Project Helvetia: Settling tokenised assets using central bank money

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The views in this presentation are those of the presenter and do not necessarily reflect those of the BIS, SNB or SIX
What is CBDC all about?

CBDC = MM₀GA
The Money Flower

Electronic

Central bank - State issued

Peer to peer

Widely accessible

Bech and Garratt (2017)
Table A1: Taxonomy of “tokenised” settlement

<table>
<thead>
<tr>
<th>Asset leg (delivery)</th>
<th>Cash leg (payment in central bank money)</th>
<th>Reserve balances</th>
<th>Wholesale CBDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional assets</td>
<td>Today's arrangement: securities in traditional CSD, reserve balances in RTGS</td>
<td>Not part of Project Helvetia</td>
<td></td>
</tr>
<tr>
<td>Tokenised assets</td>
<td>PoC2: RTGS link</td>
<td>PoC1: w-CBDC</td>
<td></td>
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</tbody>
</table>

See also Bech et al (2020): “On the future of securities settlement”, BIS QR
Graph 1: New SDX infrastructure and today’s SIX infrastructure

New SDX infrastructure

SDX trading
- Issuance & listing
- Atomic trading & settlement
- Trading
- SIX Swiss Exchange

SDX DLT CSD
- Asset servicing & custody
- Clearing
- SIX x-clear
- SIX SIS

SDX coin
- Commercial bank money
- Settlement
- Central bank money
- SIC

Today’s SIX infrastructure
Topology of SDX
Overview of SDX go-live solution, and PoC1 and PoC2
DvP settlement in w-CBDC (PoC1)

I: Issuance, II: Redemption, III: DvP and IV: Payment
DvP settlement in SIC balances (PoC2)
Stylised balance sheet without and with w-CBDC
## Comparison of w-CBDC and RTGS-link PoCs

<table>
<thead>
<tr>
<th>Benefits</th>
<th>PoC1, w-CBDC</th>
<th>PoC2, RTGS link</th>
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<tbody>
<tr>
<td>w-CBDC “on ledger” enables the full functionalities of SDX’s DLT platform:</td>
<td>- Execution of programmable business logic (“smart contracts”)</td>
<td>An RTGS link:</td>
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<td></td>
<td>- Atomic multilateral settlement</td>
<td>- Does not raise major new legal or policy questions, as central bank money always remains in the RTGS system</td>
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<td>- Would require only minor adjustments to the central bank’s business processes</td>
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</table>

<table>
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<tr>
<th>Challenges</th>
<th>PoC1, w-CBDC</th>
<th>PoC2, RTGS link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issuing a w-CBDC:</td>
<td>- Raises numerous legal and policy questions</td>
<td>No w-CBDC “on ledger” limits functionalities of the SDX platform:</td>
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<td></td>
<td>- Requires substantive adjustments to the central bank’s business processes</td>
<td>- Limited execution of smart contracts involving reserve balances</td>
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<td></td>
<td>- Atomic multilateral settlement of DvP transactions not feasible with RTGS link due to the current setup of SIC (sequential settlement, queuing mechanism, lack of simultaneous blocking mechanism)</td>
</tr>
</tbody>
</table>
What is new?

- Central banks have options in how to integrate with DLT platforms
  - w-CBDC and RTGS

- The PoCs ran in live / near live environment
  - Technical (test) and Legal!
    - Finality under both current and new CH legal regime

- w-CBDC => more functionality but more challenging and deep policy considerations

- (Inside baseball): w-CBDC in Helvetia = M₀ (not only intraday but also overnight)
Readability of CBDC reports

PoCs reviewed include Project Jasper phases 2 and 3 (confusingly: J1, J2), Jasper-Ubin (J-U), Project Ubin phases 1 to 5 (U1, U2, U3, U5 (phase 4 is J-U)), Project Khokha (K), Project Inthanon (P1, P2), Project Inthanon-Lionrock (L-I) and Project Helvetia (H). CBDC reports from the CPMI-Markets Committee (2018) and Group of Central Banks and BIS (2020) are included as a benchmark (CPMI and P&F respectively).

"Simple Measure of Gobbledygook". This metric is used to check the readability of public health messages. The “grade” denotes the American educational grade required to comprehend a message.

Source: Published reports run through “textcompare.org”

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