

**DMI**

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Issue 5, February 2021

JOURNAL



# Race for the future

Which central banks are leading the way in digital currencies?

**DMI**

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Company Number: 7032533.  
ISSN: 2398-4236

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# New year, renewed focus

The digital payment space is innovating rapidly. The Digital Monetary Institute plays a key role in aiding co-operation and sharing innovations among the industry's major players, writes John Orchard, chief executive officer at OMFIF.

A REVOLUTION in money is taking place, driven as much by tech disruptors as the most important agents of the state. Since its launch in May 2020, the OMFIF Digital Monetary Institute has sought to move with the speed and insight of the industry - digital payments in their myriad forms - it represents. The DMI is a unique forum for discussion, debate, research and study for senior people within the private and public sectors. Members, contributors and participants represent a global spectrum of central bankers, civil servants, politicians, technologists, entrepreneurs, financial institutions, fintech leaders, regulators and academics. This DMI annual is a valuable guide to this universe and its developments.

Over the past eight months we have facilitated over 30 round tables, broadcast 26 podcasts, published five Journals and five in-depth research reports as well as held innumerable public and private conversations with influential actors in the digital payments space. Activity in the future will be no less intense, with a highlight being our two-day DMI Symposium scheduled for late April.

We shall continue to serve as an indispensable bridge between financial institutions, fintech entrepreneurs and the public sector. Research and dialogue in 2021 will focus, among other things, on the practicalities of launching central bank digital currencies, their applications in wholesale finance and capital markets, and the prospects for private digital currencies. We hope you find this guide to be a useful tour of a complex, interesting, important and constantly evolving arena. •

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# A revolution in money

## Central banks and digital currencies

The inaugural DMI Symposium, 28-29 April 2021



At a time when the digitalisation of the economy has accelerated, the DMI utilises its position to facilitate public and private sector dialogue on the future of money. The inaugural DMI symposium is a culmination of these discussions, using our convening power within the central banking community and extensive network of banks, technology solution providers and institutional investors to advance trusted and efficient innovations in digital solutions.

### EVENT AT A GLANCE

- » Virtual two-day symposium
- » 30+ speakers from OMFIF's global central banking community
- » 1000+ attendees drawn from institutional investors, banks, technology providers
- » Public panels and private roundtables
- » Exhibition stand area; open forums; bilateral meetings

### WHY ATTEND?

- » Hear directly from central banks on CBDC initiatives
- » Get the latest thought leadership delivered by industry experts
- » Join a global network of digital currency stakeholders
- » Have meaningful exchanges with delegates and speakers all in one place
- » Examine critical questions which impact all areas of finance

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# Pivotal year for digital economy

Traditional payment players face existential threat as digital currencies enter the mainstream, writes Philip Middleton, chairman of the Digital Monetary Institute.

THE COMING YEAR will be one of significant changes in the global payment market and will witness both material upgrades to existing systems and the emergence of digital economies powered both by fiat and private digital currencies. We shall see the rapid development of both central bank digital currencies and fiat-backed private money around the globe. Cryptocurrencies will have only marginal presence as payment instruments but disproportionate publicity as speculative assets.

The 2020 pandemic has turbocharged a dizzying acceleration of the development of a complex global digital economy and of the sophisticated digital payment systems upon which it will rely. To many, this offers the exciting prospect of cheaper, more efficient and more secure transactions on a global scale, and the possibility of extending financial inclusion to millions of citizens. To others, it spells the loss of personal control, privacy and sovereignty. A whole new industry powered by innovative technologies presents a significant - some would argue existential - challenge to existing payment industry giants. For central banks and regulators the potential tradeoffs between innovation and stability, between the status quo and a brave new world, are

complex and intoxicating.

Managing this transition smoothly and preventing disruption of the global financial infrastructure presents a series of massive challenges for governments, central banks, other influential policy-makers, the private sector and consumers alike. The competing claims of private and public money, privacy and transparency, different consumer groups, security and legality, and the merits of various technology applications, both old and new, will lead to much investigation and debate.

It is likely that the future digital payment landscape will comprise a complex tapestry of multiple private and fiat currencies with profound implications for regulation and supervision, and cross-border and domestic interoperability. There will be critical questions about the balance of co-operation and competition between public and private sectors, and about relationships between nation states and their currencies.

This annual guide complements the broader programme of the OMFIF Digital Monetary Institute in stimulating and hosting debate and research into digital payments developments and provides an indispensable reference source. •

**A whole new industry powered by innovative technologies presents a significant - some would argue existential - challenge to existing payment industry giants.**

# Review of the year



2020 saw central banks' plans for digital currencies ramp up several notches. This could be the year that theory turns into practice, writes Bhavin Patel, editor of the DMI.

## Challenges of 2020 push digital adoption

The Covid-19 pandemic has increased the urgency of adopting safe, efficient, reliable and convenient digital payment services. Amid social distancing, restricted mobility and rising uncertainty, digital and mobile retail payment services have enabled users to send and receive funds electronically.

In developing economies, responses to Covid-19 have led to greater financial and digital inclusion. In OMFIF's 'Future of Payments' report, published at the end of 2020, one Asian central bank reported that 1.6m individuals gained access to their country's formal banking system during the first half of 2020, while mobile banking transactions rose 192% during the same period.

Payment revenues worldwide have doubled in the decade to 2019 to reach \$2tn, according to McKinsey's latest 'Global Payments Report'. Even though payment revenues are estimated to have fallen 22% in the first half of 2020, the decline has been accompanied by growth in online payments.

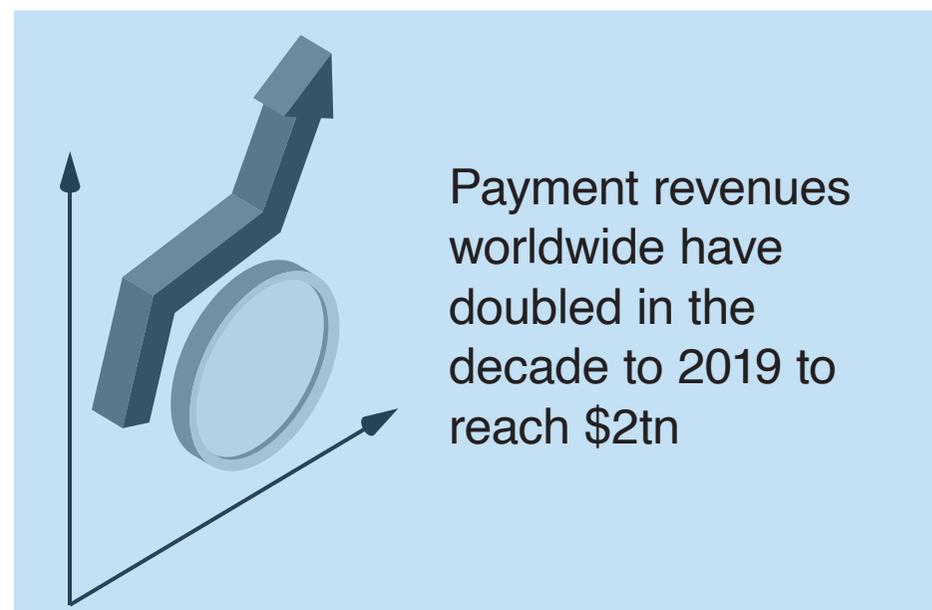
In the US, online retail spending rose 30% in the first six months of the year relative to the same period in 2019. British credit and debit card transactions in July 2020 fell 16.4% year-on-year, but the share of online transactions increased to 40.7% from 29.8%.

Consumer habits formed over the past year will persist even after the pandemic ends. Amazon reported a 40% year-on-year increase in net sales in the second quarter of 2020, driven by demand for its online grocery shopping service.

Just as the 2003 severe acute respiratory syndrome epidemic prompted a rise in e-commerce and digital payments in China, the Covid-19 pandemic is expected to have a lasting impact on consumer behaviour across the world. We should expect this trend to accelerate in 2021.

## Retail CBDC becomes a priority

The vibrancy of retail payments and arrival of private innovations have spurred a wave of research and exploration from governments and central banks. Apart from the roll-out of fast retail payment systems that offer near-instantaneous domestic clearing and settlement, there is potential for profound changes in how central banks can promote better speed, security and access to payments domestically and internationally. Ideas about how to implement central bank digital currency and the notion of digital sovereign fiat currency that can be



transferred at low cost and high speed are sparking further changes that could transform monetary transactions.

Use cases and policy objectives are based on the view that cash is a public good, it is declining in use and that it's up to the public sector to provide another means of payment. Current payment systems could be updated with asset tokenisation or by improving back end systems which are expensive to run. These are the main areas highlighted by most advanced economy central banks.

There is a very different story to be told in Asia. Its digital transformation is being pushed by organic demand for specific digital service platforms, creating an ideal landscape for exploring digital currencies. The region's progress in developing CBDC reflects people's desire for technology, convenience and digitalisation of services. A need to boost financial inclusion and facilitate remittances has led Asia to focus on and become a leader in CBDC.

Figure 1 shows that the focus on retail CBDCs has grown. For China, which

has arguably the most advanced project, there is a need to provide a public alternative to mobile money that has so far been dominated by the private sector. M0 will be circulated by the private sector on mobile phones. It is fully collateralised and the regulator has access to transaction data to ensure regulatory compliance.

Like Alipay and WeChat Pay, China's CBDC can be stored and accessed by consumers through digital wallets. However, unlike these private networks, the e-yuan will not require people to have a bank account. Another critical aspect of the e-yuan that would further advance financial inclusion is that transactions will not be subject to any fees, just like cash. (see page 13)

While most central banks are still only researching CBDC or have only recently launched pilots, the Bahamas has already rolled out its digital currency. The sand dollar is designed to increase financial inclusion and improve the resiliency of payments in the natural disaster-prone archipelago.

This CBDC is being released gradually through authorised financial institutions, with retail consumers accessing it through digital wallets. These wallets work on a hybrid wireless network which allows consumers to use their money without an internet connection.

In terms of know-your-customer, anti-money laundering and combating the funding of terrorism regulations, the sand dollar follows a three-tier system. The lowest tier does not entail strict customer screening, but does limit the amount of money held. The two higher tiers take a risk-based approach to KYC, AML and CFT standards. (See page 17).

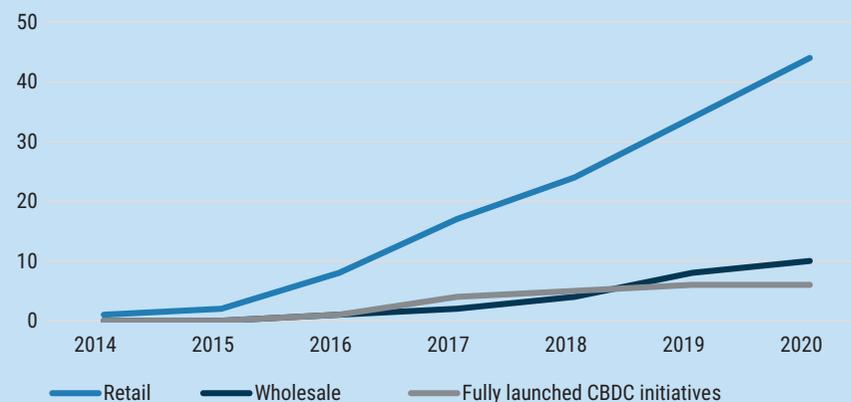
Sweden, a country with low cash usage, is another frontrunner in CBDC issuance. The Sveriges Riksbank has been running a digital currency pilot since February 2020. In December 2019, the central bank agreed with Accenture to test digital wallets and distributed ledger technology, while ensuring CBDC was interoperable with other bank systems.

Cambodia is likely to follow suit this year with its Bakong system. Cambodia plans to foster greater competition in its payment industry by building a system that operates with incumbent payment service providers, leaving the public to decide which vendor to use. Meanwhile, Singapore and Thailand are experimenting with wholesale CBDC systems, determining business and commercial use cases.

Other countries in varying stages of CBDC development include Ukraine, Canada, France, South Africa and Brazil. As more countries move away from

## Retail CBDC becomes a priority for central banks

Cumulative number of retail and wholesale CBDC initiatives being researched, developed or piloted, as well as fully launched CBDCs, 2014-2020



Source: OMFIF analysis

cash, more central banks are expected to explore CBDC issuance.

For instance, Japan, a heavily cash-based economy, has resumed its exploration of CBDC. It plans to launch its digital yen pilot programme in April, following a feasibility study it concluded in January. This proof of concept will be carried out in three phases. The first will test the basic core functions of CBDC as a payment instrument. The second phase starts in spring 2022 and will examine the functional requirements and design of CBDCs (including issuing limits and offline capability). Payment service providers and consumers will participate in the final phase of the programme.

While the Bank of Japan has no plans to issue a CBDC, it considers it important to prepare if such a need arises in the future. Similarly, the Bank of Korea launched a CBDC pilot in April 2020 to study potential use cases. The goal is to future-proof South Korea's payment system and allow for contingency planning if there is ever a need to issue CBDC. We may see Korea emulate Japan this year.

Turkey and Ukraine both plan on beginning their retail CBDC pilot programmes this year. India is in an exploratory phase, which it announced on 25 January. The Reserve Bank of India is investigating if there is an identifiable objective for CBDC and, if so, how could such a system could be put into operation.

## Privacy still needs to be solved

Each of these experiments could lead to digital currencies with different designs, prioritising certain aspects over others. Design options include an account-based, hybrid or token-based approach. All have their own challenges with privacy, KYC and AML regulation compliance and financial disintermediation. Central banks will need to choose how they overcome each of these issues.

But authorities do not just need to decide upon the design of their digital cash. As innovations in payment systems advance in tandem with the broader digitalisation of the economy, there will be a need for central banks and financial regulators to update their regulatory mandates. Whether they originate from the private or public sector, upgraded or new retail payment infrastructure must meet financial inclusion and stability objectives, as well as ensure security, interoperability, trustworthiness, resilience, speed and cost-effectiveness.

There is no 'one size fits all' design or underlying technology for CBDCs. These aspects will depend on how central banks choose to be involved in the payment environment. OMFIF has gathered the views and opinions from central banks through research and meetings. The main characteristics of money are well understood, being a stable store of value, medium of exchange and unit of account. We would expect any new currency to exhibit these features.

Central banks are unanimous that any new system should be governed by the sovereign authority, which would determine who has access to it, how rules are changed and monetary policy is actioned. It should be secure and resilient. Additionally, interoperability needs to be achieved across platforms in the case of a hybrid model or if users can access a core ledger on the backend as suggested by the Bank of England and Cambodia's Bakong models.

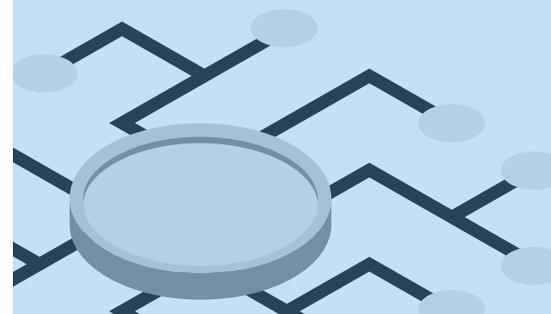
While this view is relatively commonplace, there is more debate on the level of privacy and anonymity afforded to users. This affects how KYC and AML measures are carried out. It is ultimately a design question for the issuer to answer.

While others are still deliberating to what extent privacy and anonymity will be designed into their projects, China swiftly decided on a centralised governance structure. The People's Bank of China says it will use 'loosely coupled account links' to create 'controllable anonymity'. Under this system, e-yuan will be transferable from one digital wallet to another without using a bank account. This means users can still use other platforms such as Alipay. Only a portion of the money in their account will be in e-yuan. The PBoC will, however, have access to transaction data.

## Way forward for wholesale CBDC

Central banks have been exploring methods to adopt distributed ledger technology for wholesale and interbank operations for trade and settlement over the past four years. The technology promises to make infrastructure more efficient, productive and resilient. Prominent DLT initiatives include the

Central banks are unanimous that any new system should be governed by the sovereign authority, which would determine who has access to it.



Monetary Authority of Singapore's Project Ubin and the Bank of Canada's Jasper. More recently, central bank efforts have shifted towards DLT-based retail central bank digital currency as shown in the figure.

The private sector has developed more specific uses for blockchain and DLT. Legacy operations and the need for data reconciliation mean that many financial transaction processes are costly and inefficient.

Banking is where we have seen some of the greatest developments. The most prominent use case for banks is the alleviation of pain points in cross-border payments. This could mark a departure from the high-cost, slow and inefficient correspondent banking relationship models which tie up liquidity and still have counterparty and credit risk.

DLT offers greater resiliency and increased functionality, features that set it apart from traditional real time gross settlement and normal account-based systems. Digital currency could also integrate well with other use cases, such as asset tokenisation or clearing and settlement. Using DLT would allow for continuous payment-versus-payment and delivery-versus-payment settlement



The future could well be one with both privately and publicly issued currencies, operating on blockchains connected through application programming interfaces or other technical solutions.

globally. Interoperability and fungibility in different DLT systems would also allow a CBDC to be on one side of atomic transactions.

However, this is still in early stages and there are many issues to address. This application of DLT would significantly derisk settlement, although it would create pressures in other places, such as liquidity management. This is one area in which banks expect significant progress over the next five years. The private sector is starting to take a more realistic view of blockchain's potential and has a better grasp of implementation issues. The public and private sectors have many common goals, with major benefits for both sides if they can overcome certain hurdles.

Leading central banks see wholesale CBDC as a way to make the financial sector more effective and innovative. In December 2020, the Banque de France successfully conducted a CBDC experiment with IZNES as part of its testing programme launched in March 2020. The experiment undertook subscriptions and redemptions of fund units on SETL's private blockchain platform using digital euro, allowing the simultaneous delivery of funds against payment using digital euro.

We will see a multitude of offerings for specific purposes in the wholesale space. It will be unlikely that a digital currency will live on only one platform and be accessed and used in the same way by all stakeholders in a financial system. The future could well be one with both privately and publicly issued currencies, operating on blockchains connected through application programming interfaces or other technical solutions.

### Expectations for the future

Mobile money and digital wallets will grow significantly in the future. As emerging economies expand financial inclusion, innovations that can facilitate basic services will be attractive to regulators. Incumbent banks and payment service providers are developing integrated products that combine older innovations, such as card-based models, with advances from newer players.

Given the rapid pace of innovation in the payment landscape, central banks are pivoting toward greater industry engagement. Policy tools, such as regulatory sandboxes, innovation hubs, waivers and more differentiated payment regulations, are being used to foster more proactive approaches to the evolution of payments. Although not all central banks favour direct partnerships with private payment service providers, the overall regulatory shift to more

flexible governance is fostering greater familiarity with new technologies and business models. This will help test and scale beneficial innovations.

There is catching up for some to do. The US has recently become more overt in engaging with retail CBDC developments, while also spurring the private sector towards blockchain-based infrastructure innovation through regulatory changes. The Federal Reserve Bank of Boston stated in an OMFIF meeting that it is identifying policy objectives for a CBDC and actively evaluating different technology platforms that deliver on improvements in the speed, efficiency, security, resiliency and throughput of the system. However, overall progress in the US has been uncoordinated, as interbank and banking operations stride ahead while the benefits to consumers remain unclear. (see page 19)

Despite China's good progress with its CBDC project, it is highly unlikely we will see a fully operational cross-border Chinese CBDC this year or the next. A successful e-yuan has been set up as a challenger to the dollar's reserve status. It won't succeed, however, given the dollar's strong fundamentals that technology cannot change. The dollar's status is more of a policy question than a technical one. Debt, retail payments, oil, gold, commodities and asset safety will always be the dollar's domain.

Consequently, an e-yuan will not challenge the dollar until these fundamentals shift and there becomes an overt preference from the US-backed Society for Worldwide Interbank Financial Telecommunication for a Chinese system. Additionally, until China has highly liquid and open capital markets, the renminbi's international role will remain limited.

However, we may see an iterative approach to expanding the e-yuan outside of China's borders. This could be by facilitating payments across the belt and road region, where the renminbi is already the major currency. Renminbi expansion will require global co-operation and compromise on interoperability, international standards and principles, as well as harmonising laws and regulations.

While there are alternative ways forward for cross-border payments, blockchain and DLT are the catalysts pushing the financial industry to upgrade its outdated infrastructure. These technologies are being used for peer-to-peer cross-border payment applications, where they will only grow in importance.

In January, the Bank for International Settlements Innovation Hub listed its priorities and new programmes, which included a platform for testing wholesale CBDCs. This proof-of-concept platform will use different CBDCs 'to explore the

A successful e-yuan has been set up as a challenger to the dollar's reserve status.



feasibility of faster and cheaper cross-border payments'. Once more technical principles are agreed, central banks will be eager to expand cross-border innovations.

Until major central banks start issuing CBDC in earnest, regulators will remain wary about drastic shifts in payments brought on by DLT and digital currencies. Despite private payment system innovations, such as stablecoin, competing with the traditional dominance of sovereign fiat right now, the future of the payment industry will be based on collaboration.

The potential for interoperability between Diem's stablecoins and future CBDCs shows how public-private partnerships in payments could leverage central bank trust, while gaining from the private sector's existing user base. Within this arrangement, central banks will act not only as issuers of sovereign digital fiat, but as standard setters, protecting consumers and enabling innovation. •

# THE FRONT RUNNERS

Advanced digital currency projects aren't only limited to advanced economies. There are leading CBDC examples from differently developed countries that could provide a guide for others, write Chris Papadopoulos, Pierre Ortlieb and Levine Thio, economists at OMFIF.

SEVERAL advanced and prominent central bank digital currency initiatives are setting the global precedence in research, identification of credible policy objectives, use cases, and technological design. These projects are also among the first to outline approaches to the on-the-ground realities and practicalities of implementation.

The People's Bank of China's digital currency/electronic payment project is by far the biggest in scale and furthest along in implementation. The PBoC is working alongside private sector players to distribute digital M0 among its population. The most recent joint venture is with the Society for Worldwide Interbank Financial Telecommunication, where SWIFT will obtain a local licence and manage local network management activities, all in compliance with Chinese regulations. Despite the scope of SWIFT's activities, which are limited, it signals China's growing intention explore how their systems could integrate with global payment infrastructure.

Cambodia is another country taking a public-private approach. Its Bakong initiative, however, is not purely a CBDC system. Instead, it is working to reinvent its core infrastructure, allowing more payment players to participate, generating greater innovation and competition.

The Swedish Riksbank was an early explorer of retail CBDC, identifying a strong policy objective and use case amid the declining use of cash. One important objective of the e-krona project is to solve issues with bank deposit disintermediation. The project remains under review, however, as the benefits are debated in government.

The Monetary Authority of Singapore has made iterative progress on its project since 2016. The focus now is on using its payment network prototype, developed in collaboration with JPMorgan and Temasek, to continue to serve as a test network. It will facilitate collaboration with other central banks, as well as the financial industry as they work together to develop next generation cross-border payment infrastructure.

The Bahamas' sand dollar project offers a number of big lessons for implementing a CBDC and tackling on-the-ground realities of deployment during a pandemic. The result has been a number of novel innovations which tackle offline payment and settlement issues, ensuring inclusion through low-cost access and creating a resilient network.

These countries are leading the world when it comes to CBDC, providing a guide for how others could develop their own projects. •

 **CHINA**

China could use its advanced position to help internationalise the renminbi.

THE PEOPLE'S BANK OF CHINA'S research into central bank digital currency, started in 2014, began to bear fruit last year. Digital currency trials were announced across four cities: Shenzhen, Suzhou, Chengdu and Xiong'an, with lotteries aiding participation. Over 2m Shenzhen citizens signed up for the lottery, with 50,000 winning a wallet containing 200 digital yuan. China plans a broader roll-out of its CBDC in 2022, through its digital currency/electronic payment project, known as E-CNY.

Chinese authorities are pondering how to introduce the currency without disrupting the current financial system. The digital currency may even complement existing financial services and payments providers rather than compete with them. Mu Changchun, head of the PBoC's digital currency research institute, said last year that the digital currency will not compete with payments giants WeChat Pay and Alipay. Changchun said, 'WeChat and Alipay are wallets, while the digital yuan is the money in the wallet.'

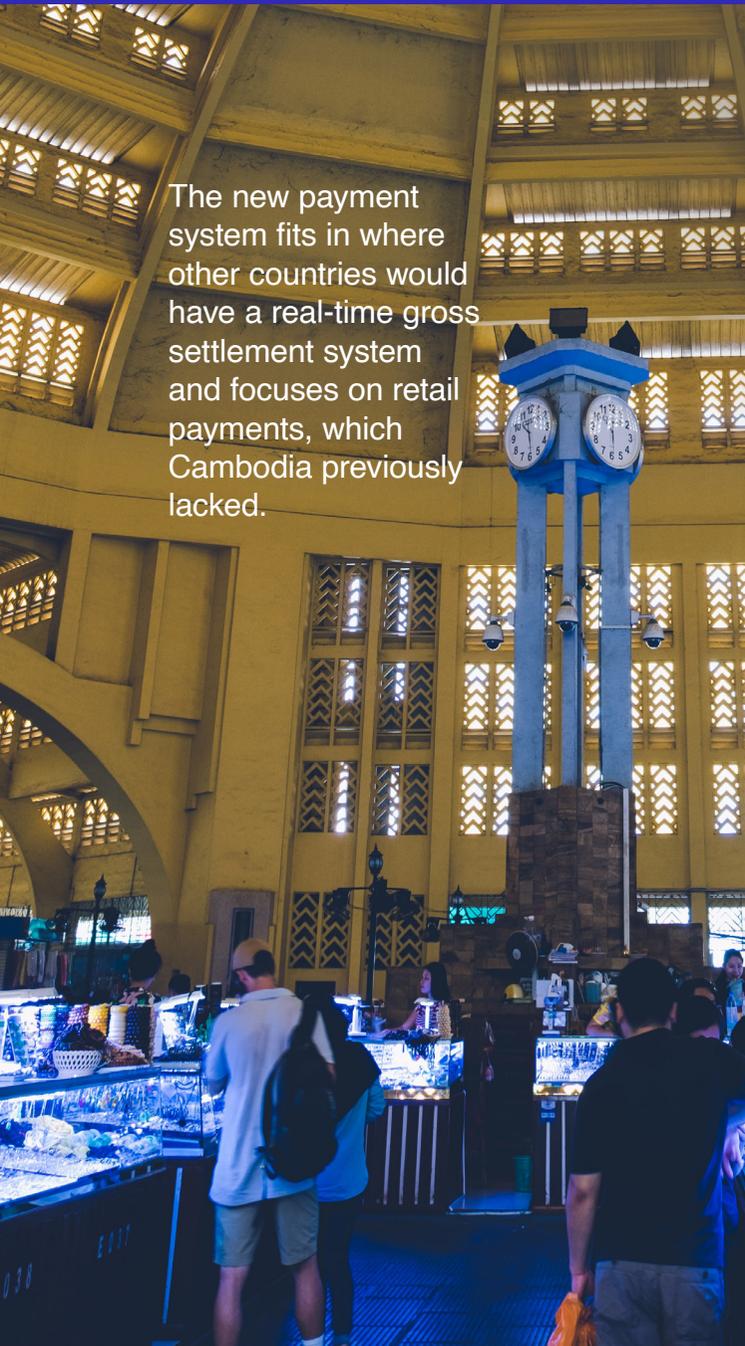
China is also paying close attention to the impact of its digital currency on the banking system. Four state-owned banks will distribute the digital currency and will be central to its existence. This two-tier model, where consumers still must have accounts at commercial banks, distinguishes itself from the one-tier model, where consumers would have their own account at the central bank. A two-tier model ensures that commercial banks can still offer financial services to their customers. There are also suggestions that the PBoC could relend digital currency deposits to commercial banks to replace their funding. This may give the central bank even more oversight of the use of its digital currency and could lead to more monetary policy tools.

There is discussion about whether the digital currency can be used for making cross-border payments more efficient and play a role in the internationalisation of the renminbi, but thus far China's efforts have been focused domestically. We may expect iterative expansion along the belt and road in the next cross-border phase.

The PBoC is reaching further with its experiments by introducing a phone free digital yuan, where a smart card-like device can be used for payments. This will dispense with the need for an internet connection, important in a country where 40% of people, chiefly those living in the countryside, do not use a smartphone. This card would provide more inclusive access to the digital yuan, increasing its use and furthering China's lead in the technology. •

**2m**

Over 2m Shenzhen citizens signed up for the lottery, with 50,000 winning a wallet containing 200 digital yuan.



The new payment system fits in where other countries would have a real-time gross settlement system and focuses on retail payments, which Cambodia previously lacked.

## CAMBODIA

Bakong debuted in late 2020, aiming to promote use of the local currency.

BAKONG, Cambodia's newly introduced mobile platform, is not a fully-fledged central bank digital currency. Rather, the nation says it is a 'backbone payment system', a unified, interoperable service that allows customers of different banks and payment service providers to send money to one another. But Bakong does incorporate features of distributed-ledger technology in a closed-loop system, safeguarding privacy and integrity.

The focus is on retail payments and Bakong fits in where other countries would have a real-time gross settlement system, which Cambodia previously lacked. The wholesale payments system is unchanged and operates through the national clearing system, though the central bank has said it is keeping an eye on other central banks' work on distributed ledger technology.

Bakong is designed to be a back-end structure that won't compete with current payment services providers and banks. Cambodia was well placed for something like Bakong, as it had a high rate of mobile phone ownership but a low rate of financial inclusion.

As well as boosting financial inclusion, Bakong could also encourage the use of Cambodia's riel. The economy is dollarised and an interoperable payment system that works like an RTGS would make using local currency more convenient, encouraging its circulation. The riel is held back by a lack of large denominations, making significant transactions cumbersome. 'We aim to improve financial inclusion, efficiency and safety, as well as promote the use of our local currency,' Serey Chea, director general of the National Bank of Cambodia, told OMFIF last year.

Some of the challenges in launching Bakong have been making it fit with the current network of financial services providers – banks, payment service providers and telecoms companies – without making them redundant.

Another has been to introduce standardised quick response codes across the system, which need to replace current QR codes used by payment firms and banks for customer transactions.

Cambodia is looking to develop the system in the future. Bakong has taken steps to allow cross-border transactions. 'We are working on cross-border operations and have already signed a memorandum of understanding with Malaysia's Maybank,' Chea said. 'We want to allow migrant workers – many of whom are women – to send money back home free of charge and have more control over their finances.'



## SINGAPORE

### Project Ubin lays foundations for Singapore's retail central bank digital currency.

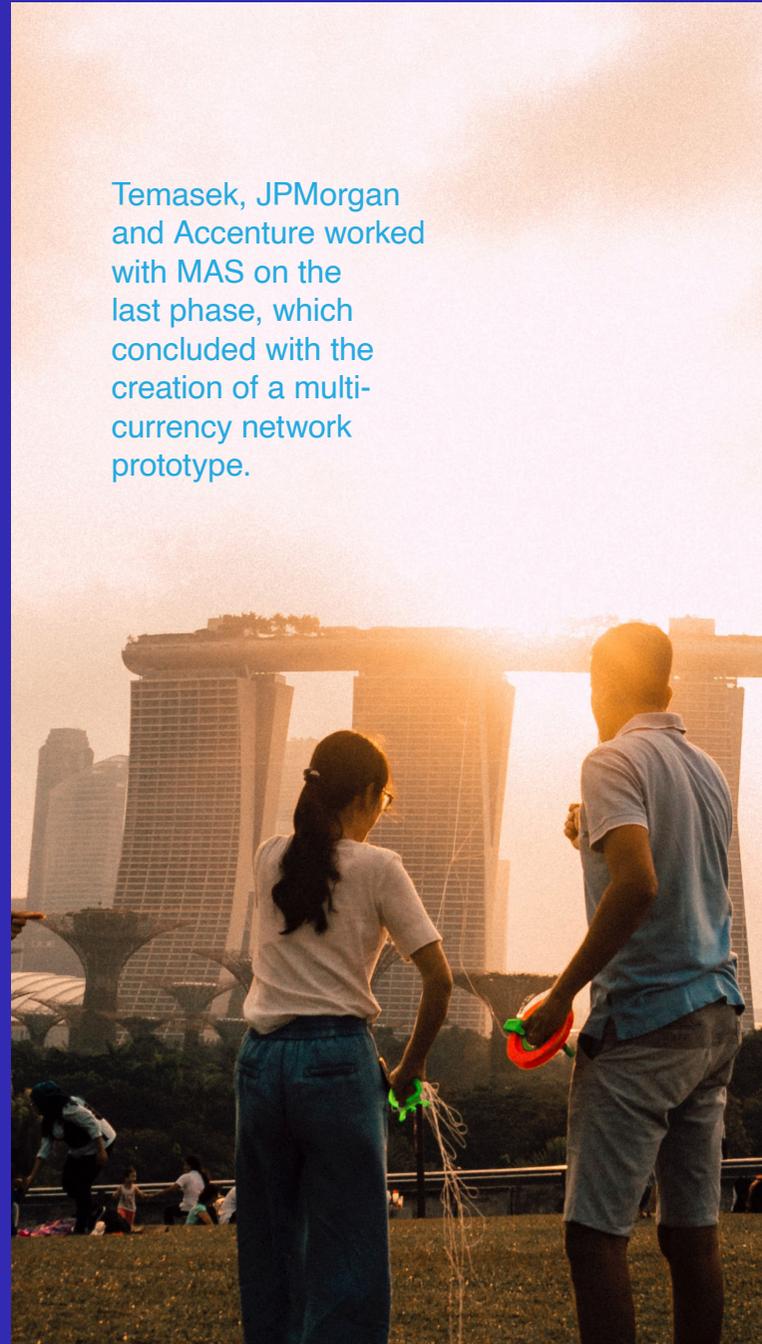
IN JULY 2020, the Monetary Authority of Singapore completed the final phase of its central bank digital currency project, Project Ubin. Project Ubin's goal was to develop a simple yet efficient alternative to the existing system, based on central bank issued digital tokens. Five stages of blockchain experiments, involving over 40 financial and non-financial firms, were carried out over half a decade. With each stage, spearheaded by MAS, reports were released that explained the technical details.

In the first two stages, MAS partnered with a consortium of financial institutions. Teaming up with R3, a distributed ledger technology company, in the first phase in 2016, MAS looked at prototype design principles. Together with five technology partners, the second phase the following year was concerned with developing software for three different models for decentralised interbank payment and settlement. In the third phase, delivery-versus-payment capabilities were advanced. These demonstrated settlement finality, interledger interoperability and investor protection. The accompanying technical report also expanded on resiliency considerations and a framework to govern posttrade settlement processes, such as arbitration.

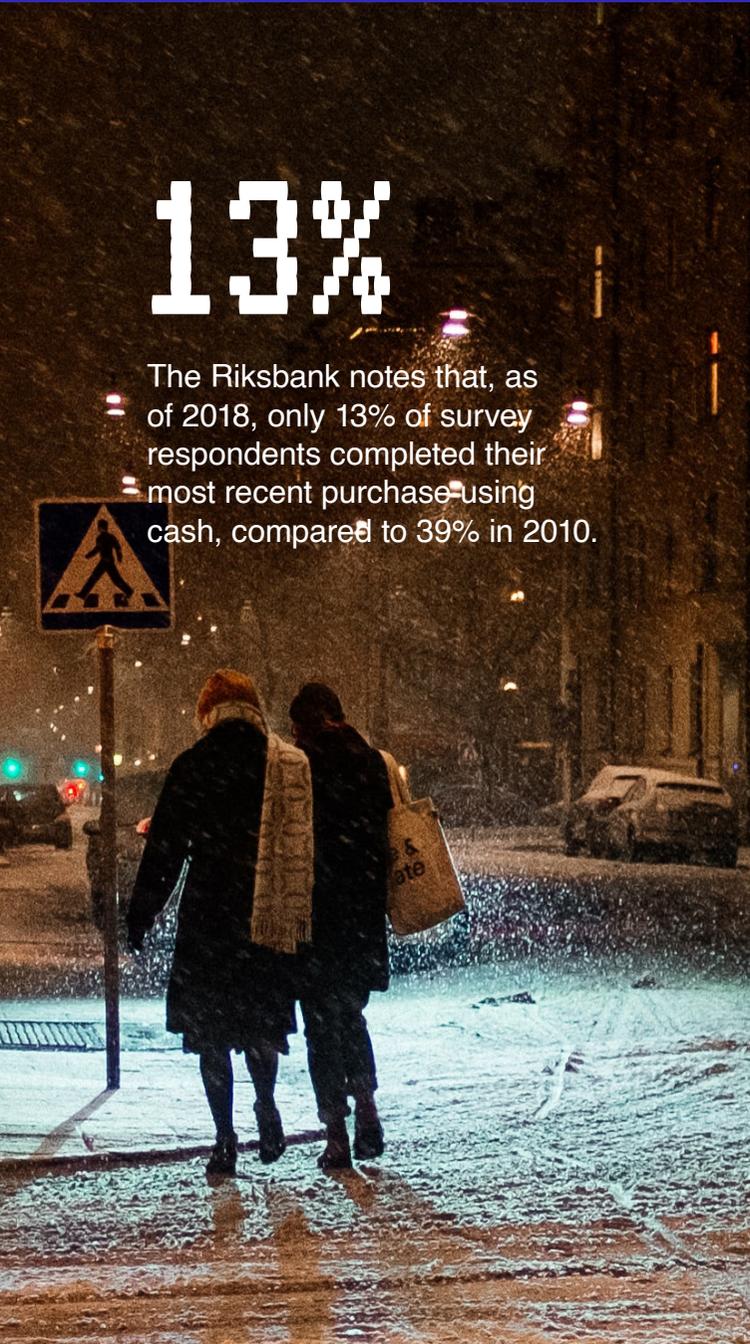
The Bank of Canada, Bank of England and MAS collaborated on Ubin's fourth phase, which assessed models for improving cross-border payments and settlements. In 2019, BoC and MAS were successful at using CBDCs to perform cross-border and cross-currency payments. Project Ubin's final stage tested the commercial viability and value of a blockchain-based payment network and its ability to integrate with commercial blockchain applications. Temasek, JPMorgan and Accenture worked with MAS on this last phase, which culminated with the creation of a multi-currency network prototype.

After the completion of Project Ubin, MAS has continued working on the prototype to develop next-generation cross-border payments, infrastructure and deploy blockchain technology. Sopnendu Mohanty, chief fintech officer at MAS, says that a shared taxonomy across different parties or standards is needed, with the transformation of the payment system being an urgent task.

Apart from the technical knowledge it produced, one of the lasting legacies of Project Ubin may be greater collaboration between financial and non-financial institutions. While MAS is staying quiet on if they will release a CBDC in the near future, experiments and discussions will continue. It may not be long before we see a Singaporean retail central bank digital currency. •



Temasek, JPMorgan and Accenture worked with MAS on the last phase, which concluded with the creation of a multi-currency network prototype.



# 13%

The Riksbank notes that, as of 2018, only 13% of survey respondents completed their most recent purchase using cash, compared to 39% in 2010.

## SWEDEN

Falling cash use and the emergence of private competitors are driving the Sverige Riksbank to rethink money.

THE SVERIGE RIKSBANK'S e-krona project, first started in 2017, launched its pilot last December. The endeavour, due to last until November 2022, serves as a learning experience of what has been called the world's most cashless society.

Previous projects explored the legal, technical and economic impacts of the e-krona, including possible consequences for bank balance sheets and its fit with the Riksbank's mandate. The pilot wants to answer these questions in a more practical manner by giving users an e-wallet which they can use to store, spend and send retail central bank digital currency.

The Swedish central bank sees two reasons for issuing a retail CBDC. First, Swedes are using less cash. The Riksbank notes that, as of 2018, only 13% of survey respondents made their most recent purchase with cash, compared to 39% in 2010. Second, the emergence of private challengers to monetary sovereignty – such as Facebook's Diem – is pushing the central bank to explore CBDC. 'The state needs to have a role in the payment market,' the bank remarks on its website, to maintain the stability of the monetary system.

As an intermediary step, the bank submitted a request to Sweden's parliament that a panel of experts explore the merits of CBDC and requested a review of the concept of legal tender to ensure continued, universal access to money.

The Riksbank said it would test various designs, including token- and account-based solutions, on R3's Corda platform, in collaboration with Accenture. The latter has previously worked on CBDC projects in Canada and Singapore. The RIX central payment system will serve as a platform for banks to acquire e-krona and users will have to activate their wallets through these banks before they can use the digital currency. However, once this is completed, the CBDC can be used for everything from retail payments to transfers, and the Riksbank has announced it will explore the possibility of offline transactions.

The e-krona's distributed ledger technology network will be entirely separate from RIX, granting the system an added layer of resilience. The central bank will still control the DLT network, granting access to new nodes.

As the Swedish government explores the feasibility of e-krona, a great deal of focus will be on the effects of disintermediating deposits on the banking sector. Sweden and the world is set to learn several important lessons from its pilot. •



## BAHAMAS

World can learn lessons from the Bahamas as they plan their own digital currencies.

WHILE 2021 started with only one live central bank digital currency project – the Bahamas’s sand dollar which launched in October 2020 – it won’t end the year with so few. Central are piloting new CBDC endeavours, exploring possible design options, policy implications and impacts on intermediaries. As such, the archipelago is at the forefront of a wave of technological change and will provide an object lesson for others.

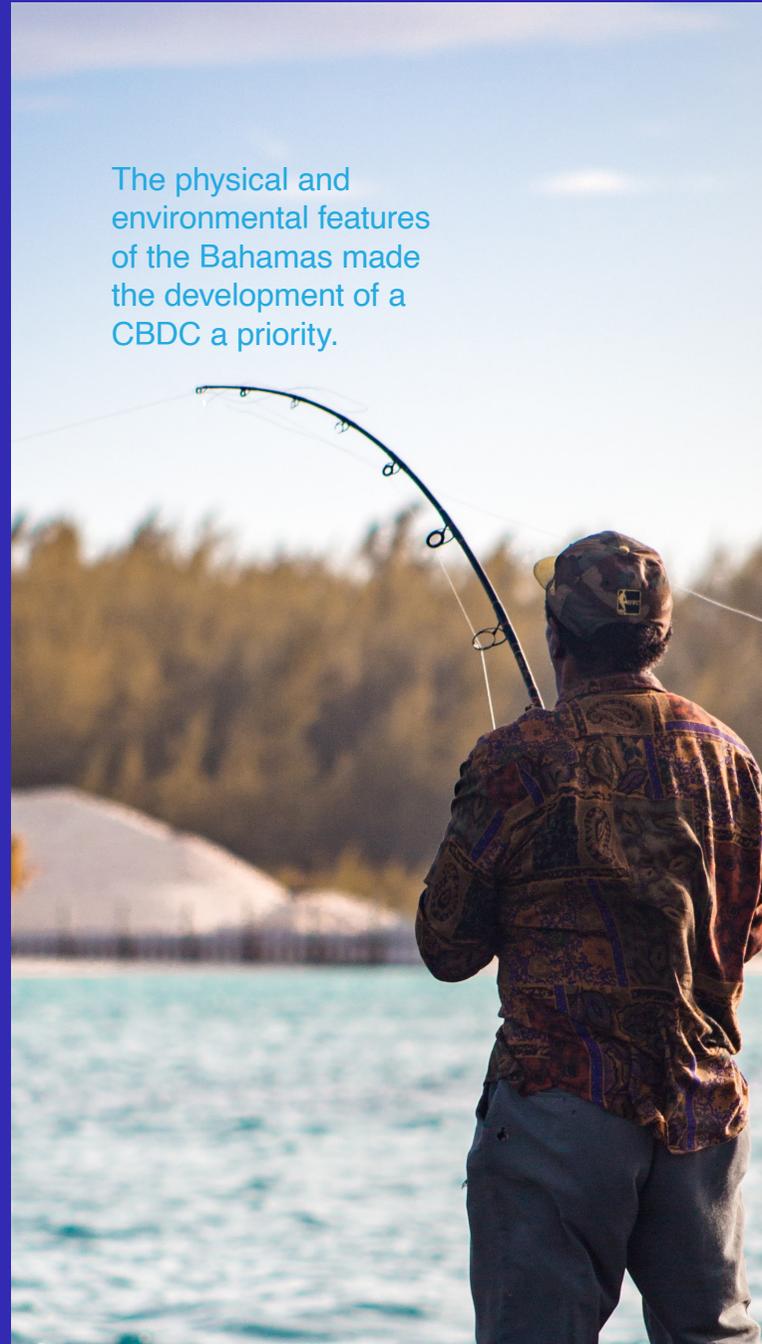
The Bahamas’ environmental features made the development of a CBDC a priority. Spread across 700 islands and keys, the nation is prone to natural disasters, has an unstable power supply and sees increasing financial inclusion as a key issue. The central challenge behind the sand dollar, then, was creating a simultaneously resilient, inclusive and convenient payment network.

The Central Bank of the Bahamas developed a retail CBDC with potential wholesale applications, which could be used both to settle transactions between financial institutions and by consumers. Initially, digitalised Bahamian dollars were held by six authorised institutions, which in turn could transfer funds between themselves.

Consumers, in the meantime, use an app to store, move or pay with the sand dollar. Reuters reported in December 2020 that Bahamians were finding the CBDC easy to use and convenient, showing early signs of success. Businesses, meanwhile, were happy to avoid high credit card transaction fees.

The sand dollar is built on a proprietary software stack, Cortex, developed by technology partner NZIA. This set-up can manage all aspects of CBDC issuance, including movement, usage, risk management, compliance, engagement and accessibility, as NZIA noted in the September 2020 OMFIF DMI Journal. At the same time, the platform is open-ended, allowing participants to build on top of the network. In addition to the programmability of the network, the CBDC itself is programmable, allowing the government issuer to, for example, set an expiration date or only allow certain uses for the funds.

The launch of the CBDC required new legal, regulatory and physical infrastructure. As part of this roll-out, parliament passed a digital assets and registered exchanges bill, facilitating the registration, regulation and management of digital token exchanges. In addition, project engineers were required to set up low cost, redundant networks to ‘support the backbone of the existing network connections servicing the country.’ As more CBDCs come online, the Bahamas will prove to be a useful guide. •



The physical and environmental features of the Bahamas made the development of a CBDC a priority.

# STEADY MOVERS KEEP PACE



Central banks in the UK, US, Europe and Japan are favouring a slow and steady approach to central bank digital currency, write Pierre Ortlieb and Levine Theo, economists at OMFIF.

THERE HAS BEEN steady progress in central bank digital currency developments from the more conservative central banks, such as the European Central Bank, the Federal Reserve, the Bank of England and the Bank of Japan. These banks share an affinity toward physical notes and coins, while they leave the gradual improvement of digital payment methods and banking to established service providers like Visa and Mastercard.

Strong policy motivations for financial inclusion create more powerful organic demand for digital means of payment in emerging markets than in developed economies. The need for emerging markets to boost financial inclusion means the case for digital currency is stronger, while the marginal benefit of leapfrogging traditional real-time gross settlement and other interbank payment systems is also much bigger.

However, consumers' payment behaviours are changing. The Covid-19 pandemic created a surge in digital and contactless payments in all countries and cash use was cut by half or more. In the US, stimulus payments exposed a broken banking system which

had limited population coverage, prompting debate around a digital dollar alternative.

Japan resumed its CBDC research and evaluation plans and is seeking a contingency plan if the demand among its aging population for a digital payment option changes. The ECB has moved at varying speed, as national central banks in the euro area, such as France and Lithuania, power ahead with wholesale CBDC and retail CBDC prototypes, respectively.

The UK remains conservative. It continues to gather industry perspectives on different aspects of CBDC design, with a strict focus on minimising financial stability risks. The BoE is, however, undertaking an update of its RTGS systems, adding greater efficiency and functionality for participants, likely creating end-user benefits with more competitive options and lower costs.

While these regions may be making slow and steady progress compared to others, it is notable that they are still powering ahead with research. That speaks to a bright future around the world for CBDCs. •

# FEDERAL RESERVE

THE FEDERAL RESERVE has been slow to enter the central bank digital currencies arena. As Jerome Powell, Fed chair, noted at an International Monetary Fund panel on digital payments, the US view has been that 'it's more important to get it right than to be first'.

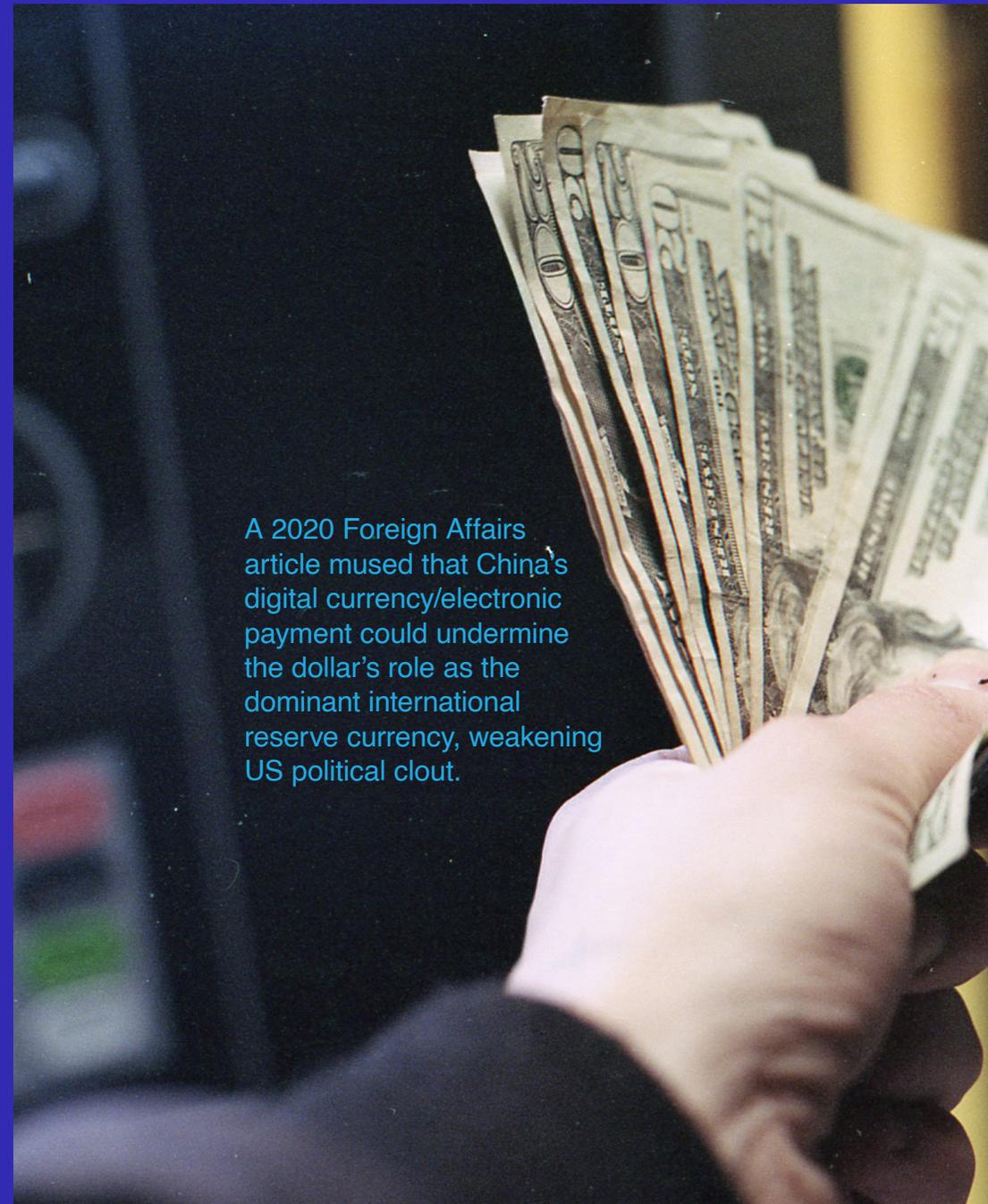
Yet over the course of 2020, pressure on the Fed to pursue CBDC has intensified. The sluggish distribution of stimulus cheques in April 2020 and January 2021 prompted criticism of the US payment system. Planned upgrades, including FedNow, are not due to launch until 2024. There were efforts to include a digital dollar in the Coronavirus Aid, Relief and Economic Security act in the spring of 2020.

China's leading CBDC position has raised geopolitical and security concerns. A 2020 Foreign Affairs article mused that China's digital currency/electronic payment could undermine the dollar's role as the dominant international reserve currency, weakening US political clout.

In response, the Fed has published a flurry of papers on CBDC. Most importantly, it has announced new initiatives to explore digitalising the dollar. It is participating in a Bank for International Settlements consortium of leading central banks studying opportunities in digital currency.

It has also revealed a host of US-based schemes. These include co-operation between the Boston Fed and the Massachusetts Institute of Technology on a hypothetical, open-source CBDC, as well as the construction and testing of distributed ledger technology platforms at the Cleveland, Dallas and New York Feds.

Fed officials have repeatedly stressed that they have not yet decided to launch a CBDC, preferring instead to emphasise their work on the potential legal, financial and policy implications of digital currency. •



A 2020 Foreign Affairs article mused that China's digital currency/electronic payment could undermine the dollar's role as the dominant international reserve currency, weakening US political clout.

## BANK OF JAPAN

MOTIVATED BY THE emergence of private sector digital currency alternatives, such as Facebook's Diem, as well as China's efforts, the Bank of Japan started to experiment and pilot issuing a CBDC. As well as being a part of Project Stella, the BoJ was a member of the BIS group of central banks investigating CBDC.

Although the BoJ has made no concrete plans about when one will be issued, they have published their approach with the view of ensuring the stability and efficiency of the payment system. In October 2020, the bank published expected functions and roles for a retail CBDC and the three proof of concept phases to test the technical feasibility of one. This aligns with Prime Minister Yoshihide Suga's focus on promoting digitalisation and reforms to boost competitiveness.

Primed to start in April 2021, the first phase of experiments will test basic functions, such as issuance, distribution and redemption. Phase two will look at the potential design of a CBDC and how much to issue. The final step involves a pilot programme including private firms and end users. •

## BANK OF ENGLAND

THE BANK OF ENGLAND started discussing issuing a CBDC in 2014. These, however, were put on hold due to concerns over financial stability in 2018. Nevertheless, the then governor, Mark Carney, stated that he was open-minded about the prospect of a CBDC although stressed that any adoption of a digital currency would not happen soon.

Over the course of 2020, the BoE has undertaken more action. In March, it published a paper looking at the opportunities, challenges and design possibilities of CBDC. The paper stressed that the bank has not decided whether to introduce a digital currency and intends to consult on the benefits, risk and practicalities of doing so.

Echoing 2018's tone, the BoE's objective is to maintain monetary and financial stability. Given concerns over digital currencies, the BoE joined the BIS initiative. Together they wrote a paper on meeting central banks' public policy objectives, a framework for how they provide money and support payment systems.

With that, Governor Andrew Bailey stated that there are investigations looking at the issuance of a CBDC, however, that would only be possible after Covid-19 was under control. •

Mark Carney stated that he was open-minded about the prospect of a CBDC although stressed that any adoption of a digital currency would not happen soon.



# EUROPEAN CENTRAL BANK

AT THE SINTRA FORUM in November 2020, European Central Bank President Christine Lagarde revealed she had a ‘hunch’ that a digital euro could be available by 2025. While the ECB is not due to decide to pursue this until the middle of 2021, Lagarde suggested she felt it was likely, though it would require addressing a host of concerns around money laundering, know-your-customer and other issues.

The ECB first explored distributed ledger technology and digital currency in work with the Bank of Japan, known as Project Stella. In four phases, the project considered securities delivery-versus-payment, large-value payment processing, cross-border payments and the balance between confidentiality and auditability in a DLT system. The focus in these efforts, the ECB noted, was on safety and privacy.

Much like other central banks, the ECB is driven by the increasing digitalisation of the economy, the growing prevalence of cashless payments and the possibility of private digital currencies undermining monetary sovereignty.

As a result, the ECB intensified its work on a digital euro in October 2020. The ECB will discuss the introduction of a CBDC with a wide set of stakeholders including citizens, academics, the financial sector and public authorities. A high-level task force comprising of experts from the Eurosystem will lead work on CBDC.

Progress has been led by national bank initiatives, mainly the Banque de France. On 17 December 2020, it successfully conducted a CBDC experiment as part of a programme launched in March 2020. The experiment undertook subscriptions and redemptions of fund units on a private blockchain platform using digital euro, allowing simultaneous delivery of fund units against payments. •

The ECB is driven by the increasing digitalisation of the economy, the growing prevalence of cashless payments and the possibility of private digital currencies undermining monetary sovereignty.

An abstract graphic on the right side of the page. It features several yellow stars of varying sizes and orientations, some appearing to be 3D or layered. These stars are set against a background of dark blue and black geometric shapes, including curved bands and angular forms, creating a sense of depth and movement.



**Different stakeholders are tackling the financial inclusion problem in their own ways, but this would more efficiently be addressed in a collaborative manner**

# US payments infrastructure perpetuates financial exclusion

Lack of regulatory harmony exacerbates expensive, slow payments and inadequate banking access, write Pierre Ortlieb, economist at OMFIF, and Bhavin Patel, editor of the DMI.

ALMOST 25% of Americans are un- or underbanked, a November 2020 letter from a group of US representatives to former acting Comptroller of the Currency Brian Brooks noted. The congressional lawmakers, questioning the Office of the Comptroller of the Currency's 'excessive' focus on cryptocurrencies and distributed ledger technology-backed banking infrastructure, mused whether the regulator might not focus instead on dealing with the grim, rapidly deteriorating state of household finances resulting from the Covid-19 pandemic.

The clash is emblematic of the fragmented US approach to digital payments.

Different institutions have taken disparate, often contradictory approaches to the issue. For instance, the OCC's decision to allow national banks to hold cryptoassets in custody and issue stablecoins against bank reserves came only months after the introduction of the Stablecoin Tethering and Bank Licensing Enforcement Act, which would require stablecoin issuers to obtain a banking license to operate.

This intragovernmental struggle follows a 2019 court ruling which determined that the OCC lacks the authority to issue charters to fintechs that do not take in deposits, and, more broadly, to determine what is or is not a bank. This is broadly up to state regulators, with Congress itself issuing federal licenses in rare cases.

These circuitous regulatory debates have delayed addressing the central fact that the current US payment infrastructure perpetuates financial exclusion and harms vulnerable communities. A report by the Federal Reserve Board published in November 2019 found that more than 40% of rural counties in the US – which often are home to poorer communities and people with fewer years of education – lost bank branches between 2012 and 2017. Altogether, there were 1,533 closures during this period, representing 14% of the total number of bank branches in these counties. While the shift away from bricks-and-mortar banking facilities is a consequence of wider digitalisation and reflects changing consumer demand, there is a risk that rural, older and vulnerable customers will be left without access to services.

Different stakeholders are tackling the financial inclusion problem in their own ways, but this would more efficiently be addressed in a collaborative manner.

So far, most US efforts at upgrading payment infrastructure have been lacklustre. The Federal Reserve's flagship payment innovation project, the 24/7 instant payments network FedNow, has been delayed numerous times. The central bank has emphasised it would prefer to play it safe, with a prospective debut not scheduled to take place before 2024. Meanwhile, all other G7 economies have a functioning instant payment system, apart from Canada which will

go live with its Real-Time Rail next year.

FedNow risks being outdated before its own launch. Real-time payments have an important role to play in alleviating poverty and inequality across the US. As former Treasury official Aaron Klein has written, payment delays create demand for payday lenders, cheque cashers and can produce overdraft or late fees. Launching an RTP system is ‘one way to make it less expensive to be poor’.

While the Fed builds out a costly payment network, private sector counterparts are developing widely accessible solutions such as The Clearing House’s RTP network, which is gaining coverage among both large, federal banks as well as smaller community banks. While the vast majority of the latter cohort would prefer to wait for the Fed’s solution to launch, growing demand for fast payments may push an increasing share of them onto the private sector alternative.

While developing a broader RTP network is a key public policy imperative, it is not sufficient. A significant share of Americans is still un- or underbanked. The proposals put forward by the Trump-era OCC, and its focus on blockchain solutions, overlook the centrality of the last mile problem: for those without a bank account, improvements to payments and banking operations mean little. What is really required is an extension of banking services to those communities.

This could take various shapes. A proposal introduced by Senator Sherrod Brown in March 2020 sketched one possibility, in which ‘FedAccounts,’ available at local banks and post offices and set up with debit cards and mobile banking, would be free bank accounts for the most vulnerable. While intended to disburse stimulus payments, the proposal would introduce a variation of postal banking, an idea which has earned significant attention in US

financial policy circles in recent years.

Another option involves making better use of TreasuryDirect, a service run by the Treasury that allows retail investors to purchase Treasury securities. The advantage of this existing, retail-facing architecture is that it would allow for quick implementation. Critics, however, have noted that the service still requires bank accounts for authentication and other services, thereby failing to address the un- and underbanked.

The Boston Fed and Massachusetts Institute of Technology are in the mature stages of retail central bank digital currency research, which could close the financial inclusion gap in the US. But in an OMFIF meeting with the Boston Fed, it became clear that such a solution is unlikely to be available anytime soon. Rigorous testing of the technology’s robustness, capability and key design decisions, such as anonymity and privacy, are sticking points. One major omission is the lack of any centralised national identity system, a problem for policy-makers to solve rather than any novel payment solution.

The lack of harmonisation and direction means that the twin financial inclusion problems of slow payments and absent banking infrastructure remain unaddressed, causing serious harm to vulnerable communities. As FedNow experiences continued delays, it becomes increasingly unworkable as a solution to key use cases. Meanwhile, an uneasy push and pull with the private sector continues, and various institutional stakeholders, from Congress to the Federal Reserve itself, propose different, often discordant solutions.

Resolving the central problems of financial inclusion will require a more thoughtful and coordinated approach. •

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**The proposals put forward by the Trump-era OCC, and its focus on blockchain solutions, overlook the centrality of the last mile problem**



**It would not be surprising to see the digital yuan being rolled out for public use sometime in 2021**

# Digital currency to take centre stage in 2021

The coming year could be a big one for central bank digital currencies, with projects emerging around the world, writes Sky Guo, chief executive officer at Cypherium and founding member of the OMFIF Digital Monetary Institute.

Over the course of the last 16 months, China has successfully launched one of the largest trials of its sovereign digital currency program – digital currency/electronic payment – across multiple cities. It would not be surprising to see the digital yuan being rolled out for public use sometime in 2021.

Furthermore, in December, China's central bank and the Hong Kong Monetary Authority announced that they are in the preliminary stages of piloting a programme that will see the digital yuan being used for cross-border payments, a milestone suggesting that the project is on schedule.

An increasing number of financial institutions across Europe, the US and UK will explore the potential of CBDCs. The central banks of France and the UK have already made their intentions clear. The Banque de France has issued a call for applications to experiment with a CBDC for interbank settlements, while the Bank of England has published a discussion paper assessing the

risks and benefits of CBDCs.

Also, the Bank of Canada, the Swiss National Bank and the Sveriges teamed up with the European Central Bank and the Bank for International Settlements to review the potential of launching their very own CBDCs.

In October, American payments provider PayPal announced its decision to enter cryptocurrencies by offering users the option to not only make transfers using digital currencies but also to buy and store prominent assets such as Bitcoin, Ethereum, Litecoin and Bitcoin Cash. Similar announcements were also made by other payment firms like Square and Revolut.

This entry of mainstream players into the digital asset space suggests that by the end of next year, several major banks may emulate PayPal and offer their customers the option to buy, transfer and convert cryptocurrencies. •

# Digitalisation will continue its march in 2021

The effects of 2020 will persist and morph into new challenges in 2021. Digitalising even more aspects of our lives can help solve them, writes Wolfram Seidemann, chief executive officer of G+D Currency Technology.

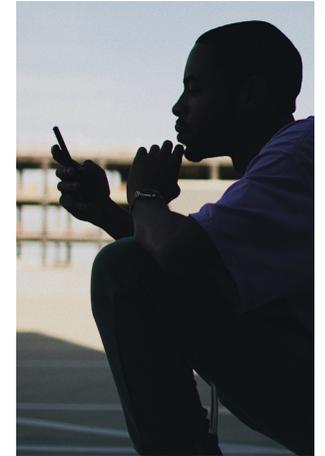
The trends and changes brought about by Covid-19 and the dramatic restrictions on our daily lives will persist, accelerate and create new challenges for 2021.

Digitalisation has become all-important. It kept businesses, communications and work running throughout lockdowns. Organisations can and did adapt their operations quickly by embracing technology. Yet, they must stay alert to new opportunities, innovations and business models. But with this come new concerns. Data protection and cybersecurity will need more attention as digitalisation, the use of mobile devices and amount of people working from home continue to increase.

Digitalisation will even change the way people use money. The pandemic has exposed many of the social and economic barriers

people face, as well as the need for a digital form of cash. Many people are not able to participate in today's digital payment ecosystem. A universally accessible central bank digital currency would combine the speed and convenience of digital payments with the benefits of cash. Enabling digital payments for everyone, everywhere, should be the goal. There is, however, a lot of work associated with implementing CBDC and it will stretch beyond 2021.

Introducing and expanding CBDCs is not the only challenge we face this year. The pandemic underscored many others. The need to mitigate climate change and promote sustainability will shape 2021, prompting systemic and social change. We have the chance to shape our future. With what we have learned, we should strive to make it a better one rather than a return to the old normal. •



**The pandemic has exposed many of the social and economic barriers people face, as well as the need for a digital form of cash**



**Traditional rationales for cash, like accessibility, individual privacy and peer-to-peer resilience are rising to prominence in the CBDC domain**

# Privacy will give digital cash decisive advantage

Citizens' worries about privacy have to be addressed in the new era of central bank digital currency, writes Kalin Nicolov, head of digital currency at SICPA.

THE PROSPECT of the payment world dominated by big tech companies has focused sovereign issuers on defending retail central bank digital currency as a critical public good. If the recent joint statement on the digital euro by the European Central Bank and the European Commission is anything to go by, retail CBDC will garner even more attention in 2021. Meanwhile, citizens grow ever more conscious of data privacy, as shown by the recent exodus of WhatsApp users to alternatives. Digital central bank currency, self-sovereign identity and scalable regulation increasingly resemble what future scholars might refer to as the new societal operating system or SocietyOS.

Perhaps acknowledging the futility of trying to shoehorn underbanked citizens into custodian account silos, sovereign currency issuers are gradually adding policy nuance. Traditional

rationales for cash, like accessibility, individual privacy and peer-to-peer resilience are rising to prominence in the CBDC domain. We foresee pioneering approaches which take old constraints and turn them into drivers; we are defining a new era of digital cash within a multilayered trust ecosystem where privacy, compliance, sovereignty and interoperability are served equally – not traded off against each other.

Digital cash should be as easy and confidential as chatting on privacy-focused messaging platforms – but with transaction traceability, digital exchange rituals and rock-solid governance. New bridges linking people with automation – artificial intelligence that seeks human guidance and users who offload routine tasks with confidence – will provide much of the innovation to make this vision a welcome reality. •

# Five trends that will pave the way for a prosperous decade

Embracing innovative technologies will increase access to and democratisation of capital markets. That could only be the beginning though, writes Benjamin Nadareski, head of corporate development at SIX Digital Exchange.

IT TAKES SMALL STEPS to make a big impact. Not least when it comes to digital currencies. At SIX Digital Exchange we are taking small steps to create a next generation digital market infrastructure. If that is realised, it will have massive repercussions for how corporations, governments and individuals engage with capital markets. 2021 will see this realisation get closer as five trends come to the fore.

## 1: Continued adoption of CBDCs

Central banks continue to roll out pilots and test central bank digital currencies. Already, 86% of central banks are engaged in CBDC experiments, with 24% of these projects entering the development phase. These numbers will only increase.

## 2: Digital asset markets to keep growing

Digital asset markets have already risen to values over \$1tn. Bitcoin investment and institutional adoption of cryptocurrency trade execution and custody services exploded in the early part of 2021. As this continues, cryptocurrencies will spearhead a breakthrough of liquidity into non-crypto based digital assets.

## 3: Blockchain used for identity verification

Blockchain technology will also be used more and more for

identity verification and citizen registration systems. These digital identity uses will begin to be tested with live groups and move toward being ready for enterprise use.

## 4: More chain agnostic solutions

Start-ups and institutions alike are designing non-specific DLT-based infrastructure and applications. This is crucial as if technology protocols are only for one specific use, widespread adoption and access will be limited. To build the systems of tomorrow, we must design them with the end goal in mind.

## 5: More integration with other technologies

Artificial intelligence, machine learning and the internet of things will have an impact on the future as well. DLT-based applications are already embracing these innovations. Within the SDX ecosystem, there are a multitude of start-ups integrating these technologies. Financial markets are ripe for new systems that are innovating in more than a single technology.

As we move further into the 21st century, new mindsets are needed. If we embrace the opportunities created by DLT and digital currencies, it will lead to a new roaring twenties. •



**Already, 86% of central banks are engaged in CBDC research or pilots, with 24% of these projects entering the development phase**



**The future of finance will see extended use of decentralised infrastructure changing how and where value is exchanged**

# The use of blockchain is leading to a new financial world

The increasing use of technology in finance will have massive impacts, increasing inclusivity and removing barriers to entry, writes Pietro Grassano, business solutions director at Algorand.

BLOCKCHAIN technology has led to a new economic reality that is increasingly efficient and frictionless. At Algorand, we believe there is a fundamental redefinition of finance as we know it, creating what we call the future of finance.

The economy, in its simplest form, concerns the creation, management and exchange of value. Finance takes care of and anticipates future value. The future of finance will see the extended use of decentralised infrastructure, able to avoid double spending by design, changing how and where value is exchanged and anticipated.

This future will expand the types of assets that can be exchanged, create liquidity as well as tap into previously illiquid capital reserves. There are benefits beyond this, such as the removal of friction from legacy processes, increased individual participation in economic growth and secure peer-to-peer transactions.

Regulators too will be able to leverage this infrastructure,

achieving better traceability, avoiding excessive bureaucracy and improving their ability to reduce systemic risks. In tomorrow's financial world, the need for a trusted third party may well migrate, for instance from asset custody to private keys custody.

The future of finance encompasses traditional and digital economies, centralised and decentralised finance and payments, governments and central banks. Each of these elements is rapidly coming together, being drawn into a complementary and unified world. Algorand users are building the underlying technology and ecosystem required to modernise finance.

These protocols are designed for financial markets, enabling and boosting their formation, growth and scale. The future of finance will be defined in 2021 and beyond by critical characteristics that include decentralisation, inclusivity, the removal of friction, interoperability and security. These benefits are creating an exciting financial future. •



 Digital Monetary Institute

# Meetings highlights

11 February

## Diem pre-launch discussion

**Virtual roundtable with Christian Catalini, Chief Economist, Diem Association**

The anticipated Libra stablecoin, now rebranded as Diem, is due to launch this year. The cryptocurrency is largely responsible for pushing central banks into thinking seriously about digital currencies. Diem could bring many benefits to current payment systems as well as potential risks to the financial system. Christian Catalini, chief economist at the Diem association, discusses the launch of Diem, outlining the stablecoin's key features and uses, the regulatory response and associated risks.

18 February

## European Commission's digital finance strategy

**Virtual roundtable with Jan Ceyskens, Head of Digital Finance Unit, European Commission**

At the end of 2020, the European Commission released its European Union digital finance strategy. The package includes proposed legislative initiatives on cryptoassets and operational resilience as well ways to develop more efficient retail payment systems. Jan Ceyskens, head of the digital finance unit at the European Commission, outlines these initiatives and discusses how they will influence established firms and new fintech companies, with a focus on a level playing field.

23 February

## US crypto-asset regulation: approach, risks and outlook

**Virtual roundtable with Tim Massad, Chairman, Commodity Futures Trading Commission (2014-2017)**

With the much-anticipated Diem stablecoin entering the market, the focus on crypto-assets in payment systems has increased exponentially. The challenge of fostering growth and innovation while ensuring risks are managed to safeguard financial stability is key to the development of effective regulation. Tim Massad, former chairman of the Commodity Futures Trading Commission (2014-2017) discusses how regulators are addressing these concerns.

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To register visit [omfif.org/dmi](https://omfif.org/dmi)

For programme queries and requests please contact [katie-ann.wilson@omfif.org](mailto:katie-ann.wilson@omfif.org)



 Digital Monetary Institute

# Meetings spotlight



13 January

## Boston Fed's CBDC project

In August 2020, the Federal Reserve Bank of Boston, in collaboration with the Massachusetts Institute of Technology, announced that it would research and test leading technologies to determine design requirements for a US-based central bank digital currency. Jim Cunha, senior vice-president, secure payments and fintech, at the Federal Reserve Bank of Boston, discussed this initiative as well as the wider impact of distributed ledger technology on the financial system. The meeting also covered national efforts to increase security and reduce payment fraud in the US.

Speaker:

**Jim Cunha**, Senior Vice President Payments and Fintech, Boston Fed

Watch back the discussion here

