

Focal Point

Going public: Central banks' digital currency ambitions

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Our *Focal Point* series explores topical issues on macro, markets and investment

A few small central banks have already launched a digital currency (CBDC) and almost nine in ten globally are at least considering its issuance. The ECB has kicked off an investigation phase in July.

A key aim is maintaining monetary sovereignty and limiting systemic risks amid the rise of private digital money and declining cash transactions. CBDCs may also enhance transaction efficiency and financial inclusion.

Most central banks will tread carefully in launching CBDCs, addressing security risks and adverse impacts on banks.

A CBDC open to the general public with accounts intermediated by commercial banks will rank highest in a wide range of options. Account caps or tiered penalty interest rates will at least initially serve to avoid deposit drains at commercial banks.

Longer term, a full digital replacement of cash would allow policy makers to sharpen their tools. It would e.g. enable central banks to impose negative rates on all cash and deposits. Governments may deploy fiscal transfers faster while constraining the timing and scope of their use via programmable CBDCs.

When Facebook in June 2019 unveiled plans to launch *Libra*, a private digital currency project, the alarm bells rung at the top floors of central banks and governments over data protection and financial stability. Ultimately, Facebook dropped *Libra* amid a broad international pushback, now pursuing its much less ambitious *Diem*. But the wakeup call has accelerated efforts to provide a safe digital alternative via central bank digital currencies (CBDC) amid thriving demand for electronic cash. Pioneering Bahamas released the 'sand dollar' in October 2020, with [four other Caribbean islands](#) following suit. China has been testing an [e-CNY](#) in several major cities. A 2020 [BIS survey](#) found 86% of global

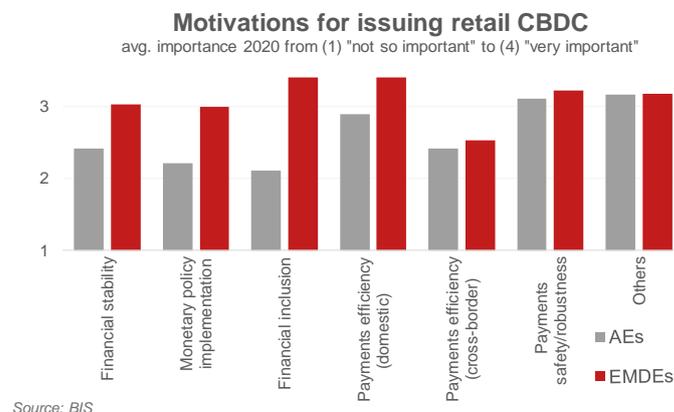
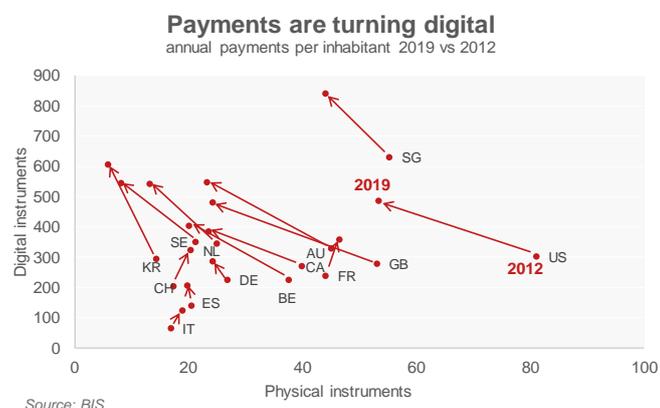
central banks exploring the release of a CBDC.

A CBDC is digital money issued by a central bank denominated in its national unit of account. It differs from reserves in that it can be held not only by commercial banks but by the broader public. It differs from conventional cash as it comes digitally (either a token or an electronic account). Most importantly, unlike other cashless transactions (credit transfers, e-money, etc.), it is a riskless and direct claim on the central bank. This distinguishes it also from volatile cryptocurrencies (e.g. Bitcoin), which typically have limited, privately created supply and are not backed by any national authority or asset (see more in a forthcoming *Core Matters*

report). They also differ from stablecoins (like Tether) that are privately backed by fiat currencies but still vary much in value due to lack of liquidity and regulation.

In this report, we carve out the motives underlying CBDC efforts, explain why major central banks will still tread carefully in introducing them and set out how a digital currency for the euro area could look like. We conclude with an outlook on the longer-term implications for policymakers.

transactions (see left chart). Without offering a digital form of cash, central banks risk seeing the efficacy of their tools eroding amid a fast rise of private international providers of digital currencies and payment systems. Given Sweden's fast decline in cash use, the Swedish Riksbank had to address the topic much earlier.



The case for CBDCs

The motives for introducing CBDCs may be as diverse as respective economies. A major driver for pioneering Caribbean islands, for example, has been the scope to **broaden financial inclusion** over a geographically fragmented territory. Digital currencies can be used by anybody, even those not able or willing to open a bank account in remote places – an issue in many emerging or frontier markets. Digital currencies require a digital wallet or account, but the fast-growing availability of mobile coverage and devices helps to remove this technical hurdle even in poor economies.

CBDCs also leave much scope for improving **transactional efficiency**, raising the speed of transactions and allowing for real-time clearing. A CBDC could also lower transaction costs and spur **competition and innovation in the financial sector**. It may even allow for a higher volume of transactions, especially if a central book or record (central "ledger") is used. This is an important motivation for many central banks in the advanced world (see right chart). For the the Fed, the debate much centers around whether competing regulated private solutions could serve this efficiency purpose best. Fed Chair Powell has repeatedly stressed that it was more important "to get it right than be first" and recently emphasised that he remained "legitimately undecided" about its introduction.

However, the key motivation for various other major central banks, including the ECB, seems to arise from the need to **maintain monetary sovereignty** amid a steady decrease in the relevance of physical cash and a fast rise in electronic

Many of these concerns could be addressed via increased regulation of private providers. Yet this renders the risk that ultimately few (and often foreign) private companies dominate digital currencies and transactions due to network effects, undermining the domestic transmission of monetary policy if the central bank gradually loses control over the base money. Indeed, strategic autonomy ranked high in the ECB's rationale for exploring a digital euro.

Other concerns relate to the **financial stability risk** if digitalisation is left to competition among regulated private providers. A closest private substitute for a CBDC would be digital money that is fully backed by a legal tender; either as 'narrow money' (based on a private central clearing) or stablecoins (based on crypto technology) sold by closely regulated private firms. They sell their digital coins to the public, using the proceeds as an asset that ensures the full convertibility of the coins into hard currencies.

Such stablecoins – if properly designed and regulated – may work well in normal times. But they may be subject to runs in times of stress, as backing assets still need to be placed at commercial banks or be invested in financial assets involving market risks. This risk would only be fully addressed if the stablecoins were fully backed by reserves held at the central bank. But these would then provide the same appeal as a CBDC and could trigger runs *towards* them in times of financial stress (explored in the next section). Solutions to mitigate these risks for a CBDC may be hard to implement in a fragmented private system. For example, central banks may limit deposit drains by imposing caps on CBDC deposits. In a private system of safe (fully backed) private digital coins, this would hardly be possible as one consumer may hold digital money distributed over accounts at various providers.

Central banks and regulators may also favour a sovereign approach over private solutions to mitigate the risk from **cybercrime attacks** and **technical failures**. It is debatable whether a public solution can guarantee more security per se. Still, many central banks may prefer taking full control of the technical risk to the heart of its monetary system rather than overseeing IT infrastructure of global currency providers from the outside.

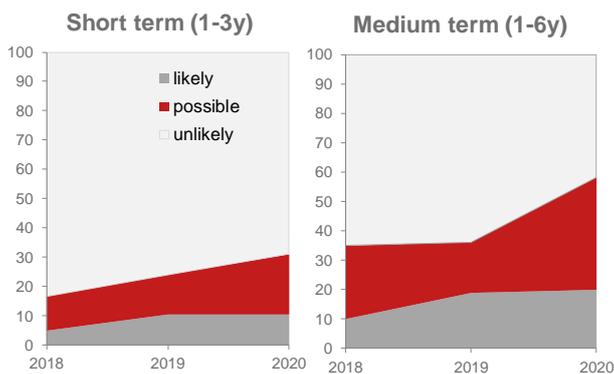
For some central banks, a CBDC may help foster the **international role of a currency** by raising its appeal in international transactions if foreign residents also qualify for CBDC accounts. This holds in particular for the euro, which, based on the euro area's strong financial and trade linkages, could boost its role as a key international competitor to the prevailing US dollar.

Finally, policymakers will not completely ignore **new policy options** which a full digital replacement of cash may herald in the more distant future. This could eradicate the effective lower bound on interest rates by enforcing negative interest on cash and deposits thereby enhancing monetary policy transmission. This would help to **stabilise activity** even in a world of persistently low neutral rates. Moreover, it may shorten recessions and the risk of deflationary spirals. On the fiscal side, it could allow for a much swifter provision of fiscal transfers during times of crisis. These may be made even programmable, with conditions attached to hand-outs, e.g. constraining the use of the proceeds for specific purposes or including an expiry date. Looking even further ahead, a CBDC would help to make 'helicopter money' an implementable policy tool for extreme situations.

Why central banks will tread carefully

Despite the strong case for offering digital cash, central banks need to tread carefully to preserve financial stability and not undermine the commercial banking system. This "Do no harm" precept agreed in the BIS **CBDC foundation principles** requires central banks to balance the coexistence with cash as long as there is sufficient demand while also enabling innovation and efficiency.

% share of central banks saying issuing retail CBDC...



Among **CBDC-related risks**, the most significant probably emanates from a **deposit drains** at commercial banks. In times of deeper financial stress, "digital runs" can occur at unprecedented speed and scale, as a fully risk-free CBDC would outshine commercial bank deposits even in the presence of deposit insurance. With CBDCs 'just one click away', it would be difficult to counter such moves, even if central banks provide large facilities as the lender of last resort. Penalty rates on CBDC may prove of limited effectiveness when agents seek safety at almost any price.

But also in 'normal' times, the deposit base of commercial banks may come under additional pressure as customers may not only replace physical cash for the digital alternative but may also shift money from their bank accounts into the riskless CBDC. This may have adverse effects beyond the banking sector. With banks forced to rely on more expensive and volatile wholesale markets, funding costs would rise. Banks may restrict credit supply and raise loan rates with potential adverse impacts on economic growth. Banks could try to offset declining profits by engaging in riskier forms of lending, adding to financial stability risks. Owing to these risks, central banks will likely try to phase in a CBDC only very gradually, e.g. by limiting deposit sizes (see below).

How a digital EUR may look like

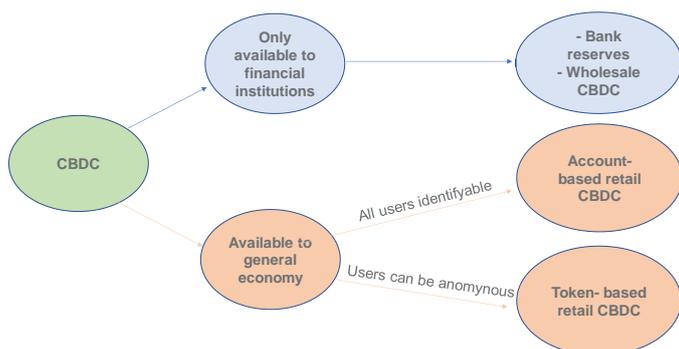
The design of a CBDC is subject to many choices, with three standing out. First, **breadth of access**: will the access to CBDC be restricted to a predefined group (**wholesale**) or will it be open to the broader public (**retail**)? The least disruptive choice would be the former. It would expand access to central bank electronic money (available only to banks as reserves today) only mildly to institutional investors. It would be technically relatively easy to implement.

However, this would leave the growing interest among retail clients and the rise in private digital coin offers unaddressed. Not surprisingly, only 9% of central banks engaged in work on CBDC restrict their work on wholesale CBDC, while 39% focus on retail (and the remainder on both). If central banks convincingly address data protection, privacy and security concerns, a broadly **accessible (retail) CBDC** thus seems more likely, especially in Europe, which lacks national private champions offering digital payment solutions.

Second, CBDC holders could hold their accounts directly at the ECB (**one-tier system**), or intermediaries (banks) may provide access as an interface to clients (**two-tier**). The above described adverse impacts to commercial banks make a **two-tier system more likely**. CBDC would still be a (safe) direct liability held against the ECB, but commercial banks would retain their operational interface role with firms and consumers, mitigating the disruptive effects to the client base. As an important difference to money held at bank deposits, CBDC could not be used by commercial banks to create new money in the fractional reserve system by e.g.

extending new credit to other customers.

Forms of Digital Central Bank Currencies (CBDC)

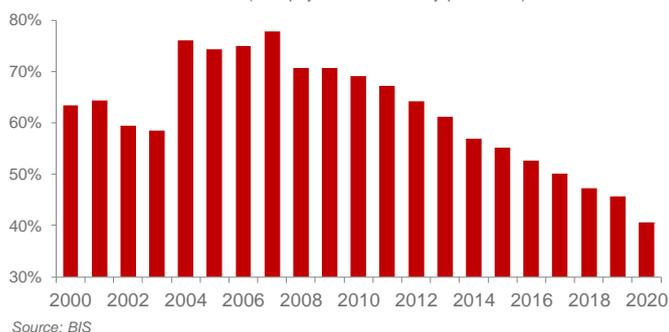


To contain adverse impacts on commercial banks and the risk of deposit runs in times of stress, central banks will likely opt for **capping the CBDC deposit holdings**. ECB Governing Council member [Panetta](#) hinted at an upper limit of € 3000 or negative rates on holdings above that threshold. However, to avoid destabilising effects from bank runs penalty rates beyond such a threshold would need to rise significantly in a multi-tier system and – given hardly predictable behaviour in a crisis – an absolute cap per depositor would still need to be imposed.

As a third key choice on **technology**, the ownership of the CBDC can be recorded either as a digital **token** or via a centralised **account**. Transactions via tokens would come closer to physical cash as they would not need to be verified by a central authority and provide more anonymity. However, they would be prone to the risk of illicit use, including money laundering and theft.

Declining use of cash in the euro area

Defined as share of cash (OTC + ATM cash withdrawals) in cash plus Non-cash (card payments + e-money purchases)



In a centralised account-based system, all CBDC transactions would be settled centrally at the central bank, though private operators may still serve as an interface. This would very much resemble the settling of transactions between commercial bank accounts. By contrast, tokens could be verified both via central or distributed ledgers. Unlike cryptocurrencies, central banks would restrict any

distributed ledger to permitted institutions to keep computational and oversight tasks under control. In practice, **central banks may favour a hybrid system, in which tokens and accounts coexist**, much like cash and bank accounts today. Tokens may be favoured in (even offline) transactions over smaller amounts. Ultimately, however, all digital transactions would **still need to be settled via an online connection**, at least ex-post.

CBDCs paving the way for sharper policy tools?

The CBDCs are coming. With the declining use of physical cash, many central banks will experiment and ultimately introduce CBDCs in order to preserve monetary policy effectiveness and the stability of the financial system. Some central banks may prefer tightly regulated private solutions, but many will target their own CBDCs to counter fast increasing reliance on big international e-currency providers.

That said, they will tread very carefully to avoid destabilising effects on the financial system. Among the major central banks the ECB seems particularly committed to a CBDC, also for strengthening the euro's international role. The [ECB has recently launched](#) an investigation phase into the digital euro in July that will last until mid-2023 with an introduction feasible by 2025. By contrast, the discussion in the US reveals a higher openness for private solutions. Hence, the final landscape of CBDC might look heterogenous.

The impact on central banks' policy will be modest in the near to medium term. However, in the longer term, the ongoing digitalisation of the economy may give way to more assertive policy approaches. The use of cash seems poised to lose further in importance, both due to more convenient digital alternatives and a stronger regulatory push against its use in illegal transactions. This may ultimately allow for the full substitution of physical cash by CBDCs, opening a range of new ways to sharpen monetary and fiscal policy tools. The broad application of negative rates on cash and deposits and the targeted provision of programmable fiscal transfers may become realistic policy options then.

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