Dealer (SG + JLMs) takes in charge the technical complexity of the operation

Primary market: The issuance by the EIB of a series of security tokens on a blockchain, where investors purchased and paid for the security tokens using traditional fiat currency. JLMs** settled their underwriting commitments using a CBDC*. The bond will be redeemed in traditional fiat currency at maturity.

Secondary market: A secondary market operation with OTC trading is proposed using traditional cash.



CAST is an Open Source operating model which makes clients independent from the underlying blockchain protocol, while being compliant with market regulations

Interbank settlement

Investors settlement

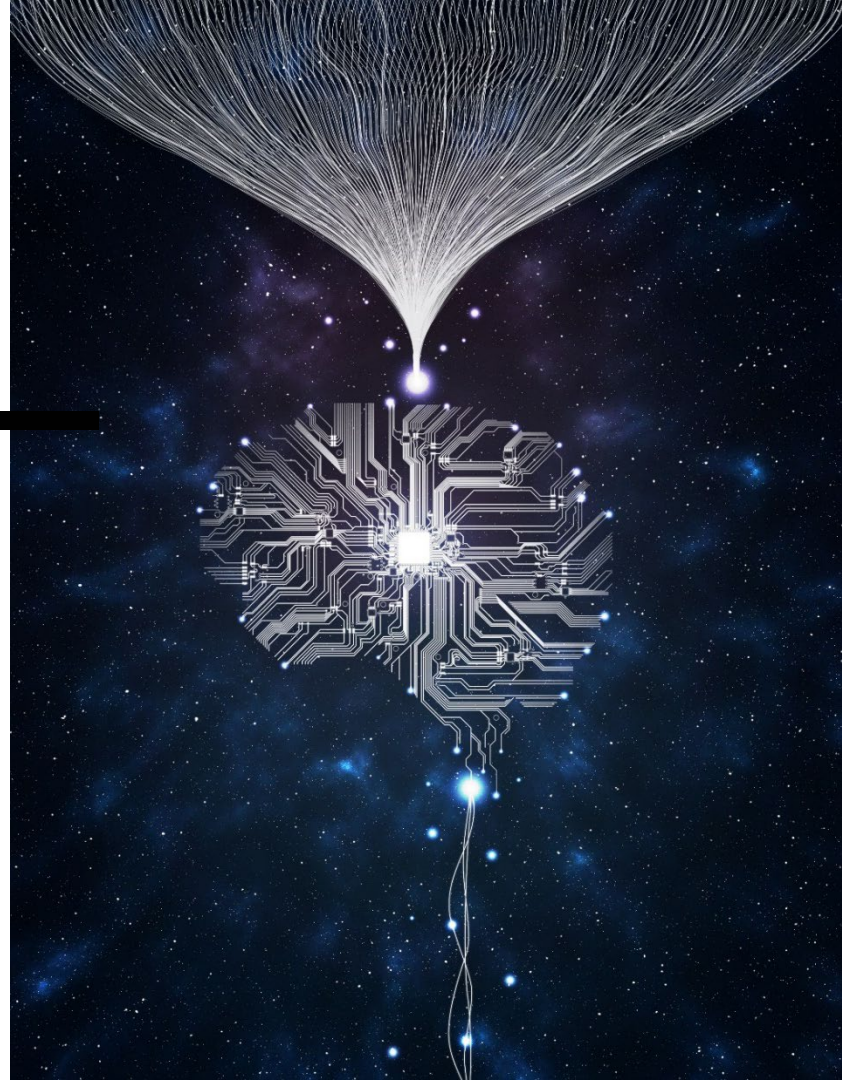
Can be automated by smart contracts + DeFi mechanisms

(*) CBDC: Central Bank Digital Currency

(**) JLM : Joint Lead Manager

2

EIB



ABOUT EIB



**The EIB is the lending arm
of the European Union
since 1958**



Headquartered in Luxembourg

Around 3,800 staff: Not only finance professionals, but also engineers, economists and socio-environmental experts

54 offices around the world



The world's largest multilateral lender

We raise our funds on the international capital markets, AAA rating
2022 funding goal: 45 EUR bn

We pass on favourable borrowing conditions to clients



Over EUR 1.5 trillion invested since 1958

More than 14,400 projects in over 160 countries

Crowding-in bank: EUR 4.8 trillion overall investment supported



Leading provider of climate finance



Governed by the EU Member States

THE USE OF BLOCKCHAIN TECHNOLOGY MAY BRING BENEFITS TO MARKET PARTICIPANTS IN THE COMING YEARS

The main potential benefits of the use of the blockchain technology for market participants include:

1. Reduction of intermediaries and fixed costs
2. Higher market transparency through an increased capacity to see trading flows and identity of asset owners
3. A much faster settlement process

1. Added value for Issuers

- **Straightforward asset issuance and settlement**
- **Investors and secondary market transparency:** increased capacity to see trading flows, evaluate liquidity and identify asset holders
- **Fewer intermediaries:** due to increased automation
- **Diversifying investor base:** distribution has no technological limit and is only subject to regulatory constraints
- **Opening new product development landscape**

2. Added value for Investors

- **Execution speed:** instantaneous settlement, once Central Bank Digital Currency (CBDC) is adopted by the market
- **Fewer intermediaries and reduced post trade costs,** thus less fees
- **Better price discovery and liquidity**
- **New investment and trading opportunities**

MACROWORKFLOW (SIMPLIFIED)



- Creation of issuer & investor wallets

- Cash collected from investors
- Cash transfer to CB escrow account
- CB mints corresponding amount of CBDC
- CBDC sent to broker to allocate to investors

- Book building
- Termsheet creation
- Smart contract deployment

DVP:

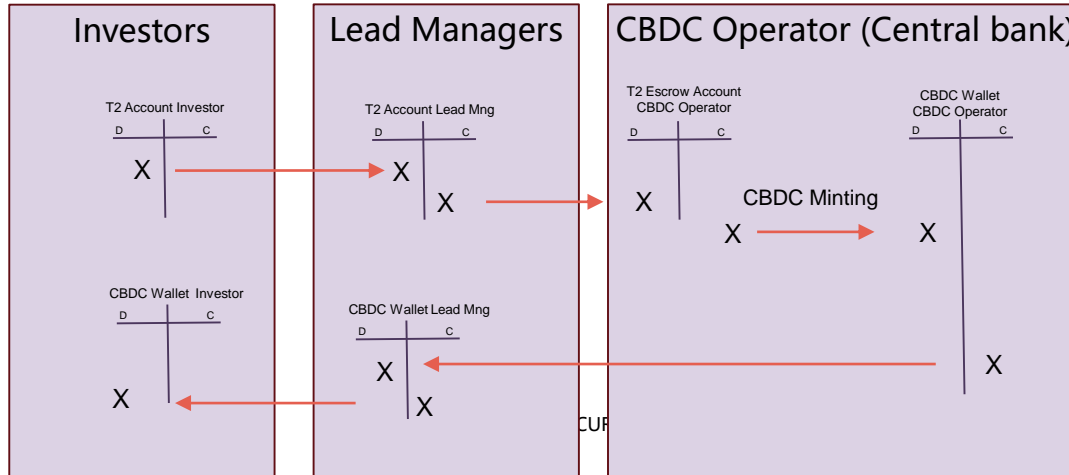
- CBDC transfer from investor to issuer
- CBDC & Security tokens matching
- CBDC & Security tokens unlocking

- CBDC transfer to CB
- CBDC burn
- CB sends cash to dealer who allocate it to the issuer

CASH CONVERSION TO CBDC



- Cash collected from investors
- Cash transfer to CB escrow account
- CB mints corresponding amount of CBDC
- CBDC sent to broker to allocate to investors

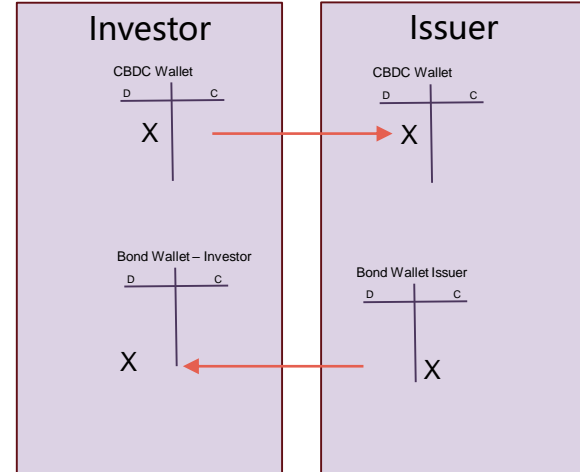


CASH CONVERSION TO CBDC

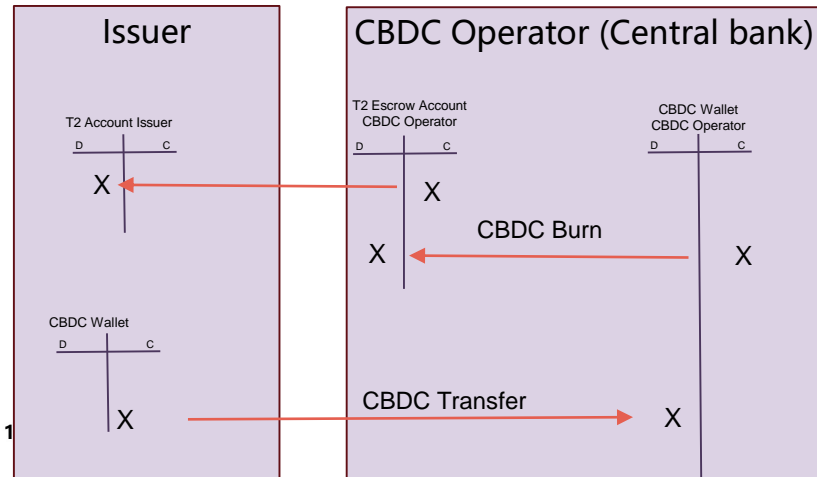


DVP:

- CBDC transfer from investor to issuer
- CBDC & Security tokens matching
- CBDC & Security tokens unlocking



CASH CONVERSION TO CBDC



PROCESSING IN THE ISSUER'S LEGACY SYSTEMS & INTEGRATION

- Operation needs to be captured in the Issuer's internal systems (Core banking system & downstream)
- Input done manually in this experiment – Instrument/transaction configured by support teams

Lessons learned:

- Room to improve an STP process and gain even more efficiencies by integration with internal issuer systems
- Build the interface from blockchain platform to legacy systems (APIs and link to the existing workflows)



APPENDIX



WHERE LIES THE ADDED VALUE

FOR ISSUER

- **Improve digital innovation & cooperation** with CIBs
- **Straightforward bond issuance & settlement**
- **Diversifying investor base** in the long term : distribution has no technological limit but regulatory
- **Fewer intermediaries** : increased automation (TA, Paying Agent), no CSD
- **Investors & secondary market transparency** : increased capacity to see trading flows, evaluate liquidity and identify asset holders
- **Get prepared for digital Euro & hybrid products** crypto / MiFid

FOR INVESTORS

- **Get prepared for digital Euro**
- **Limited custody costs**
- **1st step towards buying high yield hybrid products** like DeFi or mixed crypto/MiFid offers
- **Execution speed** : instantaneous settlement of token issuance, limited settlement risk
- **Better price discovery & liquidity** : native worldwide securities registry
- **New investment & trading opportunities** : based on new assets class (cryptocurrencies) or non-financial products (utility tokens) or ESG products targeting specific assets with high level of traceability.

FOR CENTRAL BANKS

- **Partner & push forward the digital Euro project**
- **Demonstrate wholesale CBDC makes sense** for institutional investors
- **Accompagny the « security token pilot regime »** initiative
- **Share technology & operating models**

FOR INVESTMENT BANKS

- **Develop common digital issuance capabilities**
- **Bring digital transformation to their clients**
- **Share common standards & views**
- **Reduce cost of operation & improve speed**
- **Develop & test new funding mechanisms** based on re-using crypto/blockchain world ideas like importing DeFi into regulated world, automatizing repo & margin call management, reducing AM's liquidity buffers, etc ..)

CASE STUDY: EIB D-BOND, YOUR 1ST STEP WITHIN THE DIGITAL WORLD



Issuer: European Investment Bank

Rating: Aaa/AAA/AAA

Notional: Eur 100,000,000

Coupon: 0.000% (Annual)

Type: 2-year Fixed Rate Note

Launch Date: 27th April 2021

Maturity: 28th April 2023

Re-offer Price/ Yield: 101.213%/-0.601%

Bookrunners: **SG** + 2 JLMs

Legal Advisers: Linklaters Llp (to EIB) And Allen & Overy Llp (To The Joint Lead Managers)

Target market: professional investors, **REG S**

Blockchain: Ethereum Public Blockchain

Registrar, Fiscal Agent, Settlement Agent And Platform Manager: **Société Générale - FORGE**

Key features of the transaction

- The European Investment Bank (EIB), rated Aaa/AAA/AAA, issued the 1st multi dealer led, primary issuance of digitally native tokens using blockchain technology
- Distributed to external investors REG S ;
- Settlement can be done :
 - i. Token-vs-CBDC before end of June 2021, delivery-vs-payment, using the Banque de France's CBDC (T2 participants)
 - ii. Token-vs-cash, delivery-vs-payment, using traditional cash (non T2 participants)
- Added value for both issuers and investors with fewer intermediaries, reduced fixed costs and a much faster settlement speed (T0 / T+1 settlement) ;
- Liquidity is limited as only few counterparties are technically equipped & as the security is not eligible to ECB collateral monetary operations;
- The custody system is provided by the Dealers based on Société Générale – FORGE capabilities and the position can be read directly on the blockchain on a 24/7 basis ;
- The booking is done the same way as a traditional EIB bond except there is no CSD ;

Other Terms

- Governing Law: French
- CSD: No
- Listing, repo P3G: None
- ISIN: FR0014003521
- Settlement: T0
- Blockchain: Ethereum Public

There is no additional credit risk due to the use of the blockchain technology

Operational & Legal Considerations

- **No Central Depository:** the bond is issued directly on a public blockchain Ethereum as a “native token”
- **Legal :** Fully registered form under French law, the token is *pari passu* to any other unsubordinated and unsecured bond issued by the EIB
- **Form of the notes:** dematerialized, in fully registered form (*nominatif pur*) in a distributed ledger technology (DLT, i.e. a blockchain)

CASE STUDY: REPO ON EIB D-BOND

Societe Generale and its subsidiary Societe Generale-Forge executed a security finance transaction on a digital bond issued on a public blockchain, in cooperation with a German asset manager, Union Invest

- Following the placement of an amount of digital bonds to Union Invest, Societe Generale offered to enter into a collateral upgrade trade with the client
- This is the first time that a Digital Bond was borrowed via the blockchain and collateralized on a triparty agent on the back of a traditional contractual setup
- In the coming months, issuances of bonds on a public blockchain are expected to increase sharply
- With this new transaction, Societe Generale Group, thanks to its structuring and engineering capability within its capital markets departments and Societe Generale-Forge, has built experience down the value chain in borrowing back a digital bond issued and distributed in the previous months
- This secured financing trade is a great example of innovative use cases and gradual industrialization related to digital securities on distributed ledger technology
- Existing technologies specific to cryptocurrency space like Decentralized Finance (DeFi) will allow to bring such operation at scale in the coming years, simplifying liquidity management, Sec Lending, margin calls, etc ...

**THE FUTURE
IS YOU**



**SOCIETE
GENERALE**