Towards Central Bank Digital Currencies in Asia and the Pacific: Results of a Regional Survey

OCTOBER 6, 2022

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CBDCs and Crypto-Assets: Motivation

Keywords on CBDC in Speeches

Headlines in 2022

Sources: BIS (2020) and IMF staff calculations.
Note: APD countries include Australia, China, Indonesia, Japan, Lao PDR, Malaysia, New Zealand, Singapore, India, Republic of Korea, Philippines, Thailand and Vietnam.
Synopsis of the Survey

Q1. Stage of adoption
Q2. Type of CBDC and why
Q3. Preparation work
Q4. Drivers
Q5. Issuance – how likely/when/changes in law
Q6. Challenges

Q7. Crypto – types/legal status/size of market etc.
Q8. & Q9. Analytical work, Information sharing

CBDCs

Crypto-assets

Other Aspects
Q1A: Stage of CBDC Adoption

Source: IMF Survey on CBDC and crypto assets.
Note: The pie-chart excludes Pacific Island Countries.
Q1B. Timeline of Measures Taken

Timeline of CBDC R&D/Dedicated Units (when did they start?)

Start Date of Launching CBDC pilots/ experiments (when did they start?)

Formal launch
Q2. Interest in Specific Types of CBDCs and Why

Interest in CBDCs
(Number of countries responded to the survey)

<table>
<thead>
<tr>
<th>Wholesale, 6</th>
<th>Retail, 3</th>
<th>No Response, 3</th>
<th>Uncertain, 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Korea</td>
<td>Lao P.D.R.</td>
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<tr>
<td>China</td>
<td>New Zealand</td>
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<td>Hong Kong SAR</td>
<td>Sri Lanka</td>
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<tr>
<td>India</td>
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<td>Indonesia</td>
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<td>Japan</td>
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<td>Macau SAR</td>
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<td>Nepal</td>
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<td>Vietnam</td>
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<td></td>
<td>Bangladesh</td>
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<tr>
<td></td>
<td>Cambodia</td>
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<td></td>
<td>Maldives</td>
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</table>

WHY

Wholesale – enhancing payment system efficiency and security; cost efficiency
Retail – To fulfill demand for digital cash/digital payments; provide an alternative to private crypto-asset
Q3A. Preparation Work: Legal Reform

Law Reform Under Preparation
- India
- Macao SAR
- Vietnam

Law Reform Enacted
- China
- Philippines (only Wholesale)

Source: IMF survey on CBDC and crypto assets.
### Q3B. Preparation Work: Designated Special Teams

<table>
<thead>
<tr>
<th>Special Unit</th>
<th>CB, multiple departments</th>
<th>CB, payment systems department</th>
<th>CB, currency management department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Indonesia</td>
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<td>Vietnam</td>
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</table>
Q4: Drivers of CBDC Adoption

Drivers of Interest in CBDC by Income Group
(Number of countries responded to the survey)

Drivers of Interest in CBDC by Type
(Number of countries responded to the survey)
Q5A. Likelihood of CBDC Issuance

Likelihood of CBDC issuance: By Type
(Number of countries responded to the survey)

Very Likely
- e.g. CHN, IND
  - Retail: Somewhat Likely
    - e.g. THA
  - Wholesale: Somewhat Likely
    - e.g. PHL, VNM

Very unlikely: 1
Somewhat unlikely: 5, 8
Somewhat likely: 9, 5
Very Likely: 7, 6
No plans: 0
# Q5B. Use of Technology

## Technology Choices Based on Advanced CBDC Movers (China and Thailand)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operation model</strong></td>
<td>2-tier; Central bank issues CBDC &amp; delegate private sector to interact with end users</td>
</tr>
<tr>
<td><strong>Interest bearing</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Limit on individual holding</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Ledger Design</strong></td>
<td>Combination (Centralized and decentralized)</td>
</tr>
<tr>
<td><strong>Interoperability with existing payment networks</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Payment authentication design</strong></td>
<td>Multifactor</td>
</tr>
<tr>
<td><strong>Authorized operators in second tier</strong></td>
<td>Commercial banks (for China, banks may collaborate with non-bank payment service providers and telecom operators)</td>
</tr>
</tbody>
</table>
### Q6. Challenges of Adopting CBDCs

#### Problems
- Policy and legal issues
- Limited capacity at central bank
- Privacy
- Interoperability
- Performance and scalability
- Cybersecurity
- Technology-enabled functional capabilities

#### Steps Taken
- Research & Pilots on feasibility
- Improve the security management (CHN)
- Establish separate regulatory measures (CHN)
- Test technology feasibility in experiments (JPN)
- Discuss institutional arrangements with stakeholders (JPN)
- Public consultations to gauge need for and design features (NZL)
- Create public awareness through CB’s social media channels (THA)
Q7: Private Crypto-Assets

Volume growth by country
(year-on-year, percent)

Volume in share of GDP
(percent)

Source: Chainalysis and IMF staff calculations.
Q8&9: Knowledge Sharing

Cross Country Experience

Peer Learning Forums

Bhutan: Capacity Building Initiatives

Vietnam: Possible Conference

Knowledge sharing on best practices

Maldives: Evolution from mobile payments to CBDCs

Philippines: Gauging the readiness of the central bank
Countries in the Spotlight

- China and Hong Kong – The First Movers
- India and Thailand – Preparing Pilots
- Australia, Japan, Korea, and Singapore – Strong R&D
- ASEAN – Keeping up with Crypto Assets
- Cambodia – Leveraging Technology used for CBDCs
- Regional Integration (Project mBridge & Project Dunbar) – Strength in Numbers
- Pacific Island Countries – Testing the Waters
China and Hong Kong SAR: The First Movers

**China**

- Study dates back to 2014 and pilot started in 2019
- Mainly focus on retail use and domestic payments at current stage; testing cross-border use in HK
- Two-tiered system with both centralized and distributed architectures, supported by in-house technologies

**Hong Kong SAR**

- Project *LionRock/mBridge* (pilot) started in 2017, focusing on wholesale use - important implications for HK as an IFC
- Project *e-HKD* (research) started in June 2021, focusing on retail use, involving technology experimentation and a study of legal and policy considerations
- Project *Sela* (June 2022), focusing on cybersecurity

**Commonalities:**
- motived by fast growing digital economy and desire to further improve payment efficiency
- interoperability with existing electronic payment systems incl. bank accounts and other digital wallets

**Lessons Learned:**
- important to develop sound security and risk management mechanism while protecting data privacy
- important to establish clear regulatory framework and clarify CB’s authority to issue digital currency
- important to comply with local regulations in cross-border uses (e.g. e-CNY’s technical test in HK)
India and Thailand: Preparing Pilots

Common features
- CBDC is seen as an alternative to private crypto for payments
- High level of crypto adoption raised concern about stability, risks to financial sector, monetary policy
- Plans underway to provide central banks legal authority to issue CBDCs

THA
- Retail CBDC pilot launch by 2022 Q4
- Hybrid architecture; Combination (centralized and distributed ledger) design
- Collaborating with BIS and other central banks on mBridge project
- Digital assets banned for payments from April 1, 2022

IND
- Intentions to launch retail CBDC in FY23
- Pilots expected to launch in next 5-6 months
- Digital rupee will use blockchain
- 30 percent tax on profits from crypto trading from April 1, 2022
- The RBI will be able to trace all transactions for AML/CFT issues
## Strong R&D: Australia, Japan, Korea, and Singapore

<table>
<thead>
<tr>
<th>Country</th>
<th>Australia</th>
<th>Japan</th>
<th>Korea</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Proof of Concept</td>
<td>Proof of Concept</td>
<td>Experiment</td>
<td>Pilot</td>
</tr>
<tr>
<td>Type of CBDC</td>
<td>Retail and wholesale</td>
<td>Retail and wholesale</td>
<td>Retail</td>
<td>Wholesale</td>
</tr>
<tr>
<td>CBDC/Project name</td>
<td>eAUD, Project Atom</td>
<td>Digital Currency JPY (DCJPY)</td>
<td>Undecided</td>
<td>Project Ubin</td>
</tr>
</tbody>
</table>

### Common features
- Relatively rapid growth in crypto adoption;
- CBDC to support digital economy and complement the private crypto-assets;
- A main goal is to improve payment and settlement efficiency;
- Hybrid (two-tier system) technology to allow appropriate division of roles with central bank and the private sector;
- Uncertain on central banks legal authority to issue CBDCs;
- No plans to lunch yet;
- Various phases in the proof of concept completed (Japan, Korea, and Singapore);
- Australia announced pilots recently.
ASEAN: Keeping up with Crypto Assets

**Common Features**
- Strong prevalence of mobile money
- Remittance payments and speculative purposes play a role in the widespread use of private crypto
- Statista Survey- VTM (21%) and PHL (20%) second and third position in owning or using crypto

**PHL**
- Crypto exchanges are approved for remittances
- Blockchain app for govt bonds
- R&D is underway
- Planning on a pilot but not before 2023

**VTM**
- Crypto is NOT approved for payments
- Govt blockchain platform for digital ID
- SBV started R&D in July 2021
- Three years to pilot
- Legal issues are being revised

**IDN**
- Crypto is NOT approved for payments
- BI is improving digital payment system to support eventual adoption
- No timeframe on pilot
**Cambodia: Leveraging Technology used for CBDCs**

**Goals:** Financial inclusion; Secure and low-cost transaction; Help de-dollarize

**Outcome:** About 300,000 users; transactions by end-user is free

**Quasi CBDC:**
- Blockchain powered digital payment system
- It is account based not token based,
- Platform for commercial banks, microfinance institutions (MFIs) and payment service providers (PSPs) to deliver e-wallet and money transfer services to consumers

**Timeline:**
- June 2018: NBC starts R&D
- July 2019: Pilot launch of Project Bakong, Distributed Ledger Technology - based interbank payment system, Blockchain technology
- Oct 2019: Experiment in digital wallets in cross-border payment
- Oct 2020: Pilot launch of Project Bakong
- Aug 2021: One-way transfer of remittance from Malaysia to Cambodia by citizens
Regional Integration

Project mBridge

Participants: Hong Kong, Thailand, China, UAE; BIS innovation hub

Wholesale use: Digital currencies and DLT for real-time, cheaper and safer cross-border payments and settlements

Common Platform: Transactions across multiple CBDC networks, which can be deployed for cross-border fund transfers, international trade settlement, and capital market transactions

Early results: Improving cross-border transfer from 3-5 days to 2-10 seconds; and reducing correspondent banking costs by up to 50%

Next Stage: Achieve an open-sourced production-ready network for broader CB community. Solve further challenges of policies, business, and technology.

Project Dunbar

Participants: Australia, Malaysia, Singapore, South Africa; BIS

Wholesale use: Digital currencies and DLT for real-time, cheaper and safer cross-border payments and settlements
## The Rise of Digital Money: Implications for PICs

### Landscape

**Drivers:** Financial inclusions; payment efficiency (CBRs)

**Challenges:** No central banks; no own currencies; capacity, resources, and operational constraints

**Current Status:**

- **Crypto:**
  - **RMI:** A law of adopting a crypto-asset as the second legal tender passed in early 2018
  - **Fiji:** Fastest adoption of crypto-assets
  - **Palau:** Block-chain based e-residency program

- **CBDC:**
  - **Fiji, Solomon Islands, Tonga and Vanuatu:** General CBDC feasibility study
  - **RMI:** Feasibility study on a USD stable coin backed by government reserves

### Capacity Development Needs

- **Exploration**
  - Define current problems and how digital solutions might be applied
  - Cross-country experience, peer learning

- **Design**
  - Technical aspects of launching a CBDC, its regulation, and its impact on the payments and monetary policy
  - Proper framework for digital assets and crypto-assets.
  - Set up CB and CBDC functions

- **Policy**
  - Review pilot CBDC study
Key Lessons

(AUS, CHN, HKG, IDN, IND, JPN, KOR, PHL, SGP, THA, VTM)

Lessons from all Countries

- The emergence of private crypto-assets (whether approved or not) has created an impetus to consider CBDCs.
- The use of blockchain in other government services has provided a favorable experience in the use of technology for launching CBDCs.
- R&D for the launch of CBDCs are done in tandem with regulatory and legal reforms, including in the central bank law.

Lessons from More Advanced Countries

- **Key policy priority**: Interoperability, both with existing domestic payment systems and internationally with other CBDCs/digital currencies.
- **Data privacy**: Not storing personal identifiable information while still allowing the central bank to view transactions, for example AML issues.
- **Two-tier system**: Central bank as an issuer and private sector as distributor.
Key Lessons

Unique Cases

Cambodia
- Leverage high degree of mobile usage;
- Leverage technology used for CBDCs

Regional CBDCs
- Regional prototypes can help solve interoperability with other CBDCs/digital currencies to allow smooth international settlements.
- Regional prototypes do not preclude individual CBDCs, ex. Singapore
- Greater focus on cross-border regulations.

PICs
- The development a CBDC requires considerable expertise and a deep understanding of the design issues
- Sufficient preparatory research and pilot programs is necessary prior to launch
THANK YOU