Economics & Strategy

Digital Assets Update 2Q24: Base broadening

Currencies/monetary policy/economics/digital/banking/finance

sGroup Research

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This is our quarterly update on digital assets. Please refer to the end of this article for a set of useful resources and links to past publications

Summary

Broad participation is marking crypto position taking, with retail investors, high frequency traders, and hedge funds crowding into the trade. Authorities appear more amenable toward cryptos/CBDCs.

Main points

Bitcoin prices have eased post-halving but remain well above end 2023 levels.

Recent research on Bitcoin flows found that they respond differently to macro drivers compared to equity and bond flows.

Ether underperforms Bitcoin, attributed to waning optimism regarding ETH spot ETF approval by SEC.

CBDCs are gaining traction amongst global central banks, multilateral organisations, and infrastructure providers. Authorities and regulators continue to make progress in setting standards and exploring use cases.

Key policy considerations include addressing users' priorities as well as maintaining control over the domestic financial system and monetary policy.

Introduction

The recent rebound of cryptocurrency is displaying rather different characteristics than the 2020/21 boom. There is evidence of a broader set of investors taking position, with retail investors, high frequency traders, and hedge funds crowding into the trade. Beyond outright holding of cryptos, the real action has been ETF like financial products backed by cryptos.

What began as a readjustment of holding structure from trusts to ETFs has now materialised into genuine base expansion of crypto holders. While inflows have eased somewhat after the initial frenzy earlier this year, the market for cryptos remains buoyant, holding up along with broader market risk sentiments.

In this issue of the digital assets update, we look at the base broadening of cryptos, presenting some research on the geographical dispersion of crypto owners. We also review the much-discussed Bitcoin “halving” and the associated technical aspects. We delve into the drivers of Ethereum investment and performance.

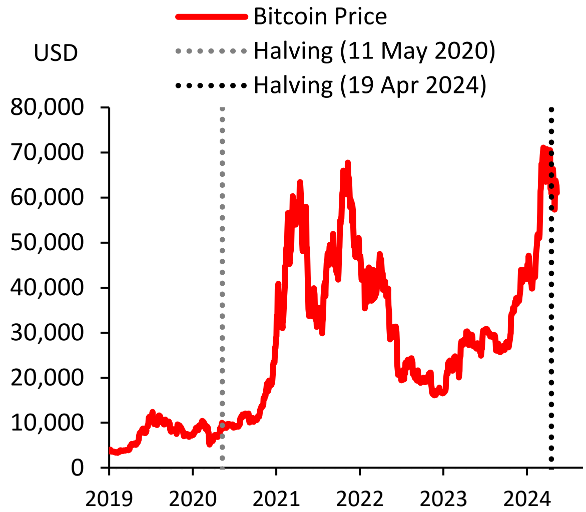
On the CBDC side, we review the latest developments and initiatives. Key policy considerations include addressing users’ priorities as well as maintaining control over the domestic financial system and monetary policy.

Crypto market

After a sharp rise in Q124, the price of Bitcoin has fallen by 15% to USD60,637 as of end April. The well-anticipated halving of the mining reward from 6.25 BTC to 3.125 BTC occurred on April 19, resulting in some miners becoming unprofitable and exiting the network. Consequently, there was a fall in the hash rate to below 600 exahash/s (or EH/s). A lower hash rate means that it will take longer for a block to come in than the 10-minute targeted average.

Bitcoin has a self-adjustment mechanism to meet this target—its mining difficulty was already adjusted lower by the largest magnitude in 18 months in early May. Such a lowering in difficulty could continue until the 10-minute target is reached again, or if more miners re-enter.

Bitcoin: Price and halving events



Source: Bloomberg, DBS

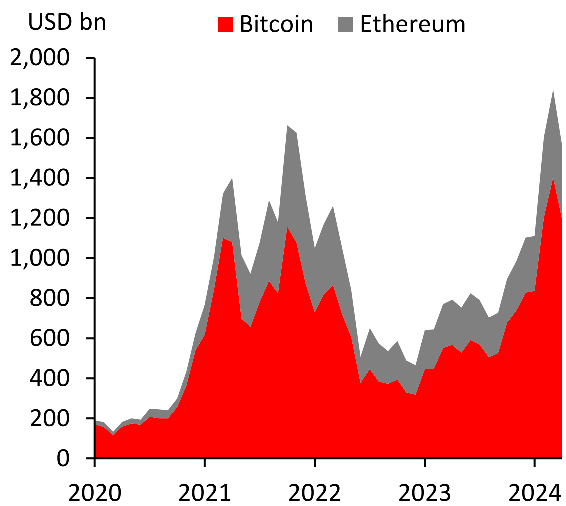
The fall in Bitcoin's price has also impacted the broader crypto market, which is unsurprising given high correlations between crypto assets. Ethereum had declined by an even larger 17.4% in April.

Market prices, capitalization, and returns

Market metrics (in USD)	Bitcoin	Ether	S&P500	Gold
Price*	71,334	3,648	5,254	2,230
Market capitalization (trn)	1.4	0.4	45.9	15.0
Monthly return (%)	16.6%	9.2%	3.1%	9.1%
Year-to-date return (%)	68.8%	59.9%	10.2%	8.1%
1Y return (%)	150.5%	100.2%	27.9%	13.2%
5Y return (%)	1637.6%	2477.7%	85.4%	72.5%

Source: Bloomberg, Coinmarketcap, DBS *As of end-Mar

Cryptocurrencies Market Capitalization



Source: Bloomberg, DBS

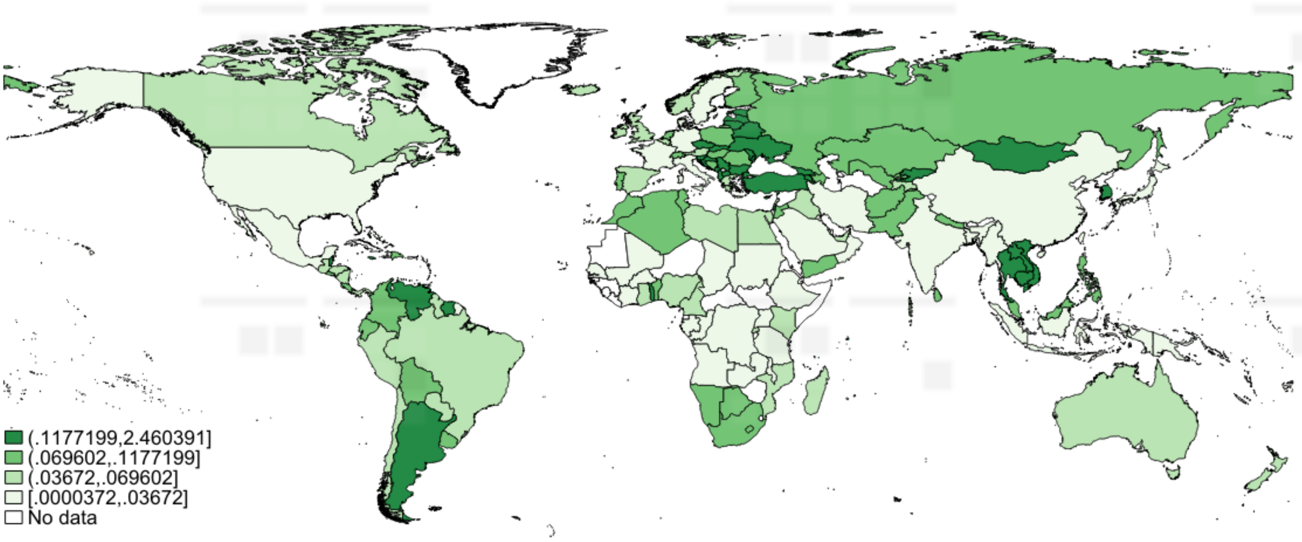
Despite recent price declines, the combined market capitalization for both Bitcoin and Ether remains over USD1.5trn, with both coins still commanding higher market capitalization than end 2023. Bitcoin's cumulative return of -4.3% post-halving looks unimpressive, but its high inherent volatility means that it could take a longer period for any positive impact on prices to be realized.

Drivers of Bitcoin flows

Meanwhile, the IMF also published new research measuring the extent of Bitcoin flows in cross-border transactions and assessing the drivers behind these flows (see Cerutti et al, 2024). They look at both direct on-chain transactions as well as transactions that occur off-chain, which are done indirectly through an intermediary's wallet. To map the direction of flows from origin to destination, they assigned the cross-exchange flows to countries based on the country web traffic for individual exchanges. They also assigned country flows based on the fiat currency used in off-chain transactions, by assuming that the choice of currency used is based on residency of the users. This would be true for most currencies, except for the USD which is globally dominant.

Based on these country flows, **Cerutti et al (2024) found that the use of Bitcoin for cross-border transactions is geographically widespread** across both on-chain and off-chain transactions. Interestingly, the degree of Bitcoin flows (scaled as a share of GDP) was found to be much higher for Emerging Economies compared to Developed Economies. Countries in the highest quartile of Bitcoin flows are mostly in Latin America, Eastern Europe, and Southeast Asia. This could be indicative of Bitcoin usage to circumvent existing capital controls.

This figure shows the average of 2019–2022 cross-border Chainalysis inflows as a share of GDP. The four buckets represent the quartiles of the distribution.



Source: IMF - link

Furthermore, they found **cross-border Bitcoin flows respond differently to drivers compared to cross-border capital flows**, as proxied by EPFR and IIF debt and equity flows.

Significant drivers of cross-border Bitcoin and capital flows

Drivers	Bitcoin inflows	Bitcoin outflows	Net Equity inflows	Net Debt inflows
Global				
VIX	+	+	-	-
Broad USD index			-	-
Crypto Fear & Greed index	+	+	+	
Domestic				
Inflation	+	+		
Rate differentials				
Parallel FX rate premium		+	-	-

Source: IMF, DBS

While both debt and capital inflows tend to fall when the VIX (proxy of risk aversion) increases, Bitcoin flows had the opposite response. This corroborates with studies finding a positive correlation between VIX and Bitcoin returns. Meanwhile, a higher USD does not have a significant impact on Bitcoin flows, though it correlates with equity and debt net outflows. The crypto fear and greed index, which is a proxy of crypto-specific sentiment, has a positive correlation with Bitcoin inflows/outflows. Better crypto sentiment is also correlated with net EM equity inflows, which is not surprising given the positive correlation of Bitcoin returns with equity returns.

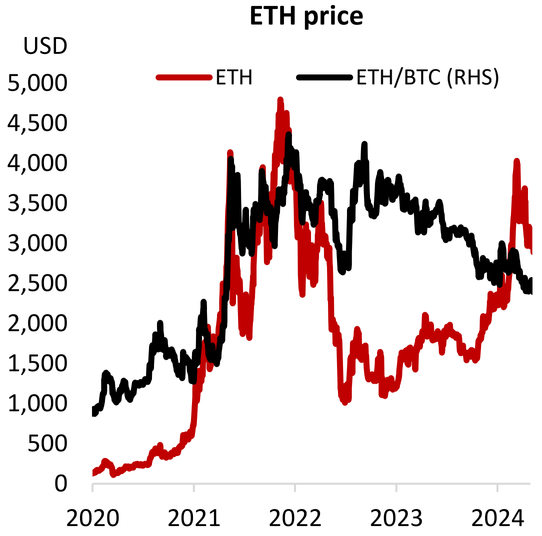
For domestic factors, higher inflation was found to drive Bitcoin flows, while having no significant impact on ordinary capital flows. This corroborates with a previous study which found that US CPI releases have a meaningful impact on Bitcoin returns. Finally, a parallel foreign currency premium compared to the official exchange rate is correlated with Bitcoin outflows, suggesting that Bitcoin transactions may be used by residents in circumventing capital controls. Such a FX premium reflecting macro imbalances is also associated with net equity and bond outflows.

This flow dynamic is based on historical data, which likely misses the ongoing structural changes to the market. Such changes can induce new behaviour in flows, as Bitcoin becomes more widely accepted as investments that are like equity and debt. Indeed, newly available spot Bitcoin ETFs in 2024 has the potential to bring about a change in Bitcoin flow behaviour. As institutional investors that were previously constrained participate in Bitcoin markets and incorporate Bitcoin in their portfolio allocation decisions, this may bring about changes in Bitcoin flow behaviour in response to equity volatility or rate differentials.

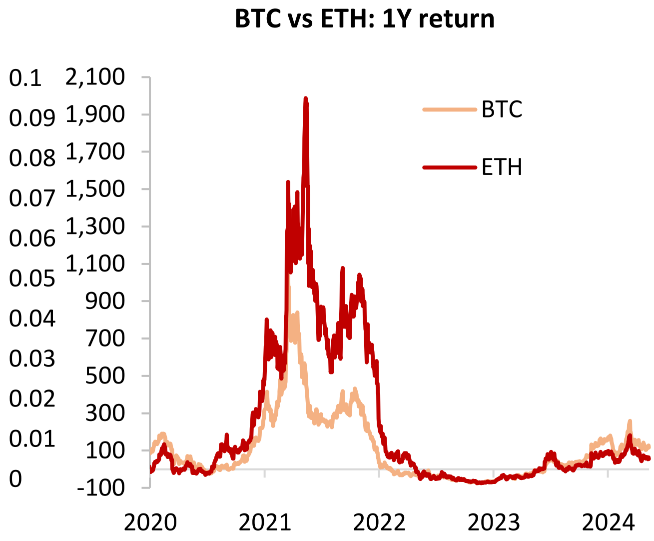
Drivers of Ethereum

Ether's price has gained 28% ytd, soaring to over $4000 in mid-March before retracing to $3000 in the beginning of May. Similar to Bitcoin and other cryptocurrencies, ETH has been affected by the delay in Fed rate cuts and escalating tensions in the Middle East.

While Ether has closely followed Bitcoin's trajectory, it has lagged behind this year, both in absolute terms and after adjusting for risk. The ETH/BTC price ratio also declined between January and May.



Source: Bloomberg, DBS



Source: Bloomberg, DBS

The underperformance of Ether could be attributed to waning market expectations for the approval of an ETH spot ETF in the US market. VanEck, ARK Investment Management, and several other entities have filed with the SEC to introduce ETFs tracking the spot price of Ether. The SEC's approval of Bitcoin spot ETFs earlier this year raised hopes for similar Ether products and broader cryptocurrency acceptance.

It's noteworthy that the SEC greenlit Bitcoin spot ETFs on the premise that the existing market surveillance mechanisms for BTC futures ETFs were sufficient for spot ETFs. However, approval for ETH spot ETFs might face delays if the SEC deems the correlation between ETH spot and futures markets inadequate. Moreover, the SEC's review process might be intricate due to the diverse applications enabled by ETH, such as decentralized finance.

Approval for ETH spot ETFs may likely be postponed to the latter part of 2024 or even 2025. The upcoming US elections in November will be important. With the Republican party showing more inclination towards crypto legislation and adoption, a change in party incumbency could significantly influence the digital asset landscape in the US.

Ether's performance continues to benefit from Ethereum's successful technological upgrade. As the leading smart contract platform, Ethereum dominates with over $50 bn in Total Value

Locked (TVL), surpassing its nearest competitor by over fivefold. While Ethereum enjoys network effects and ample liquidity, it also faces increased competition. Its slow transaction speed, limited throughput, and high user costs threaten to divert users to alternative smart contract platforms.

To tackle these challenges, core developers are implementing "Ethereum 2.0". This multi-step roadmap includes transitioning to proof-of-stake with "The Merge" upgrade in September 2022. Ethereum is also adopting a modular design approach, facilitating more activity on Layer 2 blockchains connected to the Layer 1 mainnet, thereby addressing scalability challenges while upholding network security. The recent Dencun upgrade in March 2024 allocated storage space on Ethereum for Layer 2s, reducing data costs and making transactions more economical.

Following the Dencun upgrade, median daily transaction fees on the Ethereum chain fell from $4.4 in February to $2.5 in April, marking a 43% decline and making transactions more affordable for end-users. On-chain activity within the Ethereum ecosystem witnessed a 14% surge in daily active addresses between February and April, reaching its highest level since the beginning of 2022.

Central Bank Digital Currencies (CBDCs)

Overview

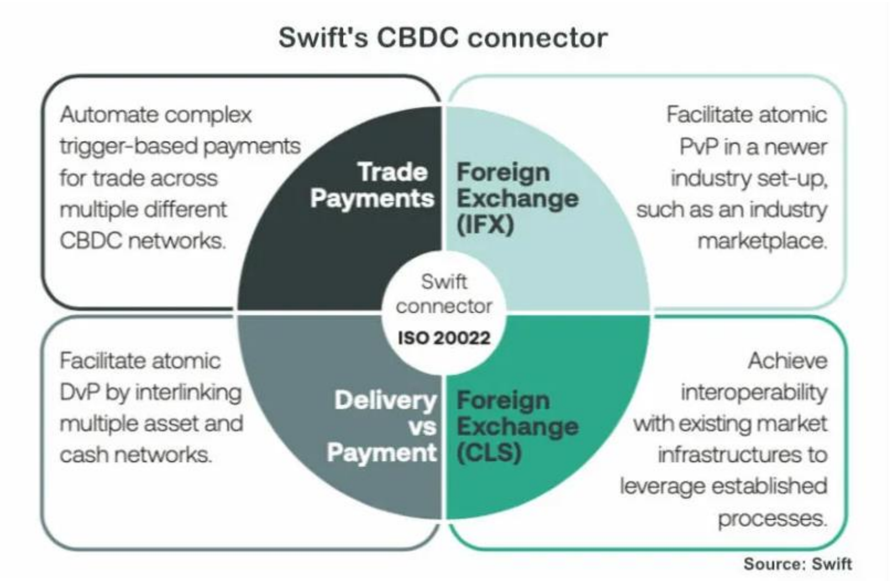
As per the Atlantic Council survey's Mar24 update, 134 countries & currency unions, representing 98% of global GDP, are exploring a CBDC, up from 35 back in May20. Half of these countries are in the advanced phase of exploration, i.e., development, pilot, or launch stages. Emerging markets lead this space, with China home to the largest pilot in the world as the digital yuan (e-CNY) reaching around ~260mn wallets across 25 cities. By contrast, progress on the retail CBDC has stalled in the US, as the presidential elections draw closer. Europe is amongst 36 other jurisdictions with ongoing CBDC pilots.

SWIFT plans launch of CBDC platform

The global messaging network SWIFT released the results of the Phase 2 of its CBDC sandbox project. It launched the second phase in July23, building on the learnings from Phase 1 and introduced more complex use cases, conducted over six months, with participation from 38 central banks, commercial banks, and global market infrastructure providers.

The environment – hosted by Kaleido, a blockchain and digital assets platform – included seven simulated CBDC networks, a FX network, a digital trade network, a digital asset network, and a simulated CLS application, representing a mix of digital and traditional networks. Participants in the sandbox were from across countries and industries, including central banks and monetary authorities from Australia, Czechia, France, Germany, and Singapore, among others. Commercial bank and market infrastructure participants included ANZ; Citibank; CLS Group; DBS; Deutsche Bank; and HSBC, amongst others. The experiments included a mix of blockchain and distributed ledger technology (DLT) to demonstrate how the Swift connector's technology-agnostic capabilities could provide an interoperability solution. Key findings across the use cases are highlighted in the chart below.

Key findings from the ongoing pilot study



Source: SWIFT - link

For the way forward, participants agreed to three guiding principles for interoperability, including:

a) Interlinked networks: With the rise of DLT-based networks, it is essential to ensure native technical interoperability between multiple networks, agnostic of the asset class and technology platform. To achieve interlinking in a standardised and scalable manner, there is an opportunity to leverage the industry's investment in ISO 20022 messaging as the common language for payments across new and established networks.
b) Single point of access: Most financial institutions want to re-use their investments in infrastructure and are relying on Swift to provide a single point of access to multiple digital networks.
c) Co-existence: New digital networks are expected to co-exist with traditional market infrastructures, so it will be important to provide seamless communication.

In the first trial, Swift's solution already showed that it had the capability to enable cross-border transfers and connect CBDCs on different networks with each other, as well as with fiat currencies. According to the press release, the second phase of sandbox testing explored more complex use cases, using Swift's solution to connect and orchestrate transactions across simulated digital trade and tokenised asset and FX networks, alongside CBDCs for payments. More than 750 transactions were carried out over the course of the experiments. SWIFT plans to launch a new platform within the next two years to connect the first leg of CBDSs that are under development, but the formation might be delayed if CBDCs by major economies are pushed back.

Cross-border initiatives

The BIS plans to collaborate with seven central banks and the private sector to explore how tokenisation can enhance the functioning of the monetary system, under the aegis of Project Agora. The seven banks include Bank of France (representing the Eurosystem), Bank of Japan, Bank of Korea, Bank of Mexico, Swiss National Bank, Bank of England, and the Federal Reserve Bank of New York. Private financial firms will be convened by the Institute of International Finance (IIF). Based on the unified ledger concept, the project will investigate how tokenised commercial bank deposits can be seamlessly integrated with tokenised wholesale central bank money in a public-private programmable core financial platform. This collaborative public-private partnership will seek to overcome structural inefficiencies in cross border transactions, including legal, regulatory, and technical requirements, operating hours and time zones. The BIS plans to call for EOIs from private financial institutions and expects several FIs to participate, representing each of the seven currencies.

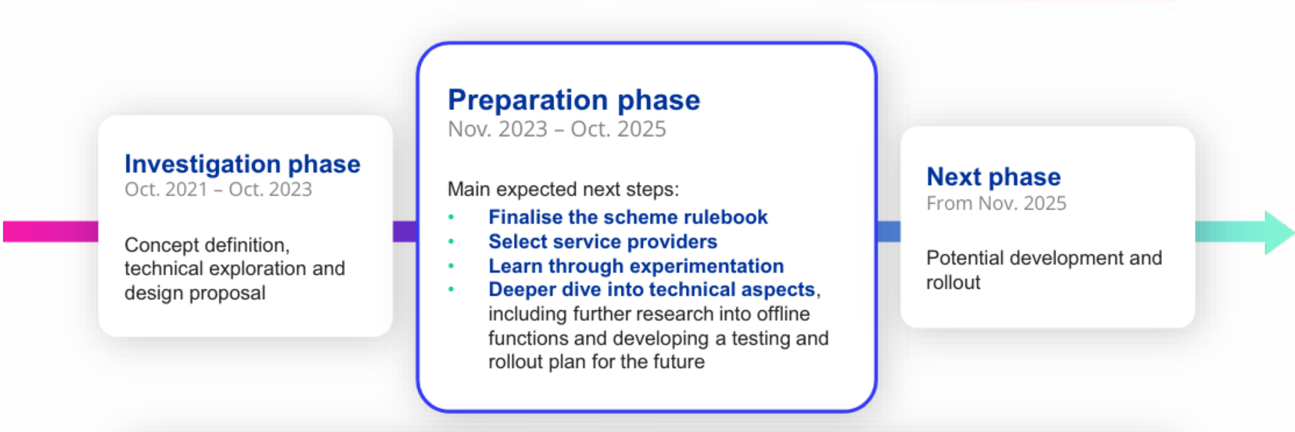
Geographies

Europe

Europe's CBDC initiative is still in the early phases of development, but considerable progress has been made since a study on the retail version began in 2020. In Oct23, the ECB laid out the two-year preparation phase to explore the nuances of accessibility, interoperability, and security, which would enhance the decision-making process on whether the government will move forward with the digital euro. In early 2024, the central bank announced plans to award contracts worth EUR 1.2bn to private sector players to explore development of offline payments, risk and fraud management, secure exchange of payment information components, and development of the digital euro.

A speech by Piero Cipollone, Member of the Executive Board of the ECB pitched for CBDCs as an option to fill the large gap in Europe's payments ecosystem, which lacks a pan-Europe digital payment alternative at this point. 13 out of 20 euroarea countries rely on international card schemes for card payments; these schemes are used to settle 69% of all digital transactions in the EU, according to the official. A European CBDC needs approval from the parliament, and while the first draft legislation was published in June 2023, it still faces opposition, especially with privacy concerns. 2025 is expected to be the earliest by when the draft bill can be introduced again, after which the design and testing phases will set it. Central bank heads of member countries continue to push the case. Banque de France's (BdF) Governor François Villeroy de Galhau called on the EU to not lag ongoing development in the CBDC technology space and pursue both wholesale as well as retail CBDC preparation. Separately, President of the Deutsche Bundesbank, Joachim Nagel assuaged concerns over the risk of banks' disintermediation. He explained that while the monetary authorities will issue the digital euro, banks will continue to play its role in the distribution. He added that it will be at least 2028-2029 by the time the CBDC might be introduced.

CBDC: Path forward for the ECB



Source: ECB

Asia

China

We had delved into China's efforts and progress of CBDCs in depth in the previous Digital Assets Report. Capturing more recent developments, the PBOC and its Digital Currency Research Institute are seeking to support foreign visitors to use CBDCs in the country. Available options include signing up for the wallets with their mobile phones and use international credit cards for top up. Local press reports suggested that Shenzhen issued 30k digital yuan hardware wallets to foreign visitors during a shopping festival in Nov23. In Qingdao, the local metro facilitates e-CNY payment even when user balance is low and allows fare payment to be made even when there is no internet connection or if the phone is out of battery, if passengers use a digital yuan debit card or special SIM. Separately, the main architect of China's CBDC project, Yao Qian, is reportedly under investigation for violations of discipline and law. He had led PBOC's efforts to create and issue digital yuan, before leaving the central bank for the securities regulator, China Securities Regulatory Commission.

Hong Kong

The HKMA announced the launch of Project Ensemble in March 2024, a new wholesale central bank digital currency (wholesale CBDC) initiative, which will enable interbank settlement for tokenized commercial bank money (tokenized deposits). Concurrently, the central bank also plans to provide a sandbox to facilitate interoperability between the CBDC, tokenized deposits and tokenized assets.

With the intent to develop standards for the industry, a "Project Ensemble Architecture community" has been created, comprising of the regulators (Securities Futures Commission and the BIS Innovation HK) and the existing academic CBDC Expert Group, which includes seven private sector companies – four banks plus Hashkey Group (owns two cryptocurrency exchanges, brokerage, and asset manager), Ant Digital Technologies and Microsoft. We recall that the HKMA is midst of testing its CBDC and launched the second phase of the e-HKD pilot in March and will last until mid-2025.

Separately, another CBDC trial involved the use of a pilot study by BCG, Hong Kong Telecom Payments, and ZA Bank – under which the tokenized real-world assets such as real estate was used as collateral for a restricted loan in e-HKD. As part of the study, BCG forecasted that the entire gambit of digital currencies (CBDC, tokenized deposits and stablecoins) could potentially add $20.5bn or 0.5% to GDP to the economy by 2032. To see these returns, CBDCs need to be adopted at scale, together with the adaptive infrastructure and regulatory support, most of which are far from achieving scale.

India

Even as developed countries tread cautiously, India's RBI expanded the use of its e-rupee as part of the ongoing pilot to 1.3mn users and 300k merchants. As part of the next stage, authorities are exploring the likelihood of programming, e.g., funds by corporates to employees for business travel which might be for a certain duration and usable within a certain geographical area. In addition, making digital currencies available offline/ without internet access and across different/ difficult terrains will improve its take-up rate. Anonymity of transactions can be maintained by 'permanent deletion of transactions' if required. To widen the use, the RBI is also exploring the possibility of using the e-rupee, in commercial papers

(CPs) and certificates of deposits (CDs) on a trial basis. Discussions are underway with the HKMA, US Fed, and payment platform SWIFT to explore cross-border payments for CBDCs.

Thailand

The Bank of Thailand unveiled the 'Retail CBDC Conclusion report' in Mar24, containing key takeaways from the pilot program that was conducted from late 2022 to Oct23, to gauge technological readiness and fundamental functions, of Retail CBDC, potential of retail CBDC to harness financial innovation by exploring use cases that extend beyond the capabilities of the current payment infrastructure, to explore whether the CBDC infrastructure can securely facilitate open access for both bank and non-bank entities, and to determine whether these can serve as an alternative payment infrastructure in the retail payment sector for individuals and businesses.

The pilot study pointed to a) latent capability of Retail CBDC as a retail payment infrastructure, evidenced by its ability to handle various retail transactions including top-up, withdrawals, transfers, and payments; b) this can be an enabler for innovation, through the setting of programmable payments using common functionality features; c) capability of the CBDC system to serve as an open infrastructure accessible to all types of financial service providers (FSPs), including non-banks. (4) CBDCs serve as an alternative payment infrastructure for retail payments, to enhance resiliency in the future. There are nonetheless challenges such as user adoption, as well as its consequences on the business models of FSPs and unclear value-added benefits of CBDCs. As such, an official rollout of retail CBDCs is not imminent, with key takeaways including technology design are likely to be applied to new areas and future studies on enhancing the existing payment system. Separately, the new government plans to carry out a digital token payout to 50mn lower income citizens to spend domestically. This proposal was tabled by the government after assuming power after the elections to spur consumption.

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