



Central Bank Digital Currency

While the digitalisation of financial sector services has progressed since the establishment of the internet and smartphones, recent advances in areas such as distributed ledger technology (DLT) are enabling innovations in the currency and money space that may fundamentally change the way some parts of the financial system function. Central banks are closely monitoring private initiatives in this field to assess the possible implications of cryptocurrencies and stablecoins for the conduct of monetary policy. At the same time, central banks are considering the possibility of using these new technologies to issue central bank digital currencies (CBDCs).

Types of currency and money

It is important to understand from the outset how a CBDC would differ from traditional types of money, such as banknotes and bank deposits, as well as from digital tokens, such as cryptocurrencies and stablecoins. The table on the next page groups these different types of money – in this case in Switzerland – into three categories: denomination currency, issuer, and form (technology).

First, we have cash. This is physical and is denominated in the national currency, the Swiss franc. Under Article 99 of the Federal Constitution, the Confederation has the exclusive right to issue coins and banknotes.

Second, we have book money, which is denominated in Swiss francs and nowadays comes in digital form. Sight deposits issued by the Swiss National Bank (SNB) are a liability of the central bank like banknotes, but access to them is restricted to financial market participants. By contrast, bank deposits issued by commercial banks represent a claim on the bank that is payable in cash on demand; these deposits can be held by households and firms.

Third, we have digital forms of money (tokens) that rely on blockchains or DLT. These are more heterogeneous than traditional forms of money, as many of them are denominated in their own unit of account instead of being denominated in a national currency. This is the case with cryptocurrencies such as Bitcoin and Ether, for example, which are privately issued in accordance with specific mining or minting procedures. As these cryptocurrencies are currently not generally accepted as a means of payment, they do not qualify as money. Moreover, as they are subject to large price fluctuations compared to most national currencies, they are a risky store of value and exhibit the characteristics of a speculative investment instrument.



Types of currency and money in Switzerland

Denomination currency	Issuer	Form (technology)		
		Cash	Book money	Digital tokens
state	state	Banknotes and coins	Sight deposits held with the SNB by financial market participants	Wholesale CBDC, i.e. Swiss franc tokens held by financial market participants
			Sight deposits held with the SNB by households and firms	Retail CBDC, i.e. Swiss franc tokens held by households and firms
	private		Bank deposits held with commercial banks by households and firms	Stablecoins linked to one national currency, i.e. SDX coin linked to the Swiss franc
private	private			Stablecoins linked to many national currencies
				Cryptocurrencies, e.g. Bitcoin, Ether

Existing types of currency or money
 Potential types of currency or money

Stablecoins, on the other hand, are designed to mimic the value of a national currency or a basket of currencies (in which case, they establish a new denomination currency). The issuer of a stablecoin typically pledges that the value of its tokens will be equal to that of a given fiat currency – the Swiss franc, for example. The strength of such a pledge depends on the conditions for converting the stablecoin into cash and the assets backing the stablecoin. Like bank deposits, stablecoins are a claim on the issuer rather than a direct holding of the currency in which they are denominated.

Inevitably, the debate about privately issued digital token money also raises the question of whether central banks should issue their own tokens. A CBDC would be a third form of central bank money, alongside cash and sight deposits held by financial market participants with the central bank. In the following discussion, we distinguish between retail and wholesale CBDC.

Retail CBDC

Retail CBDC would be made available to the general public and, as a new form of central bank money, would complement the physical banknotes issued by the SNB.

The SNB currently sees no additional benefits from retail CBDC and thus agrees with the Federal Council's assessment in its report on CBDC published in 2019. Switzerland has a modern and future-proof payment system and the vast majority of citizens have access to financial services. However, in view of ongoing digitalisation, the SNB believes this assessment should be revisited on a regular basis and it will continue to monitor the latest developments in retail CBDC

closely.

The SNB's analysis of topics relating to retail CBDC includes cooperation with six other central banks and the Bank for International Settlements (BIS). A report published by this central bank group in September 2021 emphasised the importance of careful design when it comes to retail CBDC in order to avoid certain risks – for example, an increased risk of bank runs. Were a CBDC to be introduced, care would also have to be taken to allow sufficient time for the existing financial system to adapt. Furthermore, the report emphasised the crucial importance of ensuring privacy.

Wholesale CBDC

Wholesale CBDC would be made available only to financial market participants. Unlike sight deposits, wholesale CBDC could be used in transactions settled on DLT-based financial market infrastructures (FMIs).

The tokenisation of financial assets and their trading and settlement on infrastructures that employ DLT promise to improve today's financial system, however efficiency gains have yet to be proven conclusively. Today, payments in systemically important FMIs are typically settled in central





bank money (sight deposits). Wholesale CBDC could help to maintain the integrity of payments and mitigate risks by making settlement in central bank money possible in new, DLT-based infrastructures. In three projects – and in cooperation with other public and private institutions – the SNB has therefore been investigating how wholesale CBDC could be used to settle transactions involving tokenised assets.

Project Helvetia Phase I demonstrated the technical and legal feasibility of settling transactions involving tokenised assets in wholesale CBDC on a DLT-based FMI. This experiment was carried out in collaboration with the BIS Innovation Hub Swiss Centre and SIX.

Project Helvetia Phase II additionally included five commercial banks to explore the integration of wholesale CBDC into the back-office processes and core banking systems of both commercial banks and the SNB. This integration made it possible to test wholesale CBDC settlement end-to-end. If DLT-based FMIs ultimately coexist with today's infrastructures, such interoperability with current systems and processes would be essential.

Project Jura explored cross-border settlements of securities and foreign exchange transactions using two wholesale CBDCs (CHF and EUR). The experiment was carried out in collaboration with the Banque de France, the BIS Innovation Hub Swiss Centre and a private sector consortium. It

proposes a solution for the issuance of multiple wholesale CBDCs on a single, multilateral infrastructure, which allows cross-border transactions to be settled safely and efficiently, while affording central banks control over their own wholesale CBDC.

There are multiple operational, legal and central bank-specific questions relating to wholesale CBDC that have yet to be explored. The SNB will thus continue to deepen its understanding of associated developments in order to be able to make an informed decision on whether to issue a wholesale CBDC in the future.

The digitalisation of the financial sector is underway and innovative startups, established companies and academia alike are researching further innovations in the area of currencies and money. The SNB is engaged in ongoing cooperation with private market participants and the central bank community to promote innovation while simultaneously ensuring the stability of existing systems.

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