Box 3
International developments and policy implications of CBDCs

Currently the development of central bank digital currencies (CBDCs) is moving from theoretical research to technical experimentation. However, a CBDC is not always the best option for each economy, and preemptive issuance of a CBDC would not necessarily bring about positive and immediate benefits. Central banks should hence adopt the most suited strategies based on the policy objectives and needs of their jurisdictions.

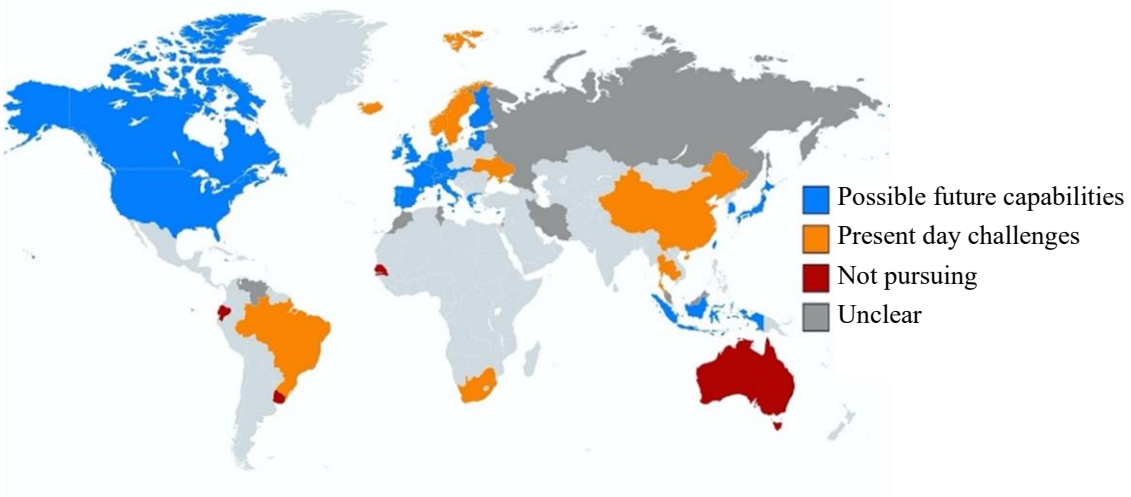
1. International developments of CBDCs

According to a BIS survey,[1] 86% of central banks worldwide have been actively exploring CBDC arrangements. Most of them gradually moved from purely theoretical research to technical experimentation or proofs-of-concept (POC), while only a small number of central banks have advanced to pilot testing or launched CBDCs officially.

1.1 Taiwan and many economies in Europe and North America, with diversified and convenient electronic payment systems in place, have carried out CBDC research and experiments with a gradual approach

In response to the emerging trends of digital payment, major economies in Europe and North America, as well as Japan, South Korea, and Taiwan, have planned for or rolled out CBDC research projects (Chart B3.1).[2] However, none of them has officially issued a CBDC or announced a timetable to launch.

Chart B3.1 Primary motivations for CBDC research and experimentation

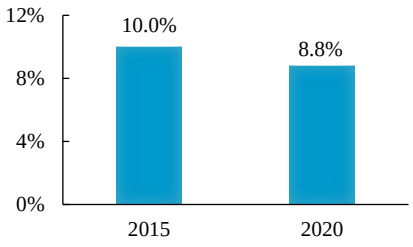
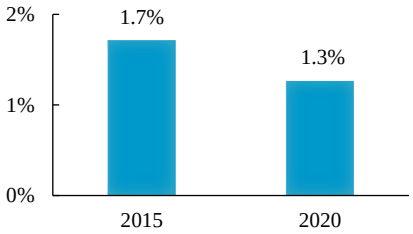
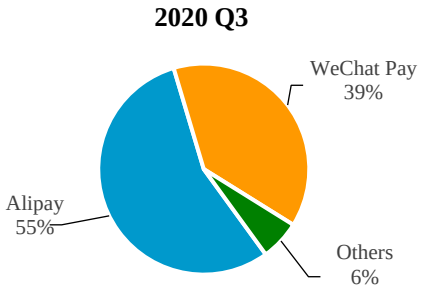
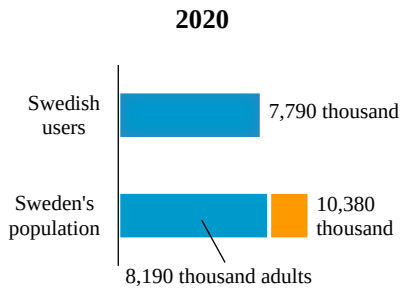


Source: Cheng et al. (2021).

1.2 China and Sweden intend to address special problems in local payment markets with CBDCs

China and Sweden face common problems of the marginalization of the use of cash as a means of payment and payment markets being monopolized by private payment companies (Chart B3.2). Launching a CBDC not only can fill the gap arising from diminishing cash usage but also avoid private monopoly, so as to safeguard the state's role in the payment market. Therefore, China is aggressively conducting e-CNY trials,[3] and the Riksbank continues its experiments on e-krona.[4]

Chart B3.2 Chinese and Swedish payment markets face common problems

	China	Sweden
Demand for cash weakens	The ratio of currency in circulation to nominal GDP continues to decline 	Same as China 
Private payment companies monopolize payment markets	Alipay and WeChat Pay together account for 94% of the mobile payment market transaction volume 	The private mobile payment system is used by 95% of Swedish adults 

Sources: BIS, Enfodesk, Swish, and SCB.

1.3 Some emerging economies, including the Bahamas, expect to use CBDCs as a complement to their weak payment infrastructure

In some emerging economies, payment infrastructure is extremely insufficient, and the locals rely on cash transactions. Since a CBDC is expected to supplement weak payment infrastructure, act as the most basic electronic payment tool for the public, reduce the

reliance on cash, and help the government to promote financial inclusion, there has been an upsurge of interest in CBDC issuance in emerging economies recently. For example, the Central Bank of the Bahamas' "Sand Dollar",[5] the Eastern Caribbean Central Bank's "DCash" trials,[6] and the Central Bank of Nigeria's "eNaira".[7]

2. Policy implications of CBDCs

The policy implications for the economies that are developing or conducting research on CBDCs can roughly fall into three broad categories:

2.1 Exploring the potential of digital technologies in response to the emerging trends of digital payment

For economies that have efficient payment systems in place, such as Taiwan and those in Europe and North America, a CBDC merely serves as an additional alternative to various existing payment instruments. The primary motivations for those economies to conduct research on CBDCs are expectations that new digital payment instruments can meet the needs of future digital environments and for innovation of business models.

2.2 Safeguarding the role of the state in payment markets so as to promote sound operation of the financial system

Sweden and China are facing challenges such as the private mobile payment companies monopolizing payment markets and continuing to crowd out the use of cash. It is expected that CBDCs can fill the gap with cash losing ground and safeguard the role of the state in payment markets. In addition, a good design can help ensure the sound operation of the financial system by emphasizing consumer privacy protection and complying with regulations such as those for anti-money laundering (AML) and prevention of illegal activities.

2.3 Providing a public payment instrument to facilitate financial inclusion

The Bahamas and other emerging economies lack sufficient financial infrastructure, along with high costs of cash issuance and poor outcomes of private promotion of electronic payments. A feasible alternative is for the government to facilitate financial inclusion by providing the public with a CBDC as a basic electronic payment instrument. Different from commercial interest-oriented private payment instruments, CBDCs are public interest-oriented and can be used by the public in a more inclusive manner.

3. Policy considerations and research progress of the Bank on CBDC

3.1 Policy considerations of the Bank's research on CBDC

Similar to major economies in Europe and North America, Taiwan has diversified and convenient electronic payment instruments and adequate cash usage, and shares similar policy considerations for CBDC work (Table B3.1), which mainly focus on how to keep up with the evolving trend of digital payment and to proactively understand the technological challenges and cost-effectiveness of a CBDC, while continuing to explore possible technical solutions and best operating models. Therefore, if a CBDC is indeed launched in the future, it can create value and function differently from other payment instruments.

Table B3.1 International development of payment markets and focus of CBDC policy considerations

	Electronic payment	Cash usage	Focus of CBDC policy considerations
Taiwan and major countries in Europe and North America	Diversified and convenient	Adequate	Exploring the potential of digital technology and responding to the emerging trends of digital payment
China and Sweden	Monopolized by the private sector	Declining	Safeguarding the role of the state in the payment market and promoting sound operation of the financial system
Emerging countries such as the Bahamas	Inefficient	Strongly reliant	Providing a public payment instrument to facilitate financial inclusion

Source: CBC.

3.2 The Bank is conducting CBDC research and testing projects

For these economies, developing CBDCs is an earnest endeavor. They should at a minimum make sure that CBDC issuance meets the needs of businesses, consumers, and governments and is developed according to local circumstances. While a few economies have become the front-runners in CBDC issuance and performed pilot testing of CBDC technologies, they also have to confront the potential risks of those technologies. Most of the other economies could learn from their experience and strive to build a more comprehensive CBDC ecosystem.

In Taiwan, the Bank already completed the first phase program on the feasibility of a wholesale CBDC in June 2020. The results showed that the application of distributed ledger technology (DLT) had its own limits. In particular, it could not achieve efficacy in dealing with real-time, high-frequency, and large-volume payment transactions. Currently the Bank has proceeded to the second phase program on a general-purpose CBDC and is

carrying out technical experimentation. By building a prototype CBDC platform, the program will simulate the application of a CBDC in retail payment scenarios and is expected to be finalized in September 2022. The Bank will consider the simulation results in the second phase as the basis for public discussion and extensively consult external opinions, thereby garnering more diverse perspectives to help evaluate the possibility of future CBDC issuance.

Notes: 1. Boar, Codruta and Andreas Wehrli (2021), "Ready, Steady, Go? – Results of the Third BIS Survey on Central Bank Digital Currency," *BIS Papers*, No. 114, January.
2. Cheng, Jess, Angela Lawson and Paul Wong (2021), "Preconditions for a General-purpose Central Bank Digital Currency," *FEDS Notes*, February.
3. PBoC (2021), "Progress of Research & Development of E-CNY in China," July 16.
4. Sveriges Riksbank (2021), "E-krona Pilot Phase 1," April.
5. Central Bank of the Bahamas (2020), "The Sand Dollar is on Schedule for Gradual National Release to The Bahamas in mid-October 2020," September.
6. ECCB (2021), "Bitt Partners with ECCB to Develop World's First Central Bank Digital Currency in a Currency Union," March.
7. Central Bank of Nigeria (2021), "President Buhari to Unveil eNaira on Monday, 25 October 2021," October.