



# Companion Annex **B**

*Case studies: tokenized money and payout infrastructure  
— accompanying Catastrophe Bonds and Tokenized  
Claim Infrastructure*

# Companion Annex B

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# Case studies: tokenized money and payout infrastructure

# B

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This annex catalogues institutional tokenized money and the rails most relevant to delivering a catastrophe-bond payout: wholesale and settlement networks, tokenized bank deposits, tokenized money-market and Treasury funds, multilateral and supranational digital bonds, dollar and euro stablecoins, government-bond-backed and local-currency stablecoins, central-bank digital currencies, sovereign receive-and-hold capacity, and humanitarian disbursement. The cases are numbered B1–B40 for reference.

Figures are point-in-time, drawn from issuer disclosures, reserve attestations, central-bank and BIS papers, regulatory filings and on-chain data; on-chain values are snapshots taken in mid-2026 and may have moved since. Units are kept distinct throughout – circulating supply, cumulative settled volume, assets under management and pilot-disbursed amounts are different quantities and are not combined. Where a figure is approximate, or a claim could not be independently confirmed, the text says so in plain words.

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## B1. JPMorgan Kinexys — Institutional Blockchain Payments

### AT A GLANCE

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CASE	JPMorgan's tokenized commercial-bank-deposit settlement — a live, institutional-scale blockchain payments system, plus a public-network deposit token (JPMD)
PRIMARY ENTITIES / ISSUER	JPMorgan Chase Bank N.A. (Kinexys, the former Onyx / JPM Coin division)
DATES AND STATUS	JPM Coin announced 2019, live ~2020; rebranded Kinexys Nov 2024; JPMD on Base Nov 2025; phased Canton integration announced Jan 2026. Live at scale
JURISDICTION / REGULATORY POSITION	US; operates within JPMorgan's existing US bank regulatory framework; characterized as a bank deposit, not a stablecoin or security
LAYER IN PAYOUT STACK	Wholesale settlement (tokenized commercial-bank deposits)
CLAIM OR MONEY FORM	A tokenized US-dollar commercial-bank deposit — a deposit claim on JPMorgan, issued one-for-one
BACKING OR RESERVE	US-dollar deposits on JPMorgan's own balance sheet, one-for-one; issuer and custodian are the same entity, so the credit risk is JPMorgan's; no external reserve or attestation
HOLDER / TIER / REACH	Wholesale and institutional only — JPMorgan-client-to-JPMorgan-client (and, for JPMD on Base, vetted institutions)
CHAIN OR LEDGER	A proprietary permissioned blockchain (Kinexys Digital Payments, since ~2020); JPMD on Base (an Ethereum L2) from Nov 2025; phased Canton Network integration
SETTLEMENT OR USE	Interbank settlement, cross-border payments, intraday FX, repo
PROGRAMMABILITY / CONTROLS	Conditional payment logic and workflow automation on the permissioned ledger and via smart contracts on Base
SIZE OR ACTIVITY	Cumulative settled volume exceeded \$3 trillion by April 2026 (from \$1.5 trillion at the Nov-2024 rebrand), at more than \$5 billion a day — cumulative flow, not an outstanding balance; JPMD's circulating balance on Base is not disclosed
RELEVANCE TO THE PAPER	Tokenized bank-money settlement live at institutional scale, with wholesale, bank-client-based reach — an upstream rail a dollar payout could traverse between institutions before reaching a sovereign or recipient-facing rail
EVIDENCE LIMITS	Headline figures are cumulative throughput (issuer-reported), not an outstanding balance; JPMD's circulating supply on Base is not disclosed; the permissioned system is not visible on a public chain

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Kinexys (rebranded from Onyx in November 2024) is JPMorgan's blockchain and digital-payments division. Its core is the former JPM Coin system, a permissioned blockchain on which institutional clients hold blockchain deposit accounts funded from ordinary deposit accounts and settle payments between one another around the clock; the funds never leave JPMorgan's infrastructure. In November 2025 the bank added JPMD, a US-dollar deposit token, on the public Base network, minted one-for-one against client deposits, and a phased integration with the Canton Network was announced in January 2026.

The token is a tokenized JPMorgan deposit — a deposit claim on the bank, backed one-for-one by US-dollar deposits on JPMorgan's own balance sheet, with no external reserve, custodian or attestation. Settlement moves JPMorgan-held deposits between JPMorgan clients.

In the payout stack it is an upstream wholesale settlement rail: every transaction moves JPMorgan-held deposits between JPMorgan clients, upstream of sovereign receipt or final-recipient delivery.

Kinexys shows that tokenized bank-money settlement is live at institutional scale, with wholesale, bank-client-based reach. For payout-side infrastructure, a dollar payout could move across it between institutions before reaching a sovereign or recipient-facing rail.

The headline figures are cumulative throughput – more than \$3 trillion settled since inception and more than \$5 billion a day as of April 2026 – and are issuer-reported, not an outstanding balance. JPMD's circulating supply on Base is not disclosed, and the permissioned Kinexys system is not visible on a public chain.

## TIMELINE

- 2019 – JPM Coin announced.
- About 2020 – JPM Coin system live for institutional clients.
- November 2024 – Onyx rebranded to Kinexys; cumulative settled volume above \$1.5 trillion.
- November 2025 – JPMD launches on Base for institutional clients.
- January 2026 – Phased Canton Network integration announced.
- April 2026 – Cumulative settled volume above \$3 trillion, more than \$5 billion a day.

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## KEY IDENTIFIERS

Kinexys Digital Payments (permissioned ledger, formerly JPM Coin); JPMD deposit token on Base; phased Canton Network integration.

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## B2. Partior – Multi-Bank Settlement Network

### AT A GLANCE

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CASE	A bank-owned multi-currency network that nets and settles cross-border interbank payments in tokenized commercial-bank money
PRIMARY ENTITIES / ISSUER	Partior Pte. Ltd. (Singapore; a Project Ubin spin-out); incorporated by DBS, JPMorgan and Temasek (2021); Standard Chartered joined as a strategic investor in November 2022; Deutsche Bank a strategic investor
DATES AND STATUS	Emerged from Project Ubin 2019–2021; incorporated 2021; USD/EUR/SGD live; Series B closed Nov 2024. Live in production
JURISDICTION / REGULATORY POSITION	Singapore-incorporated; overseen indirectly through member banks' payment licences; no separate Partior licence disclosed
LAYER IN PAYOUT STACK	Wholesale settlement (tokenized commercial-bank deposits across banks)
CLAIM OR MONEY FORM	Tokenized commercial-bank deposits – each currency leg a deposit claim on the relevant member bank
BACKING OR RESERVE	Each currency leg backed by the relevant member bank's own deposits (USD via JPMorgan, EUR via Deutsche Bank / Standard Chartered, SGD via DBS); no central-bank reserves
HOLDER / TIER / REACH	Wholesale-interbank – settlement between member banks; a corporate's funds reach the counterpart bank, not a direct recipient
CHAIN OR LEDGER	A proprietary permissioned ledger; the underlying technology is not publicly named
SETTLEMENT OR USE	Cross-border interbank clearing and settlement; FX on a payment-versus-payment basis (atomic settlement)
PROGRAMMABILITY / CONTROLS	Payment-versus-payment and delivery-versus-payment with just-in-time multi-bank logic
SIZE OR ACTIVITY	Transaction volumes not disclosed; total funding raised more than \$111 million (a \$31m Series A 2022; an \$80m Series B Nov 2024) – funding raised, not settlement volume
RELEVANCE TO THE PAPER	Multi-bank tokenized settlement in commercial-bank money operating in production across currencies, with wholesale (bank-to-bank) reach; for payout-side infrastructure a production cross-currency interbank settlement layer relevant to the bank-to-bank leg of a payout stack
EVIDENCE LIMITS	Transaction volumes are not disclosed (only funding rounds are public); currencies beyond USD/EUR/SGD (AED, SAR, INR, JPY) were announced or onboarding rather than confirmed live; the ledger technology is not named

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Partior, incorporated in Singapore in 2021 out of MAS's Project Ubin, runs a unified permissioned ledger on which member banks net and settle cross-border interbank payments across currencies, replacing chains of correspondent banks. It was incorporated by DBS, JPMorgan and Temasek in 2021; Standard Chartered joined as a strategic investor in November 2022, and Deutsche Bank joined as a strategic investor in the \$80 million Series B.

It settles in commercial-bank money – tokenized deposits backed by the member banks' own balance sheets – which distinguishes it from Fnality (B3), which settles in claims on central-bank reserves. Settlement is atomic: both legs of an FX trade settle together or not at all.

In the payout stack it is a wholesale interbank settlement rail. A corporate initiates through its bank and the interbank leg settles on Partior, with funds arriving at the counterpart bank.

Partior shows multi-bank tokenized settlement in commercial-bank money running in production across several currencies. For payout-side infrastructure, Partior is a production cross-currency interbank settlement layer in tokenized commercial-bank money, relevant to the bank-to-bank leg of a payout stack.

Transaction volumes are not disclosed; the only public quantities are the funding rounds. USD, EUR and SGD are live; the additional currencies announced through Emirates NBD and SBI Shinsei were, as of mid-2026, announced or onboarding rather than confirmed live. The underlying ledger technology is not publicly named.

## TIMELINE

- 2019–2021 — Emerges from MAS Project Ubin; incorporated 2021.
- 2022 — Series A (\$31m); USD, EUR and SGD go live.
- November 2024 — Series B closes at \$80m, with Deutsche Bank joining.
- May 2024 — Standard Chartered completes first euro cross-border transactions on Partior.
- September 2025 — Deutsche Bank executes first euro cross-border payment, DBS beneficiary.

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## KEY IDENTIFIERS

Partior unified permissioned ledger; live currencies USD, EUR, SGD.

## B3. Fnality — Tokenized Central-Bank-Money Settlement

### AT A GLANCE

CASE	A bank consortium's wholesale payment system that settles in tokenized claims on central-bank money — the first DLT-based payment system with UK settlement-finality designation
PRIMARY ENTITIES / ISSUER	Fnality International Ltd, a UK consortium of around 24 institutions
DATES AND STATUS	Founded 2019 (from the Utility Settlement Coin consortium); sterling system live (controlled phase) Dec 2023; settlement-finality designation Dec 2024. Live but limited
JURISDICTION / REGULATORY POSITION	UK — designated a regulated payment system by HM Treasury (August 2022); settlement-finality designation Dec 2024 (the first DLT-based payment system in the UK to receive it)
LAYER IN PAYOUT STACK	Wholesale settlement (tokenized central-bank money)
CLAIM OR MONEY FORM	Tokenized claims on funds pooled at the central bank — not a deposit token or stablecoin
BACKING OR RESERVE	Funds held in a Bank of England omnibus account on behalf of the participant pool — effectively tokenized central-bank money; overnight balances earn Bank Rate; no commercial-bank credit risk between participants
HOLDER / TIER / REACH	Wholesale-interbank only — participating banks, broker-dealers and clearing houses
CHAIN OR LEDGER	A private Ethereum network
SETTLEMENT OR USE	Interbank payment settlement; delivery-versus-payment for tokenized securities; payment-versus-payment for FX; intraday repo
PROGRAMMABILITY / CONTROLS	An earmarked-funds (purpose-bound) feature demonstrated; cross-chain delivery-versus-payment with HQLAx
SIZE OR ACTIVITY	Settlement volumes not disclosed; funding includes a £77.7m Series B (November 2023) and a \$136m / £99.7m Series C (Sep 2025) — funding raised, not settlement volume
RELEVANCE TO THE PAPER	The closest structural analogue among the wholesale-settlement cases to the proposal's design — a consortium pools funds at a central institution and participants hold proportional digital claims settled on a shared ledger — though the pool is central-bank money and the holders are banks rather than sovereigns
EVIDENCE LIMITS	Settlement volumes are not disclosed; only the sterling system is live (US-dollar and euro versions are in regulatory discussion with no live date)

Fnality (founded 2019 from the Utility Settlement Coin consortium) runs the Fnality Payment System, one per currency, on which participants settle in a digital representation of funds held in an omnibus account at the central bank. The sterling system went live in a controlled phase in December 2023 — the first regulated DLT-based wholesale payment system — and received settlement-finality designation in December 2024, which makes on-chain settlement legally final.

Its backing is central-bank money, not commercial-bank deposits: participants pre-fund a Bank of England omnibus account and hold proportional claims on the pool, with the residual risk being the central bank's.

In the payout stack it is a wholesale interbank settlement rail, settling in tokenized central-bank money between banks, broker-dealers and clearing houses.

Fnality is the closest structural analogue among the wholesale-settlement cases to a tokenized claim on a pooled reserve — a consortium pools funds at a central institution and participants hold proportional digital claims on a shared ledger. The differences that matter for the paper are that the pooling institution is a central bank rather than a multilateral, the claim-holders are banks rather than sovereigns, and the purpose is interbank settlement rather than disaster payout.

It remains strictly wholesale, and settlement volumes are not disclosed; only the sterling system is live, with US-dollar and euro versions in regulatory discussion and no live date.

## TIMELINE

- 2019 – Founded (from the Utility Settlement Coin consortium).
- August 2022 – Designated a regulated payment system by HM Treasury.
- November 2023 – £77.7m Series B.
- December 2023 – Sterling system goes live (controlled phase).
- December 2024 – Settlement-finality designation.
- July 2025 – BNP Paribas joins; first on-chain interest-rate-swap cash payment.
- September 2025 – \$136m Series C.

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## KEY IDENTIFIERS

Finality Payment System (sterling live, settlement-finality designated); private Ethereum network; Bank of England omnibus account.

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## B4. Project Agorá — Tokenized Cross-Border Bank Settlement

### AT A GLANCE

CASE	A BIS-led public-private research prototype for cross-border settlement that combines tokenized central-bank reserves and tokenized commercial-bank deposits on a shared ledger
PRIMARY ENTITIES / ISSUER	A BIS Innovation Hub and Institute of International Finance collaboration with (as of May 2026) eight central banks and 41 selected private-sector financial institutions; a research prototype, not a single issuer
DATES AND STATUS	Announced April 2024; prototype complete (announced 27 May 2026); advancing to real-value testing, no production timeline
JURISDICTION / REGULATORY POSITION	A research project under each central bank's own legal authority; not a live regulated system
LAYER IN PAYOUT STACK	Wholesale settlement (tokenized central-bank reserves + commercial-bank deposits)
CLAIM OR MONEY FORM	Two layers — tokenized central-bank reserves on per-jurisdiction ledgers and tokenized commercial-bank deposits on a shared "unifying ledger"; stablecoins explicitly out of scope
BACKING OR RESERVE	Each layer backed by the relevant institution (central-bank reserves / commercial-bank deposits)
HOLDER / TIER / REACH	Wholesale and central-bank-to-bank only
CHAIN OR LEDGER	A two-layer architecture (jurisdictional ledgers plus a shared unifying ledger); Kaleido named as technology provider in trade press
SETTLEMENT OR USE	Wholesale cross-border payments and multi-currency FX settlement with embedded compliance
PROGRAMMABILITY / CONTROLS	Smart contracts on the unifying ledger embed compliance checks and conditional triggers
SIZE OR ACTIVITY	No transaction volumes — the prototype moved no real money
RELEVANCE TO THE PAPER	Tokenizes the central-bank-reserve side of cross-border settlement at multi-jurisdiction scale — closer to the proposal's reserve side than its multilateral side; a reserve-side and compliance-orchestration architecture for coordinating tokenized reserves and deposits across jurisdictions
EVIDENCE LIMITS	A research prototype that moved no real money; no production timeline, currency set or volume disclosed; the Kaleido technology attribution is from trade press

Project Agorá is the BIS Innovation Hub's largest project: a public-private effort with the central banks of the Eurosystem (Banque de France), Japan, Korea, Mexico, Switzerland, the UK and the New York Fed — joined by the Bank of Canada for real-value testing — and 41 selected private-sector financial institutions.

Its architecture keeps each central bank's reserves on its own jurisdictional ledger while commercial-bank deposits sit on a shared unifying ledger, so cross-border transactions are orchestrated by smart contract without any central bank's reserves leaving its control. Stablecoins are deliberately excluded.

In the payout stack it is wholesale cross-border settlement infrastructure, touching the central-bank-reserve side of the proposal's design.

For the paper, Agorá is closest to the reserve-side and compliance-orchestration layer: it shows how tokenized central-bank reserves and commercial-bank deposits can be coordinated across jurisdictions on shared infrastructure, closer to the reserve side of the proposal than to a multilateral issuing a claim on itself.

No real money has moved — the prototype, completed in May 2026, was a test environment, and the announcement marked the decision to advance to real-value testing, for which no timeline, currency set or volume has been disclosed. The Kaleido technology attribution is from trade press.

### TIMELINE

- May 2024 – Private institutions invited; 41 later selected.
- 27 May 2026 – Prototype completed; Bank of Canada joins; work advances to real-value testing.

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## KEY IDENTIFIERS

Project Agora (BIS Innovation Hub); two-layer architecture (jurisdictional ledgers + unifying ledger); Kaleido (reported technology provider).

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## B5. mBridge — Multi-CBDC Settlement Network

### AT A GLANCE

CASE	A multi-CBDC platform on which participating central banks and their commercial banks settle cross-border payments and FX in wholesale CBDC, without correspondent banks
PRIMARY ENTITIES / ISSUER	Each participating central bank issues its own wholesale CBDC; operated, since the BIS's departure, by five central banks (China, Hong Kong, Thailand, UAE, Saudi Arabia)
DATES AND STATUS	Initiated 2021; minimum-viable-product stage reached June 2024; BIS departed 31 Oct 2024; advancing toward full production (no confirmed live-production timeline)
JURISDICTION / REGULATORY POSITION	Each CBDC under its own jurisdiction's law; no supranational framework
LAYER IN PAYOUT STACK	Wholesale settlement (multi-CBDC)
CLAIM OR MONEY FORM	Each leg is a wholesale CBDC — a sovereign liability of its issuing central bank
BACKING OR RESERVE	Each CBDC is a liability of its issuing central bank (e-CNY/PBoC, e-HKD/HKMA, and the Thai, UAE and Saudi central banks); no shared reserve
HOLDER / TIER / REACH	Wholesale-interbank only — participating central banks and their commercial banks
CHAIN OR LEDGER	A purpose-built, EVM-compatible permissioned ledger (the mBridge Ledger), open-sourced among the five central banks
SETTLEMENT OR USE	Wholesale cross-border FX and trade settlement between the participating jurisdictions
PROGRAMMABILITY / CONTROLS	Smart contracts on the mBridge Ledger; central banks control issuance and redemption
SIZE OR ACTIVITY	Cumulative settled volume reported at about \$55.49 billion across more than 4,000 transactions, e-CNY about 95% — originating from a PBoC announcement (Dec 2025) as cited by the Atlantic Council, a PBoC self-report not independently verified; the only primary volume figure is the 2022 pilot (about \$22 million across 164 transactions)
RELEVANCE TO THE PAPER	Wholesale CBDCs with reported large-volume cross-border settlement among several jurisdictions, with interbank reach; for payout-side infrastructure an upstream multi-CBDC settlement rail for cross-border interbank settlement among participating jurisdictions
EVIDENCE LIMITS	The headline cumulative figures originate from a PBoC announcement (Dec 2025) as cited by the Atlantic Council — a PBoC self-report, not independently verified by the central banks; the only primary volume figure is the 2022 pilot; no independent volume update since

Project mBridge is a multi-CBDC platform on which participating central banks and their commercial banks settle cross-border payments and FX without correspondent banks. It began in 2021 — the BIS Hong Kong centre with the Thai, UAE, Chinese and Hong Kong authorities — and the Saudi central bank joined at the minimum-viable-product stage in June 2024. The BIS departed at the end of October 2024, handing governance to the five central banks.

Each leg is a wholesale CBDC, a liability of its own issuing central bank, with no shared reserve; settlement runs on a purpose-built, EVM-compatible permissioned ledger.

In the payout stack it is a wholesale cross-border settlement rail between participating central banks and their commercial banks.

mBridge shows wholesale CBDCs settling cross-border among several jurisdictions, with reported significant activity. For payout-side infrastructure, mBridge is an upstream multi-CBDC settlement rail for cross-border interbank settlement among participating jurisdictions.

The widely cited figures – about \$55.49 billion of cumulative settlement, more than 4,000 transactions, e-CNY about 95% – originate from a PBoC announcement (Dec 2025) as cited by the Atlantic Council, a PBoC self-report rather than an independently verified figure; the only primary volume figure is the 2022 pilot of about \$22 million, so the larger numbers are reported rather than confirmed.

## TIMELINE

- 2021 – mBridge initiated.
- 2022 – Six-week real-value pilot (about \$22m across 164 transactions).
- June 2024 – Minimum-viable-product; Saudi central bank joins.
- 31 October 2024 – BIS departs; five central banks take over.
- Late 2025–2026 – Cumulative volume reported at about \$55.49 billion; bilateral China–UAE activity continues.

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## KEY IDENTIFIERS

mBridge Ledger (EVM-compatible permissioned); five operating central banks (China, Hong Kong, Thailand, UAE, Saudi Arabia).

## B6. Citi Token Services — Tokenized Bank Deposits

### AT A GLANCE

CASE	Citi's proprietary tokenized-deposit platform for corporate and institutional clients — 24/7 cross-border intracompany liquidity and programmable trade-finance instruments
PRIMARY ENTITIES / ISSUER	Citigroup (Citi Treasury and Trade Solutions)
DATES AND STATUS	Announced Sep 2023; live Oct 2024 (USD in US, UK, Singapore, Hong Kong); EUR and a Dublin branch added Nov 2025. Live but limited
JURISDICTION / REGULATORY POSITION	Within Citi's existing banking licences (US, UK, Singapore, Hong Kong, Ireland/EU); not separately licensed as a stablecoin or e-money token
LAYER IN PAYOUT STACK	Tokenized bank deposit
CLAIM OR MONEY FORM	A tokenized Citi-branch deposit — a one-for-one claim on the fiat balance at the corresponding Citi branch
BACKING OR RESERVE	Citi's own balance sheet; no separate reserve, custodian or attestation; credit risk is Citi's alone as sole issuer
HOLDER / TIER / REACH	Corporate and institutional treasury — named corporate accounts (Payoneer, Maersk, a canal authority) inside Citi's permissioned network
CHAIN OR LEDGER	A private, permissioned ledger operated by Citi; the technology stack is not publicly disclosed; not a public chain
SETTLEMENT OR USE	24/7 cross-border intracompany liquidity management; programmable tokenized trade-finance guarantees and letters of credit
PROGRAMMABILITY / CONTROLS	Smart-contract transfer conditions demonstrated in the trade-finance pilot (escrow, automatic release on a confirmed trade event)
SIZE OR ACTIVITY	Cumulative settled volume reported in the "billions of dollars" since the Oct-2024 go-live, individual transactions multimillion-dollar — a cumulative settled-volume figure, not an outstanding balance or circulating supply, and not independently verifiable on a private ledger
RELEVANCE TO THE PAPER	A tokenized commercial-bank deposit working for corporate treasury at production scale; the closest everyday analog to the proposal's "tokenized payable / account balance," but issued by a commercial bank to a corporate, not a multilateral to a sovereign, and the token cannot leave Citi's ledger
EVIDENCE LIMITS	The "billions" figure is cumulative settled volume (issuer-reported, not independently verifiable on a private ledger); no outstanding balance, circulating supply or attestation cadence is published

Citi Token Services is Citigroup's proprietary tokenized-deposit platform for corporate and institutional clients, with two service lines: Token Services for Cash, for 24/7 cross-border intracompany liquidity transfers between Citi branches in dollars and euros, and Token Services for Trade (pilot), for programmable tokenized guarantees and letters of credit. Token Services for Cash went live in October 2024 (announced September 2023), while Token Services for Trade remained a pilot.

The mechanism is entirely intra-Citi. A client instructs a token transfer on the permissioned ledger between its own Citi-branch accounts, and the matching fiat moves across Citi's internal books, so settlement is instant and around the clock. Each token is a one-for-one claim on Citi-branch fiat, backed by Citi's own balance sheet. Third-party banks do not participate; the token does not leave Citi's ledger and does not interoperate with other banks' tokenized deposits or with stablecoins.

In the payout stack it is a tokenized-bank-deposit rail for corporate treasury. Reach is to corporate treasury accounts — Payoneer (named August 2025) moves funds between its own Citi-held accounts across branches in real time; Maersk and an unnamed canal authority (Citi declined to identify it) took part in the trade-finance pilot.

For the paper, Citi Token Services shows a tokenized commercial-bank deposit operating for corporate treasury at production scale. The deposit-claim form is the closest everyday analog to the proposal's "tokenized payable or account balance" idea, but here the issuer is a commercial bank and the holder a corporate treasury – not a multilateral crediting a sovereign – and the token stays within Citi's own ledger.

The "billions of dollars" settled since October 2024 is a cumulative settled-volume figure drawn from Citi's disclosures; no outstanding token balance, circulating supply or attestation cadence has been published, and a private ledger cannot be independently verified.

## TIMELINE

- September 2023 – Citi Token Services announced (cash management and trade finance).
- October 2024 – Token Services for Cash goes live in the US, UK, Singapore and Hong Kong (USD).
- October 2024 – Token Services for Cash goes live; Mars named as the first client.
- August 2025 – Payoneer adopts the service for 24/7 intracompany transfers (first client publicly named after go-live).
- September 2025 – Integration announced with Citi's 24/7 USD Clearing solution.
- November 2025 – EUR integration and a Dublin branch added.

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## KEY IDENTIFIERS

Citi Token Services (Token Services for Cash; Token Services for Trade); private permissioned ledger.

## B7. HSBC Tokenised Deposit Service – Tokenized Bank Deposits

### AT A GLANCE

CASE	HSBC's tokenized-deposit service for corporate clients, with cross-bank interoperability through the HKMA's EnsembleTX pilot
PRIMARY ENTITIES / ISSUER	HSBC; cross-bank interoperability through the HKMA's EnsembleTX (Project Ensemble)
DATES AND STATUS	Hong Kong launch 22 May 2025; EnsembleTX cross-bank real-value pilot Nov 2025; US live 13 Apr 2026 (five markets); UAE announced, not live. Live but limited
JURISDICTION / REGULATORY POSITION	HKMA-regulated (Hong Kong banking licence); EnsembleTX an HKMA-supervised live pilot; Singapore MAS-licensed; US live from Apr 2026
LAYER IN PAYOUT STACK	Tokenized bank deposit (with an interbank interoperability layer)
CLAIM OR MONEY FORM	A tokenized HSBC deposit balance – a one-for-one claim on HSBC-branch fiat; in EnsembleTX, each bank's token is a claim on that issuing bank
BACKING OR RESERVE	HSBC's own balance sheet (single-issuer credit risk); in EnsembleTX, cross-bank transfers settle through Hong Kong dollar RTGS (not yet tokenized central-bank money), with token-level credit risk remaining with each issuing bank
HOLDER / TIER / REACH	Corporate and institutional treasury – named clients (Ant International first) move funds between their own HSBC wallets or, via EnsembleTX, across banks
CHAIN OR LEDGER	HSBC's proprietary permissioned ledger; EnsembleTX adds an interbank interoperability layer settling through HKD RTGS, with a roadmap toward tokenized central-bank money; the stack is not fully disclosed
SETTLEMENT OR USE	24/7 intracompany and cross-bank liquidity management; FX settlement; subscription to tokenized money-market funds (the EnsembleTX phase)
PROGRAMMABILITY / CONTROLS	Real-time on-ledger settlement; smart-contract interoperability with tokenized money-market-fund subscriptions demonstrated in EnsembleTX
SIZE OR ACTIVITY	The only deal figure disclosed is a single live cross-bank transaction of about HK\$3.8 million for Ant International (Nov 2025) – a single-transaction value, not a balance or cumulative volume, sourced from HSBC and not independently verified; no cumulative or outstanding-balance figure is disclosed
RELEVANCE TO THE PAPER	Adds the cross-bank dimension Citi's intra-bank platform lacks: through EnsembleTX a tokenized deposit can move between banks, an early step toward interoperable tokenized money; still corporate-treasury-facing and settled in commercial-bank money over RTGS, not a multilateral-to-sovereign claim
EVIDENCE LIMITS	Only one cross-bank transaction value (~HK\$3.8m) and one undisclosed-amount cross-border transaction are public; no cumulative or outstanding balances; the move to tokenized central-bank money is on the roadmap rather than committed; the stack is not fully disclosed

HSBC's Tokenised Deposit Service lets corporate clients hold and transfer tokenized Hong Kong dollar and US dollar deposits across HSBC accounts and, through the HKMA's EnsembleTX pilot, across participating banks. HSBC reports it was the first bank to go live in Hong Kong with a bank-led tokenized-deposit settlement service, on 22 May 2025, and the first to process a real-value cross-bank tokenized-deposit transaction in EnsembleTX.

Within HSBC's own service the mechanism mirrors Citi Token Services but inside the HSBC network: token transfers between client wallets settle on HSBC's ledger, and cross-border intracompany transfers are coordinated as matching debits and credits across HSBC branches. EnsembleTX is the HKMA's live pilot phase of Project Ensemble, supporting real-value transactions across seven participating banks; interbank settlement runs initially through Hong Kong dollar RTGS, with an upgrade to tokenized central-bank money on the roadmap rather than committed. Each bank's tokenized deposits in EnsembleTX are claims on that bank's own balance sheet.

In the payout stack it is a tokenized-bank-deposit rail with an emerging interbank interoperability layer, reaching corporate treasury accounts. The single disclosed deal is the November 2025 cross-bank transfer of about HK\$3.8 million, instructed by Ant International from its HSBC wallet to its wallet at another EnsembleTX bank, with the interbank leg settled over RTGS; a first USD cross-border transaction for Ant International (Hong Kong to Singapore) was confirmed in September 2025, amount undisclosed.

For the paper, HSBC's service adds the cross-bank dimension that Citi's intra-bank platform lacks: through EnsembleTX a tokenized deposit can move between banks, an early step toward interoperable tokenized money. It remains corporate-treasury-facing and settled in commercial-bank money over RTGS rather than a multilateral crediting a sovereign, but the interoperability roadmap — toward tokenized central-bank money — is the direction the proposal would need.

The single disclosed figure is a single live-transaction value and should not be read as platform throughput; no cumulative or outstanding-balance figure is disclosed, and the move to tokenized central-bank money is a roadmap item rather than committed.

## TIMELINE

- March 2024 — The HKMA launches Project Ensemble (sandbox phase from August 2024).
- 22 May 2025 — HSBC launches its Tokenised Deposit Service in Hong Kong.
- September 2025 — First USD cross-border tokenized-deposit transaction for Ant International (Hong Kong to Singapore).
- 13 November 2025 — The HKMA announces the EnsembleTX pilot phase; HSBC completes the first live cross-bank tokenized-deposit transaction, about HK\$3.8 million for Ant International, across seven participating banks.
- 13 April 2026 — HSBC's service goes live in the US, reaching five markets and five currencies; UAE remains announced but not live.

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## KEY IDENTIFIERS

HSBC Tokenised Deposit Service (TDS); HKMA Project Ensemble / EnsembleTX; HKD RTGS interbank settlement.

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## B8. JPMorgan JPMD — Public-Network Deposit Token

### AT A GLANCE

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CASE	J.P. Morgan's US-dollar permissioned deposit token on a public chain (Base) — a step beyond its private Kinexys ledger
PRIMARY ENTITIES / ISSUER	J.P. Morgan (Kinexys by J.P. Morgan)
DATES AND STATUS	Base pilot June 2025; available to institutional clients from 12 November 2025 (production launch following the June 2025 pilot); phased Canton integration through 2026. Live but limited
JURISDICTION / REGULATORY POSITION	Within J.P. Morgan's US bank charter; a permissioned institutional product, not separately licensed
LAYER IN PAYOUT STACK	Tokenized bank deposit (on a public chain with permissioned access)
CLAIM OR MONEY FORM	A US-dollar deposit claim on J.P. Morgan, one-for-one to fiat; a euro variant (JPME) is trademarked but not live
BACKING OR RESERVE	J.P. Morgan's balance sheet (single-issuer credit risk)
HOLDER / TIER / REACH	Corporate and institutional only — permissioned access for eligible institutional clients (early partners B2C2, Coinbase, Mastercard)
CHAIN OR LEDGER	Base (Coinbase's Ethereum L2), a permissioned access layer on a public chain; phased Canton Network integration during 2026
SETTLEMENT OR USE	24/7 institutional payments on a public chain with permissioned access; cross-application settlement on Canton planned
PROGRAMMABILITY / CONTROLS	Interest-bearing design; smart-contract capable on Base (EVM); allowlisted institutional wallets; redemption to fiat on demand
SIZE OR ACTIVITY	No JPMD-specific circulating supply or volume is published; on-chain balance is not independently verified. The broader Kinexys system of which JPMD is a component processes more than \$3 billion a day — a cumulative throughput figure not disaggregated for JPMD (see B1)
RELEVANCE TO THE PAPER	The closest of these deposit cases to a bank deposit claim living on open, public-chain infrastructure with permissioned access — the rail type a tokenized payout claim would plausibly use, though still a commercial-bank deposit for institutions
EVIDENCE LIMITS	No JPMD-specific supply or volume figure is disclosed; the euro JPME variant is trademarked but not live; the full J.P. Morgan tokenized-money detail sits at B1

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JPMD is J.P. Morgan's US-dollar permissioned deposit token on Base, minted one-for-one against an equivalent dollar deposit on the bank's balance sheet and transferable between allowlisted institutional wallets, with redemption to fiat on demand. Early transaction partners — B2C2, Coinbase and Mastercard — are institutional. It is a deliberate move onto a public chain with permissioned access, a step beyond the fully private Kinexys ledger.

Each token is a US-dollar deposit claim on J.P. Morgan, with the bank's balance sheet as backing and single-issuer credit risk; transfers are restricted to allowlisted institutional wallets and redeemable to fiat on demand.

In the payout stack it is a tokenized bank deposit issued onto a public chain (Base) with permissioned access, reaching eligible institutional clients rather than a final recipient. This entry is kept brief because the full J.P. Morgan tokenized-money profile — the Kinexys private-ledger network, JPM Coin history, the multi-trillion-dollar cumulative settled volume and the phased Canton plans — is set out at B1.

For the paper, JPMD is the closest of these deposit cases to a bank deposit claim living on open, public-chain infrastructure with permissioned access — the rail type a tokenized payout claim would plausibly use. It remains a commercial-bank deposit for institutions rather than a multilateral claim to a sovereign.

No JPMD-specific circulating supply or volume has been disclosed, and the on-chain balance is not independently verified; the euro JPME variant has been trademarked but is not live.

## TIMELINE

- June 2025 – Kinexys pilots a US-dollar deposit token on Base.
- Late 2025/early 2026 – JPMD available to eligible institutional clients on Base.
- January 2026 – Phased Canton Network integration announced for JPMD.

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## KEY IDENTIFIERS

JPMD (USD deposit token) on Base; euro JPME trademarked (not live); phased Canton integration; broader Kinexys profile at B1.

## B9. DCJPY — Yen Deposit Token Network

### AT A GLANCE

CASE	A yen-denominated tokenized-deposit platform on which participating banks tokenize customer deposits one-for-one for securities settlement and payments
PRIMARY ENTITIES / ISSUER	DeCurret DCP Inc. operates the platform; the tokens are tokenized commercial-bank deposits issued by participating banks — GMO Aozora Net Bank (first minting institution), with Japan Post Bank announced for FY2026 and MUFG, SMBC and SBI Holdings as backers/participants
DATES AND STATUS	Network live for production testing Aug 2024 (GMO Aozora first issuer); Japan Post Bank rollout targeted FY2026 (announced, not live). Live but limited / production testing
JURISDICTION / REGULATORY POSITION	Japan — within existing banking law under FSA oversight; DeCurret DCP a subsidiary of Internet Initiative Japan; not separately licensed as a stablecoin
LAYER IN PAYOUT STACK	Tokenized bank deposit
CLAIM OR MONEY FORM	A one-for-one yen-backed tokenized deposit, each token a claim on the issuing commercial bank's deposit balance; legally equivalent to the underlying deposit under Japanese banking law; explicitly not a stablecoin
BACKING OR RESERVE	The issuing bank holds the fiat; single-issuer credit risk at issuance (multiple banks can issue on the platform, but each token traces to one bank's balance sheet)
HOLDER / TIER / REACH	Corporate and institutional now, with retail-adjacent reach intended (Japan Post Bank's ~120 million accounts, if the rollout proceeds); reaches treasury and, prospectively, retail-to-securities settlement; not beneficiary disbursement
CHAIN OR LEDGER	A private permissioned blockchain developed by DeCurret DCP, validated only by approved participants; not a public chain
SETTLEMENT OR USE	Tokenized securities settlement (the primary stated use); cross-border payments (MUFG/SMBC testing); NFT payments; a stated future government-subsidy use case; fan/community pilots
PROGRAMMABILITY / CONTROLS	Smart-contract capable; escrow and restricted-use conditions demonstrated in DAO and fan-community pilots
SIZE OR ACTIVITY	No circulating-supply figure is disclosed. Japan Post Bank holds approximately ¥190 trillion (~\$1.29 trillion) across some 120 million accounts — a measure of potential scale if the rollout proceeds, not a DCJPY balance
RELEVANCE TO THE PAPER	The deposit case with a stated path to retail-adjacent reach and an explicit (if aspirational) government-subsidy use — one of the more relevant deposit-token cases for public-purpose domestic disbursement on a tokenized-deposit rail, though still commercial-bank-issued and not yet at that scale
EVIDENCE LIMITS	The live footprint is limited to GMO Aozora Net Bank, with no disclosed volumes or balances; the Japan Post Bank FY2026 intent is stated but absent from DeCurret DCP's 2026 releases (live status unconfirmed); the government-subsidy use case is aspirational with no located pilot

DCJPY is a yen-denominated tokenized-deposit platform built by DeCurret DCP, letting banks tokenize customer yen deposits one-for-one on a permissioned blockchain for instant securities settlement, cross-border payments and a planned government-subsidy use case. It is explicitly not a stablecoin: it is a tokenized form of an existing commercial-bank deposit, legally equivalent to the underlying deposit under Japanese banking law. The network went live for production testing in mid-2024, with GMO Aozora Net Bank as the first minting institution.

A depositor converts fiat yen to DCJPY at par, holds the tokens in a wallet on the permissioned ledger, and uses them for delivery-versus-payment settlement of tokenized securities, with redemption to yen at par on demand at the issuing bank. Each token traces to one issuing bank's balance sheet.

In the payout stack it is a tokenized-bank-deposit rail, today reaching corporate and institutional users. Japan Post Bank — Japan's largest deposit holder, with about 120 million accounts and roughly ¥190 trillion in deposits — has announced it will adopt DCJPY by FY2026 for tokenized securities settlement; if it deploys to retail account holders this would be one of the few tokenized-deposit platforms with genuine retail-adjacent reach.

For the paper, DCJPY has a stated path among the deposit cases to retail-adjacent reach and the only explicit (if aspirational) government-subsidy use case — one of the more relevant deposit-token cases for public-purpose domestic disbursement on a tokenized-deposit rail. It remains commercial-bank-issued and is not yet at that scale.

As of mid-2026 the live footprint is limited to GMO Aozora Net Bank, with no disclosed transaction volumes or balances; the rest — fan-community and DAO pilots, MUFG/SMBC cross-border testing, securities-settlement field tests — is at proof-of-concept stage. Japan Post Bank's FY2026 intent is stated but is absent from DeCurret DCP's 2026 releases, leaving its live status unconfirmed, and the government-subsidy use case remains aspirational with no pilot located.

## TIMELINE

- 2019 — DeCurret begins digital-currency research in Japan.
- 2022–2023 — Restructured as DeCurret DCP, with backing from MUFG, SMBC and SBI Holdings.
- July–August 2024 — DCJPY enters production testing and the network launches; GMO Aozora Net Bank is the first minting institution.
- August 2025 — Japan Post Bank announces intent to launch DCJPY by FY2026.
- March–April 2026 — Fan-community and DAO pilots; a security-token delivery-versus-payment field test; selection for the FSA FinTech proof-of-concept hub.
- FY2026 (by March 2027) — Japan Post Bank adoption target (announced, not live).

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## KEY IDENTIFIERS

DCJPY (DeCurret DCP) private permissioned ledger; first issuer GMO Aozora Net Bank; Japan Post Bank targeted FY2026.

## B10. Deposit-Token Networks — Shared Bank-Led Settlement Infrastructure

### AT A GLANCE

CASE	The multi-bank and consortium infrastructure that lets different banks' tokenized deposits interoperate and settle against one another, against securities, or (in future) against wholesale central-bank money
PRIMARY ENTITIES / ISSUER	A settlement-layer set, not a single issuer — RSN/RLN (US/UK proof-of-concept, SIFMA-led), The Clearing House tokenized-deposit network (announced June 2026), the SWIFT shared ledger, Partior (live production, see B2) and the Canton Network / LSEG DiSH
DATES AND STATUS	RSN proof-of-concept complete (findings Dec 2024), not in production; The Clearing House announced June 2026 (target H1 2027), not live; SWIFT ledger an MVP (real transactions planned 2026), not live; Partior live; Canton mainnet live since July 2024, DiSH early-live
JURISDICTION / REGULATORY POSITION	Mixed — RSN/RLN proof-of-concept; The Clearing House a licensed clearing house (CHIPS/RTP); SWIFT interoperability infrastructure; Partior MAS-licensed; LSEG DiSH operational (UK)
LAYER IN PAYOUT STACK	Wholesale settlement / tokenized-bank-deposit interoperability
CLAIM OR MONEY FORM	In every case a tokenized commercial-bank deposit — a claim on one member bank; the network does not issue, guarantee or back the tokens
BACKING OR RESERVE	Single-bank balance sheets at the deposit layer; no multilateral or central-bank money at the deposit layer (simulated or planned wholesale central-bank money appears only in RSN/RLN)
HOLDER / TIER / REACH	Wholesale-interbank and corporate treasury — settling tokenized deposits between institutions, or between a bank and its large corporate clients
CHAIN OR LEDGER	RSN on a Digital Asset/Daml/Canton-family ledger; The Clearing House vendor not yet selected; SWIFT on EVM-compatible Hyperledger Besu; Partior on a private Ethereum/Quorum ledger; DiSH on an Azure private ledger; Canton Network (Daml; mainnet July 2024)
SETTLEMENT OR USE	Interbank settlement; corporate-treasury liquidity; cross-border payments; securities delivery-versus-payment; intraday repo (Canton/DiSH); wholesale only
PROGRAMMABILITY / CONTROLS	Programmable settlement conditions across the set — escrow, delivery-versus-payment and spend restrictions (The Clearing House), full smart contracts on Canton (Daml), payment- and delivery-versus-payment on Partior
SIZE OR ACTIVITY	Quantities are sparse and of different kinds: RSN proof-of-concept throughput not independently retrieved; The Clearing House cites a more-than-\$2-trillion-a-day target market, which is the existing CHIPS-plus-RTP rail capacity rather than a token balance; Partior's live volumes are undisclosed; the SWIFT ledger is a pre-live MVP; the Dec-2025 Canton/DiSH intraday repo disclosed no volume
RELEVANCE TO THE PAPER	The interoperability layer that would let a tokenized claim move between banks and settle against securities or, in RSN's simulation, central-bank money — the rails a tokenized payout claim would eventually traverse; current reach is wholesale, with reserves and credit risk remaining at the issuing-bank level
EVIDENCE LIMITS	Most of the set is proof-of-concept, announced or pre-live (only Partior and Canton are in production); the figures are of different kinds, several being target-market or rail-capacity figures rather than token balances; RSN's central-bank-reserve leg is a simulated wholesale CBDC, not actual Fed reserves

This entry covers the multi-bank and consortium infrastructure for tokenized commercial-bank deposits — the systems built to let different banks' deposit tokens interoperate, settle against one another, or settle against securities and, in future, wholesale central-bank money.

The structural point is that tokenized deposits in all of these networks are claims on individual issuing banks; the network is a settlement-rails layer that does not issue, pool or guarantee the tokens, so concentration risk sits at the individual-bank level, not the network level, and none uses a multilateral-issued settlement asset.

RSN, the SIFMA-led Regulated Settlement Network, was a US proof-of-concept (launched around mid-2023, findings published December 2024) demonstrating simultaneous settlement of tokenized commercial-bank deposits, simulated tokenized central-bank reserves and US Treasury securities on a shared Daml ledger, with cross-network interoperability via SWIFT; its central-bank-reserves leg used a simulated wholesale CBDC, not actual Fed reserves. Its predecessor, the Regulated Liability Network, produced US results (NY Fed, July 2023) and a UK technical report (UK Finance, September 2024). The Clearing House announced in June 2026 that 17 major US institutions would join a clearing-house-operated tokenized-deposit settlement network with programmable controls and connectivity to the existing CHIPS and RTP rails, targeting the first half of 2027 with no vendor, rulebook or pricing finalized — announced rather than live. The SWIFT shared ledger, announced September 2025 with more than 40 participants on Hyperledger Besu, is an MVP with real transactions planned for 2026. Two parts of the layer are further along: Partior runs a live production multi-currency tokenized-deposit settlement network (profiled at B2), and the Canton Network (mainnet since July 2024) hosts deposit-token and securities instruments including LSEG DiSH, which in December 2025 carried a first cross-border intraday repo using DiSH tokenized deposits.

For the paper, these networks are the interoperability layer that would let a tokenized claim move between banks and settle against securities or, in RSN's simulation, central-bank money — the rails a tokenized payout claim would eventually traverse. Their current reach is wholesale, and reserves and credit risk remain at the issuing-bank level.

Most of the set is proof-of-concept (RSN/RLN), announced (The Clearing House) or pre-live (the SWIFT MVP); only Partior and Canton are in production. The quantities are of different kinds — RSN throughput not independently retrieved; The Clearing House's "more than \$2 trillion a day" is the existing CHIPS-plus-RTP target market, not a token balance; Partior's live volumes are undisclosed; the Canton/DiSH repo disclosed no volume — and RSN's central-bank-reserves leg used a simulated wholesale CBDC rather than actual Fed reserves.

## TIMELINE

- July 2023 — NY Fed Regulated Liability Network US results published; the RSN proof-of-concept begins; Partior live with USD, EUR and SGD.
- July 2024 — Canton Network mainnet goes live; Partior closes an initial Series B at \$60 million (extended to \$80 million total with Deutsche Bank, November 2024).
- September 2024 — UK Finance Regulated Liability Network experimentation report.
- December 2024 — RSN proof-of-concept findings published.
- September 2025 — Deutsche Bank's first euro cross-border payment via Partior; the SWIFT shared-ledger announcement (MVP planned for 2026).
- December 2025 — Canton's first cross-border intraday repo using DiSH tokenized deposits.
- 5 June 2026 — The Clearing House tokenized-deposit network announced (17 banks; target launch H1 2027).

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## KEY IDENTIFIERS

RSN/RLN (SIFMA; NY Fed; UK Finance); The Clearing House network (announced, target H1 2027); SWIFT shared ledger (Hyperledger Besu MVP); Partior (see B2); Canton Network / LSEG DiSH.

## B11. BlackRock BUIDL — Tokenized Treasury Fund

### AT A GLANCE

CASE	BlackRock's tokenized money-market / short-duration Treasury fund — and the clearest case of a tokenized fund itself serving as the reserve behind other tokens
PRIMARY ENTITIES / ISSUER	BlackRock (fund manager); Securitize (transfer agent and broker-dealer); BNY Mellon (fund administrator and custodian of the underlying assets)
DATES AND STATUS	Live since March 2024; expanded across 8+ chains. Live at scale
JURISDICTION / REGULATORY POSITION	US; not a 1940 Act fund — a private placement to qualified purchasers under Regulation D / Regulation S; Securitize a registered broker-dealer and transfer agent
LAYER IN PAYOUT STACK	Tokenized fund / reserve asset
CLAIM OR MONEY FORM	A tokenized money-market-fund share — each token a \$1.00 beneficial interest in the fund
BACKING OR RESERVE	US Treasury bills, US government repurchase agreements and cash, held at BNY Mellon. BUIDL is itself the reserve behind other tokens — about 90% of Ethena's USDtb at launch, a large (diversifying) share of Ondo's OUSG, and a reserve component of Frax's frxUSD and Sky's USDS
HOLDER / TIER / REACH	Wholesale / institutional reserve layer — held by institutions, DeFi protocols and crypto treasuries as a yield-bearing cash equivalent; downstream users access value through overlying wrappers or fund products
CHAIN OR LEDGER	Launched on Ethereum (Mar 2024); expanded to Aptos, Arbitrum, Avalanche, Optimism, Polygon (late 2024), Solana, BNB (2025) — 8 confirmed public chains; chain-by-chain breakdown not disclosed
SETTLEMENT OR USE	Institutional treasury reserve; DeFi collateral; the backing asset for other tokens; 24/7 swap-redeemable into USDC, USDtb and RLUSD via dedicated smart contracts
PROGRAMMABILITY / CONTROLS	Transfers restricted to KYC-whitelisted addresses via Securitize transfer-agent controls; three pre-programmed redemption paths (USDC, USDtb, RLUSD)
SIZE OR ACTIVITY	AUM reported about \$2.4–2.9 billion (May–June 2026, secondary aggregators; \$2.4–2.5bn most cited, \$2.85bn an outlier on a possibly different basis); token price fixed at \$1.00; no primary issuer disclosure retrieved
RELEVANCE TO THE PAPER	One of the clearest live demonstrations that a tokenized fund can itself become the reserve asset behind other tokens (BUIDL backs USDtb and OUSG) — directly analogous to the proposal's later-stage design of an MDB claim held as the reserve behind a domestic payment instrument; its reserve is US federal Treasury paper (sovereign, not multilateral)
EVIDENCE LIMITS	AUM figures are secondary/aggregator (no primary issuer disclosure retrieved); downstream reserve mixes (USDtb ~90%, the OUSG share) are point-in-time and partly undisclosed; the structure concentrates single-custodian (BNY Mellon) and single-transfer-agent (Securitize) risk; some redemption-fee figures rest on a single secondary source

BUIDL is a tokenized money-market and short-duration government-securities fund issued by BlackRock, with Securitize as transfer agent and distributor and the underlying assets custodied at BNY Mellon. Each token represents a \$1.00 beneficial interest in the fund, which holds US Treasury bills, government repurchase agreements and cash; yield accrues daily from T-bill and repo income and is distributed as newly minted tokens. Access is restricted to institutional and qualified purchasers meeting Securitize's KYC requirements.

Standard redemption is in US dollars through Securitize at T+0 or T+1, and three smart-contract paths offer 24/7 redemption — into USDC (a Circle contract), into or out of USDtb (a Securitize/Ethena contract), and into RLUSD (a Ripple/Securitize contract). Transfers are limited to KYC-whitelisted addresses.

BUIDL does not disburse to end recipients; it is a wholesale institutional reserve asset held by DeFi protocols as collateral, by other tokenized-money issuers as a reserve, and by institutional treasuries. It has become a reserve layer for a subset of the tokenized-money ecosystem: the dependency chain runs from US Treasury bills, through BUIDL, to Ethena's USDtb (about 90% of reserves at its December 2024 launch) and Ondo's OUSG (BUIDL is OUSG's largest single holding, though OUSG has diversified across multiple managers and the live split is undisclosed). BUIDL is also reported as a reserve component of Frax's frxUSD and Sky's USDS.

For the paper, BUIDL is one of the clearest live demonstrations that a tokenized fund can itself become the reserve asset behind other tokens — exactly the structure the proposal's later-stage design contemplates, where an MDB's tokenized claim is held as the reserve behind a domestic payment instrument. Its reserve is US federal Treasury paper (sovereign-government, not multilateral), and it is a wholesale institutional product rather than a local-currency disbursement token, but the fund-token-as-reserve pattern is the directly transferable lesson.

The most commonly cited AUM range is about \$2.4–2.5 billion, drawn from secondary aggregators; no primary issuer disclosure or on-chain figure was retrieved, so the size and the mid-2026 ranking (secondary data place it second, behind Circle's USYC at about \$3.0 billion) are reported rather than confirmed. The downstream reserve mixes are point-in-time and partly undisclosed; beyond asset concentration, the structure carries single-custodian risk at BNY Mellon and single-transfer-agent risk at Securitize, and no deposit-insurance scheme covers the reserve assets. A USDC redemption path exists via the Circle smart contract; its share of redemptions and the associated Circle fees rest on a single secondary article and could not be verified.

## TIMELINE

- March 2024 — BUIDL launched on Ethereum; initial assets undisclosed.
- April 2024 — Circle smart contract for 24/7 BUIDL-to-USDC redemption goes live.
- 2024 — Expansion to Aptos, Arbitrum, Avalanche, Optimism and Polygon.
- December 2024 — Ethena's USDtb launches with BUIDL as about 90% of reserves.
- 2025 — Solana and BNB Chain added; BUIDL becomes the dominant reserve for OUSG; the BUIDL-to-RLUSD swap goes live.
- October 2025 — USDtb's reserve mix reported partially shifted to fiat to speed redemptions.
- May 2026 — Ondo, with JPMorgan Kinexys, Mastercard and Ripple, completes a first near-real-time cross-border redemption of OUSG (which holds BUIDL) on the XRP Ledger.

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## KEY IDENTIFIERS

Token price fixed at \$1.00; transfer agent and broker-dealer Securitize; custodian and administrator BNY Mellon. No public contract addresses retrieved in this session.

## B12. Franklin Templeton BENJI — Onchain Government Money Fund

### AT A GLANCE

CASE	The on-chain share token of a US-registered 1940 Act government money-market fund (FOBXX) — the earliest large-scale tokenized mutual fund accessible to US retail
PRIMARY ENTITIES / ISSUER	Franklin Templeton (fund manager and transfer agent)
DATES AND STATUS	Launched April 2021 on Stellar; nine chains by mid-2026. Live at scale
JURISDICTION / REGULATORY POSITION	US; SEC-registered 1940 Act Rule 2a-7 government money-market fund; Franklin Templeton acts as its own transfer agent, with the public blockchain as the official register
LAYER IN PAYOUT STACK	Tokenized fund / reserve asset
CLAIM OR MONEY FORM	An on-chain fund share (BENJI) — each token equals one FOBXX share, with the blockchain as the official ownership record
BACKING OR RESERVE	US government securities, repos collateralized by government securities, and cash — at least 99.5% under Rule 2a-7; held directly, with no token-backing-token layer
HOLDER / TIER / REACH	Institutional and US retail (via the Benji app, \$1 minimum) — genuine retail reach, but holders are yield-earning depositors, not disbursement recipients
CHAIN OR LEDGER	Stellar (2021); Polygon (2023); then Arbitrum, Aptos, Avalanche, Base, Solana, Ethereum, BNB (nine chains); also on Canton
SETTLEMENT OR USE	Institutional treasury reserve and retail yield-bearing cash equivalent; 24/7 USDC-redeemable via a Zero Hash integration; a named liquidity source in Ondo Nexus
PROGRAMMABILITY / CONTROLS	Peer-to-peer transfers (retail since May 2025; institutional ongoing); USDC conversion enabled; transfer permissions
SIZE OR ACTIVITY	FOBXX AUM about \$828 million (Q1 2026, secondary); a separate "BENJI suite" figure of about \$1.98 billion may aggregate related products and should not be blended; third-largest tokenized money-market fund by assets in early 2026
RELEVANCE TO THE PAPER	One of the strongest precedents for a broadly accessible, regulated, government-securities-backed on-chain instrument — a 1940 Act fund with genuine retail reach using a public blockchain as its system of record; unlike BUIDL, its units are not used as the reserve behind another token
EVIDENCE LIMITS	The FOBXX AUM figure is secondary; the "BENJI suite" figure is a different, possibly aggregated quantity; no confirmed third-party settlement volumes were retrieved

BENJI is the on-chain share token for the Franklin OnChain U.S. Government Money Fund (FOBXX), a US-registered 1940 Act mutual fund. Each token equals one fund share, and the blockchain serves as the official record of share ownership, with Franklin Templeton acting as transfer agent through its blockchain-integrated system. The fund invests at least 99.5% of assets in US government securities, repos collateralized by government securities, and cash, under Rule 2a-7. FOBXX was the first US-registered mutual fund to use a public blockchain as its system of record, on Stellar since April 2021.

Yield accrues daily and is distributed as newly minted tokens, so it passes through as token quantity rather than price appreciation. Standard redemption runs through the Benji platform at T+0 or T+1; a Zero Hash integration (live June 2024) provides 24/7 USDC funding rails for institutional purchases and redemptions, and BENJI is a named liquidity source in Ondo Nexus.

It is a tokenized fund / reserve asset that does not disburse to end recipients. As of mid-2026 it operates across nine chains with separate access tiers: US retail investors use the Benji app on Stellar and Solana at a \$1 minimum, while institutions access all chains through Franklin Templeton's digital-assets platform. The fund holds US government paper directly, with no token-backing-token dependency.

For the paper, BENJI is one of the strongest precedents in the tokenized-fund space for a broadly accessible, regulated, government-securities-backed on-chain instrument — a 1940 Act fund with genuine retail accessibility using a public blockchain as its system of record. It shows that a regulated, government-paper-backed tokenized claim can reach beyond institutions; unlike BUIDL, its units are not used as the reserve behind another token.

The roughly \$828 million AUM figure for FOBXX is from secondary sources, and the broader "BENJI suite" figure of about \$1.98 billion is a different and possibly aggregated quantity that should not be treated as FOBXX's assets; no confirmed third-party settlement volumes were retrieved. Its concentration is US government credit and the operational risk of Franklin Templeton as sole manager and transfer agent.

## TIMELINE

- April 2021 — FOBXX launched on Stellar, the first US-registered mutual fund on a public blockchain.
- October 2023 — Expanded to Polygon.
- May 2024 — Listed as a third-party liquidity source in Ondo Nexus.
- June 2024 — Zero Hash USDC 24/7 funding-rails integration announced and live.
- May 2025 — Retail peer-to-peer transfers enabled.
- September 2025 — Expanded to BNB Smart Chain.
- April 2026 — Five years of BENJI marked (FOBXX launched April 2021); individual BENJI holdings above \$650 million; the broader BENJI suite about \$1.98 billion (29 April 2026).

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## KEY IDENTIFIERS

Ticker FOBXX; one BENJI token equals one fund share; transfer agent Franklin Templeton.

## B13. Ondo Finance — Tokenized Treasury Products

### AT A GLANCE

CASE	A tokenized-fund issuer running two products — OUSG, a tokenized short-duration Treasury fund, and USDY, a yield-bearing US-dollar token — plus Ondo Nexus, a redemption-liquidity aggregator
PRIMARY ENTITIES / ISSUER	Ondo Finance (a private tokenized-fund issuer and real-world-asset protocol)
DATES AND STATUS	OUSG launched February 2023; USDY launched August 2023; Ondo Nexus Feb 2025. Live at scale
JURISDICTION / REGULATORY POSITION	OUSG a US private placement for qualified purchasers (not a 1940 Act fund); USDY restricted to non-US persons, issued by Ondo USDY LLC, with no specific licence named in sources retrieved
LAYER IN PAYOUT STACK	Tokenized fund / reserve asset
CLAIM OR MONEY FORM	OUSG, a tokenized fund share; USDY, a yield-bearing US-dollar token
BACKING OR RESERVE	OUSG backed substantially by BlackRock's BUIDL (its largest single holding, portfolio diversified across Fidelity, Franklin Templeton, WisdomTree, Wellington; live split undisclosed) plus USYC and Superstate USTB as liquidity buffers — i.e. backed in significant part by another token; USDY backed by US Treasuries and bank deposits held directly
HOLDER / TIER / REACH	OUSG institutional-only (qualified purchasers, \$100,000 minimum); USDY broader (non-US individuals and entities, no minimum, freely transferable within whitelisted jurisdictions); neither disburses to an end recipient
CHAIN OR LEDGER	OUSG on Ethereum, Polygon, Solana and XRP Ledger; USDY on Ethereum, Solana, Mantle, Sui, Aptos and others; an Ondo Chain (L1) referenced as planned, no confirmed launch
SETTLEMENT OR USE	Institutional and DeFi treasury reserve (OUSG); a yield-bearing stablecoin alternative for non-US users (USDY); DeFi collateral; OUSG 24/7 instant mint and redeem against USDC; the liquidity source behind Ondo Nexus
PROGRAMMABILITY / CONTROLS	24/7 instant mint and redeem (OUSG↔USDC); Ondo Nexus aggregates third-party fund liquidity; USDY freely transferable to whitelisted wallets
SIZE OR ACTIVITY	OUSG AUM about \$625 million (Q1 2026); USDY circulating supply about \$740 million (Apr 2026); combined Ondo total value locked above \$2.75 billion (includes both products plus protocol-level collateral, not either fund's assets) — figures from secondary sources
RELEVANCE TO THE PAPER	The clearest at-scale instance of a fund's units serving as the reserve behind another token (the OUSG→BUIDL chain, with OUSG itself sitting behind USDtb), which bears directly on the systemic-risk side of the proposal's reserve-backed design; the reserve is US Treasury paper (directly or via BUIDL), not multilateral
EVIDENCE LIMITS	The live OUSG portfolio split is undisclosed (the earlier ~85% BUIDL figure now appears overstated given diversification); figures are secondary; the cross-border XRPL redemption milestone is trade-press, without independent settlement confirmation; combined TVL must not be read as either fund's assets

Ondo Finance runs two distinct tokenized-yield instruments. OUSG, the Ondo Short-Term US Government Bond Fund, is a tokenized private fund for US qualified purchasers with a \$100,000 minimum; it migrated in 2024 to a portfolio composed primarily of BUIDL, with USYC and Superstate USTB as liquidity buffers, and offers 24/7 instant mint and redeem against USDC. USDY, the US Dollar Yield Token, is a yield-bearing dollar token for non-US individuals and entities, backed by US Treasuries and bank deposits held directly, freely transferable within whitelisted jurisdictions and with no minimum.

Neither product disburses to an end recipient — both are yield instruments (institutional for OUSG; non-US retail and institutional for USDY). USDY's reach is broader, since any non-US person with a whitelisted wallet can hold it, but this is investment access rather than payment, with yield paid through token appreciation.

OUSG is the clearest live example in this group of a token-backing-token structure at scale: the dependency chain runs from US Treasury bills, through BUIDL, to OUSG, and OUSG can itself sit behind USDtb (which holds about 90% BUIDL), so several products share BUIDL as a common backing layer with correlated redemption risk. A third component, Ondo Nexus (February 2025), is an on-chain liquidity aggregator letting investors in third-party tokenized Treasury funds — among them Franklin Templeton's BENJI, WisdomTree's WTGXX and Wellington and FundBridge vehicles — redeem into stablecoins using Ondo's own 24/7 OUSG mint-and-redeem capacity as the liquidity source.

For the paper, Ondo's OUSG-to-BUIDL chain is the clearest at-scale instance of a fund's units serving as the reserve behind another token — the mechanism the proposal's reserve-backed design relies on, and the place its systemic risks would concentrate. The reserve is US Treasury paper (indirectly for OUSG, directly for USDY), not multilateral; USDY also shows a directly-backed yield token reaching non-US holders without a token-backing-token dependency.

Ondo does not disclose OUSG's live portfolio split; the earlier ~85% BUIDL figure now appears overstated given diversification across multiple managers. The combined Ondo total value locked above \$2.75 billion includes both products and DeFi-locked collateral and is distinct from the roughly \$625 million OUSG and roughly \$740 million USDY figures. The May-2026 first near-real-time cross-border OUSG redemption on the XRP Ledger (with JPMorgan Kinexys, Mastercard and Ripple) is from trade press, without independent settlement confirmation.

## TIMELINE

- February 2023 — OUSG launched on Ethereum, initially backed by a short-duration Treasury ETF.
- August 2023 — USDY launched.
- 2024 — OUSG portfolio migrated to BUIDL as its primary holding; USDY expanded across multiple chains.
- February 2025 — Ondo Nexus launched, aggregating third-party tokenized-Treasury-fund liquidity.
- 2025 — OUSG 24/7 instant mint-and-redeem path against USDC confirmed live.
- First quarter 2026 — OUSG assets about \$625 million; USDY supply about \$740 million.
- May 2026 — First cross-border OUSG redemption on the XRP Ledger, with JPMorgan Kinexys, Mastercard and Ripple.

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## KEY IDENTIFIERS

OUSG (qualified-purchaser fund, \$100,000 minimum); USDY (issued by Ondo USDY LLC, non-US persons only).

## B14. Spiko — Euro Treasury-Bill Tokens

### AT A GLANCE

CASE	French, EU-regulated tokenized money-market funds investing exclusively in government Treasury bills — the most explicitly sovereign-paper-backed tokenized fund in the survey, and the only EU-framework entry
PRIMARY ENTITIES / ISSUER	Spiko SAS (a French fintech, ACPR-regulated investment firm); funds managed by Twenty First Capital; depositary and custodian CACEIS (Crédit Agricole)
DATES AND STATUS	EUTBL launched 15 May 2024; USTBL later 2024; combined assets crossed \$1 billion Feb 2026. Live
JURISDICTION / REGULATORY POSITION	France/EU — EUTBL and USTBL are AMF-approved short-term money-market funds under the UCITS Directive and the EU Money Market Fund Regulation, sub-funds of the Spiko SICAV; Spiko SAS ACPR-licensed; French law recognizes the DLT ledger as the official securities register, so an on-chain transfer is a legally binding transfer of ownership
LAYER IN PAYOUT STACK	Tokenized fund / reserve asset
CLAIM OR MONEY FORM	A tokenized money-market-fund share (EUTBL in euro, USTBL in dollar; a sterling UKTBL also exists), with the on-chain register as the official ownership record
BACKING OR RESERVE	EUTBL 100% in investment-grade Eurozone member-state Treasury bills (France, Germany and others), repos and cash; USTBL 100% in sub-six-month US Treasury bills, repos and cash — direct sovereign-paper backing, no token-backing-token layer
HOLDER / TIER / REACH	Individuals and companies at a low minimum (~€1 EUTBL, \$1 USTBL) — broader than the typical US institutional-only fund — but reach means access to a yield-bearing savings instrument, not disbursement
CHAIN OR LEDGER	Stellar (about 51% of EUTBL supply), Ethereum, Base, Polygon, Arbitrum, Starknet and Etherlink (a Tezos L2), with Chainlink CCIP cross-chain interoperability
SETTLEMENT OR USE	Cash management and yield for individuals, companies and DeFi protocols; usable as Morpho collateral to borrow MiCA-regulated stablecoins (SG Forge's EURCV and USDCV)
PROGRAMMABILITY / CONTROLS	DeFi collateral on Morpho; cross-chain transfers via Chainlink CCIP
SIZE OR ACTIVITY	Combined Spiko-fund assets crossed \$1 billion Feb 2026 (~18 months after launch; ~3,300 active clients, company figure); EUTBL market cap about \$971 million (14 Jun 2026) and USTBL about \$198 million (Mar 2026), from aggregators (market cap tracks AUM since the tokens are fund shares at NAV — the EUTBL token rises above \$1.00 as yield accrues; the EUTBL figure may include all token classes)
RELEVANCE TO THE PAPER	The closest tokenized fund in the survey to the proposal's reserve-asset idea on the currency side — a regulated, sovereign-paper-backed fund share in euro, with a path from a regulated fund share to a MiCA-regulated stablecoin via Morpho; but it holds national (member-state) sovereign paper, not supranational / EU-institution paper, the distinction the proposal turns on
EVIDENCE LIMITS	Reported figures are largely company-provided or aggregator-sourced; the exact EUTBL country composition was not retrieved; the EUTBL market-cap figure may include all token classes

Spiko is a French fintech (founded 2023 by former French Treasury officials and Palantir alumni) operating AMF-regulated, UCITS-compliant tokenized money-market funds that invest exclusively in government Treasury bills — the most explicitly sovereign-paper-backed tokenized fund in this survey and the only EU-framework entry. EUTBL invests 100% in short-term bills from investment-grade Eurozone member states plus repos and cash (the largest euro-denominated tokenized cash equivalent by assets); USTBL applies the same structure to US Treasury bills.

The funds are sub-funds of the Spiko SICAV, with Twenty First Capital as asset manager and CACEIS as depositary and custodian. Under French law the on-chain register is the official ownership record rather than a mirror, so DLT transactions carry legal transfer-of-ownership status. The management fee is 0.25% a year, yield accumulates into net asset value, and redemption follows standard daily money-market-fund liquidity at NAV on any business day.

It is a tokenized fund / reserve asset serving individuals and companies at a €1 minimum — broader reach than most US tokenized funds, but reach here means access to a yield-bearing savings instrument, not disbursement. The funds hold government paper directly, with no token-backing-token dependency, and the Morpho integration creates a path from a regulated fund share to a MiCA-regulated stablecoin.

For the paper, Spiko is the closest tokenized fund in the survey to the proposal's reserve-asset idea on the currency side — a regulated, sovereign-paper-backed fund share, with EUTBL the clearest euro-sovereign-backed entry. The relevant precision is that EUTBL holds EU member-state sovereign bills (French, German and others), which is national rather than supranational or EU-institution paper such as EIB or ESM bonds — precisely the supranational-paper distinction the proposal turns on. Its units are not used as the reserve behind another token.

The reported figures are largely company-provided or from aggregators; the exact country composition of EUTBL was not retrieved; combined assets crossed \$1 billion in February 2026 on a company-provided figure, and the EUTBL market-cap figure (about \$971 million) may include all token classes.

## TIMELINE

- 2023 — Spiko SAS founded by former French Treasury officials and Palantir alumni.
- May 2024 — EUTBL launched.
- Late 2024 — USTBL launched.
- 2025 — Morpho integration (EUTBL and USTBL as collateral for MiCA stablecoins); Chainlink CCIP integration; UKTBL launched.
- February 2026 — Combined assets cross \$1 billion; €18.5 million Series A; about 3,300 active clients.
- June 2026 — EUTBL market capitalization about \$971 million; USTBL about \$198 million.

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## KEY IDENTIFIERS

EUTBL ISIN FR001400ODL1; depositary CACEIS; asset manager Twenty First Capital; USTBL token live on Arbitrum One.

## B15. Tokenized Treasury Fund Reference Cases — Superstate, VanEck and WisdomTree

### AT A GLANCE

CASE	Three further tokenized Treasury funds holding US government paper directly — Superstate USTB, VanEck VBILL and WisdomTree WTGXX
PRIMARY ENTITIES / ISSUER	Superstate Inc. (USTB; investment management transitioning to Invesco Advisers); VanEck (VBILL, via VanEck Treasury Fund, Ltd., BVI-domiciled); WisdomTree Investments (WTGXX, a 1940 Act government money-market fund)
DATES AND STATUS	USTB live at scale; VBILL live since May 2025 (small); WTGXX live, with 24/7 trading since Feb 2026. Live
JURISDICTION / REGULATORY POSITION	USTB a 3(c)(7) qualified-purchaser fund (not 1940 Act); VBILL a BVI-domiciled private placement (not 1940 Act); WTGXX a 1940 Act-registered mutual fund granted SEC exemptive relief for 24/7 trading (Feb 2026, the first US registered tokenized mutual fund to receive it), settled through a FINRA-approved affiliated broker-dealer acting as principal
LAYER IN PAYOUT STACK	Tokenized fund / reserve asset
CLAIM OR MONEY FORM	Tokenized fund shares (USTB, VBILL, WTGXX)
BACKING OR RESERVE	All three hold US sovereign paper directly, no token-backing-token layer — USTB short-dated Treasury bills; VBILL US Treasury obligations and Treasury-collateralized repos ( $\leq 397$ days); WTGXX short-term US Treasuries and government securities under Rule 2a-7
HOLDER / TIER / REACH	USTB and VBILL institutional / qualified-purchaser only; WTGXX accessible to US retail (\$1 minimum via WisdomTree Prime) and to institutions (WisdomTree Connect); none disburses to an end recipient
CHAIN OR LEDGER	USTB primarily Ethereum; VBILL on Avalanche, BNB, Ethereum, Solana (cross-chain via Wormhole); WTGXX on Stellar and Ethereum (a "nine networks" figure cited for the 24/7 product is not independently confirmed)
SETTLEMENT OR USE	Institutional DeFi collateral and corporate treasury reserve; USTB and WTGXX redeemable into USDC same-day; VBILL DeFi collateral on Euler and swappable into RLUSD via a Securitize/Ripple contract
PROGRAMMABILITY / CONTROLS	USTB single-transaction USDC redemption; VBILL smart-contract swap to RLUSD and Euler collateral; WTGXX 24/7 USDC instant settlement through the affiliated broker-dealer
SIZE OR ACTIVITY	USTB about \$967 million (Mar 2026, at the Invesco announcement); VBILL about \$61 million (late May 2026, smallest); WTGXX about \$730 million (Feb 2026), with about \$770 million of digital-asset assets cited at end-2025 — all secondary sources
RELEVANCE TO THE PAPER	Reinforce that regulated, government-paper-backed tokenized funds are now multiple and increasingly mainstream; the WTGXX 24/7 exemptive relief is a regulatory precedent that a mainstream US regime can accommodate tokenized fund infrastructure; USTB also shows a fund used as a buffer inside another (OUSG). None is multilateral or supranational-paper-backed
EVIDENCE LIMITS	Assets figures are secondary; whether the Invesco-Superstate transition had closed by mid-2026 was not confirmed

This entry covers three further tokenized Treasury funds that hold US government paper directly. Superstate USTB is a 3(c)(7) private fund for US qualified purchasers holding short-dated Treasury bills; it reached about \$967 million of assets by March 2026, when Invesco Advisers was announced as taking over investment management (Superstate retains the blockchain infrastructure, token issuance and settlement, and the fund keeps the USTB ticker). VanEck VBILL is VanEck's first tokenized fund, launched May 2025 through Securitize as a BVI-domiciled private placement holding Treasury bills and repos directly (State Street custodian) — the smallest of the three at about \$61 million. WisdomTree WTGXX is a 1940 Act-registered government money-market fund, the most conventional structure of the three, accessible to US retail at a \$1 minimum.

USTB offers same-day subscription and redemption in dollars or USDC and is used as a liquidity buffer inside Ondo's OUSG (and via Ondo Nexus). VBILL carries minimums of \$100,000 (Avalanche, BNB, Solana) and \$1 million (Ethereum), moves cross-chain through Wormhole, swaps into RLUSD through the same Securitize/Ripple contract used by BUIDL, and has been usable as collateral on Euler since May 2026. On 24 February 2026 the SEC granted WisdomTree exemptive relief to trade WTGXX 24/7 with instant settlement — the first registered tokenized mutual fund in the US to receive it — settled through WisdomTree's FINRA-approved affiliated broker-dealer acting as principal for the USDC trades.

All three are tokenized funds / reserve assets, and none disburses to an end recipient. WTGXX's retail accessibility is notable for a registered 1940 Act fund, but it is investment access rather than payment. All hold US sovereign paper directly, with no token-backing-token dependency; the only cross-product link is that USTB serves as a liquidity buffer within OUSG.

For the paper, the three together show that regulated, government-paper-backed tokenized funds are now multiple and increasingly mainstream. The WTGXX exemptive relief for 24/7 trading of a registered mutual fund is a concrete regulatory precedent that a mainstream US regime can accommodate tokenized fund infrastructure — relevant to whether a tokenized reserve instrument could sit under a regulated payout design. None is multilateral or supranational-paper-backed; each holds US federal Treasury bills.

All assets figures are from secondary sources, and whether the Invesco transition had closed by mid-2026 was not confirmed.

## TIMELINE

- Early 2024 — USTB launched by Superstate Inc. (inception 3 January 2024; public debut February 2024).
- May 2025 — VBILL launched on Securitize across Avalanche, BNB Chain, Ethereum and Solana.
- December 2025 — WisdomTree reports about \$770 million of digital-asset assets, driven by WTGXX.
- February 2026 — SEC grants WTGXX exemptive relief for 24/7 trading; instant USDC settlement launched.
- March 2026 — Invesco announced as manager of USTB; assets about \$967 million.
- May 2026 — VBILL integrated as collateral on Euler.

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## KEY IDENTIFIERS

USTB an ERC-20 with allowlisted transfers; VBILL custodian State Street Bank and Trust, minimums \$100,000 (Avalanche, BNB, Solana) and \$1 million (Ethereum); WTGXX a 1940 Act fund accessed via WisdomTree Prime and WisdomTree Connect.

## B16. World Bank Digital Bonds — bond-i and IBRD Digitally Native Bonds

### AT A GLANCE

CASE	The World Bank's digital-bond record — the first blockchain bond (bond-i, 2018–2019) and, since 2023, digitally native bonds on regulated DLT market infrastructures, including the strongest live precedent for settlement in central-bank digital money
PRIMARY ENTITIES / ISSUER	International Bank for Reconstruction and Development (IBRD / World Bank), Aaa/AAA; Commonwealth Bank of Australia arranged bond-i, Commerzbank led the CHF bond
DATES AND STATUS	bond-i AUD 110m (Aug 2018) + AUD 50m tap (Aug 2019), matured Aug 2020; EUR 100m note on Euroclear D-FMI (Oct 2023); CHF 200m seven-year settled in SNB wholesale CBDC on SDX (Jun 2024, matures 2031). bond-i completed; the IBRD digital bonds live
JURISDICTION / REGULATORY POSITION	bond-i an Australian-law Kangaroo bond; CHF bond Swiss law, listed on SDX and SIX Swiss Exchange; EUR bond via Euroclear D-FMI; the World Bank an exempt supranational issuer
LAYER IN PAYOUT STACK	Multilateral / public-sector digital bond
CLAIM OR MONEY FORM	Senior unsecured World Bank debt — a tokenized claim on the issuer (supranational paper); investor-facing debt, not a payout-facing claim
BACKING OR RESERVE	A claim on IBRD, backed by the Bank's callable capital and balance sheet; not reserve-backed, and not used to back any token
HOLDER / TIER / REACH	Capital-markets / institutional bond investors; not a payout to a sovereign
CHAIN OR LEDGER	bond-i on a private/permissioned Ethereum (CBA); the CHF bond on SDX (a FINMA-licensed DLT market infrastructure); the EUR bond on Euroclear D-FMI
SETTLEMENT OR USE	Primary issuance (and, for bond-i, blockchain-recorded secondary trading); the CHF bond's initial settlement, coupon and redemption ran in Swiss-franc wholesale CBDC (SNB, Project Helvetia III) — the standout feature
PROGRAMMABILITY / CONTROLS	Not applicable — fixed-coupon bonds; the ledger carried lifecycle and registry functions
SIZE OR ACTIVITY	bond-i roughly AUD 160 million cumulative (matured 2020); CHF 200 million (2024) and EUR 100 million (2023) digitally native bonds — bond face amounts, not a token supply
RELEVANCE TO THE PAPER	The benchmark for two of the proposal's building blocks — a multilateral tokenizing a claim on itself, and (the CHF bond) settling that claim in central-bank money — the strongest live precedent in the survey; the remaining gap is direction: all of it is investor-facing borrowing, not a payout to a sovereign
EVIDENCE LIMITS	bond-i ran on a private ledger (no public contract data; holders not enumerable); the CHF cash leg depends on the SNB's experimental wholesale CBDC on SDX (a pilot extended first to at least mid-2026 (June 2024) and then to at least mid-2027 (SNB, 30 June 2025), not a permanent commitment); the full CHF investor roster was not disclosed; whether bond-i tooling fed the later bonds is not evidenced

The World Bank has the deepest digital-bond record of any multilateral, in two distinct phases. bond-i (2018–2019) was the world's first bond created, allocated, transferred and managed through its life cycle on a distributed ledger: CBA arranged a AUD 110 million two-year bond (2.20% coupon) on a private, permissioned Ethereum network in August 2018, added blockchain-recorded secondary trading in May 2019, and tapped a further AUD 50 million in August 2019; it matured in August 2020. Since 2023 the Bank has issued digitally native bonds on regulated DLT market infrastructures — a EUR 100 million note on Euroclear's D-FMI (October 2023) and, the flagship, a CHF 200 million seven-year Sustainable Development Bond priced May 2024 and settled June 2024 on SIX Digital Exchange.

Each is senior unsecured World Bank debt — a tokenized claim on the issuer, backed by the Bank's capital. For bond-i the ledger replaced the registrar and settlement-reconciliation layer, not the cash leg. For the CHF bond, IBRD was issuer and Commerzbank sole lead manager; the security was issued natively on SDX, and the cash leg settled in tokenized SNB central-bank money on a delivery-versus-payment basis — the first time a supranational settled in a wholesale CBDC — with investors able to hold on SDX or, through SDX's links, via conventional custodians. The EUR bond settled through Euroclear's D-FMI with conventional cash.

In the payout stack it is a multilateral digital bond — investor-facing debt. Value flows from investors to the World Bank (the Bank borrowing), the opposite direction to a multilateral paying a sovereign.

For the paper, this is the benchmark for two of the proposal's building blocks: a multilateral tokenizing a claim on itself, and — uniquely, in the CHF bond — settling that claim in central-bank digital money. The CHF bond is the single strongest live, production precedent in the survey for both. The directional gap is the whole point: every instance is investor-facing borrowing, not a payout disbursed to a sovereign, which is the rail the proposal would have to build.

bond-i ran on a private, permissioned ledger, so no contract address or public on-chain data was published and holders are not externally enumerable; whether any of its 2018–2019 tooling fed the later bonds is not evidenced and appears to be a separate lineage. For the CHF bond, the cash leg depends on the SNB's experimental wholesale CBDC existing on SDX — a pilot extended first to at least mid-2026 (June 2024) and then to at least mid-2027 (SNB, 30 June 2025) rather than a permanent commitment — and the full investor roster was not disclosed. (Some trade press conflated the CHF bond's settlement with Euroclear; the primary World Bank and SDX sources are unambiguous that the CHF bond settled in SNB wholesale CBDC on SDX, while the EUR bond is the Euroclear one.)

## TIMELINE

- 23 August 2018 — bond-i prices AUD 110 million, 2.20%, two-year, on a private Ethereum (CBA arranger).
- 15 May 2019 — Blockchain-recorded secondary trading enabled (TD Securities market maker).
- 16 August 2019 — AUD 50 million tap; August 2020 — bond-i matures and is redeemed.
- October 2023 — IBRD EUR 100 million digitally native note on Euroclear D-FMI.
- 11 June 2024 — CHF 200 million digital bond settles in SNB Swiss-franc wholesale CBDC on SDX; matures 11 June 2031.

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## KEY IDENTIFIERS

CHF bond ISIN CH1353258168; EUR note on Euroclear D-FMI; bond-i on a private CBA Ethereum (no public address).

## B17. European Investment Bank — Digital Bond Programme

### AT A GLANCE

CASE	THE DEEPEST SUPRANATIONAL DIGITAL-BOND PROGRAMME – SIX BONDS (2021–2024) ACROSS MULTIPLE DLT PLATFORMS AND CURRENCIES, SEVERAL SETTLED IN CENTRAL-BANK MONEY	
Primary entities / issuer	European Investment Bank – an EU multilateral / supranational (Aaa/AAA)	
Dates and status	Six bonds 2021–2024; the earlier bonds matured or maturing, the Nov-2024 pair outstanding; no 2025 or 2026 issuance found	
Jurisdiction / regulatory position	Mostly Luxembourg law, listed on the Luxembourg Stock Exchange; the first bond (2021) was under French law	
Layer in payout stack	Multilateral / public-sector digital bond	
Claim or money form	Senior unsecured EIB debt – a tokenized claim on the issuer (supranational paper); investor-facing	
Backing or reserve	A claim on the EIB; not reserve-backed, and backs no token	
Holder / tier / reach	Capital-markets / institutional investors; not a payout to a sovereign	
Chain or ledger	Public Ethereum (2021 only); thereafter private/permissioned – GS DAP (Goldman, Canton/Daml), HSBC Orion, and so\	bond
Settlement or use	Primary issuance across platforms and currencies; the central-bank-money deals settled in euro wholesale CBDC (Banque de France, with Banque centrale du Luxembourg on one)	
Programmability / controls	Not applicable – fixed/floating-coupon bonds	
Size or activity	Six bonds – EUR 100m (2021); EUR 100m "Venus" (2022); GBP 50m (2023); SEK 1bn (2023); two EUR 100m (Nov 2024) – bond face amounts	
Relevance to the paper	With the World Bank, the benchmark for a supranational tokenizing claims on itself, and one of the strongest bodies of evidence that central-bank-money settlement of such a claim works in practice; the same directional gap – investor-facing borrowing, never a payout to a sovereign	
Evidence limits	Only the 2021 bond used a public chain; the central-bank money on the Nov-2024 deals was intraday "Exploratory Cash Tokens" (pre-funded, burned same-day, no legal-tender status), classed by the ECB as trials; some ISINs and one coupon were not fully published	

The EIB has issued six digital bonds between 2021 and 2024, the deepest supranational programme. The first (April 2021) was a EUR 100 million zero-coupon bond – the first digital bond on a public blockchain (Ethereum), on SG-FORGE under French law, with an experimental Banque de France central-bank-money representation. "Project Venus" (November 2022) was a EUR 100 million bond, the first euro digital bond on a private chain (Goldman's GS DAP), settled T+0 atomic delivery-versus-payment in tokenized euro central-bank money (Banque de France and the Banque centrale du Luxembourg). A GBP 50 million bond (early 2023) was the first sterling digital bond, on HSBC Orion; a SEK 1 billion green bond (mid-2023) used the so\|bond platform. In November 2024 the EIB issued two EUR 100 million bonds – a 3-year on HSBC Orion and a 5-year on GS DAP – both settled in euro wholesale CBDC via the Banque de France's DL3S platform under the Eurosystem exploratory work.

Each bond is EIB senior debt issued natively on a DLT platform with joint lead managers; cash settlement varied by deal – experimental or wholesale central-bank money on the central-bank-money deals, tokenized commercial-bank money or conventional cash on the others. All six are real issuances raising real money, not settlement-only proofs-of-concept; the experimental element on four of them was the central-bank-money leg, not the bond.

These are multilateral digital bonds – investor-facing borrowing. Beyond the six bonds, the ECB's per-use-case record places two further EIB activities in the same exploratory work: a mock digital-security experiment via the Deutsche Bundesbank Trigger Solution on Deutsche Börse's D7 test environment (no real money), and the EIB acting as an investor in the Republic of Slovenia's tokenized bond.

For the paper, the EIB is, with the World Bank, the benchmark for a supranational issuing tokenized claims on itself, and one of the strongest bodies of evidence that central-bank-money settlement of such a claim works in practice. The same directional gap applies: it is investor-facing borrowing, not a payout to a sovereign.

The ECB classified the two November-2024 settlements as trials – real central-bank money, as "Exploratory Cash Tokens" escrowed in TARGET Services for atomic delivery-versus-payment – whereas the Bundesbank/D7 digital-security issuance was an experiment using mock settlement in a test environment. That central-bank money was intraday, pre-funded and burned same-day with no legal-tender status, so it was real central-bank money for settlement rather than a standing CBDC. Only the 2021 bond used a public chain; some ISINs and one coupon were not fully published in the primary releases (corroborated through the EIB's counsel and its March-2026 presentation to an ECB market group).

## TIMELINE

- 28 April 2021 – EUR 100 million, public Ethereum (SG-FORGE), Banque de France experimental CBDC.
- 29 November 2022 – "Venus" EUR 100 million, GS DAP, T+0, Banque de France and BCL CBDC.
- 31 January 2023 (priced) / 2 February 2023 (settled) – GBP 50 million floating-rate note (SONIA+12bp), HSBC Orion, commercial-bank money.
- 19 June 2023 – SEK 1 billion green bond, so\bond.
- 19 November 2024 – EUR 100 million 3-year (2.360%), HSBC Orion, Banque de France DL3S wholesale CBDC.
- Priced 22 November 2024, settled 27 November 2024 – EUR 100 million 5-year (2.545%), GS DAP, Banque de France DL3S wholesale CBDC; matures 22 November 2029.

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## KEY IDENTIFIERS

Platforms: SG-FORGE (2021), GS DAP, HSBC Orion, so\|bond; central-bank-money legs via Banque de France (DL3S) and BCL. ISINs not fully published in primary releases.

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## B18. Asian Infrastructure Investment Bank – Digitally Native Note

### AT A GLANCE

CASE	AIIB's first Digitally Native Note – the largest digital bond by a multilateral, issued and settled natively on Euroclear's platform
PRIMARY ENTITIES / ISSUER	AIIB – a multilateral development bank (Aaa/AAA); Citi as dealer and issuing/paying agent, BMO Capital Markets as dealer
DATES AND STATUS	USD 300m priced 20 Aug 2024, tapped by USD 200m to USD 500m; 4.0% coupon, matures 15 Jan 2027. Live and completed
JURISDICTION / REGULATORY POSITION	Listed on the Luxembourg Stock Exchange; Euroclear Bank as issuer CSD; CSDR-aligned
LAYER IN PAYOUT STACK	Multilateral / public-sector digital bond
CLAIM OR MONEY FORM	Senior unsecured AIIB debt – a tokenized claim on the issuer (supranational paper); investor-facing
BACKING OR RESERVE	A claim on AIIB; backs no token
HOLDER / TIER / REACH	Capital-markets / institutional investors; not a payout to a sovereign
CHAIN OR LEDGER	Euroclear D-FMI (Digital Securities Issuance)
SETTLEMENT OR USE	Primary issuance, digitally native, with a conventional cash leg – not central-bank money on-chain, which distinguishes it from the Eurosystem and SDX deals
PROGRAMMABILITY / CONTROLS	Not applicable
SIZE OR ACTIVITY	USD 300 million base, tapped by USD 200 million to USD 500 million total – among the largest digital bonds globally; bond face amount
RELEVANCE TO THE PAPER	Another multilateral tokenizing its own debt – the largest by size – proving half-a-billion-dollar scale is feasible; the same investor-facing direction, and (unlike the CHF/EIB deals) a conventional cash leg
EVIDENCE LIMITS	The USD 300m base is primary-confirmed; the USD 200m tap and its date are trade-press; the investor roster was not disclosed

AIIB issued its first Digitally Native Note – a bond issued and settled natively on a ledger rather than a tokenized mirror of a conventional bond – at USD 300 million, priced 20 August and settled 22 August 2024, with a 4.0% coupon maturing 15 January 2027, on Euroclear's D-FMI via the Digital Securities Issuance service with Euroclear Bank as issuer CSD. It was the first US-dollar digital bond on Euroclear's platform and the first by an Asia-based issuer. A subsequent tap of USD 200 million brought the total to USD 500 million, among the largest digital bonds globally.

It is senior unsecured AIIB debt – a tokenized claim on the issuer. Cash settlement was conventional, not central-bank money on-chain, which sets it apart from the World Bank CHF and EIB central-bank-money deals.

In the payout stack it is a multilateral digital bond, investor-facing.

For the paper, this is another clear case of a multilateral tokenizing its own debt – the largest by size, proving that scale on the order of half a billion dollars is feasible. The same directional gap holds: it is investor-facing debt rather than a payout to a sovereign.

The USD 300 million base is primary-confirmed; the USD 200 million tap and its date are reported by trade press, and the investor roster was not disclosed.

### TIMELINE

- About October 2024 – A USD 200 million tap brings the total to USD 500 million.

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## KEY IDENTIFIERS

ISIN XS2615318362; Euroclear D-FMI (Digital Securities Issuance).

## B19. Inter-American Development Bank — Digital Bonds

### AT A GLANCE

CASE	A regional multilateral that has tokenized its own debt twice and built regional DLT infrastructure (LACChain)
PRIMARY ENTITIES / ISSUER	IDB — a regional multilateral development bank; founder of LACChain via IDB Lab and an investor via IDB Invest
DATES AND STATUS	Spain BME bond (Jul 2022); GBP 5m on HSBC Orion (Mar 2025); LACChain live since 2019. Own bonds completed
JURISDICTION / REGULATORY POSITION	GBP bond: Luxembourg law, listed on the Luxembourg Stock Exchange. Spain bond: BME regulated market, Iberclear-registered
LAYER IN PAYOUT STACK	Multilateral / public-sector digital bond (plus a regional DLT network)
CLAIM OR MONEY FORM	Senior unsecured IDB debt for its own bonds — a tokenized claim on the issuer (supranational paper); the LACChain Davivienda pilot is a claim on Davivienda, not the IDB
BACKING OR RESERVE	A claim on the IDB for its own bonds; backs no token
HOLDER / TIER / REACH	Own bonds: investor-reaching. The LACChain pilot was a commercial-bank bond. Not a payout to a sovereign
CHAIN OR LEDGER	Spain bond: ioBuilders platform with Iberclear; GBP bond: HSBC Orion; LACChain: public-permissioned Hyperledger Besu
SETTLEMENT OR USE	Own-name digital bond issuance (Spain, UK), a regional DLT network (LACChain), and a cross-border-payments proof-of-concept
PROGRAMMABILITY / CONTROLS	Not applicable for the bonds; LACChain supports smart contracts (Hyperledger Besu)
SIZE OR ACTIVITY	Spain BME bond about USD 10m, 2-year (Jul 2022, inferred); GBP 5m, 15-month (Mar 2025); the LACChain Davivienda pilot COP 110 million (about USD 25,000), Davivienda's claim — bond face amounts
RELEVANCE TO THE PAPER	A third (regional) multilateral with own-name tokenized debt, confirming that own-name multilateral tokenization is not unique to the largest supranationals; the same investor-facing gap
EVIDENCE LIMITS	The Spain bond's ~USD 10m size is inferred from a single secondary source (the issuance is primary-confirmed); the Davivienda pilot's COP 110 million is about USD 25,000 (a Spanish-to-English translation error rendered it "USD 110 million") and is a claim on Davivienda, not the IDB

The IDB has tokenized its own debt twice and separately built regional infrastructure. The first own-name bond, the "BME Digital Bond" of 26 July 2022, was the first bond on a Spanish regulated market registered with blockchain, with the IDB as issuer, a platform by ioBuilders, registration via BME/Iberclear, and BBVA tokenizing the cash as an e-money token. The second, a GBP 5 million 15-month bond on HSBC Orion priced in March 2025, was the IDB's first native security token, registered on the Luxembourg Stock Exchange. Separately, IDB Lab founded LACChain in 2019, a public-permissioned Hyperledger Besu network for Latin America and the Caribbean, and IDB Invest bought the entire COP 110 million "first LATAM blockchain bond" issued by Banco Davivienda in August 2022 on LACChain — but that bond is a claim on Davivienda, not the IDB.

Notably, the IDB issued its own bonds on third-party platforms rather than on its own LACChain. In the Davivienda pilot, Davivienda was issuer, IDB Invest the buyer, and the central bank an observer node, within Colombia's regulatory sandbox, with the full lifecycle on-chain.

In the payout stack these are multilateral digital bonds (investor-facing) plus a regional network; none is a payout to a sovereign.

For the paper, the IDB confirms that own-name multilateral tokenization is not unique to the largest supranationals – a regional bank has done it twice. The same investor-facing direction applies; a separate Citi-IDB cross-border-payments proof-of-concept on LACChain moved a US-dollar disbursement from Washington to the Dominican Republic, converted to Dominican pesos, but that is a payment, not a bond.

Two figures need care. The Spain bond's size of roughly USD 10 million over two years is inferred from a single secondary source, though the issuance itself is primary-confirmed. And the Davivienda pilot's COP 110 million is about USD 25,000, a small sandbox amount that should not be mistaken for a USD 110 million deal – a Spanish-to-English translation error rendered "COP 110 million" as "USD 110 million," while the primary sources say Colombian pesos.

## TIMELINE

- 2019 – IDB Lab founds LACChain (Hyperledger Besu).
- 26 July 2022 – IDB issues the Spain BME blockchain bond (own name).
- 23 August 2022 – Davivienda COP 110 million blockchain bond on LACChain (IDB Invest as buyer).
- 18 March 2025 – IDB GBP 5 million digital bond on HSBC Orion, listed on the Luxembourg Stock Exchange.

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## KEY IDENTIFIERS

GBP bond ISIN reported as US45828RAC97 (single-sourced); LACChain (public-permissioned Hyperledger Besu).

## B20. BIS Project Promissa — Tokenized Capital-Subscription Promissory Notes

### AT A GLANCE

CASE	A proof-of-concept tokenizing the promissory notes that member-country finance ministries issue to capitalize a multilateral — the only case operating directly on a tokenized claim between a sovereign and a multilateral
PRIMARY ENTITIES / ISSUER	BIS Innovation Hub (Swiss Centre), Swiss National Bank and World Bank, with the IMF as observer — a proof-of-concept, not an issuer of a marketed instrument
DATES AND STATUS	Announced 23 Jan 2024; final report 23 Apr 2025; proof-of-concept concluded (not a production system)
JURISDICTION / REGULATORY POSITION	Experimental proof-of-concept; no securities issuance
LAYER IN PAYOUT STACK	Sovereign ↔ multilateral tokenized claim (inverse direction to a payout)
CLAIM OR MONEY FORM	A tokenized capital-subscription promissory note — a sovereign's funding promise to the bank (World Bank IBRD/IDA, with the concept extending to other MDBs), the inverse direction to a bond
BACKING OR RESERVE	The note is a member country's promise to fund the bank; no cash or CBDC leg in the proof-of-concept
HOLDER / TIER / REACH	MDB-to-sovereign (finance ministry / central bank) — uniquely the only case operating directly on the capital relationship between a sovereign and a multilateral; not retail and not investor-reaching
CHAIN OR LEDGER	Canton (Digital Asset, Daml smart contracts), privacy-enabled
SETTLEMENT OR USE	Lifecycle management and encashment of capital-subscription notes (today paper, wet-signed and vaulted at central banks); no cash leg
PROGRAMMABILITY / CONTROLS	Multiparty digital signatures and automated encashment / repayment schedules via smart contract
SIZE OR ACTIVITY	Not applicable — a proof-of-concept with no monetary issuance; seven countries' notes were modelled
RELEVANCE TO THE PAPER	The most conceptually relevant precedent in the survey — the only case operating on a tokenized claim sitting directly between a sovereign and a multilateral — but in the inverse direction (the sovereign funds the bank), and a concluded proof-of-concept with no cash leg
EVIDENCE LIMITS	A concluded proof-of-concept, not a live system; no money issued; cross-jurisdiction legal enforceability of a tokenized promissory note was flagged as needing further study; the "weeks to seconds" figure is the BIS's framing, not an audited production metric; the exact participating countries were not fully named

Project Promissa tokenized the promissory notes that member governments' finance ministries issue to fund multilateral development banks. Today these are paper instruments, signed by hand, couriered between countries and held in vaults at central banks, with slow, reconciliation-heavy tracking and encashment. The proof-of-concept put the note on a blockchain as a single source of truth, replaced wet signatures with multiparty digital signatures, and showed encashment compressed from weeks to seconds. It was announced on 23 January 2024 and concluded with a final report on 23 April 2025; the partners were the BIS Innovation Hub Swiss Centre, the SNB and the World Bank, with the IMF observing.

Mechanically, a member's finance ministry issues a promissory note — a claim the bank can later encash to fund operations — as a token on Canton; the bank and the member hold synchronized records; and smart contracts manage the funding and encashment schedule and the signatures. There is no payment rail in the proof-of-concept: it digitizes the instrument and its lifecycle, not a cash leg.

In the payout stack it sits at the sovereign–multilateral boundary — the relationship the proposal targets — but on the capital-subscription side.

For the paper, this is the most conceptually relevant precedent in the survey, because it is the only case operating on a tokenized claim that sits directly between a sovereign and a multilateral. The direction is the inverse of the proposal's, however: the sovereign promises to fund the bank (an inflow to the bank), whereas the proposal needs an outflow, the bank paying the sovereign.

It is a concluded proof-of-concept rather than a live system, no money was issued, and the legal enforceability of a tokenized promissory note across jurisdictions was explicitly flagged as needing further study. The "weeks to seconds" figure is the BIS's framing of the demonstration, not an audited production metric, and the exact set of participating countries was not fully named.

## TIMELINE

- 23 January 2024 — Project announced (BIS, SNB and World Bank; IMF observer).
- 23 April 2025 — Final report published; proof-of-concept concluded.

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## KEY IDENTIFIERS

Project Promissa; Canton (Daml) privacy-enabled ledger; partners BIS Innovation Hub Swiss Centre, SNB, World Bank (IMF observer).

## B21. Public-Issuer Digital Bond Reference Cases — KfW, CDP, CDC and IFC

### AT A GLANCE

CASE	Promotional and development-finance institutions adjacent to the multilaterals that have tokenized their own debt or invested in others' — the nearest peers to multilateral digital-bond issuance
PRIMARY ENTITIES / ISSUER	KfW (German national promotional bank), CDP (Cassa Depositi e Prestiti, Italy), CDC (Caisse des Dépôts, France) and IFC (World Bank Group, private-sector arm)
DATES AND STATUS	KfW issuances 2024–2026; CDP (Jul 2024); CDC (Nov 2024); IFC investments 2025. Completed issuances and investments
JURISDICTION / REGULATORY POSITION	KfW: German crypto-securities law (eWpG) and Swiss DLT law (SDX). CDP: Italian FinTech Decree. CDC: French law
LAYER IN PAYOUT STACK	Public-sector digital bond (issuance and investing)
CLAIM OR MONEY FORM	Own senior debt — a tokenized claim on the issuer (sovereign-adjacent / promotional-bank paper) for KfW, CDP and CDC; IFC is an investor, not an issuer
BACKING OR RESERVE	A claim on the respective issuer; none used to back a token
HOLDER / TIER / REACH	Capital-markets / investor-reaching — several settled in central-bank money; not payouts to sovereigns
CHAIN OR LEDGER	KfW: Polygon (public) and SDX; CDP: Polygon (public); CDC: Euroclear D-FMI with Banque de France DL3S
SETTLEMENT OR USE	Own-name digital issuance (KfW, CDP, CDC) and digital-bond investing (IFC); central-bank-money legs via the Eurosystem solutions or SNB wholesale CBDC on SDX
PROGRAMMABILITY / CONTROLS	Not applicable — fixed-coupon bonds
SIZE OR ACTIVITY	KfW: EUR 100m + EUR 50m (2024), CHF 140m on SDX (2025), a further EUR 100m (Jun 2026); CDP: EUR 25m (Jul 2024); CDC: EUR 100m (Nov 2024); IFC: USD 100m each into the İşbank and Akbank notes (2025) — bond face amounts
RELEVANCE TO THE PAPER	National promotional banks tokenizing claims on themselves with central-bank-money settlement (nearest peers to the multilaterals), and the finding that within the World Bank Group, IBRD issues digital bonds while IFC only invests; none is a payout to a sovereign
EVIDENCE LIMITS	KfW, CDP and CDC are national promotional banks, not multilaterals; central-bank-money legs depend on experimental wholesale-CBDC facilities; several KfW figures are inferred from secondary sources (the Bundesbank Trigger settlement of 28 Aug 2024 is primary-confirmed)

This is a group of promotional and development-finance institutions that have tokenized their own debt or invested in others'. KfW is the deepest non-multilateral case: a EUR 100 million crypto security on Polygon (July 2024), a EUR 50 million crypto security settled in central-bank money via the Deutsche Bundesbank "Trigger Solution" (28 August 2024), a CHF 140 million native digital bond on SDX settled in SNB wholesale CBDC (June 2025, UBS lead), and a further EUR 100 million crypto security in June 2026 that switches registrar and chain mid-life. KfW has also invested, putting EUR 10 million into Berlin Hyp's blockchain Pfandbrief on the SWIAT blockchain, acquired over-the-counter from DekaBank (25 April 2025 — not Polygon). CDP issued a EUR 25 million digital bond on Polygon (July 2024), settled in central-bank money via Banca d'Italia's TIPS Hash-Link and fully underwritten by Intesa Sanpaolo. CDC issued a EUR 100 million digitally native note (November 2024) on Euroclear D-FMI with the cash leg in Banque de France pilot wholesale CBDC, sole investor ICBC Luxembourg. IFC — uniquely a genuine World Bank Group entity here — is not an issuer of its own digital bond but invested USD 100 million each as sole investor in two emerging-market notes (İşbank on 30 June 2025; Akbank's "world's first digital gender bond" on 3 December 2025), both on Euroclear D-FMI.

Each instrument is own-name senior debt issued natively on a DLT platform, with cash settlement in central-bank money on several deals and commercial-bank money or conventional cash on others.

In the payout stack these are public-sector digital bonds, all investor-facing; none is a payout to a sovereign.

For the paper, they broaden the evidence that highly rated public-sector issuers can tokenize their own debt and settle it in central-bank money. Two boundaries matter for the precedent search: KfW, CDP and CDC are national promotional and development banks, not multilaterals, so they are the nearest peers rather than multilateral precedents; and IFC, which is a multilateral-group entity, has invested rather than issued, which tightens the finding that within the World Bank Group, IBRD is the digital-bond issuer and IFC is not.

The central-bank-money legs depend on the respective central banks' experimental wholesale-CBDC facilities. Several KfW figures are inferred from secondary sources because the primary pages render via JavaScript, though the Bundesbank Trigger central-bank-money settlement of 28 August 2024 is primary-confirmed with a direct quote.

## TIMELINE

- 4 July 2024 — KfW EUR 100 million crypto security, Polygon.
- 18 July 2024 — CDP EUR 25 million, Polygon, Banca d'Italia TIPS Hash-Link.
- 28 August 2024 — KfW EUR 50 million, Bundesbank Trigger (central-bank money).
- November 2024 — CDC EUR 100 million note, Euroclear D-FMI with Banque de France DL3S wholesale CBDC.
- Mid-2025 — IFC USD 100 million into the İşbank note; 27 June 2025 — KfW CHF 140 million on SDX, SNB wholesale CBDC.
- December 2025 — IFC USD 100 million into the Akbank digital gender bond.
- 9 June 2026 — KfW's third EUR 100 million crypto security (registrar and chain switch).

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## KEY IDENTIFIERS

KfW (eWpG crypto securities; SDX bond); CDP (Polygon; Banca d'Italia TIPS Hash-Link); CDC (Euroclear D-FMI / Banque de France DL3S); IFC (sole investor in the İşbank and Akbank Euroclear D-FMI notes).

## B22. BIS Innovation Hub – Tokenized Bond and CBDC Experiments

### AT A GLANCE

CASE	The BIS Innovation Hub's tokenization projects, mapped against the question of whether a multilateral's own claim was tokenized – only Helvetia III settled a real multilateral bond
PRIMARY ENTITIES / ISSUER	BIS Innovation Hub with partner central banks and market infrastructures – experimental projects, not issuers of marketed instruments (Project Agorá and mBridge are covered at B4 and B5)
DATES AND STATUS	Helvetia III live (to at least mid-2027); Jura, Mariana, Genesis and Tridecagon are concluded proofs-of-concept
JURISDICTION / REGULATORY POSITION	Central-bank-led experiments; Helvetia III is a live SNB pilot on SDX
LAYER IN PAYOUT STACK	Wholesale settlement / tokenized-bond and CBDC experiments
CLAIM OR MONEY FORM	Varies by project – tokenized bonds (real or simulated), wholesale CBDC, commercial paper, and carbon-linked green bonds
BACKING OR RESERVE	Project-specific; only Helvetia III settled a real multilateral bond (the World Bank's, covered at B16)
HOLDER / TIER / REACH	Wholesale and experimental; not a payout to a sovereign
CHAIN OR LEDGER	SDX (Helvetia, Jura); a public testnet (Mariana); permissioned and public prototypes (Genesis); Corda, Besu and Iroha bridged (Tridecagon)
SETTLEMENT OR USE	Wholesale settlement, FX, and green-bond and cross-border bond-settlement experiments; Helvetia III settles real bonds in Swiss-franc wholesale CBDC on SDX
PROGRAMMABILITY / CONTROLS	Project-specific (smart contracts, automated market makers, carbon forwards)
SIZE OR ACTIVITY	Helvetia III: real bonds including the World Bank CHF 200m (covered at B16) and Swiss public issuers, more than CHF 750 million wholesale-CBDC-settled cumulatively; the others proof-of-concept or non-MDB
RELEVANCE TO THE PAPER	Within the BIS Innovation Hub's tokenization work, only Helvetia III tokenized a multilateral's own claim (the World Bank CHF bond, at B16); Jura, Mariana, Genesis and Tridecagon are boundary cases, tokenizing commercial paper, hypothetical currencies, simulated bonds or test settlement tokens
EVIDENCE LIMITS	The BIS Innovation Hub was not involved in Helvetia Phase III (SNB-led with SIX/SDX; the BIS participated only in Phases I-II); the Helvetia III running totals are point-in-time and grew during the pilot

This entry maps the BIS Innovation Hub's tokenization projects against the one question that matters here – did a multilateral's own claim get tokenized? Project Helvetia (Phase III) is the only "yes": a live SNB pilot settling real digital bonds in Swiss-franc wholesale CBDC on SDX, whose issuers include the World Bank/IBRD (the CHF 200 million bond covered at B16) alongside Swiss cantons and cities, UBS and SIX. The others tokenize something else. Project Jura (2021, with the Banque de France, SNB and SDX) settled French commercial paper (a Natixis note of EUR 200,000) plus euro and Swiss-franc wholesale CBDC, with no multilateral. Project Mariana (2022–23, with the Banque de France, MAS and SNB) traded hypothetical euro, Singapore-dollar and Swiss-franc wholesale CBDCs through an automated market maker – FX only, no bond. Project Genesis (2021–22, HKMA with UN Climate Change) built prototype green bonds, with version 2.0 adding tokenized carbon-credit forwards – simulated bonds, not real multilateral issuance. Project Tridecagon (ADB, 2022–23) was a cross-border bond-settlement proof-of-concept using test tokens minted by CSDs – no real bond and no issuance.

Each is a central-bank-led experiment with private technology partners. Within Helvetia III, the per-issuer amounts inside the "more than CHF 750 million" included a World Bank/IBRD CHF 200 million bond alongside Swiss cantonal, municipal and bank issuers, and Phase III also included an SNB Bills issuance of CHF 64 million on SDX, described as the world's first monetary-policy operation on a ledger.

In the payout stack the value here is concentrated in Helvetia III (treated at B16); the rest are wholesale or non-MDB experiments that do not reach a sovereign.

For the paper, the rest are boundary cases: Jura, Mariana, Genesis and Tridecagon involve no multilateral's own claim – commercial paper, hypothetical currencies, simulated or prototype bonds, or test settlement tokens. The instinct to look at the Genesis green bonds for a multilateral precedent is reasonable, but the answer is negative; they were simulated.

One precision: the BIS Innovation Hub was not involved in Helvetia Phase III, which was SNB-led with SIX/SDX, the BIS having participated only in Phases I and II. The Helvetia III running totals are point-in-time and grew during the pilot.

## TIMELINE

- 2021 – Genesis 1.0 (November); Jura (December).
- 2022 – Genesis 2.0 (October); Mariana launch (November); Tridecagon launch (January).
- 2023 – Mariana report (September); Tridecagon concluded (June); Helvetia III live from 1 December.
- 11 June 2024 – The World Bank CHF bond settles within Helvetia III.
- 30 June 2025 – Helvetia extended to at least mid-2027.

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## KEY IDENTIFIERS

Projects Helvetia III (SNB/SDX, live), Jura, Mariana, Genesis, Tridecagon; Agorá and mBridge covered at B4 and B5.

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## B23. Circle Stablecoins — USDC and EURC

### USDC

#### AT A GLANCE

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CASE	Circle's US-dollar stablecoin — the second-largest by supply and the largest by on-chain volume; the benchmark regulated, US-Treasury-backed dollar token
PRIMARY ENTITIES / ISSUER	Circle Internet Financial LLC (US) and Circle Internet Financial Europe SAS (France)
DATES AND STATUS	Launched 2018; live at scale; conditional OCC approval to establish a national trust bank (Dec 2025; charter not yet operative); GENIUS Act compliance by ~Jan 2027
JURISDICTION / REGULATORY POSITION	US NYDFS-licensed money transmitter (conditional OCC approval for a national trust bank, Dec 2025; charter not yet operative), under the GENIUS Act; EU/EEA a MiCA e-money token via France's ACPR, passported across 27 states
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (circulation layer)
CLAIM OR MONEY FORM	A US-dollar-pegged stablecoin, redeemable one-for-one for dollars by eligible holders through Circle Mint
BACKING OR RESERVE	~80–87% in the Circle Reserve Fund (USDXX, a BlackRock-managed 2a-7 government money-market fund) plus ~13–20% cash at systemically important US banks and overnight reverse Treasury repo; the split varies month to month per the monthly Deloitte attestation; US sovereign paper and US bank cash only — no supranational or multilateral paper
HOLDER / TIER / REACH	Retail-reaching and institutional — circulates to end users via wallets, exchanges and DeFi (the second retail-reaching dollar stablecoin behind USDT)
CHAIN OR LEDGER	Public chains; native on 17 chains via CCTP V2 (a burn-and-mint model)
SETTLEMENT OR USE	Retail payments, cross-border remittances, DeFi liquidity, institutional treasury, B2B settlement
PROGRAMMABILITY / CONTROLS	Standard ERC-20 / SPL; CCTP V2 adds programmable post-transfer hooks; no native expiry on the base token
SIZE OR ACTIVITY	Circulating supply about \$76–78 billion (mid-2026); 2025 on-chain transaction volume \$18.3 trillion per Artemis Analytics (Bloomberg, Jan 2026), against Circle's own reported full-year 2025 figure of \$11.9 trillion — cumulative settled volume, not supply or reserves
RELEVANCE TO THE PAPER	The benchmark regulated dollar stablecoin and the main asset of the conversion layer — dollar-dominant, which matters because cat-bond payouts are usually dollar-denominated; a regulated dollar token a payout claim could be converted into and routed through, demonstrating the government-paper-backed model at scale (US government only)
EVIDENCE LIMITS	The exact reserve split is not numerically extractable from the dashboard, and the cash-custodian banks are not named; Deloitte provides a monthly agreed-upon-procedures attestation, not a full audit

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USDC is a US-dollar-pegged stablecoin issued by Circle since 2018 — the second-largest dollar stablecoin by circulating supply and the largest by on-chain transaction volume in 2025 (\$18.3 trillion per Artemis Analytics (Bloomberg) against Tether's \$13.3 trillion; Circle's own reported full-year 2025 on-chain volume was \$11.9 trillion). Each token is redeemable one-for-one for dollars by eligible holders through Circle Mint, and it runs natively across 17 chains via the Cross-Chain Transfer Protocol, a burn-and-mint model. Reserves are held in two layers: the Treasury portion in the Circle Reserve Fund (USDXX, a BlackRock-managed 2a-7 government money-market fund), and the cash portion at systemically important US banks; Deloitte provides a monthly agreed-upon-procedures attestation verifying holdings down to Treasury CUSIPs.

In the payout stack USDC is a circulation-layer asset that reaches end users (the second retail-reaching dollar stablecoin behind USDT), documented across Uniswap, Aave, Compound, PayPal/Venmo flows and Mastercard's 2026 settlement network. For the paper it is the benchmark regulated dollar stablecoin and the main asset of the conversion layer – relevant because cat-bond payouts are usually dollar-denominated, so a payout claim could be converted into and routed through a regulated dollar token like this. Its reserve is entirely US sovereign paper and US bank cash – the government-paper model at scale, but US government only, with no supranational or multilateral paper.

The exact reserve split is not numerically extractable from the transparency dashboard, and the cash-custodian banks are not named; the Deloitte attestation is against specific assertions, not a full financial audit.

## TIMELINE

- 2018 – USDC launched on Ethereum by Circle and Coinbase through the Centre Consortium.
- 2022–2023 – Centre dissolved, Circle becomes sole issuer; attestation moves from Grant Thornton to Deloitte.
- March 2023 – Temporary de-peg to about \$0.87 during the Silicon Valley Bank failure (about \$3.3 billion of cash reserves held there); peg restored within days.
- March 2025 – CCTP V2 launches; June 2025 – Circle completes its NYSE IPO.
- July 2025 – GENIUS Act signed; December 2025 – OCC grants Circle conditional approval to establish a national trust bank (charter not yet operative).
- April 2026 – CCTP V2 live on 17 chains.

## SOURCES

1. Circle, "USDC Transparency" dashboard – USDC reserve composition, circulating supply (~\$76–78 billion mid-2026) and Circle's own reported full-year 2025 on-chain transaction volume (\$11.9 trillion; the \$18.3 trillion figure is Artemis Analytics via Bloomberg). <https://www.circle.com/transparency>
2. BlackRock – the Circle Reserve Fund (USDXX) that holds the Treasury portion of reserves and publishes daily fund reports. <https://www.blackrock.com>
3. GENIUS Act of 2025, S.1582, 119th US Congress – the permitted-reserve framework Circle's structure satisfies. <https://www.congress.gov/bill/119th-congress/senate-bill/1582/text>
4. Sidley Austin, "The GENIUS Act: A Framework for US Stablecoin Issuance," July 2025. <https://www.sidley.com/en/insights/newsupdates/2025/07/the-genius-act-a-framework-for-us-stablecoin-issuance>
5. Mastercard, "Stablecoins at the speed of commerce" – USDC's inclusion in Mastercard's 2026 stablecoin settlement network. <https://www.mastercard.com/global/en/news-and-trends/stories/2025/mastercard-stablecoin-utility-and-scale.html>
6. Circle EEA / transparency pages on the Deloitte auditor transition, the June 2025 NYSE IPO and the OCC conditional trust charter; DeFiLlama and Mercer Capital for circulating-supply figures. <https://www.circle.com/pressroom/circle-receives-conditional-approval-from-occ-for-national-trust-charter>

## KEY IDENTIFIERS

Ticker USDC; Circle Reserve Fund ticker USDXX; native on 17 chains via CCTP V2.

## EURC

### AT A GLANCE

CASE	Circle's euro-pegged stablecoin – the largest MiCA-compliant euro stablecoin, a directly analogous government-bond-backed local-currency stablecoin
PRIMARY ENTITIES / ISSUER	Circle Internet Financial Europe SAS – a MiCA electronic-money institution in France
DATES AND STATUS	Launched June 2022 (as Euro Coin), rebranded EURC 2024; live, at limited scale
JURISDICTION / REGULATORY POSITION	A MiCA e-money institution licence from France's ACPR, passported across the EU/EEA

LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency circulation)
CLAIM OR MONEY FORM	A euro-pegged stablecoin, backed one-for-one by euro reserves
BACKING OR RESERVE	Euro cash at regulated EEA credit institutions (at least 30% under MiCA Article 36) plus short-duration eurozone sovereign debt; the specific sovereign issuers are not disclosed; no ECB, supranational or multilateral paper
HOLDER / TIER / REACH	Retail-reaching in principle but primarily institutional and DeFi in practice; a far smaller user base than USDC or USDT
CHAIN OR LEDGER	Public chains — Avalanche, Base, Ethereum, Solana, Stellar, World Chain (six)
SETTLEMENT OR USE	Cross-border euro payments, on-chain euro liquidity, institutional treasury, eurozone B2B settlement
PROGRAMMABILITY / CONTROLS	Standard ERC-20 / SPL; no native expiry
SIZE OR ACTIVITY	Circulating supply about 370–390 million EURC (mid-2026); market capitalization about \$420–460 million depending on the euro-dollar rate
RELEVANCE TO THE PAPER	One of the most relevant live examples of a government-bond-backed local-currency stablecoin — backed by short-dated EU-sovereign debt in the currency it tracks — the adjacent live pattern the proposal sits next to (substituting member-state bonds for a multilateral's claim); but it holds national member-state paper, not supranational / EU-institution paper
EVIDENCE LIMITS	The specific sovereign issuers in the reserve are not disclosed; Grant Thornton provides a monthly agreed-upon-procedures attestation, not a full audit; retail adoption remains limited

EURC is Circle's euro-pegged stablecoin, launched June 2022 (as Euro Coin) and rebranded EURC in 2024 — the largest MiCA-compliant euro stablecoin (roughly 390 million tokens, March 2026), backed one-for-one by euro reserves at regulated EEA institutions under MiCA Article 36 (at least 30% cash, the remainder in short-duration eurozone sovereign instruments), and issued under the same French MiCA authorization as EU-issued USDC. Grant Thornton provides a monthly agreed-upon-procedures attestation.

In the payout stack it is a local-currency circulation asset; it is the dominant euro stablecoin but a fraction of dollar-stablecoin scale, used mainly by DeFi protocols, cross-border euro transfers and EEA institutional treasuries. For the paper it is one of the most relevant live examples of a government-bond-backed local-currency stablecoin — backed by short-dated EU-sovereign debt in the currency it tracks — the adjacent live pattern the proposal sits next to. The relevant precision is that it holds eurozone member-state sovereign debt (national paper), not ECB, supranational or multilateral paper, which is precisely the substitution the proposal contemplates.

The specific sovereign issuers within the reserve are not disclosed, the attestation is not a full audit, and EURC has not shown mass retail payment adoption comparable to USDT.

## TIMELINE

- June 2022 — Euro Coin (EUROC) launched on Ethereum.
- 2024 — Rebranded to EURC; Circle receives its MiCA EMI authorization in France.
- December 2024 — MiCA Title V takes effect; EURC positioned as the primary compliant euro option.
- 2025 — Expanded to Solana, Stellar, Base and World Chain.
- Q1 2026 — About 390 million EURC circulating.

## SOURCES

1. Circle, "USDC Transparency" dashboard — also reports EURC reserve categories and EURC in circulation. <https://www.circle.com/transparency>
2. Regulation (EU) 2023/1114 on markets in crypto-assets (MiCA) — the Article 36 reserve requirements (≥30% cash at eligible banks) governing EURC. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1114>

3. Circle EEA and developer pages and the Q1 2026 EURC report (Grant Thornton attestation, the six supported chains, MiCA EMI detail, French banking partners). <https://www.circle.com/eurc>
4. CoinGecko EURC page for circulating supply (~378 million). <https://www.coingecko.com/en/coins/eurc>

## KEY IDENTIFIERS

Ticker EURC (formerly EUROC); native on six chains.

## B24. Tether USDT — Retail Dollar Stablecoin at Scale

### AT A GLANCE

CASE	The world's largest stablecoin and the dominant instrument for dollar-denominated value transfer in emerging markets — the standout retail-reaching case in this annex
PRIMARY ENTITIES / ISSUER	Tether International S.A. de C.V. (BVI / El Salvador registered) — a private stablecoin issuer
DATES AND STATUS	Launched 2014 (as "Realcoin"); live at scale; supply about \$189.5 billion by May 2026
JURISDICTION / REGULATORY POSITION	No MiCA compliance (delisted from EEA-regulated exchanges from Q1 2025); registered in El Salvador, incorporated in the BVI; no US federal charter, not MAS-licensed; no prudential regulator for the issuer entity
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (circulation layer; emerging-market retail)
CLAIM OR MONEY FORM	A US-dollar-pegged stablecoin
BACKING OR RESERVE	Per the BDO Italy Q1 2026 attestation (31 Mar 2026): US Treasuries direct and indirect about 61%, repo about 13%, gold about 10%, secured loans about 8%, crypto (mainly Bitcoin) about 3.5%, cash about 0.06%; combined Treasury and repo about 74%; secured-loan counterparties and collateral not disclosed
HOLDER / TIER / REACH	Retail-reaching at global scale — the dominant stablecoin for peer-to-peer payments, remittances, savings and commerce in emerging markets
CHAIN OR LEDGER	Public chains; Tron carries the largest single-chain share (~45–52% of circulating supply; ~60% of USDT payment transaction volume), alongside Ethereum, Solana, Bitcoin (Omni, legacy), BNB Chain, Avalanche, Polygon, TON and others — more than 15 chains
SETTLEMENT OR USE	Retail payments, emerging-market remittances and inflation hedging, P2P commerce, DeFi, institutional trading and cross-border settlement
PROGRAMMABILITY / CONTROLS	Standard ERC-20, TRC-20 and equivalents; no native programmability beyond transfer
SIZE OR ACTIVITY	Circulating supply \$183.44 billion (31 Mar 2026, BDO), about \$189.5 billion (May 2026); total reserves \$191.77 billion (31 Mar 2026), an excess of about \$8.23 billion; cumulative on-chain volume averaged about \$703 billion a month (Jun 2024–Jun 2025), peaking near \$1.01 trillion in June 2025 — supply, reserves and monthly volume are distinct quantities
RELEVANCE TO THE PAPER	The closest existing analogue to a token reaching the final-recipient tier at scale: in emerging markets USDT functionally substitutes for local currency, which is exactly the reach the payout-side's final leg would need — though it is US-dollar-denominated and US-Treasury-backed, not a local-currency or multilateral instrument
EVIDENCE LIMITS	A quarterly agreed-upon-procedures attestation (BDO Italy), not a full audit (Tether announced in March 2026 it had engaged KPMG for its first financial-statement audit, with PwC engaged on internal systems; the completion date is unconfirmed); secured-loan counterparties undisclosed; the >500-million-users and the \$156-billion sub-\$1,000-payments figures are issuer-reported and not independently verified; gold and Bitcoin (~13% of reserves) add price volatility

USDT is the world's largest stablecoin and the dominant instrument for dollar-denominated value transfer in emerging markets. Launched in 2014 as "Realcoin" on the Bitcoin Omni Layer, it had grown to roughly \$189 billion of circulating supply by mid-2026, about 60% of total global stablecoin supply. Its primary use differs from USDC's: it is retail and peer-to-peer in markets where dollar access is constrained, and Tether reports it processed \$156 billion in sub-\$1,000 payments in 2025 (a single-sourced figure).

The retail reach is the most heavily documented of any stablecoin here, and is the key differentiator from the wholesale instruments elsewhere in this annex. In Venezuela, research attributes 53% of private-sector transactions to foreign currency or digital equivalents, with USDT a dominant urban unit of account against 229% inflation; Argentina had more than 6,000 businesses accepting USDT by early 2025; Turkey saw about \$190 billion of stablecoin volume in 2024; and Nigeria recorded about \$22 billion of stablecoin volume over July 2023–June 2024. Chainalysis reports double-digit year-on-year adoption growth across Sub-Saharan Africa, Latin America and the Asia-Pacific, with USDT the dominant stablecoin in each.

In the payout stack USDT is a circulation-layer asset that, at this scale, reaches the final-recipient tier — individuals and small merchants — in emerging markets. For the paper that makes it the closest existing analogue to a token reaching final recipients at scale: where dollar access is constrained, USDT functionally substitutes for local currency, which is the reach the payout-side's final leg would need. It remains US-dollar-denominated and US-Treasury-dominated, not a local-currency or multilateral instrument.

Reserves are managed internally rather than through a segregated third-party custodian of the Circle or Paxos type. US Treasuries are held directly and through money-market instruments, with gold and Bitcoin held as strategic reserve assets — non-conventional holdings that together account for about 13% of reserves and introduce price volatility. BDO Italy provides a quarterly agreed-upon-procedures report under ISAE 3000: a point-in-time confirmation that reserves met or exceeded liabilities, which is not a full audit and does not verify completeness between dates or secured-loan counterparty quality. Tether stated in March 2026 that it had engaged KPMG for a first full financial-statement audit, with PwC engaged on internal systems; the completion date is unconfirmed. The more-than-500-million-users claim is issuer-stated and not independently verified.

## TIMELINE

- 2014 — Launched as "Realcoin" on the Bitcoin Omni Layer.
- 2019–2021 — NYAG investigation; CFTC and NYAG settlements; quarterly reserve reporting ordered.
- 2023 — Bitcoin added as a strategic reserve asset.
- Q1 2025 — Full delisting from EEA-regulated venues following MiCA Title V.
- March 2026 — Q1 2026 BDO attestation: supply \$183.44 billion, reserves \$191.77 billion; KPMG audit engagement announced.
- 21 April 2026 — All-time-high supply near \$188 billion stated by the CEO.
- May 2026 — Circulating supply about \$189.5 billion.

## SOURCES

1. Tether, "Transparency" / BDO Italy Q1 2026 reserves attestation (as of 31 March 2026) — circulating supply (\$183.44 billion), total reserves (\$191.77 billion) and reserve composition. <https://tether.to/en/transparency>
2. BDO Italy Q1 2026 attestation as aggregated by StableRegistry for the reserve line-item percentages (Treasuries ~61%, repo ~13%, gold ~10%, secured loans ~8%, Bitcoin ~3.5%). <https://stableregistry.com/stablecoins/usdt/reserves/>
3. Chainalysis 2025 Geography of Cryptocurrency report — ~\$703 billion average monthly on-chain USDT volume and emerging-market adoption growth. <https://go.chainalysis.com/2025-geography-of-cryptocurrency-report.html>
4. Trade press on emerging-market use (Venezuela, Argentina, Turkey, Nigeria) and the Q1 2025 MiCA delistings from EEA-regulated exchanges. <https://www.coindesk.com/policy/2025/01/29/crypto-com-will-suspend-tether-paypal-stablecoin-services-in-europe-due-to-mica>

## KEY IDENTIFIERS

Ticker USDT; majority of supply on Tron (TRC-20), with Ethereum, Solana and others.

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## B25. PayPal PYUSD — Consumer Payment Stablecoin

### AT A GLANCE

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CASE	PayPal's branded dollar stablecoin, issued by Paxos and embedded in the PayPal and Venmo consumer apps — a major pre-built consumer-app distribution rail
PRIMARY ENTITIES / ISSUER	Paxos Trust Company LLC (NYDFS-chartered) issuing on behalf of PayPal Holdings
DATES AND STATUS	Launched on Ethereum Aug 2023; live at scale (smaller than USDC/USDT)
JURISDICTION / REGULATORY POSITION	NYDFS trust charter (Paxos), with a conditional OCC national trust bank charter granted Dec 2025; eligible as a permitted payment stablecoin issuer under the GENIUS Act
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (consumer circulation)
CLAIM OR MONEY FORM	A US-dollar-pegged stablecoin
BACKING OR RESERVE	US-dollar deposits at FDIC-insured banks, short-duration US Treasury bills and overnight reverse repo collateralized by US Treasuries; segregated under New York Banking Law, no lending or rehypothecation; the split is not publicly enumerated
HOLDER / TIER / REACH	Retail-reaching — embedded in the PayPal app (more than 200 million US accounts) and Venmo, and accessible via DeFi
CHAIN OR LEDGER	Public chains — Ethereum (2023), Solana (2024, about 60–70% of volume), Arbitrum (July 2025), Stellar (June 2025), plus a LayerZero-OFT set from 2025 (13 chains total)
SETTLEMENT OR USE	Consumer payments through PayPal and Venmo, creator payouts, cross-border B2B and merchant settlement
PROGRAMMABILITY / CONTROLS	ERC-20 and SPL; the LayerZero OFT standard ("PYUSD0") enables omnichain transfers with post-transfer hooks; no native expiry
SIZE OR ACTIVITY	Circulating supply peaked at about \$4.09 billion (March 2026), up from about \$500 million at the start of 2025, then declined to about \$2.8 billion by June 2026 (the March figure was the peak; some sources still cite ~\$4.09 billion pending a primary attestation)
RELEVANCE TO THE PAPER	Its embedded consumer rail is the closest existing analogue to a pre-built mass disbursement mechanism for reaching end recipients (the YouTube creator-payout integration is a direct income disbursement to individuals); but it is US-dollar-denominated and US-Treasury-backed, not a local-currency or multilateral instrument
EVIDENCE LIMITS	Supply figures diverge across sources pending a primary attestation; PayPal has not disclosed active PYUSD user counts; Solana's 60–70% volume share suggests DeFi/developer use dominates over consumer use; KPMG provides a monthly agreed-upon-procedures attestation, not a full audit

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PYUSD is PayPal's branded dollar stablecoin, issued and custodied by Paxos under NYDFS oversight. It launched on Ethereum in August 2023 and expanded to Solana in May 2024, which now handles the majority of transactions. Its distinguishing feature is distribution: it is embedded in the PayPal and Venmo apps, giving it a rail into more than 200 million US accounts — one of the clearest pre-built consumer-app distribution rails in this annex. Reserves are dollar deposits at FDIC-insured banks, short-duration Treasury bills and reverse repo, segregated under New York Banking Law with daily NYDFS reconciliation and no rehypothecation; the structure mirrors USDC's, with Paxos rather than Circle as issuer, and KPMG provides a monthly agreed-upon-procedures attestation.

In the payout stack PYUSD is a consumer-circulation asset with a large pre-built distribution rail. For the paper its embedded consumer footprint is the closest existing analogue to a pre-built mass disbursement mechanism for reaching end recipients: two 2026 integrations are concrete — US YouTube creators can elect PYUSD for ad revenue (a direct income disbursement to individuals), and a Visa/BVNB lane added cross-border B2B settlement. It remains US-dollar-denominated and US-Treasury-backed, not a local-currency or multilateral instrument.

The consumer footprint is real but its activation is partial: supply remains small relative to USDC and USDT, PayPal has not disclosed active PYUSD user counts, and Solana's 60–70% share of transaction volume indicates DeFi and developer use dominates over consumer use despite the PayPal rail. June-2026 supply figures diverge across sources pending a primary attestation, and the KPMG attestation is not a full audit.

## TIMELINE

- August 2023 – PYUSD launched on Ethereum, Paxos as issuer.
- May 2024 – Expanded to Solana, which becomes the dominant transaction chain.
- February 2025 – Attestation provider moves from Withum to KPMG.
- July 2025 – GENIUS Act signed; Paxos eligible as a permitted payment stablecoin issuer.
- September 2025 – LayerZero OFT integration ("PYUSD0") brings the total to 13 chains.
- December 2025 – OCC grants Paxos a conditional national trust bank charter.
- January 2026 – YouTube US creator payouts and the Visa/BVNK cross-border lane go live.
- Q1 2026 – Supply about \$4.09 billion.

## SOURCES

1. Paxos, "PYUSD Transparency" – reserve composition (US bank deposits, short-duration Treasury bills and reverse repo), the KPMG monthly attestation and circulating supply. <https://www.paxos.com/pyusd>
2. PayPal Holdings, SEC Form 10-Q (period ended 31 March 2026) – PYUSD figures in PayPal's regulatory filing. <https://www.sec.gov/Archives/edgar/data/0001633917/000163391726000067/pypl-20260331.htm>
3. Mastercard, "Stablecoins at the speed of commerce" – PYUSD's inclusion in Mastercard's 2026 stablecoin settlement network. <https://www.mastercard.com/global/en/news-and-trends/stories/2025/mastercard-stablecoin-utility-and-scale.html>
4. PYUSD Q1 2026 stablecoin report and the September 2025 LayerZero OFT integration (the 13-chain footprint, Solana's 60–70% transaction share, supply trajectory, and the YouTube creator-payout and Visa/BVNK integrations); CoinGecko for supply data. <https://www.coingecko.com/en/coins/paypal-usd>

## KEY IDENTIFIERS

Ticker PYUSD; native on Ethereum and Solana, with a "PYUSD0" LayerZero wrapper on further chains.

## B26. Regulated Dollar Stablecoins — Paxos USDG, Ripple RLUSD and Paxos USDP

### AT A GLANCE

CASE	Three further regulated dollar stablecoins that round out the category — the Global Dollar (USDG), Ripple's RLUSD, and Paxos's legacy USDP
PRIMARY ENTITIES / ISSUER	USDG: Paxos Digital Singapore (MAS-regulated) and Paxos Issuance Europe (MiCA, Finnish FIN-FSA). RLUSD: Standard Custody & Trust Company, LLC (NYDFS trust charter), a wholly owned Ripple subsidiary. USDP: Paxos Trust Company (NYDFS)
DATES AND STATUS	USDG launched Nov 2024; RLUSD Dec 2024; USDP from 2018 (now residual). USDG and RLUSD live; USDP declining
JURISDICTION / REGULATORY POSITION	USDG: MAS (Singapore) and MiCA (Finland), in the EU from July 2025. RLUSD: NYDFS, OCC trust charter in progress. USDP: NYDFS
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (circulation layer)
CLAIM OR MONEY FORM	US-dollar-pegged stablecoins
BACKING OR RESERVE	All three: US-dollar deposits, short-dated US Treasury bills and cash equivalents (USDG via DBS; RLUSD custodied at BNY Mellon, \$1,833m reserves vs \$1,731m liabilities at 28 May 2026, ~5.9% over-collateralized; USDP cash plus sub-90-day T-bills) — no crypto, gold, supranational or multilateral paper
HOLDER / TIER / REACH	USDG: institutional and exchange-reaching (130+ partners, not yet mass-consumer). RLUSD: wholesale and institutional, bank-grade positioning. USDP: residual circulation, minimal reach
CHAIN OR LEDGER	Public chains — USDG on Ethereum plus EU partner platforms; RLUSD on Ethereum (~53%) and the XRP Ledger (~47%) (mid-2026, from ~82/18% in late 2025); USDP on Ethereum with legacy BNB Chain and Solana
SETTLEMENT OR USE	USDG: institutional DeFi, exchange settlement and a reserve-yield revenue-sharing network. RLUSD: cross-border B2B on Ripple's rails and Mastercard settlement. USDP: legacy use
PROGRAMMABILITY / CONTROLS	Standard ERC-20, XRP Ledger token and equivalents; no native expiry or restricted-use conditions
SIZE OR ACTIVITY	USDG about \$2.75 billion circulating (26 May 2026); RLUSD \$1,731 million circulating (28 May 2026); USDP about \$32 million (Q2 2026), sharply reduced
RELEVANCE TO THE PAPER	The same regulated US-Treasury-backed dollar pattern as USDC and PYUSD; USDG's reserve-yield revenue-sharing is a notable side-analogue — an incentive structure for downstream distribution partners, of the kind a multilateral might need to motivate sovereign recipients to redistribute a tokenized claim
EVIDENCE LIMITS	RLUSD's monthly attestation is by Deloitte LLP (monthly agreed-upon-procedures); USDP's proactive monthly reserve reporting appears discontinued; figures are point-in-time and issuer-reported

This composite covers three regulated dollar stablecoins that round out the category. USDG, the Global Dollar, launched in November 2024 on Ethereum under MAS's stablecoin framework. Its distinguishing feature is the Global Dollar Network, an institutional arrangement in which platforms that integrate USDG and drive adoption receive a proportional share of the reserve yield; members include Kraken, Mastercard, Robinhood, Worldpay, Fiserv and DBS, more than 130 in total. It entered the EU in July 2025 under MiCA via Paxos Issuance Europe, and grew to about \$2.75 billion in under 18 months. RLUSD is Ripple's dollar stablecoin, launched December 2024 after NYDFS approval and positioned as bank-grade, with Standard Custody & Trust Company, LLC as the NYDFS-chartered issuer, BNY Mellon as primary custodian and reserves in segregated accounts (\$1,731 million supply against \$1,833 million of reserves as of 28 May 2026); it is primarily wholesale and institutional, serving cross-border payment corridors and included in Mastercard's settlement network. USDP, Paxos's legacy dollar stablecoin from 2018, has contracted to about \$32 million after NYDFS ordered Paxos to halt BUSD minting in early 2023 and Paxos shifted focus to PYUSD and USDG.

In the payout stack all three are circulation-layer dollar assets. All are backed solely by US Treasuries, repo and bank cash, with no crypto, no gold and no supranational or multilateral paper.

For the paper they reinforce the regulated US-Treasury-backed dollar pattern of USDC and PYUSD. USDG's reserve-yield revenue-sharing is the most decision-relevant feature: an incentive structure that pays downstream distribution partners a share of reserve yield is exactly the kind of mechanism a multilateral might need to motivate sovereign recipients (or their agents) to hold and redistribute a tokenized claim.

RLUSD's monthly attestation is by Deloitte LLP (monthly agreed-upon-procedures); USDP's proactive monthly reserve reporting appears to have been discontinued; the figures are point-in-time and issuer-reported.

## TIMELINE

- 2018 – USDP (then PAX Dollar) launched, the first NYDFS-approved stablecoin.
- December 2022–2023 – NYDFS orders Paxos to halt BUSD minting; USDP begins its decline.
- November 2024 – USDG launched on Ethereum under the MAS framework.
- December 2024 – RLUSD launched after NYDFS approval, with BNY Mellon as custodian.
- July 2025 – USDG launches in the EU under MiCA via Paxos Issuance Europe.
- January 2026 – Mastercard settlement network includes RLUSD.
- May 2026 – USDG about \$2.75 billion; RLUSD \$1.731 billion with \$1.833 billion of reserves; Q2 2026 – USDP about \$32 million.

## SOURCES

1. Paxos, "Paxos Introduces Global Dollar (USDG)" – the USDG launch under the MAS framework and the Global Dollar Network structure. <https://www.paxos.com/newsroom/paxos-introduces-global-dollar-usdg>
2. Paxos, "Global Dollar (USDG) Launches in the EU" – the July 2025 MiCA launch via Paxos Issuance Europe (Finnish FIN-FSA) and GDN membership. [https://www.paxos.com/newsroom/global-dollar-\(usdg\)-launches-in-the-eu](https://www.paxos.com/newsroom/global-dollar-(usdg)-launches-in-the-eu)
3. Ripple, "RLUSD Transparency" – RLUSD circulating supply (\$1,731 million), reserves (\$1,833 million), the BNY Mellon custodian and the Deloitte LLP monthly attestation (28 May 2026). <https://www.ripple.com>
4. Ripple, "Ripple and Securitize enable RLUSD smart-contract functionality for BlackRock BUIDL and VanEck VBILL tokenized funds" – RLUSD's programmable use. <https://ripple.com/ripple-press/ripple-and-securitize-enable-rlusd-smart-contract-functionality-for-blackrock-buidl-and-vaneck-vbill-tokenized-funds/>
5. CoinDesk, "Ripple, JPMorgan settle first cross-border tokenized-treasury redemption on XRP Ledger," 7 May 2026 – RLUSD's cross-border settlement role. <https://www.coindesk.com/markets/2026/05/07/ripple-jpmorgan-settle-first-cross-border-tokenized-treasury-redemption-on-xrp-ledger>
6. Mastercard, "Stablecoins at the speed of commerce" – RLUSD's inclusion in Mastercard's 2026 stablecoin settlement network. <https://www.mastercard.com/global/en/news-and-trends/stories/2025/mastercard-stablecoin-utility-and-scale.html>
7. Paxos documentation for USDP reserve composition and the ~\$32 million residual supply (<https://www.paxos.com/usdp-transparency>); trade press (AMINA Bank / BusinessWire) for the Global Dollar Network member list (<https://www.paxos.com/newsroom/introducing-global-dollar-network-an-open-network-to-accelerate-and-reward-global-stablecoin-adoption-driven-by-anchorage-digital-bullish-galaxy-digital-kraken-nuvei-paxos-and-robinhood>) and RLUSD's chain split (~82% Ethereum / ~18% XRP Ledger as of Dec 2025, shifting to ~53/47 by mid-2026) and Wormhole NTT plans (<https://cryptoslate.com/rlusd-supply-hit-1-26b-and-82-of-it-now-sits-on-ethereum-not-xrpl/>).

## KEY IDENTIFIERS

Tickers USDG, RLUSD, USDP; RLUSD split about 53% Ethereum and 47% XRP Ledger (mid-2026, from ~82/18% in late 2025).

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## B27. Government-Paper Local-Currency Stablecoins — JPYC, cNGN and XSGD

These three are live examples of the adjacent pattern the proposal sits next to: a regulated local-currency stablecoin reserved partly or substantially in its own government's paper. The proposal differs only in substituting a multilateral's tokenized claim for the sovereign's own bonds.

### JPYC

#### AT A GLANCE

CASE	Japan's first licensed yen-pegged stablecoin, with the most explicit government-bond reserve disclosure among live regulated stablecoins in the region
PRIMARY ENTITIES / ISSUER	JPYC Inc. (Tokyo) — a private stablecoin issuer
DATES AND STATUS	Launched 27 Oct 2025; live
JURISDICTION / REGULATORY POSITION	FSA-registered Type II Funds Transfer Service Provider under Japan's Payment Services Act (reported effective Aug 2025); FSA consulting (Jan 2026) on eligible reserve bond types
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency)
CLAIM OR MONEY FORM	A yen-pegged stablecoin, 1:1 issuance and redemption
BACKING OR RESERVE	About 80% Japanese Government Bonds (JGBs) and about 20% bank deposits — the stated plan; the most explicit government-bond disclosure among live regulated stablecoins in Asia
HOLDER / TIER / REACH	Retail-reaching — individuals and institutions, capped at ¥1,000,000 per user per day; no government-disbursement use
CHAIN OR LEDGER	Avalanche, Ethereum and Polygon (public), launched simultaneously
SETTLEMENT OR USE	Retail payment and cross-border transfer
PROGRAMMABILITY / CONTROLS	Not applicable — no evidence of expiry, purpose-restriction or conditional transfer
SIZE OR ACTIVITY	Circulating supply about 2.63 billion JPYC (roughly US\$17 million, Feb 2026, aggregator data); issuer target ¥10 trillion within three years
RELEVANCE TO THE PAPER	The most explicit live disclosure of a government-bond-backed local-currency stablecoin (~80% JGBs) — a live instance of the adjacent pattern the proposal builds on
EVIDENCE LIMITS	The reserve composition is the issuer's stated plan with no located named-auditor attestation; supply figures conflict across CoinMarketCap and CoinGecko and are not reconciled on-chain; the ¥10 trillion figure is an issuer projection

JPYC is Japan's first regulated yen-pegged stablecoin, issued 1:1 with no transaction fee across Avalanche, Ethereum and Polygon. Its defining feature is its reserve: approximately 80% Japanese Government Bonds and approximately 20% bank deposits, the most explicit government-bond-backing disclosure among live regulated stablecoins in the region, making it a live instance of the adjacent pattern the proposal builds on. The model depends on JGB coupon income to fund zero-fee operations, so it is structurally exposed to JGB yields, and the FSA's January 2026 consultation on eligible bond types may change the reserve mix.

The reserve composition is the issuer's stated plan, consistently reported across trade sources, but no independently verified attestation from a named auditor has been located and no custodian or trust structure is disclosed. Circulating supply is modest against the target — about 2.63 billion JPYC, under US\$20 million — and the figures reported by CoinMarketCap and CoinGecko diverge and cannot be reconciled without on-chain confirmation.

#### TIMELINE

- 27 October 2025 — Launches on Avalanche, Ethereum and Polygon.
- January 2026 — FSA opens consultations on eligible reserve bond types; supply reaches about 2.63 billion JPYC by February 2026.

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2. Iolite, "JPYC EX to launch stablecoin," 27 October 2025 — the simultaneous Avalanche/Ethereum/Polygon launch. <https://iolite.net/en/news/jpyc-ex-launch-stablecoin-20251027>
3. Trade-press reserve coverage (BingX explainer; etherworld.co; ainvest.com) — the ~80% JGB / ~20% bank-deposit backing. <https://bingx.com/en/learn/article/what-is-jpy-coin-jpyc-yen-stablecoin-how-does-it-work>
4. JPYC Inc. issuer materials and Japan's Payment Services Act / FSA Type II Funds Transfer Service Provider registration (not confirmed against the FSA registry — <https://corporate.jpyc.co.jp/en>).
5. CoinMarketCap and CoinGecko — circulating-supply data (~2.63 billion JPYC), figures unreconciled. <https://coinmarketcap.com/currencies/jpyc/> and <https://www.coingecko.com/en/coins/jpy-coin>

## CNGN

### AT A GLANCE

CASE	Nigeria's principal regulated naira stablecoin — a disclosed African example of a sovereign-paper reserve component
PRIMARY ENTITIES / ISSUER	WrappedCBDC Ltd, a joint venture of the African Stablecoin Consortium — a private issuer
DATES AND STATUS	Live since 3 Feb 2025
JURISDICTION / REGULATORY POSITION	SEC Nigeria Approval-in-Principle (Aug 2024); brought under the Investments and Securities Act 2025 (digital assets as securities; reserve backing, AML/KYC and audit mandated)
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency)
CLAIM OR MONEY FORM	A naira-pegged stablecoin, 1:1
BACKING OR RESERVE	About 54% commercial-bank deposits and about 46% Nigerian Treasury bills plus a CardinalStone money-market fund (Oct 2025 disclosure); reserves yield-bearing (₦15 million reserve income reported)
HOLDER / TIER / REACH	Retail-reaching — on SEC-licensed Nigerian exchanges (Busha, Quidax); operates alongside, not in place of, the CBN's eNaira CBDC; no government-disbursement use confirmed
CHAIN OR LEDGER	Native Bantu chain plus Ethereum, Base, BNB Chain, Polygon and AssetChain (public)
SETTLEMENT OR USE	Retail payment, exchange trading, intra-Nigeria transfer and stated remittance use
PROGRAMMABILITY / CONTROLS	Not applicable
SIZE OR ACTIVITY	Circulating supply about ₦681 million (~681 million cNGN) by mid-2026 (Coinbase); about ₦1 billion claimed cumulatively issued by Dec 2025 — circulating and cumulative are distinct
RELEVANCE TO THE PAPER	A government-bond-backed local-currency stablecoin (~46% Nigerian Treasury bills plus a money-market fund) — a disclosed African instance of the adjacent pattern
EVIDENCE LIMITS	The T-bill-versus-fund split within the 46% is not published and the 2026 composition is not independently confirmed; monthly attestation reports are prepared by Big & Co, an independent Nigerian accounting firm (TechCabal, Dec 2025); a separate ~2.3 billion supply figure appears in some sources and likely reflects multi-chain or cumulative counting

cNGN is Nigeria's principal regulated naira stablecoin, pegged 1:1 across a native chain and several public chains, and Africa's first stablecoin to receive an SEC Nigeria Approval-in-Principle. Its reserve is a disclosed African example of a sovereign-paper component: an October 2025 disclosure put roughly 54% in commercial-bank deposits and roughly 46% in Nigerian Treasury bills together with a CardinalStone money-market fund, making it a disclosed African instance of the adjacent government-paper pattern.

The precise T-bill-versus-fund split within the 46% is not published and the composition could have shifted since; monthly attestation reports are prepared by Big & Co, an independent Nigerian accounting firm (TechCabal, Dec 2025), though the underlying reserve disclosure rests largely on press reporting. Supply must be read with care: circulating supply rose to about ₦681 million by mid-2026 (Coinbase), while a separate 2.3 billion figure and the ₦1 billion "cumulatively issued" claim are different quantities that cannot be conflated.

## TIMELINE

- August 2024 — SEC Nigeria Approval-in-Principle under the incubation programme.
- 3 February 2025 — Goes live; March 2025 — ₦121.3 million circulating; August 2025 — ₦603.9 million across 832-plus wallets.
- October 2025 — Reserve composition disclosed (~54% deposits, ~46% T-bills/fund).
- December 2025 — ~₦1 billion claimed cumulatively issued; Investments and Securities Act 2025 enacted.

## SOURCES

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4. Mariblock, "Naira-pegged stablecoin cNGN launches, lists on exchanges" — launch and early wallet/holder data. <https://www.mariblock.com/stories/naira-pegged-stablecoin-cngn-launches-lists-on-exchanges>
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7. Coinbase price page and CoinGeek — circulating-supply data (~₦681m), figures unreconciled against the cumulative claim. <https://www.coinbase.com/price/base-cngn-ef5f>

## KEY IDENTIFIERS

Ethereum `0x17CDB2a01e7a34CbB3DD4b83260B05d0274C8dab`; Base  
`0x46C85152bFe9f96829aA94755D9f915F9B10EF5F`.

## XSGD

### AT A GLANCE

CASE	Singapore's principal regulated SGD stablecoin, reserved partly in Singapore-government / public-entity notes, with monthly attestations
PRIMARY ENTITIES / ISSUER	StraitsX SGD Issuance Pte. Ltd. (a Xfers subsidiary) — a private, MAS-licensed issuer
DATES AND STATUS	Long-running; MAS Major Payment Institution licence formalised July 2024; live
JURISDICTION / REGULATORY POSITION	MAS Major Payment Institution licence (reported 17 Jul 2024); recognised by MAS as substantively compliant with the Single-Currency Stablecoin framework
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency)
CLAIM OR MONEY FORM	An SGD-pegged stablecoin, 1:1
BACKING OR RESERVE	Cash and bank deposits plus Singapore-government or public-entity short-term notes, held in trust at DBS, Standard Chartered and CIMB; monthly attestations by a Singapore CPA firm; the exact cash-versus-note split is not published

HOLDER / TIER / REACH	Retail- and institutional-reaching via the StraitsX platform; a Grab MOU is not yet live; no government-disbursement use confirmed
CHAIN OR LEDGER	Ethereum, Polygon, Avalanche, Arbitrum, Hedera, Zilliqa, XRPL (public); Solana and Base announced for 2026
SETTLEMENT OR USE	Retail payment, cross-border and B2B settlement, treasury reserve for crypto businesses
PROGRAMMABILITY / CONTROLS	Not applicable
SIZE OR ACTIVITY	Circulating supply about 18–22 million XSGD (a June-2025 attestation near 16.7 million supports this range over a stale ~42 million figure); StraitsX cumulative gross transaction value above US\$18 billion is a flow metric, not the XSGD balance
RELEVANCE TO THE PAPER	A government-bond-backed local-currency stablecoin holding Singapore-government and public-entity notes alongside cash, with a strong attestation cadence among the local-currency stablecoins here – the adjacent pattern under a robust regime
EVIDENCE LIMITS	The cash-versus-note split is not published; supply figures diverge across aggregators and are best reconciled against the attestation

XSGD is Singapore's principal regulated SGD stablecoin, pegged 1:1 across several public chains, with monthly reserve attestations from a Singapore CPA firm. Its reserve combines cash and bank deposits with Singapore-government or public-entity short-term notes, held in a segregated trust split across three custodians – DBS, Standard Chartered and CIMB – so there is no single-custodian concentration; the notes are sovereign or public-entity paper, the adjacent government-paper pattern under a robust regulatory regime among these local-currency stablecoins.

The exact proportion of notes against cash is not published in the available summaries. The supply figures diverge materially – the roughly 42 million reported by one aggregator is likely stale or double-counted across chains, while a June-2025 attestation near 16.7 million points to the 18–22 million range as more credible – and the above-US\$18 billion figure is cumulative gross transaction value across all StraitsX products, not an XSGD circulating balance.

## TIMELINE

- 17 July 2024 – MAS Major Payment Institution licence (reported).
- May 2025 – XRPL added; 2025 – attestation reports published; StraitsX–Grab MOU (not live).
- Early 2026 – Solana and Base expansion announced.

## SOURCES

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2. StraitsX, "XSGD December 2025 attestation reports now available" – the monthly Singapore-CPA reserve attestation cadence. <https://www.straitsx.com/blog-post/xsgd-december-2025-attestation-reports-now-available>
3. fintechnews.sg, "StraitsX secures MAS licenses for stablecoin issuance, crypto payments" – the MAS Major Payment Institution licence. <https://fintechnews.sg/98450/digitalassets/straitx-secures-mas-licenses-for-stablecoin-issuance-crypto-payments/>
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7. CoinMarketCap, CoinGecko, Coinpaprika and CoinStats – divergent circulating-supply data (~18.5m to ~42m). <https://coinmarketcap.com/currencies/xsgd/>

## KEY IDENTIFIERS

Ethereum `0x70e8de73ce538da2beed35d14187f6959a8eca96`.

## B28. Cash-Backed and Emerging Local-Currency Stablecoins — ZARP, PHPC and AxCNH

These three are local-currency stablecoins whose reserves are cash and deposits rather than government bonds — the contrast cases to B27. They show the same local-currency-stablecoin form reaching users, but without the sovereign-paper reserve the proposal's adjacent pattern turns on.

### ZARP

#### AT A GLANCE

CASE	South Africa's principal live rand stablecoin — the deliberate full-cash contrast case among the local-currency stablecoins
PRIMARY ENTITIES / ISSUER	ZARP Stablecoin (Pty) Ltd (Rand Reserve project), representative of Inves Capital (Pty) Ltd — a private issuer
DATES AND STATUS	Live
JURISDICTION / REGULATORY POSITION	No dedicated stablecoin licence (South Africa has no framework as of mid-2026); SARB categorised crypto assets and stablecoins under a "technology-enabled financial innovation" risk sub-category, describing them as a structural and ongoing threat (FSR, 25 Nov 2025); noted in the IFWG's March 2025 diagnostic
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency)
CLAIM OR MONEY FORM	A rand-pegged stablecoin, 1:1
BACKING OR RESERVE	Full cash — no government bonds, Treasury bills, money-market funds or supranational paper; reserve managed by Old Mutual Wealth, attested by Kempen Audit
HOLDER / TIER / REACH	Retail- and institutional-reaching (ERC-20, exchange-tradeable); not legal tender; no SARB endorsement; no government-disbursement use
CHAIN OR LEDGER	Ethereum, Base and Polygon (public), plus a Solana deployment
SETTLEMENT OR USE	Retail payment, crypto trading pairs and cross-border rand settlement
PROGRAMMABILITY / CONTROLS	Not applicable
SIZE OR ACTIVITY	Reserve confirmed at R87,542,702.94 (Kempen Audit, 4 Sep 2025) — the most reliable anchor; circulating-supply figures diverge across aggregators (per-chain vs aggregate counting, and the Solana migration)
RELEVANCE TO THE PAPER	The cash-backed comparator among the local-currency stablecoins — a working one reaching users but reserved entirely in cash, with no sovereign paper, the opposite of the proposal's reserve-backed pattern
EVIDENCE LIMITS	Reserve management is a single-institution concentration (Old Mutual Wealth); supply counts diverge across Ethereum, Base and Solana and are best reconciled against the audited reserve

ZARP is South Africa's principal live rand stablecoin, pegged 1:1, and the contrast case among the local-currency stablecoins: its reserves are held entirely in cash, with no government bonds, Treasury bills or money-market funds carrying sovereign paper. The reserve is managed by Old Mutual Wealth (a single-institution concentration for reserve management), attested by Kempen Audit, with the smart contract audited by Solidity Finance. For the paper it is the cash-backed comparator — a working local-currency stablecoin that reaches users but does not use the sovereign-paper reserve the proposal's adjacent pattern depends on.

It carries no SARB endorsement and operates in a regulatory vacuum, with the SARB having categorised crypto assets and stablecoins under a "technology-enabled financial innovation" risk sub-category and described them as a structural and ongoing threat (FSR, 25 November 2025). The reserve figure (R87,542,702.94, Kempen Audit, September 2025) is a firmer number than the aggregator supply counts, which diverge across chains and are best reconciled against the audited reserve.

## TIMELINE

- March 2025 — IFWG South African stablecoin diagnostic notes ZARP.
- 4 September 2025 — Kempen Audit attestation: R87,542,702.94 in reserve.
- 25 November 2025 — SARB Financial Stability Review classifies crypto and stablecoins as a structural risk.
- 2026 — Solana migration; supply figures inconsistent across chains.

## SOURCES

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## PHPC

### AT A GLANCE

CASE	The Philippines' first retail peso stablecoin, the only BSP-regulated peso stablecoin
PRIMARY ENTITIES / ISSUER	Coins.ph — a private, BSP-regulated issuer
DATES AND STATUS	Live, post-sandbox (final sandbox redemption 5 Jul 2025), scaling for remittances
JURISDICTION / REGULATORY POSITION	Exited the BSP Regulatory Sandbox in 2025 and now operates under BSP licensing (the specific post-sandbox category not confirmed)
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency)
CLAIM OR MONEY FORM	A peso-pegged stablecoin, 1:1
BACKING OR RESERVE	A stated 100% basket of cash, time deposits and short-term money-market instruments in Philippine banks; no government-bond component disclosed; no named auditor or attestation identified
HOLDER / TIER / REACH	Retail-reaching — via the Coins.ph app (~18 million registered users), remittance-oriented; no government-disbursement use confirmed
CHAIN OR LEDGER	Polygon and Ronin (public)
SETTLEMENT OR USE	Retail payment, remittance and cross-border peso settlement
PROGRAMMABILITY / CONTROLS	Not applicable
SIZE OR ACTIVITY	Circulating supply could not be verified — no 2026 figure located
RELEVANCE TO THE PAPER	A retail-reaching local-currency stablecoin with strong regulatory standing but no disclosed government-bond component — closer to a cash-backed payment token than to the proposal's reserve-backed pattern
EVIDENCE LIMITS	No government-bond/sovereign-paper component disclosed; no named custodian or attestation provider; no current circulating-supply figure verified; a separate bank-consortium peso stablecoin (PHPX on Hedera) is of unconfirmed live status

PHPC is the Philippines' first retail peso stablecoin, pegged 1:1 and issued by Coins.ph, the country's largest digital financial-services platform; it graduated from the BSP Regulatory Sandbox in 2025 and is the most credible live peso stablecoin by regulatory standing. Its reserve is described as a 100% basket of cash, time deposits and short-term money-market instruments in Philippine banks, with no government-bond or sovereign-paper component disclosed – so for the paper it is closer to a cash-backed payment token than to the adjacent reserve-backed pattern.

Disclosure is more limited than for XSGD or ZARP: no named custodian or attestation provider is identified, and no current circulating-supply figure could be verified, though Stables Money has onboarded PHPC for remittances (one live B2B use). A separate bank-consortium peso stablecoin, PHPX on Hedera, was targeted for mid-2025 with live status unconfirmed.

## TIMELINE

- Pre-2025 – In the BSP Regulatory Sandbox.
- 5 July 2025 – Sandbox final redemption; sandbox phase ends.
- 2025 – Exits the sandbox, scaling for remittances; Stables Money onboarding.

## SOURCES

1. BitPinas, "PHPC exits sandbox" – the BSP Regulatory Sandbox graduation (final redemption 5 July 2025). <https://bitpinas.com/regulation/phpc-exits-sandbox/>
2. Polygonscan token page – on-chain contract and supply reference. <https://polygonscan.com/token/0x87a25dc121Db52369F4a9971F664Ae5e372CF69A>
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4. CoinTelegraph (Stables Money onboarding of PHPC for remittances); Kapronasia (PHPC launch); Bitwage (State of Stablecoins Philippines survey). <https://cointelegraph.com/news/coinsph-stables-money-phpc-stablecoin-remittances>

## KEY IDENTIFIERS

Polygon `0x87a25dc121Db52369F4a9971F664Ae5e372CF69A`.

## AXCNH

## AT A GLANCE

CASE	An offshore-yuan (CNH)-pegged stablecoin for Belt-and-Road trade settlement, licensed in Kazakhstan
PRIMARY ENTITIES / ISSUER	AnchorX (Hong Kong-based) – a private issuer
DATES AND STATUS	Launched in Kazakhstan 17 Sep 2025; live
JURISDICTION / REGULATORY POSITION	Licensed by Kazakhstan's Astana Financial Services Authority (launch licence Sep 2025); a September-2025 HKMA warning that marketing it in Hong Kong without an HKMA licence is illegal
LAYER IN PAYOUT STACK	Stablecoin / tokenized fiat (local-currency, offshore yuan)
CLAIM OR MONEY FORM	An offshore-yuan-pegged stablecoin
BACKING OR RESERVE	Offshore CNH cash in custodial banks – no government bonds, sovereign paper or supranational paper; custodians and attestation not disclosed
HOLDER / TIER / REACH	Institutional / professional-clients only – listed on the ATAIX exchange in Kazakhstan; no retail or disbursement reach confirmed
CHAIN OR LEDGER	Conflux (a Chinese-government-supported layer-1); contract address not confirmed
SETTLEMENT OR USE	Cross-border trade settlement and Belt-and-Road corridor payments (B2B)
PROGRAMMABILITY / CONTROLS	Not applicable

SIZE OR ACTIVITY	Circulating supply could not be found in the available sources
RELEVANCE TO THE PAPER	A cash-backed local-currency stablecoin with no government-bond component – the case with the most limited disclosure among the local-currency stablecoins, and a comparator for the proposal's reserve-backed pattern
EVIDENCE LIMITS	Cash CNH reserves with undisclosed custodians and no attestation; circulating supply not found; the HKMA warning constrains expansion into the principal offshore-yuan centre

AxCNH is an offshore-yuan-pegged stablecoin on the Conflux chain, launched in Kazakhstan under an Astana Financial Services Authority licence and described as the first regulated offshore-yuan stablecoin, designed for Belt-and-Road trade settlement and trading for professional clients only. Its reserve is offshore CNH cash in unnamed custodial banks, with no government-bond or sovereign-paper component and no disclosed attestation – the case with the most limited disclosure among the local-currency stablecoins and a cash-backed comparator for the proposal's reserve-backed pattern.

The regulatory position is dual: legally licensed in Kazakhstan, but the subject of a September-2025 HKMA warning that marketing it in Hong Kong without an HKMA licence is illegal, which constrains expansion into the principal offshore-yuan centre. Circulating supply, custodians and attestation are all unconfirmed.

## TIMELINE

- February 2025 – Astana Financial Services Authority in-principle approval.
- June 2025 – AFSA grants AnchorX a full stablecoin issuer licence.
- 17 September 2025 – Launches in Kazakhstan; Conflux and ATAIX partnerships confirmed.
- 25 September 2025 – HKMA public warning against marketing AxCNH in Hong Kong without a licence.
- April 2026 – First HKMA stablecoin licences (HSBC, Anchorpoint) – both HKD, no CNH licence.

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## B29. Thailand G-Token and THB Stablecoin — Government-Bond Digital Instruments

### AT A GLANCE

CASE	Two related Thai initiatives — G-Token, a tokenized government bond opened to retail, and a proposed government-bond-backed baht stablecoin
PRIMARY ENTITIES / ISSUER	G-Token: Thailand's Ministry of Finance / Public Debt Management Office (a sovereign instrument). THB stablecoin: proposed by the Finance Ministry (pre-launch)
DATES AND STATUS	G-Token live (public offering 27 August 2025; Cabinet in-principle approval 13 May 2025); THB stablecoin pre-launch / proposed
JURISDICTION / REGULATORY POSITION	G-Token: Cabinet-approved under the Public Debt Management Act; KuCoin first international exchange partner. THB stablecoin: a Finance Ministry plan, with the Bank of Thailand's Stablecoin Sandbox expanded Dec 2025
LAYER IN PAYOUT STACK	Tokenized government bond (G-Token); proposed local-currency stablecoin (THB)
CLAIM OR MONEY FORM	G-Token is itself a tokenized Thai government bond; the proposed THB stablecoin would be a baht-pegged currency instrument
BACKING OR RESERVE	G-Token: the sovereign bond is the asset, not a backing layer. THB stablecoin: would be backed by Thai government bonds (potentially including G-Tokens) — a Finance Ministry plan, not launched
HOLDER / TIER / REACH	G-Token: retail-reaching, from a THB 100 minimum, for Thai citizens. THB stablecoin: unspecified (pre-launch)
CHAIN OR LEDGER	G-Token: a permissioned blockchain (platform not confirmed). THB stablecoin: not specified
SETTLEMENT OR USE	G-Token: retail sovereign-bond investment with secondary trading. THB stablecoin: proposed as a domestic payment medium
PROGRAMMABILITY / CONTROLS	G-Token: fractional ownership and secondary trading, with DAO governance on the roadmap for H2 2026. THB stablecoin: not specified
SIZE OR ACTIVITY	G-Token: Cabinet-approved initial issuance of THB 5 billion (~US\$153 million), an authorised ceiling rather than a confirmed issued amount. THB stablecoin: a proposed THB 10 billion
RELEVANCE TO THE PAPER	The most explicit live-and-proposed government-bond-backed digital instruments in Southeast Asia: G-Token tokenizes sovereign debt directly, and the THB stablecoin is proposed to be backed by such bonds — both the adjacent pattern the proposal generalizes
EVIDENCE LIMITS	The THB 5 billion is an authorised ceiling, not a confirmed issued/circulating amount; the primary market appears restricted to Thai citizens; the THB stablecoin has no issuer entity, chain or attestation framework specified

Thailand has pursued two related but architecturally distinct initiatives. G-Token is a tokenized Thai government bond — not a stablecoin — that opens sovereign debt to retail investors from as little as THB 100, billed as the world's first publicly offered tokenized government bond and approved by Cabinet in May 2025 for an initial THB 5 billion tranche; it is a direct tokenization of sovereign debt, the bond itself on-chain with no backing layer. The proposed THB stablecoin is a separate Finance Ministry initiative — a THB 10 billion baht-pegged instrument whose reserves would consist of Thai government bonds, potentially including G-Tokens — with the Bank of Thailand expanding its Stablecoin Sandbox in December 2025 to provide a test environment.

The two should be kept apart: G-Token is the bond on-chain, while the THB stablecoin would be a currency instrument backed by such bonds. The THB 5 billion for G-Token is an authorised ceiling, with the actual issued and circulating amounts not confirmed, and the primary market appears restricted to Thai citizens with KuCoin providing international reach. Together they are the most explicit live-and-proposed government-bond-backed digital instruments in Southeast Asia, and the clearest national expression of the adjacent pattern the proposal generalizes.

## TIMELINE

- 13 May 2025 — Cabinet approves the G-Token initial issuance (THB 5 billion).
- August–September 2025 — G-Token presale / launch; KuCoin confirmed as first international exchange partner.
- 2025 — Finance Ministry announces the THB 10 billion government-bond-backed stablecoin proposal.
- 24 December 2025 — Bank of Thailand expands its Stablecoin Sandbox.
- H1 2026 (roadmap) — Tokenized T-bills, municipal bonds and sukuk on the G-Token chain.

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## KEY IDENTIFIERS

G-Token (Ministry of Finance / PDMO; token-g.com); proposed THB stablecoin (Bank of Thailand Stablecoin Sandbox).

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## B30. India ARC — Proposed Rupee Reserve Certificate

### AT A GLANCE

CASE	A proposed INR-pegged stablecoin backed by Indian government securities — pre-launch, and a national-level echo of the proposal's logic
PRIMARY ENTITIES / ISSUER	Anq (a Bengaluru fintech) with Polygon Labs — a private stablecoin proposal; pre-launch, not live
DATES AND STATUS	Pre-launch / proposal — a Q1 2026 target was missed
JURISDICTION / REGULATORY POSITION	No regulatory approval confirmed (no RBI, SEBI or IFSCA licence located); India has no stablecoin framework as of mid-2026; RBI officials have stated stablecoins serve no meaningful purpose and warned of currency substitution
LAYER IN PAYOUT STACK	Proposed stablecoin / tokenized fiat (local-currency)
CLAIM OR MONEY FORM	A proposed INR-pegged stablecoin
BACKING OR RESERVE	Proposed: Indian Government Securities (G-Secs) and Treasury bills, with some reports adding fixed deposits / cash equivalents; no reserves exist (pre-launch)
HOLDER / TIER / REACH	Proposed institutional / corporate-only minting, aligned to the Liberalised Remittance Scheme; retail access path unclear; not live — no recipients
CHAIN OR LEDGER	Polygon (proposed); deployment not confirmed
SETTLEMENT OR USE	Proposed: corporate cross-border settlement, onshore INR liquidity retention and a Liberalised-Remittance-Scheme-compliant corridor
PROGRAMMABILITY / CONTROLS	Not applicable
SIZE OR ACTIVITY	No on-chain token, contract or supply, consistent with pre-launch
RELEVANCE TO THE PAPER	A proposed government-bond-backed local-currency stablecoin (reserved in G-Secs and T-bills) whose stated rationale — retaining INR liquidity onshore and supporting demand for Indian government debt — mirrors the proposal's logic at the national level; but it is not yet live
EVIDENCE LIMITS	Not live (no deployment, contract or supply); no regulatory approval confirmed and the "regulated" label is issuer marketing; FEMA capital-controls and a cautious RBI create legal ambiguity

ARC is an INR-pegged stablecoin proposal from Anq with Polygon Labs, announced in November 2025 for a tentative early-2026 debut that has passed. The design calls for 1:1 backing by Indian Government Securities and Treasury bills, with minting restricted to corporate accounts to fit the Liberalised Remittance Scheme; the stated rationale — retaining INR liquidity onshore and supporting demand for Indian government debt — mirrors the proposal's logic at the national level, which is why it is included despite being pre-launch.

It is not live: no on-chain deployment, contract or supply exists, and no regulatory approval has been confirmed, with the "regulated" claim unverified against any licence. India has no stablecoin framework, a 30% tax and 1% TDS apply to virtual-digital-asset gains, the FEMA capital-controls regime creates legal ambiguity for INR stablecoin transfers, and the RBI has been openly cautious. Separately, and not to be conflated, the RBI's e-rupee CBDC operates across about 17 banks, with retail circulation the RBI reported at ₹1,016.46 crore on 31 March 2025 reportedly declining to ₹771.66 crore a year later; the e-rupee is the state's preferred route to a digital rupee and has been used to argue against private stablecoin licensing.

### TIMELINE

- 20 November 2025 — CoinDesk reports the ARC announcement and a tentative January 2026 debut.
- December 2025 — RBI officials reiterate opposition to private stablecoins.
- Q1 2026 (target, missed) — No confirmed launch.
- April 2026 — Inter-ministerial digital-asset discussion paper reportedly blocked by the RBI.

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## KEY IDENTIFIERS

ARC (Anq × Polygon Labs), proposed on Polygon; reserve proposed in Indian G-Secs and T-bills.

## B31. China e-CNY — Retail CBDC

### AT A GLANCE

CASE	The world's largest live CBDC by cumulative transaction value — the PBoC's retail-and-wholesale digital yuan, with live programmable disbursement
PRIMARY ENTITIES / ISSUER	People's Bank of China (CBDC), distributed two-tier through six state commercial banks (ICBC, CCB, ABC, BOC, BOCOM, Postal Savings Bank) and selected mobile-payment platforms
DATES AND STATUS	Pilots from April 2020; extended pilot at scale across 26 localities / 17 provincial-level regions (no nationwide launch announced); reclassified to a deposit-based model 1 Jan 2026
JURISDICTION / REGULATORY POSITION	PRC law; the PBoC Digital RMB Management Framework, in effect 1 January 2026
LAYER IN PAYOUT STACK	CBDC / programmable public money (retail and wholesale)
CLAIM OR MONEY FORM	A direct PBoC liability; from Jan 2026 retail wallet balances at commercial banks are deposit liabilities (deposit-insurance-protected), with non-bank platforms holding 100% reserves
BACKING OR RESERVE	The PBoC and the state-bank system; no external custodian, and the system does not have a stablecoin-style reserve disclosure or third-party attestation regime
HOLDER / TIER / REACH	Retail across pilot zones (open to foreign visitors) plus wholesale via mBridge (B5); marginal against Alipay and WeChat Pay by annual flow
CHAIN OR LEDGER	Permissioned dual-layer — a PBoC central ledger with distributed sub-ledgers at authorized banks; not a public blockchain
SETTLEMENT OR USE	Domestic retail payments; government subsidy disbursement; public-sector wages in pilot zones; cross-border interbank settlement
PROGRAMMABILITY / CONTROLS	Live — smart contracts on the sub-ledger can attach expiry dates, merchant-category restrictions and earmarked purposes; used for government subsidies and consumption vouchers
SIZE OR ACTIVITY	Cumulative transaction value (throughput) 16.7 trillion RMB (~US\$2.37 trillion) through Nov 2025, 3.48 billion transactions; 230 million personal and 18.84 million institutional wallets; outstanding balance not disclosed; 2024 annual flow derived at ~4.2 trillion RMB (~0.2% of Chinese payment volume)
RELEVANCE TO THE PAPER	With India's e-rupee, one of only two live examples of programmable disbursement by a central bank at material scale — government subsidies and vouchers carried as earmarked tokens; a central-bank claim on itself, not a multilateral claim or a payout-to-sovereign rail
EVIDENCE LIMITS	Headline figures are cumulative throughput, not stock (outstanding balance undisclosed); the payments share is marginal (~0.2%); the amount moving under smart-contract conditions is not reported; the e-CNY-~95%-of-mBridge figure is single-sourced trade press, and mBridge's cumulative volume is an aggregator figure

The e-CNY is the PBoC's retail and wholesale CBDC and the largest live CBDC by cumulative transaction value. The PBoC issues to six authorized state banks, which distribute to users through mobile wallets interoperable with WeChat Pay and Alipay QR codes; the funds settle on a permissioned distributed ledger rather than a public chain. From January 2026 the system was restructured from digital cash to a deposit-based model, with interest accruing on wallet balances at commercial-bank deposit rates and deposit-insurance protection applied.

It is a direct PBoC liability; under the 2026 framework retail balances at commercial banks are bank deposit liabilities while non-bank platforms hold 100% reserves. Programmability is live: smart contracts can specify expiry, permitted merchants or earmarked purposes, and government agencies have used these for subsidies and consumption vouchers in pilot cities. The e-CNY also participates in Project mBridge (B5) for cross-border settlement.

For the paper, the e-CNY is – with India's e-rupee – one of only two live examples of programmable disbursement by a central bank at material scale: a state agency can issue earmarked tokens that recipients spend within rules. It is a central-bank claim on itself rather than a multilateral claim or a payout-to-sovereign rail, but the programmable-disbursement mechanics are directly relevant to the payout-side's domestic-allocation leg.

The headline figures are throughput, not stock – the 16.7 trillion RMB and 3.48 billion transactions are cumulative flow through November 2025, while the outstanding balance held is not disclosed. Against that, the e-CNY's share of payments is small (a derivation puts 2024 annual flow at about 0.2% of Chinese payment volume, with users mostly continuing to use existing apps). The PBoC does not report how much of the aggregate moved under smart-contract conditions, the e-CNY-~95%-of-mBridge figure is single-sourced trade press, and no stablecoin-style reserve disclosure or third-party attestation regime applies to the backing.

## TIMELINE

- April 2020 – Pilot launches in Shenzhen, Suzhou, Chengdu and Xiong'an.
- February 2022 – Beijing Winter Olympics: first international-visitor pilot.
- June 2024 – Cumulative value 7 trillion RMB; Saudi Arabia joins mBridge.
- September–November 2025 – Cumulative value rises to 14.2 then 16.7 trillion RMB; 3.48 billion transactions; 230 million personal wallets.
- 1 January 2026 – New Digital RMB Management Framework in effect; deposit-money reclassification with interest begins.

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## KEY IDENTIFIERS

e-CNY (Digital RMB); permissioned dual-layer (PBoC central ledger + bank sub-ledgers); six authorized state banks.

## B32. India Digital Rupee — Retail CBDC

### AT A GLANCE

CASE	India's two-instrument CBDC (retail e₹-R and wholesale e₹-W) — notable for live programmable welfare disbursement
PRIMARY ENTITIES / ISSUER	Reserve Bank of India (CBDC), distributed two-tier through 19 scheduled commercial banks
DATES AND STATUS	Retail pilot from Dec 2022; live limited across 19 banks; subsidy pilots live in three states/UTs; wholesale CD pilot live
JURISDICTION / REGULATORY POSITION	Reserve Bank of India Act (amended 2023); pilot status, not yet universally issued
LAYER IN PAYOUT STACK	CBDC / programmable public money (retail and wholesale)
CLAIM OR MONEY FORM	e₹-R is a direct RBI liability held in a wallet (the digital equivalent of banknotes, not a bank deposit); e₹-W is an RBI-to-bank settlement instrument
BACKING OR RESERVE	A direct RBI liability; the RBI is sole obligor and holds no external reserve
HOLDER / TIER / REACH	Retail-reaching — about 7–8 million users across 19 bank apps, plus welfare beneficiaries in live food-subsidy pilots; marginal against UPI
CHAIN OR LEDGER	Permissioned DLT operated by the RBI and participating banks; the Unified Markets Interface adds a tokenization layer for wholesale assets
SETTLEMENT OR USE	Retail payments (UPI-QR-interoperable); government welfare and food-subsidy disbursement; wholesale interbank settlement; tokenized Certificate-of-Deposit settlement
PROGRAMMABILITY / CONTROLS	Live in welfare — programmable e₹-R credited to beneficiary wallets is spendable only at designated Fair Price Shops or identified merchants; only purpose- and merchant-whitelisting is live (expiry, geo-fencing and category limits remain proposed)
SIZE OR ACTIVITY	e₹-R in circulation (stock) ₹771.7 crore (~US\$92 million) at 31 Mar 2026, down ~24% year on year; cumulative retail transactions 120 million through Dec 2025, value above ₹28,000 crore (~US\$3.4 billion); ~7–8 million users
RELEVANCE TO THE PAPER	The e₹ programmable-subsidy model — a central bank issues earmarked tokens, a government agency sets the conditions, beneficiaries spend within the rules — is the closest live operational analogue to the proposal's disbursement design at the sovereign level
EVIDENCE LIMITS	Circulation figures and cumulative throughput are distinct quantities; beneficiary counts for the subsidy pilots are not disclosed; only merchant-whitelisting is live; the "~US\$80 billion of welfare via the e-rupee" framing describes scheme size, not an audited CBDC-disbursed figure

India's e-rupee runs as two instruments: e₹-R, a retail banknote equivalent held as a direct RBI claim in a wallet (not a bank deposit), and e₹-W for interbank settlement. The retail pilot began in December 2022 with four banks in four cities and reached 19 banks by 2025, with QR interoperability that lets UPI-equipped merchants accept it. The units must be kept apart: the outstanding balance in circulation was ₹771.7 crore at 31 March 2026, while the 120 million transactions and the ₹28,000-crore-plus figure through December 2025 are cumulative throughput, not stock. Adoption has plateaued and fallen — circulation peaked at ₹1,016.5 crore in March 2025 and declined about 24% by March 2026, which analysts attribute to the wind-down of bank-incentive campaigns; against UPI's tens of billions of monthly transactions the retail e-rupee is a very small share of India's payment activity.

The distinguishing feature is live programmable welfare. From 2025-26, food-subsidy beneficiaries under PMGKAY in Gujarat, Puducherry (launched 26 February 2026 via Canara Bank) and Chandigarh receive programmable e₹-R redeemable only at Fair Price Shops or designated merchants — implemented at the wallet layer through spend-restriction metadata validated before redemption. Related agricultural pilots include a NABARD–SBI landless-farmer credit scheme (restricted to seeds and fertiliser) and a Maharashtra drip-irrigation pilot (Punjab National Bank, with the World Bank advising, structured 80% restricted / 20% unrestricted). On the wholesale side, e₹-W underpins the Unified Markets Interface, through which tokenized Certificates of Deposit have been issued and traded with atomic e₹-W settlement (volumes undisclosed).

For the paper, the e₹ programmable-subsidy model is the closest live operational analogue to the proposal's disbursement design at the sovereign level: a central bank issues earmarked tokens, a government agency sets the conditions, and beneficiaries spend within the rules. It remains a direct central-bank liability rather than a multilateral claim, but it is the clearest evidence that a large democratic economy can run conditional disbursement to real beneficiaries on public money.

Two caveats: the beneficiary counts for the subsidy pilots are not disclosed, and only merchant-whitelisting is live — expiry, geo-fencing and category limits remain proposed rather than deployed. The framing that India routes roughly US\$80 billion of welfare through the e-rupee describes scheme size, not an audited CBDC-disbursed figure.

## TIMELINE

- November–December 2022 — e₹-W and e₹-R pilots launch.
- March 2025 — e₹-R in circulation peaks at ₹1,016.5 crore.
- October–December 2025 — RBI cites ~7 million users, 19 banks; 120 million cumulative transactions above ₹28,000 crore.
- 26 February 2026 — Puducherry PMGKAY food-subsidy pilot launched.
- 31 March 2026 — e₹-R in circulation ₹771.7 crore, down ~24% year on year.
- 2026-27 — Cross-border CBDC pilots planned with Singapore and the UAE.

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## KEY IDENTIFIERS

₹-R (retail) and ₹-W (wholesale); permissioned RBI/bank DLT; Unified Markets Interface (wholesale tokenization).

## B33. Singapore Project Orchid — Purpose-Bound Money

### AT A GLANCE

CASE	MAS's programmable-digital-SGD initiative, whose defining output is the Purpose-Bound Money protocol — conditions attached to digital money without changing the money itself
PRIMARY ENTITIES / ISSUER	Monetary Authority of Singapore (central bank and regulator); pilots run by DBS, OCBC and UOB using tokenized SGD (a bank liability) or wholesale CBDC (a MAS liability)
DATES AND STATUS	Launched 2021; government-voucher and wholesale-CBDC settlement live at pilot scale; tokenized MAS Bills trial planned for 2026
JURISDICTION / REGULATORY POSITION	Singapore Payment Services Act framework; PBM is a protocol specification, not a separate licence class; wholesale CBDC sits outside the Act
LAYER IN PAYOUT STACK	CBDC / programmable public money + tokenized bank deposit (PBM is a protocol layer over either)
CLAIM OR MONEY FORM	PBM is a wrapper attaching conditions to underlying digital money — tokenized bank deposits, wholesale CBDC or a regulated stablecoin
BACKING OR RESERVE	The underlying money is either tokenized bank deposits (commercial-bank liabilities) or wholesale CBDC (a MAS liability); the PBM protocol itself carries no reserve
HOLDER / TIER / REACH	Retail-reaching in government-disbursement pilots; wholesale in MAS-and-bank settlement; business-facing in enterprise-grant pilots — all at pilot scale
CHAIN OR LEDGER	Multiple: DBS uses a permissioned ledger with tokenized SGD; the MAS wholesale CBDC uses the shared SGD Testnet
SETTLEMENT OR USE	Government voucher and grant disbursement (retail and business); interbank overnight-lending settlement (wholesale); supplier financing; cross-wallet retail interoperability
PROGRAMMABILITY / CONTROLS	The design purpose — PBM attaches validity periods, merchant-category and geographic restrictions and redemption rules to the underlying money, with smart contracts automating distribution and redemption; multiple live pilots executed
SIZE OR ACTIVITY	Government CDC-voucher pilot (Oct 2022): up to 1,000 consumers and six merchants over four weeks; the broader CDC Vouchers Scheme has disbursed ~\$2.3 billion since 2021, but mostly through the non-blockchain Singpass channel (the PBM share undisclosed); enterprise-grant pilot (Aug 2024): 27 fintech members; first live wholesale CBDC settlement (Nov 2025): DBS, OCBC, UOB, volumes undisclosed
RELEVANCE TO THE PAPER	PBM is the closest documented retail architecture to the proposal's "tokenized claim with attached conditions disbursed to recipients," and the planned tokenized MAS Bills trial is an adjacent case of a government security tokenized and settled in CBDC
EVIDENCE LIMITS	The on-chain/PBM share of the S\$2.3 billion CDC scheme is not disclosed (most ran through Singpass, not blockchain); wholesale-CBDC settlement volumes are undisclosed; the disbursement pilots are real but small

Project Orchid is MAS's multi-year initiative to build infrastructure for a programmable digital Singapore dollar. Its defining output is the Purpose-Bound Money protocol, a generic wrapper that attaches conditions to any underlying digital money — tokenized bank deposits, wholesale CBDC or a regulated stablecoin — so funds auto-enforce their disbursement rules without manual voucher reconciliation. The 2023 Orchid Blueprint set out three components: a settlement ledger with native programmability, a tokenization bridge to existing account systems, and the PBM protocol itself.

The disbursement pilots are real but small, and the main point is one of attribution. In the October 2022 pilot DBS minted PBM vouchers in tokenized SGD for 1,000 consumers and six merchants over four weeks. The broader CDC Vouchers Scheme is genuinely large – about S\$2.3 billion disbursed to roughly 1.4 million households since 2021 – but most of it runs through the non-blockchain Singpass app, and the PBM/blockchain element was one infrastructure option within it rather than the whole scheme; MAS has not separately disclosed the on-chain share. The August 2024 enterprise-grant pilot reached 27 fintech members. On the wholesale side, MAS completed Singapore's first live wholesale CBDC settlement on the SGD Testnet in November 2025 (DBS, OCBC, UOB settling interbank overnight lending; volumes undisclosed) and announced plans to issue tokenized MAS Bills to Primary Dealers with CBDC settlement in a later 2026 trial.

For the paper, PBM is the closest documented retail architecture to the proposal's "tokenized claim with attached conditions disbursed to recipients" – the underlying money can be a bank or central-bank liability, and the conditions travel with it. The planned tokenized MAS Bills trial is an adjacent case of a government security tokenized and settled in CBDC. PBM vouchers are backed by the underlying tokenized SGD or by a MAS-to-bank obligation; the protocol layer holds no reserve of its own.

## TIMELINE

- 2021 – Project Orchid launched by MAS.
- October 2022 – DBS live CDC-voucher pilot: 1,000 consumers, six merchants.
- November 2023 – MAS publishes the Orchid Blueprint.
- November 2023 (publicly disclosed August 2024) – DBS pilots EnterpriseSG grants via PBM at SFF 2023 (27 fintech members).
- November 2025 – First live wholesale CBDC interbank settlement on the SGD Testnet (DBS, OCBC, UOB).
- 2026 – Tokenized MAS Bills to Primary Dealers with CBDC settlement planned.

## SOURCES

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## KEY IDENTIFIERS

Project Orchid; Purpose-Bound Money (PBM) protocol; SGD Testnet (wholesale CBDC).

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## B34. Digital Euro — Retail CBDC Design

### AT A GLANCE

CASE	The ECB's planned retail CBDC — unissued, and the clearest documented case of a major central bank ruling out programmable money for individuals
PRIMARY ENTITIES / ISSUER	European Central Bank / Eurosystem (CBDC); not yet issued, and would be a direct ECB liability
DATES AND STATUS	Not live — preparation phase closed Oct 2025; earliest pilot mid-2027, earliest issuance 2029, both contingent on legislation
JURISDICTION / REGULATORY POSITION	Not yet a legal instrument; the EU regulation is in the legislative process (Council position Dec 2025, trilogue expected 2026); the Governing Council cannot issue until it is adopted
LAYER IN PAYOUT STACK	CBDC / public money (retail; design stage)
CLAIM OR MONEY FORM	A direct ECB liability on the same basis as banknotes
BACKING OR RESERVE	A direct ECB liability; no private-sector reserve backing
HOLDER / TIER / REACH	Intended retail-reaching for all euro-area residents, with limited non-resident access and a proposed per-individual holding limit (illustratively ~€3,000); not issued
CHAIN OR LEDGER	Not decided or disclosed; the architecture separates an ECB settlement layer from market-provided payment interfaces
SETTLEMENT OR USE	Retail payments across the euro area, intended as a complement to cash
PROGRAMMABILITY / CONTROLS	Explicitly ruled out for individual holdings — no expiry, no merchant restrictions, no earmarking, no issuer/government control of individual transactions; the ECB distinguishes this from user-set conditional payments, which it would support ("would never be programmable money, but it could facilitate conditional payments")
SIZE OR ACTIVITY	Not live; no outstanding balance; development costs to first issuance estimated ~€1.3 billion, annual operating costs from 2029 ~€320 million
RELEVANCE TO THE PAPER	The clearest documented case of a major central bank ruling out programmable money for individuals — the opposite design choice to the e-CNY and e-rupee, and a marker of how far a large jurisdiction will and will not go on conditional public money
EVIDENCE LIMITS	Not live (no payments processed to the public); issuance is contingent on legislation not yet adopted; consumer-research interest is subject to self-selection

The digital euro is the ECB's planned retail CBDC, unissued and subject to legislative approval before any issuance decision. After an investigation phase (2021–2023) and a preparation phase (November 2023 to October 2025) — during which the Eurosystem drafted a scheme rulebook, selected service providers, ran an innovation platform with about 70 participants and conducted consumer research — the Governing Council decided on 29 October 2025 to move to the next phase (announced 30 October 2025). The Commission proposed the legislation in June 2023, the Council adopted its negotiating position in December 2025, and a trilogue is expected during 2026; if the regulation passes that year, a pilot could follow around mid-2027 and issuance readiness is targeted for 2029.

The defining design choice, and the sharpest contrast with the e-CNY and the e-rupee, is the explicit rejection of programmable money for individual holdings: no expiry, no category or purpose restrictions, no government-directed earmarking on individual balances. The ECB supports user-set conditional payments but draws a firm line between those and conditions embedded in the currency by the issuer. A holding limit (illustratively about €3,000) is proposed to limit deposit displacement in a crisis. The instrument would be a direct ECB liability with no external reserve custodian.

For the paper, the digital euro is included as the clearest documented case of a major central bank ruling out programmable money for individuals – the opposite of the e-CNY and e-rupee design – which marks the range of politically acceptable conditional public money in a large jurisdiction, relevant context for any earmarked-disbursement design.

Because it is not live, no payments have been processed to the public; the consumer research reported majority interest, which the ECB notes is subject to self-selection.

## TIMELINE

- June 2023 – European Commission tables the digital-euro legislative package.
- October 2023 – Investigation phase ends; the Governing Council endorses the preparation phase.
- 29 October 2025 – Governing Council decides to move to the next phase (announcement 30 October 2025); development costs estimated ~€1.3 billion.
- December 2025 – Council of the EU adopts its negotiating position.
- 2026 (expected) – Trilogue and possible regulation adoption; mid-2027 (contingent) – potential pilot; 2029 (contingent) – targeted first issuance readiness.

## SOURCES

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## KEY IDENTIFIERS

Digital euro (ECB/Eurosystem); proposed holding limit ~€3,000; settlement-layer/interface separation.

## B35. Retail CBDC Reference Cases — Bahamas, ECCB, Jamaica, Nigeria and Brazil

### AT A GLANCE

CASE	Five sovereign retail CBDCs that share a pattern — live or piloted, none with meaningful retail penetration, headline counts well above active usage
PRIMARY ENTITIES / ISSUER	Central Bank of The Bahamas; Eastern Caribbean Central Bank (eight member states); Bank of Jamaica; Central Bank of Nigeria; Banco Central do Brasil — each a central-bank CBDC
DATES AND STATUS	Sand Dollar live; DCash discontinued (Jan 2024), successor suspended (Feb 2026); Jam-Dex live; eNaira live but under review; Drex blockchain/tokenization component abandoned (Aug 2025); project continues as a PIX-integrated function
JURISDICTION / REGULATORY POSITION	Respective national/regional law; Jam-Dex was the first CBDC granted legal-tender status; the eNaira is under review
LAYER IN PAYOUT STACK	CBDC / public money (retail)
CLAIM OR MONEY FORM	Direct central-bank liabilities (Drex's retail leg was structured as tokenized bank deposits backed by wholesale Drex)
BACKING OR RESERVE	Direct central-bank liabilities on the respective sovereign balance sheets; none backed by external assets or multilateral paper
HOLDER / TIER / REACH	All target retail; actual penetration is very limited for all five
CHAIN OR LEDGER	Sand Dollar: NZIA/Island Pay; DCash: Hyperledger Fabric; Jam-Dex: eCurrency Mint ledger; eNaira: Hyperledger Fabric; Drex: Hyperledger Besu (now abandoned)
SETTLEMENT OR USE	Domestic retail payments and financial inclusion (Sand Dollar, Jam-Dex); Drex was primarily wholesale and tokenized-asset infrastructure
PROGRAMMABILITY / CONTROLS	None deployed in live use; Drex was designed with smart-contract programmability on Besu, but that layer was abandoned in August 2025 over privacy issues
SIZE OR ACTIVITY	All have very small circulating balances relative to domestic money supply (per-system figures below)
RELEVANCE TO THE PAPER	A reality check on retail CBDC reach — none has achieved meaningful penetration; the ECCB (a monetary union's central bank serving eight states) is the nearest structural parallel to a multilaterally issued instrument, though it is a currency-union central bank rather than a development institution
EVIDENCE LIMITS	Headline wallet/registration counts sit well above active usage (the eNaira's 98.5%-unused finding the starkest); some figures do not reconcile cleanly across sources

This entry groups five sovereign retail CBDCs that share a pattern: each is live or piloted, none has achieved meaningful retail penetration, and the headline counts sit well above active usage.

The Bahamas Sand Dollar (launched October 2020) was the world's first live retail CBDC. There were about 101,636 active consumer wallets as of March 2023 (Central Bank, April 2023 update), and circulation grew to about B\$2.5 million by March 2024 — under 1% of Bahamian cash in circulation; a Cato Institute report found usage correlating largely with government spending rather than organic activity; no programmability is deployed in live use. ECCB DCash (launched March 2021) ran across eight Eastern Caribbean member states on Hyperledger Fabric, suffered a roughly two-month outage in early 2022 from an expired certificate, was discontinued in January 2024, and had its "DCash 2.0" successor suspended by the Monetary Council in February 2026. Jamaica Jam-Dex (launched May 2022) was the first CBDC granted legal-tender status, with about 260,000 wallets as of January 2024 and 2025 growth (transaction value up ~550%) from a very low base. Nigeria eNaira (launched October 2021) was Africa's first CBDC; about 13 million wallets were registered by mid-2024 but the IMF reported 98.5% had never been used, and in October 2025 Nigeria's CBN announced a task force to explore an official stablecoin (IMF/World Bank meetings, 18 October 2025), a potential pivot. Brazil Drex (piloted March 2023 to August 2025) structured retail Drex as tokenized bank deposits fully backed by wholesale Drex; after privacy solutions could not be reconciled with Brazil's financial-secrecy law, the central bank stated the blockchain technology had not proved viable, abandoned the blockchain/tokenization component, and pivoted to a PIX-integrated lien-reconciliation function.

For the paper, the group is a reality check on retail CBDC reach: none has reached meaningful penetration as a share of domestic digital-payment volume, the backing in every case is a direct central-bank liability with no external custodian, and the two cases that explored programmability (Sand Dollar in design, Drex on-chain) did not bring it into live use. The ECCB — a monetary union's central bank serving eight states — is the nearest structural parallel to a multilaterally issued instrument, but it is a currency-union central bank rather than a development institution.

## TIMELINE

- October 2020 — Bahamas Sand Dollar launches (world's first retail CBDC).
- March 2021 — ECCB DCash launches; October 2021 — Nigeria eNaira launches.
- January–March 2022 — DCash offline ~two months after an expired certificate.
- May 2022 — Jamaica Jam-Dex launches (first with legal-tender status); March 2023 — Brazil Drex Phase 1 begins.
- Mid-2024 — Nigeria reports 13 million eNaira wallets; the IMF reports 98.5% unused; January 2024 — ECCB DCash discontinued.
- August 2025 — Drex blockchain deemed not viable; pivot to a PIX-integrated function.
- February 2026 — ECCB suspends DCash 2.0; October 2025 — Nigeria's CBN announces a stablecoin task force (18 Oct 2025).

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## KEY IDENTIFIERS

Sand Dollar (Bahamas); DCash (ECCB, discontinued); Jam-Dex (Jamaica); eNaira (Nigeria); Drex (Brazil, blockchain abandoned).

## B36. Sovereign Receive-and-Hold Capacity — Jurisdictional Survey

### AT A GLANCE

CASE	A jurisdictional survey of whether any sovereign can receive, custody and hold a tokenized claim as an official balance-sheet asset — the receiving leg of the paper's first rail
PRIMARY ENTITIES / ISSUER	Not an issuer — a survey across roughly eleven sovereigns and central banks (Hong Kong, Switzerland, the Eurozone, Singapore, Slovenia, the Philippines, Thailand, the UK, the US, India, Australia)
DATES AND STATUS	Current to mid-2026; component programmes range from live (Hong Kong, Switzerland, Slovenia, the Philippines, Thailand) to pilot or announced (UK, India, Australia)
JURISDICTION / REGULATORY POSITION	Multiple; several jurisdictions make a tokenized security legally holdable (Swiss DLT Act, Liechtenstein TVTG, Luxembourg Blockchain Laws, German eWpG, EU DLT Pilot Regime, Italy's FinTech Decree, the UK Digital Securities Sandbox), but none specifically addresses a government holding one
LAYER IN PAYOUT STACK	The sovereign receive-and-hold leg — the destination of a payout-side tokenized claim
CLAIM OR MONEY FORM	Tokenized sovereign bonds (where issued) and tokenized central-bank money (where settled); the survey's subject is the absent case — a received third-party tokenized claim held as an official asset
BACKING OR RESERVE	Not applicable — a survey of institutional capacity, not an instrument
HOLDER / TIER / REACH	Sovereign treasuries, central-bank reserve desks and sovereign wealth funds; roughly ten can settle tokenized value in central-bank money and about six have issued their own tokenized bonds, but none demonstrably holds a third-party tokenized claim as an official asset
CHAIN OR LEDGER	Various permissioned and public ledgers across the surveyed programmes (SDX, CMU, DL3S, HSBC Orion, Hyperledger, e₹-W and others)
SETTLEMENT OR USE	Sovereign bond issuance and wholesale-CBDC settlement (proven); receiving, custodying and re-using a tokenized claim (not proven)
PROGRAMMABILITY / CONTROLS	Not applicable to this survey
SIZE OR ACTIVITY	Roughly ten sovereigns can settle, about six have issued; one experimental official hold (the Banque de France bought Slovenia's tokenized bond, since matured); one sovereign treasury holds a digital asset (the US Strategic Bitcoin Reserve — Bitcoin by forfeiture, not a tokenized security)
RELEVANCE TO THE PAPER	This is the receiving leg the first rail depends on, and it remains unproven in public precedent: the rail to send a tokenized claim exists, but the sovereign capacity to receive, custody, account for and reuse a third-party tokenized claim is not yet established; naming the counterparty and building that capacity is the first task
EVIDENCE LIMITS	The "hold" column rests on absence of disclosure as much as on positive evidence — sovereign wealth funds disclose little, so a hold cannot be ruled out everywhere; the Banque de France case was experimental and has since matured; the settle/issue counts are firmer than the hold finding

This survey concerns the receiving leg of the proposal's first rail — a multilateral issues a tokenized claim and a sovereign receives it — which the proposal treats as the de-risked step. The public precedent is more limited than that framing suggests. What is proven is that multilaterals and a handful of governments can *issue* tokenized bonds that banks and funds buy; what is not proven anywhere, as standing practice, is a sovereign treasury or central bank *receiving, custodying and holding* a tokenized instrument as an official balance-sheet asset. The capability decomposes into four rungs that sit in different arms of government — settle, custody, hold, use-onward — and they do not move together: roughly ten sovereigns can settle tokenized value in central-bank money and about six have issued their own tokenized bonds, but none demonstrably holds a third-party tokenized claim as an official asset. The gap between "issue or settle" and "hold and re-use" is the finding.

**The settle → issue → hold → use-onward ladder.** Ranked by how far up the ladder each sits ("settle" = can move tokenized value in central-bank money; "issue" = has issued a tokenized sovereign bond; "hold" = has held a received third-party tokenized instrument as an official asset; "use-onward" = can pledge or collateralize it).

SOVEREIGN (BODY)	SETTLE	ISSUE	HOLD	USE-ONWARD	STATUS · KEY FACT
Hong Kong SAR (HKMA/HKSAR; CMU)	yes	yes	no	emerging	Live. Three government tokenized green bonds; the November 2025 issuance settled in e-HKD <i>and</i> e-CNY wholesale CBDC — the first government to use two tokenized central-bank-money forms in a live sovereign issuance [1–3]
Switzerland (SNB; cantons/cities)	yes	sub-sovereign only	no	emerging	Live pilot. Helvetia III settles real CHF wholesale CBDC on SDX to at least mid-2027; the DLT Act gives tokenized securities legal validity [4–6, 25]
Eurozone (Banque de France, Banca d'Italia, Bundesbank; ECB)	yes	—	experimental	yes	Trial / live collateral. The Banque de France <i>bought</i> Slovenia's tokenized bond (secondary, 2024) — the closest case of an official body holding one, but experimental and since matured; the ECB accepts DLT securities as collateral from 30 March 2026 [11–13, 24]
Singapore (MAS)	pilot	—	no	—	Pilot. Project Guardian and Global Layer One; a MAS-bills wholesale-CBDC pilot in 2026; GIC and Temasek are the best-positioned potential holders but disclose nothing [26]
Slovenia (Ministry of Finance)	—	yes	—	—	Live. First euro-area sovereign digital bond (€30m, 2024), settled via the Banque de France's DL3S; runs no rail of its own [19]
Philippines (Bureau of the Treasury)	—	yes	—	—	Live. Tokenized treasury bonds on the Bureau's own DLT registry (institutional 2023; retail 2025) [20]
Thailand (PDMO / Ministry of Finance)	—	yes	—	—	Live. The "G-Token" tokenized government bond (2025, retail via licensed exchanges) [21]
United Kingdom (HM Treasury / Bank of England)	pilot	announced	no	emerging	Announced. DIGIT mandated to HSBC Orion (February 2026), not yet issued; sited at HM Treasury, bypassing the Debt Management Office; Lloyds used tokenized gilts as FX collateral in the Digital Securities Sandbox [22, 29]
United States (Treasury; + Quincy, MA)	—	sub-sovereign only	Bitcoin only	—	Live. The Strategic Bitcoin Reserve is the only confirmed sovereign treasury holding a digital asset — but Bitcoin, acquired by forfeiture, not a tokenized security; Quincy issued a sub-sovereign municipal bond on JPMorgan Kinexys [23, 30]
India (RBI)	pilot	no	no	—	Pilot. e₹-W used for secondary-market government-securities settlement — settlement only, not issuance [27]
Australia (RBA)	pilot	no	—	—	Pilot. Project Acacia — 20 wholesale tokenized-asset use cases; final report published May 2026 [28]

Not on the ladder: Brazil (the Drex blockchain layer was abandoned in August 2025) [33], Israel (Project Eden, a dummy government-bond proof-of-concept by the Tel Aviv Stock Exchange and the Ministry of Finance) [31], and Germany and France (no tokenized *sovereign* bond — only agency issuance, e.g. KfW's eWpG digital bond [32]; their central banks provide settlement infrastructure [24]).

**Who would hold it — the departmental map.** Holding a tokenized multilateral claim requires four capabilities that live in different bodies with different mandates, and the body that can *mint* a tokenized bond is not the body that would *hold* a received one:

- **Settle** — move the token to finality in central-bank money — sits in a central bank's payments or innovation department, not reserve management; live or in pilot in many central banks.
- **Custody** — hold the key or account that controls the token — sits in that same innovation or payments unit, or in a treasury for fiscal assets; pilot-context only.

- **Hold on the balance sheet** – book it as an official asset – would sit in central-bank reserve management (as a reserve asset), a treasury or finance ministry (as a fiscal asset), or a sovereign wealth fund (as a portfolio investment); essentially none today.
- **Use onward** – pledge, collateralize or disburse – sits with whoever holds it; the ECB's acceptance of DLT securities as collateral from March 2026 is the first pathway opening, in the Eurozone.

The structural point is that issuing is not holding. A debt-management office issues and services liabilities; it does not hold assets – which is why the UK's DIGIT pilot was sited at HM Treasury, bypassing the DMO. A sovereign wealth fund is legally the best-positioned holder – no reserve-asset liquidity constraints, a long horizon – yet no major fund has disclosed holding a tokenized security; the closest is Mubadala's holding of a spot-Bitcoin ETF, which is indirect and not a DLT-native token. So the plausible sovereign counterparty for the proposal is either a treasury holding the claim as a fiscal asset (in the shape of the US Strategic Bitcoin Reserve, but extended from Bitcoin to a tokenized security – no securities precedent) or a central-bank reserve desk holding it as a reserve (no precedent at all). The proposal currently leaves that counterparty unnamed.

The gap is on the receiving side. No multilateral has ever *delivered* a tokenized instrument to a sovereign government, as distinct from selling a bond to investors: World Bank bond-i, the EIB's six bonds, the AIIB note, the IDB bonds and the World Bank's CHF 200 million bond all went to commercial and investor buyers; IFC has *bought* tokenized bank bonds (a multilateral acting as investor, the opposite of the proposal); and BIS Project Promissa tokenizes the promissory notes governments issue *to* multilaterals (the inverse direction, and a proof-of-concept). So not only has no multilateral issued a tokenized claim as a payout to a sovereign – no sovereign has received or held a multilateral tokenized claim by any route at all. The strongest combined candidates to build it are Hong Kong (issuer, live wholesale-CBDC settlement and CMU custody, with a separate Exchange Fund reserve arm) and the Eurozone (the only place an official body has held a tokenized bond, even experimentally, with a live collateral pathway).

For the paper, this is the receiving leg on which the first rail depends, and it remains unproven in public precedent: no sovereign has received or held a multilateral tokenized claim by any route, and none holds any token backed by multilateral paper. The rail to *send* exists; the sovereign capacity to receive, custody, account for and reuse a third-party tokenized claim is not yet established. Building it – naming the sovereign counterparty and giving it the legal, custodial and accounting capacity to hold – is the first task.

**Legal preconditions.** Several jurisdictions already make a tokenized security legally holdable, though none specifically addresses a *government* holding one (that remains a public-finance-law, accounting and central-bank-statute gap everywhere): Switzerland's DLT Act (2021), Liechtenstein's TVTG (2020), Luxembourg's Blockchain Laws I–IV (2019–2024, under which the EIB issues), Germany's eWpG (2021), the EU's DLT Pilot Regime (2023), Italy's FinTech Decree (2023, which uniquely names the Bank of Italy and the finance ministry as potential register operators), France's 2017 ordinance, Singapore's frameworks, and the UK's Digital Securities Sandbox (2024).

## TIMELINE

- 2018 – World Bank bond-i (investor-held).
- 2021 – SNB Project Helvetia begins (CHF wholesale-CBDC settlement on SDX).
- 2023 – Hong Kong government tokenized green bonds; the Philippines issues tokenized treasury bonds.
- 2024 – Slovenia issues the first euro-area sovereign digital bond (€30m), which the Banque de France buys and holds (since matured); the World Bank settles a CHF 200m bond in SNB wholesale CBDC on SDX.
- 6 March 2025 – the US Strategic Bitcoin Reserve is established by executive order (Bitcoin by forfeiture, not a tokenized security).
- 2025 – Thailand issues the G-Token; Hong Kong settles a sovereign issuance in e-HKD and e-CNY wholesale CBDC (November).
- February 2026 – the UK mandates DIGIT to HSBC Orion (not yet issued).

- 30 March 2026 — the ECB begins accepting DLT securities as collateral; Project Acacia final report published May 2026.

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## B37. NGO Crypto Acceptance and Holding — Humanitarian Treasury Practice

### AT A GLANCE

CASE	A survey of how large NGOs and UN agencies accept and hold crypto donations — the humanitarian receive-and-hold question
PRIMARY ENTITIES / ISSUER	Not an issuer — a survey across charities, UN agencies and processors (The Giving Block, BitPay, Engiven, Every.org); named holders include the UNICEF CryptoFund, MSF (Stake2Care) and the Turkish Red Crescent
DATES AND STATUS	Live — acceptance is mainstream; MSF Stake2Care live since October 2024
JURISDICTION / REGULATORY POSITION	Charities and NGOs under home-country charity law; processors handle custody and conversion; no licence specific to the holding question
LAYER IN PAYOUT STACK	The humanitarian receive-and-hold leg — donation acceptance and treasury practice
CLAIM OR MONEY FORM	Crypto donations (mostly auto-converted to fiat); where held, BTC/ETH (UNICEF CryptoFund) or stETH (MSF Stake2Care)
BACKING OR RESERVE	Not applicable — donation flows, not an issued instrument
HOLDER / TIER / REACH	Acceptance widespread, holding rare; the one genuine self-custody holder is MSF (stETH in its own multisig), while the Turkish Red Crescent reaches fiat at speed but holds no token
CHAIN OR LEDGER	Public chains (Bitcoin, Ethereum and others); MSF Stake2Care on Ethereum via Lido
SETTLEMENT OR USE	Charitable donation acceptance — most via processors that auto-convert to fiat; a few via published or native wallets; one via a yield-donation (impact-staking) model
PROGRAMMABILITY / CONTROLS	Not applicable for ordinary donations; the impact-staking model streams yield programmatically to the recipient
SIZE OR ACTIVITY	Four distinct quantities: The Giving Block processed about \$100 million in 2025 across thousands of nonprofits (annual processing volume); Fidelity Charitable took in about \$786 million of crypto in 2024 (donor-advised-fund intake); about \$5.9 million in direct crypto was donated across February 2023 earthquake-response organizations (the Turkish Red Crescent among them; no org-specific split reported); MSF's Lido grant was \$100,000 in two tranches
RELEVANCE TO THE PAPER	Two findings bear on the receiving leg: the Turkish Red Crescent shows reach without holding (a real institution moving disaster money fast reached for an exchange-custodied, instantly-liquidated rail, not a held token), while MSF Stake2Care shows the receive-and-hold plumbing — a self-custodied multisig taking a yield-bearing token — is already buildable by a humanitarian body, if not yet by a sovereign
EVIDENCE LIMITS	The size figures are four distinct quantities (annual processing, DAF intake, disaster donations, a DAO grant) and must not be blended; the Turkish Red Crescent figure is third-party analytics; the MSF hold is operational and transient (converted to fiat for procurement), not a balance-sheet reserve

Accepting crypto is now mainstream among large charities — about 70% of the Forbes Top-100 US charities accept it, and The Giving Block alone lists thousands of nonprofits and processed about \$100 million in 2025 — but almost none hold it. Most acceptance runs through a processor that mints a fresh per-donation address and auto-converts to dollars, so the charity never holds a token; only about a dozen large names publish a standing wallet (clustered in tech, digital-rights and open-source organisations, plus UNICEF France), and native holders are rarer still (the UNICEF CryptoFund holds BTC and ETH; Save the Children's Bitcoin Fund; charity: water). The dollar volume is in any case dominated by donor-advised funds — Fidelity Charitable took in about \$786 million of crypto in 2024 — rather than by charity wallets.

The clearest disaster case is the Turkish Red Crescent (Türk Kızılay), a national Red Crescent society, which published copy-and-send addresses for direct crypto donations after the February 2023 Kahramanmaraş earthquake. (The widely cited ~\$5.9 million figure is the total estimated across all earthquake-response recipients — the Turkish Ministry of Interior campaign, Türk Kızılay, Save the Children, Project Hope and others — not a Türk Kızılay-specific amount, which the sources do not break out.) The published addresses are custodial exchange deposit addresses (at Binance TR, BTC Türk and Bitexen), converted immediately to Turkish lira and paid into the charity's bank account; the recipient never holds an on-chain token. The flow is donor → exchange → fiat → bank — strong evidence for speed and cross-border reach, and none for a recipient holding a tokenized claim.

The closest analog to a recipient holding a tokenized claim is MSF's Stake2Care (MSF Switzerland, October 2024), a yield-donation model built on Lido: the donor keeps the principal and donates only the staking yield, which streams as stETH into MSF's own on-chain multisig before MSF off-ramps to fiat through a banking partner. MSF therefore provides more directly evidenced receive-and-hold plumbing than the sovereign cases reviewed here: a humanitarian body self-custodies a yield-bearing token in its own multisig before converting to fiat for operations. Separately, Lido's grants council paid MSF a \$100,000 innovation grant in two tranches, the first in DAI (a tokenized dollar) — a DAO treasury delivering tokenized value to an NGO that received and held it. Three caveats keep it short of a clean precedent for the proposal: the instrument is a DeFi staking token, not a multilateral or sovereign claim; the hold is operational and transient (converted to fiat for procurement), not a balance-sheet reserve; and the donor, not the recipient, keeps the principal.

For the paper, two findings bear on the receiving leg. The Turkish Red Crescent is reach without holding: when a real institution had to move disaster money fast, it reached for an exchange-custodied, instantly liquidated rail rather than a held token. MSF Stake2Care is the converse — it shows the receive-and-hold plumbing, a self-custodied multisig taking a yield-bearing token, is buildable today by a humanitarian body, if not yet by a sovereign. Neither is a multilateral issuing a claim on itself, and none of the holdings is backed by supranational paper; the relevance is to the downstream receiving capacity, not the upstream instrument.

## TIMELINE

- 2019 — UNICEF CryptoFund launches (the first UN entity to hold and transact in crypto).
- February 2023 — Türk Kızılay publishes exchange addresses for crypto donations (about \$5.9 million in crypto is donated across all earthquake-response organizations, with no org-specific split) after the Kahramanmaraş earthquake (exchange-custodied, converted to lira).
- September 2024 — the first \$50,000 Lido grant tranche is paid (in DAI; sent 12 September, confirmed 24 September).
- October 2024 — MSF Stake2Care launches on Lido.
- August 2025 — The second \$50,000 Lido grant tranche is paid.

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## KEY IDENTIFIERS

MSF Stake2Care multisig `0x462F351EE8b10Cc21B161ad698eF3CEba957FE65` (Ethereum).

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## B38. WFP Building Blocks — Humanitarian Entitlement Ledger

### AT A GLANCE

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CASE	WFP's blockchain-based humanitarian coordination and entitlement ledger — the largest humanitarian use of blockchain, on which no token reaches the recipient
PRIMARY ENTITIES / ISSUER	World Food Programme (UN agency); an internal coordination ledger, not a token issuance
DATES AND STATUS	Live at scale — operational since 2017; expanded across Jordan, Bangladesh, Ukraine, Lebanon, Syria and Palestine
JURISDICTION / REGULATORY POSITION	Operates under UN system rules; not subject to national financial regulation; no token issuance and no stablecoin licence
LAYER IN PAYOUT STACK	Humanitarian coordination / entitlement ledger — an accounting layer, not a money form that reaches the recipient
CLAIM OR MONEY FORM	Not a token — a recorded entitlement balance (WFP's US-dollar-denominated obligation to a beneficiary), redeemable in local cash or food goods
BACKING OR RESERVE	Donor contributions fund the obligations; no token and no reserve in the stablecoin sense
HOLDER / TIER / REACH	Coordination ledger only — no token reaches the recipient; beneficiaries authenticate biometrically and redeem in local cash or food at participating vendors, who are settled monthly by WFP in fiat
CHAIN OR LEDGER	Private permissioned blockchain — a Parity Ethereum client under proof-of-authority, with only registered UN and partner nodes (architecture as documented in 2020)
SETTLEMENT OR USE	Humanitarian coordination and deduplication; inter-agency entitlement tracking; intra-camp food and cash-assistance redemption
PROGRAMMABILITY / CONTROLS	Entitlements are purpose-restricted by design (food, cash, medicine, water and sanitation, education items), set by WFP at the funding stage; not programmable in the smart-contract sense
SIZE OR ACTIVITY	Cumulative value coordinated and redeemed more than US\$760 million; more than 40 million redemption transactions; about 6 million people supported cumulatively; about 1 million regular monthly users (Jordan and Bangladesh); 159 organizations in 2025 (across Ukraine, Syria and Palestine) — coordinated/throughput figures, not a circulating supply
RELEVANCE TO THE PAPER	A coordination-ledger case in which no token reaches the recipient, in contrast to the payout leg, which depends on a token actually reaching a recipient; it shows the audit-and-deduplication value of a shared ledger without placing a transferable asset in a beneficiary's hands
EVIDENCE LIMITS	Headline figures are cumulative/throughput, not stock; an earlier US\$555 million / 25 million-transaction figure has been superseded by US\$760 million / 40 million; both single-sourced from WFP/UN bodies, and whether the headline reflects gross entitlements loaded or net value redeemed is not independently confirmed

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Building Blocks is WFP's internal blockchain-based coordination and accounting platform, described as the largest humanitarian use of blockchain to date. It is not a token-issuance system: it creates no transferable digital asset. It maintains a permissioned ledger on which each registered beneficiary holds a digital account — a recorded entitlement balance — to which multiple humanitarian organizations can load different types of assistance, enabling real-time coordination and deduplication across agencies.

The way value reaches beneficiaries is the defining feature. Beneficiaries never hold a token in any wallet they control; their account is a WFP-managed ledger entry. They access value by presenting biometric identity (primarily an iris scan linked to UNHCR's identity system) at a physical point of sale, which debits their ledger account and credits the merchant's; the value is converted on the spot to food goods or local cash. WFP then settles with merchants at month-end through its corporate bank in fiat. The arrangement is functionally a prepaid account accessed by biometric authentication, with the blockchain providing the immutable audit trail in place of a proprietary database.

The figures must not be blended. More than US\$760 million is the cumulative value of entitlements coordinated and redeemed via the platform – not a stablecoin supply; more than 40 million is the count of redemption transactions; about 6 million is the cumulative number of people supported; about 1 million is the regular monthly user base in Jordan and Bangladesh. WFP also reports about US\$3.5 million in bank fees saved through 2023, about US\$67 million in coordination-efficiency savings in 2024, and more than US\$270 million of unintended aid overlap avoided in Ukraine through 2025. An earlier WFP figure of US\$555 million and 25 million transactions has been superseded by the more recent US\$760 million and 40 million; both are single-sourced from WFP or UN bodies, and whether the headline figure reflects gross entitlements loaded or net value redeemed is not independently confirmed.

For the paper, Building Blocks is the coordination-ledger case: it shows that a shared permissioned ledger can deliver audit, deduplication and inter-agency coordination value at humanitarian scale, while value still reaches beneficiaries through fiat redemption rather than through a transferable token in the beneficiary's own wallet.

## TIMELINE

- 2017 – Concept development begins; proof of concept in Pakistan.
- 2017–2018 – Pilot in the Azraq and Zaatarri refugee camps, Jordan, reaching about 100,000 Syrian refugees, with biometric iris-scan authentication.
- 2019 – UN Women joins as the first external partner node.
- 2020 – Beirut blast response reaches about 130,000 people.
- May 2022 – Rapid scale-up in Ukraine, about 1 million households assisted May–August.
- 2024 – 65 organizations on the platform; about US\$67 million in coordination savings.
- 2025 – 159 organizations across Ukraine, Syria and Palestine; about 6 million cumulative beneficiaries; more than US\$760 million coordinated.

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## B39. Humanitarian Stablecoin Transfers — UNHCR, IRC, GiveDirectly and Mercy Corps

### AT A GLANCE

CASE	Humanitarian cash assistance delivered as USDC directly into recipient-controlled wallets — the clearest cases of a token reaching a recipient's own wallet (UNHCR/IRC Stellar Aid Assist; GiveDirectly and Mercy Corps pilots)
PRIMARY ENTITIES / ISSUER	USDC issued by Circle (a private stablecoin issuer); distributed by UNHCR, the IRC, GiveDirectly and Mercy Corps as implementing organizations; platforms built by the Stellar Development Foundation (Stellar Aid Assist) and Coinbase (Future First)
DATES AND STATUS	Live limited — Stellar Aid Assist operational in Ukraine from December 2022; Mercy Corps Syria completed August 2024; Mercy Corps Haiti 2024–2025; GiveDirectly/Coinbase Future First from October 2025
JURISDICTION / REGULATORY POSITION	USDC is NYDFS-regulated (Circle trust charter); the NGOs operate under UN and US-nonprofit frameworks; the platforms hold no disbursement-platform licence of their own; the Syria pilot ran before US sanctions on Syria were lifted in June 2025
LAYER IN PAYOUT STACK	The payout / disbursement-to-recipient leg — downstream recipient-wallet delivery
CLAIM OR MONEY FORM	USDC — a private, fully-reserved tokenized US dollar, disbursed as unrestricted digital cash
BACKING OR RESERVE	USDC: fully reserved in cash and short-dated US Treasuries (the majority held in the BlackRock-managed Circle Reserve Fund) at regulated US institutions, with monthly third-party attestations by Deloitte (Deloitte & Touche LLP), which replaced Grant Thornton as reserve attestor in early 2025
HOLDER / TIER / REACH	Disbursement-reaching-to-recipient, but varying — direct to recipient-controlled wallets (Stellar Aid Assist, Future First, Haiti) versus via an NGO master wallet first (Mercy Corps Syria) or only to civil-society organizations (Mercy Corps "Country A")
CHAIN OR LEDGER	USDC on Stellar (Aid Assist, Haiti/Bousol); USDC in Coinbase custodial accounts (Future First); USDC on Polygon (Country A); an undisclosed chain via HesabPay (Syria)
SETTLEMENT OR USE	Humanitarian and direct cash transfer — basic needs, rent, gender-based-violence support, agricultural inputs and civil-society funding; cash-out via MoneyGram or local agents
PROGRAMMABILITY / CONTROLS	Not programmable in these deployments — USDC disbursed as unrestricted cash, with no expiry or purpose conditions
SIZE OR ACTIVITY	Pilot-scale and distinct per programme: UNHCR Ukraine (year one) more than US\$1.1 million to more than 1,500 individuals; IRC 167 households (278 individuals) at US\$228/person; Future First (New York) 160 recipients at US\$12,000 each (US\$1.92 million, Coinbase seeding US\$2.6 million); Mercy Corps Syria 100 farmers (about 650–700 people), US\$30,000; Mercy Corps Haiti 200 women, US\$80,000 planned; Country A undisclosed
RELEVANCE TO THE PAPER	The strongest existing proof that an aid agency can put a digital dollar into a displaced or low-income person's own wallet at low cost and high traceability — the nearest analogues to the payout leg; the downstream recipient-wallet infrastructure exists and functions, with the paper's novelty residing in the upstream instrument (a multilateral tokenized claim rather than a private stablecoin) and the frictions these pilots document
EVIDENCE LIMITS	The per-pilot figures are distinct quantities and must not be averaged or blended; several totals (2024–2026, "Country A") are undisclosed; the April-2024 "74,000 families / 188,000 people" figure cannot be confirmed as specific to Stellar Aid Assist; reach varies (direct-to-wallet versus via a master wallet versus only to organizations)

### UNHCR, THE IRC AND STELLAR AID ASSIST (UKRAINE)

Stellar Aid Assist is a blockchain-based cash-assistance platform built by the Stellar Development Foundation with Circle, MoneyGram, UNHCR and the IRC, launched in December 2022 — less than ten months after Russia's invasion of Ukraine. It delivers USDC directly into digital wallets held by displaced persons, who can hold the asset, transact peer-to-peer, or cash out to local currency at MoneyGram locations without a bank account.

This is the case in which a token genuinely reaches a recipient's own wallet. Unlike WFP Building Blocks, where the blockchain is an accounting ledger and value is converted to fiat at a WFP-controlled point of sale, Stellar Aid Assist places a fully transferable, dollar-equivalent asset — USDC on Stellar — into a hosted Vesseo-app wallet the recipient controls; private-key custody is not confirmed in primary sources. Two pilots launched simultaneously in December 2022 on the same platform and wallet infrastructure: one by UNHCR, targeting internally displaced and war-affected residents in Kyiv, Lviv and Vinnytsia, and one by the IRC. The platform's success led the foundation to open-source the underlying Stellar Disbursement Platform in August 2023, after which it was reused in non-humanitarian contexts including payroll and government programmes — the same platform that later carried the Marshall Islands' ENRA disbursements.

The reach claim is confirmed, but scale must be read carefully and the figures kept distinct. In April 2023 there were fewer than 100 test users across both pilots combined; by the one-year mark in December 2023 the UNHCR pilot alone had reached more than 1,500 individuals with more than US\$1.1 million disbursed, while the IRC component was a completed pilot of 167 households — 278 individuals — at US\$228 per person over three months. For context, UNHCR delivered cash assistance to millions of Ukrainians in 2022 through conventional rails, so Stellar Aid Assist was a small pilot within a much larger programme; recipient and disbursement totals for 2024–2026 are not publicly reported. A separately cited April-2024 figure of 74,000 families hosting 188,000 displaced people cannot be confirmed as specific to Stellar Aid Assist and may refer to UNHCR's overall Ukraine programme.

#### GIVEDIRECTLY, MERCY CORPS AND RELATED PILOTS

This combined entry covers stablecoin cash-transfer pilots by GiveDirectly, Mercy Corps Ventures and related NGOs — distinct from UNHCR/IRC Stellar Aid Assist but sharing its design pattern: using USDC to deliver unconditional or lightly conditioned cash directly to individual recipients, bypassing traditional banking rails.

In the GiveDirectly and Coinbase "Future First" pilot (New York, October 2025), 160 low-income New Yorkers aged 18–30, chosen by lottery, receive US\$12,000 each in USDC over five months — an US\$8,000 lump sum then five monthly payments of US\$800 — funded by US\$2.6 million Coinbase seeded from its discontinued GiveCrypto initiative; funds land in recipient-controlled Coinbase accounts that can be spent via debit card or moved to a bank. The Mercy Corps Syria pilot (August 2024) distributed US\$30,000 of USDC to 100 smallholder farmers (about 650–700 people including households) in the Al-Hasakah region, moving funds from Mercy Corps' US treasury to a HesabPay master wallet operated by Mercy Corps Syria and then to individual farmer wallets, with reported delivery 96% faster (from about 28 days to under one day) and 60% cheaper than traditional hawala channels. The Mercy Corps Haiti pilot (2024–2025) planned US\$80,000 of USDC to 200 vulnerable rural women in Fonkoze's social-promotion programme via the Stellar-based Bousol wallet, with satellite WiFi installed to enable transactions; results were not yet published. The Mercy Corps "Country A" pilot funded civil-society organizations with USDC on Polygon in an anonymized conflict context, reporting a median transfer time of four days (down 62%) and serving 12% more recipients on the same budget.

Recipient reach differs by pilot and should not be averaged. Future First confirms USDC reaching individual recipient-controlled accounts. The Syria pilot reached individual farmer wallets but only after an intermediary master-wallet custody step, and farmers cashed out rapidly through informal money-transfer agents, treating USDC as a cash proxy rather than holding it. The Haiti pilot was designed to reach individual wallets but its results were unpublished. In Country A, funds reached civil-society organizations, and onward transfer to individual beneficiaries is not confirmed. For scale: GiveDirectly delivered US\$126 million of cash transfers across 12 countries in 2024 overwhelmingly via mobile money, not stablecoin, and Future First is its only documented stablecoin programme.

For the paper, these are the nearest analogues to the payout leg: the strongest existing proof that an aid agency can place a digital dollar into a recipient's own wallet at low cost and high traceability. None involves a multilateral issuing a claim on itself – every case uses Circle's USDC, backed by US sovereign and bank paper, and none is a government-bond-backed local-currency element – so the relevance is to the downstream recipient-wallet leg rather than the upstream instrument. Collectively they show the infrastructure works at small-to-medium scale in fragile and conflict settings, and they document the frictions a tokenized disbursement instrument must address: sanctions compliance, smartphone access, dependence on informal cash-out agents, and the tendency to convert to fiat on receipt.

## TIMELINE

- February 2022 – Russia invades Ukraine; mass displacement begins.
- October 2022 – The Stellar Development Foundation, Circle, MoneyGram and UNHCR begin building Stellar Aid Assist.
- December 2022 – UNHCR and IRC pilots launched simultaneously in Ukraine; initial cohort fewer than 100.
- 2024 – Mercy Corps Ventures conducts the "Country A" conflict pilot on Polygon (launch article dated August 2024; exact pilot year undisclosed).
- April 2023 – Stellar Aid Assist still fewer than 100 test users across both pilots.
- August 2023 – The Stellar Disbursement Platform is open-sourced.
- September 2023 – IRC case study published (167 households / 278 individuals / US\$228 per person).
- December 2023 – UNHCR pilot one-year mark: more than US\$1.1 million to more than 1,500 individuals.
- August 2024 – Mercy Corps Syria agricultural pilot (HesabPay) – 100 farmers / US\$30,000; results published about October 2024 (96% faster, 60% cheaper).
- 2024-2025 – Mercy Corps Haiti pilot (Fonkoze / Bousol / Stellar) – 200 women / US\$80,000 planned.
- June 2025 – US sanctions on Syria lifted.
- October 2025 – GiveDirectly / Coinbase "Future First" launched – 160 New York recipients / US\$12,000 each / US\$1.92 million total.

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## B40. Marshall Islands – SOV Proposal and USDM1 Citizen Disbursement Bond

*Two distinct instruments are treated in one entry and must not be conflated.*

### AT A GLANCE

CASE	Two distinct sovereign digital-money instruments from one micro-state, which must not be conflated – (a) SOV, a never-launched legal-tender digital currency, and (b) USDM1/Lomalo, a live US-dollar sovereign bond disbursing UBI to citizens' wallets
PRIMARY ENTITIES / ISSUER	(a) SOV: Republic of the Marshall Islands. (b) USDM1/Lomalo: the RMI via its exclusive services provider M1X Global, coordinated by MIBOND Global LLC under a public-private partnership
DATES AND STATUS	(a) SOV: announced 2018, stalled since 2021, never launched. (b) USDM1: live limited – first UBI disbursement December 2025; the March 2026 distribution (the ENRA programme's second quarterly disbursement) completed, with about 100 citizens using the wallet channel
JURISDICTION / REGULATORY POSITION	(a) SOV: the Sovereign Currency Act 2018 declared it legal tender; never implemented; opposed by the IMF and the US. (b) USDM1: a New York-law indenture (Brady-bond structure; counsel Cleary Gottlieb), with sovereign immunity expressly waived; no US securities registration confirmed
LAYER IN PAYOUT STACK	(a) SOV: a sovereign legal-tender currency (never realized). (b) USDM1: the payout / disbursement-to-recipient leg – a government-issued tokenized bond reaching a citizen's own wallet
CLAIM OR MONEY FORM	(a) SOV: a sovereign legal-tender digital currency. (b) USDM1: a US-dollar-denominated, yield-bearing sovereign bond issued natively on-chain
BACKING OR RESERVE	(a) SOV: uncollateralized by design. (b) USDM1: 1:1 in short-dated US Treasury bills in bankruptcy-remote custody by Surus (US trustee and collateral agent); no independent attestation confirmed
HOLDER / TIER / REACH	(a) SOV: never launched – no recipients. (b) USDM1: disbursement-reaching-to-recipient (token in the citizen's own Lomalo wallet), but constrained – as of March 2026, US Compact funding restrictions prevent direct deposit, so recipients receive paper checks and convert manually
CHAIN OR LEDGER	(a) SOV: initial blockchain platform not confirmed in primary sources (2018–19), then Algorand (announced 2020); never launched. (b) USDM1: Stellar, via the Stellar Disbursement Platform, with the Lomalo wallet on Crossmint infrastructure
SETTLEMENT OR USE	Government universal-basic-income disbursement (the ENRA programme); peer-to-peer transfers; nascent vendor pilots; planned institutional access via Anchorage Digital
PROGRAMMABILITY / CONTROLS	(a) SOV: not implemented. (b) USDM1: limited – yield-bearing (T-bill interest split between citizens and government), with an in-wallet eligibility check; no expiry or purpose restriction, so recipients transact freely once received
SIZE OR ACTIVITY	(a) SOV: zero – never issued. (b) USDM1: about 100 citizen wallet adopters as of the March 2026 distribution (the programme's second quarterly disbursement), against some 37,000 eligible citizens; UBI ~US\$200 for the first quarterly payment and ~US\$175 for the second as eligible enrolment rose (still targeting about US\$800/year); total outstanding supply across all channels not disclosed
RELEVANCE TO THE PAPER	USDM1 is the nearest analogue here to the payout leg – a government-issued tokenized instrument reaching a citizen's own wallet – and its Brady-bond structure (sovereign issuer, trustee-held collateral, explicit immunity waiver, New York-law indenture) is a direct design reference for structuring a tokenized claim with legal certainty, even though the issuer is a micro-state sovereign rather than a multilateral and the collateral is US Treasury bills rather than supranational paper
EVIDENCE LIMITS	The two instruments must not be conflated (SOV never issued; USDM1 live but small); the about-100 wallet adopters, some-37,000 eligible and the variable UBI (~US\$200 first payment, ~US\$175 second) are distinct counts; launch announcements citing "tens of thousands" reached are not borne out; total USDM1 supply is undisclosed and the 1:1 T-bill backing rests on issuer/trustee statements without a confirmed third-party audit

The SOV is the Republic of the Marshall Islands' 2018-era proposal to issue a national digital currency as legal tender alongside the US dollar, which the country uses as its de facto currency and for which it has no central bank. Despite the Sovereign Currency Act declaring it legal tender, the SOV has never launched: no tokens were issued, no offering was conducted, and no chain deployment occurred at scale. The technical basis moved to Algorand in 2020 (the earlier platform is not confirmed in primary sources), a Sovereign Subscription Rights auction was announced as a "final phase" but not executed, and the project was postponed indefinitely in 2021; the IMF and the United States voiced sustained opposition throughout. The public record shows no token issuance, and the Sovereign Currency Act was repealed in August 2025, formally ending the SOV.

USDM1 / Lomalo is a separate, newer initiative launched in late 2025 under ENRA, the national UBI programme. USDM1 is a US-dollar-denominated sovereign bond issued natively on Stellar — structured like a Brady bond and collateralized 1:1 by short-dated US Treasury bills held by Surus in a bankruptcy-remote trust under New York law, with sovereign immunity expressly waived. The Lomalo mobile app is the distribution wallet, and USDM1 is also offered to institutional investors via Anchorage Digital, giving it a dual function as both a domestic UBI rail and an internationally tradeable sovereign bond.

Wallet adoption remains much smaller than the eligible-recipient base. Various December-2025 announcements described a "world's first on-chain UBI" reaching tens of thousands of citizens; the verifiable figure is that the March 2026 distribution reached about 100 opt-in citizens out of some 37,000 eligible. The token does reach a citizen's own Lomalo wallet, but only after a manual, two-step opt-in: US Compact funding restrictions prevent direct state-to-wallet deposit, so recipients receive a paper check and must convert it through the app, while the bulk of ENRA continues to be delivered by check or bank deposit. The figures should be kept apart — about 100 wallet adopters and some 37,000 eligible are distinct counts, and the per-person UBI — ~US\$200 for the first quarterly payment, ~US\$175 for the second as eligible enrolment rose — is distinct again; the total USDM1 supply across all channels is not disclosed, and the 1:1 T-bill backing rests on the issuer's and trustee's statements without a confirmed third-party audit.

For the paper, USDM1 is the nearest analogue in this group to the payout leg: a government-issued tokenized instrument that reaches a citizen's own wallet, even if today only about a hundred do. Its Brady-bond structure — a sovereign issuer, trustee-held T-bill collateral, an explicit immunity waiver and a New York-law indenture — is a direct design reference for structuring a tokenized claim with legal certainty. The differences from the proposal are that the issuer is a micro-state sovereign rather than a multilateral, the collateral is US Treasury bills rather than supranational paper, and the denomination is the US dollar rather than a local currency; the value is in the disbursement and legal-structuring template, not the issuer or the backing.

## TIMELINE

- February 2018 — Sovereign Currency Act passed; SOV declared legal tender.
- September 2018 — IMF Article IV warns the SOV raises risks to macroeconomic and financial stability.
- 2020 — SOV technical basis migrated to Algorand; Sovereign Subscription Rights structure announced.
- 2021 — SOV launch postponed indefinitely; project dormant thereafter.
- August 2025 — the Sovereign Currency Act is repealed, formally ending the SOV.
- November 2024 — RMI cabinet endorses the public-private partnership with MIBOND Global for a sovereign digital currency.
- December 2025 — USDM1 first UBI disbursement via Lomalo; announced on Anchorage Digital for institutional access.
- March 2026 — the ENRA programme's second quarterly distribution; about 100 of some 37,000 eligible citizens use the Lomalo / USDM1 channel; cash-out and vendor pilots ongoing.

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