Proceeding With Caution: Balancing Opportunities and Risks of Digital Assets

Introduction

The payments landscape has evolved in significant ways to keep up with the demand for more efficient payment services that are faster and cheaper. Supported by technological advancements and a vibrant market, cash usage is increasingly being replaced by digital payment methods such as contactless cards and mobile e-wallets. Meanwhile, the adoption of privately-issued digital assets is gaining traction. Originally established as an alternative means of payments,[1] the digital asset ecosystem has evolved to serve various applications beyond payments.

Evolution of Digital Assets

Digital assets are digital representations of value[2] that can be digitally traded or transferred and can be used for payment or investment purposes. Digital assets primarily leverage on cryptography[3] and distributed ledger technology (DLT).[4] Such technologies enable digital assets to be transacted without the need for intermediaries.

Since the launch of Bitcoin in 2009, the global digital asset landscape has evolved rapidly. As at end-2021, there were about 9,000 different types of digital assets with a total market capitalisation of USD2.6 trillion, 3.5 times higher than at the beginning of 2021.[5] Generally, digital assets can be classified into two main categories – unbacked digital assets and stablecoins (Diagram 1).

1. **Unbacked digital assets** are digital assets whose value is determined by its market demand and supply. These digital assets have their own unit of account and are not denominated in any fiat currency. To date, digital assets continue to function primarily as a speculative asset class instead of a payment method.[6] This is due to various drawbacks including high price volatility, vulnerability to cyber threats and issues relating to scalability and energy consumption. For instance, Bitcoin's value reached a high of USD65,000 in April 2021 before falling by 50% just a week later. Between 2011 and 2021, approximately USD12 billion in digital assets have been stolen through cyber hacks. The Bitcoin network is able to process only up to 10 transactions per second (TPS) compared to 65,000 TPS for conventional payment systems such as Visa. The environmental impact arising from the large energy consumption of digital assets presents another cause for concern.[7]

2. **Stablecoin** is a type of digital asset that aims to maintain a stable value relative to a specified asset, or a pool of assets. As the name suggests, stablecoins manage the price volatility of digital assets by pegging their value to an underlying asset (e.g. fiat currency or commodities) or using an algorithmic protocol.[8]

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[1] For example, the introduction of Bitcoin was envisioned to be a peer-to-peer version of electronic cash that would allow online payment to be sent directly from one party to another without going through a financial institution. However, digital assets such as Bitcoin have not become a mainstream payment instrument due to various limitations including high price volatility, vulnerability to cyber threats and lack of scalability.

[2] This does not include digital representation of fiat currencies (Financial Action Task Force (FATF) (2021, p.10), Financial Stability Board (FSB) (2022, p.25)). Fiat currency refers to currency notes and coins issued by a sovereign body, e.g. Government or central bank of a country, which is recognised as legal tender and can be used to settle a debt or payment obligation in that country.

[3] Cryptography is the conversion of data into private code using encryption algorithms, typically for transmission over a public network (FSB (2022, p.25)).

[4] DLT is a means of saving information through a distributed ledger, i.e. a repeated digital copy of data available at multiple locations (FSB (2022, p.25)).

[5] However, digital assets remain small relative to the global financial system – its peak estimated market capitalisation of USD2.6 trillion is equivalent to around 1% of global financial assets. Despite its rapid growth, direct connections between digital assets and the broader financial system are currently limited. Episodes of price volatility have also been contained within digital asset markets and have not spilled over to other financial markets (FSB (2022, p.6)).

[6] Merchant payments using digital assets were estimated to be about USD6 billion in 2021, a tiny fraction of the USD10 trillion global e-commerce market (Nuvei (2022, p.19)).

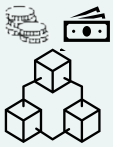
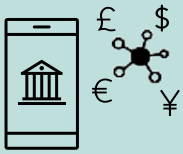
[7] For example, the Bitcoin network consumed 132 TWh in 2020 equivalent to the power consumption of Argentina (Rahul Singh (2021)). In addition, the energy consumed for 1 Bitcoin transaction could power 1.2 million Visa transactions (Nuvei (2022, p.7)).

[8] The algorithmic protocol helps to maintain a stable value by adjusting the supply of stablecoins in response to changing demand.

Subject to the effectiveness of the value stabilisation mechanism, stablecoins are more likely to be used as a payment method compared to unbacked digital assets. In 2021, the total global market capitalisation of stablecoins has grown four-fold to over USD157 billion. At present, stablecoins are used primarily as a mechanism to store proceeds from digital asset investments to protect against volatility. Although the use of stablecoins for payments remains limited, this may change in the future as global payment companies start to integrate with the digital asset ecosystem, particularly with stablecoins.

The developments in the digital asset ecosystem have also fuelled the growth of decentralised finance (DeFi). DeFi comprises financial services that are provided without intermediaries, using automated DLT protocols (smart contracts) and stablecoins to facilitate fund transfers.[9] As at end-2021, the global size of DeFi has grown to USD100 billion compared to just USD15 billion a year ago. This is driven largely by the growth of decentralised exchanges that allow users to trade digital assets without an intermediary and decentralised credit platforms that match borrowers and lenders.

Diagram 1: Comparison Between Digital Assets and Central Bank Digital Currencies (CBDC)

	Digital assets		CBDC
			
Type	**Unbacked digital assets** (e.g. Bitcoin, Ethereum)	**Stablecoins** (e.g. Tether, USD Coin)	**Central bank digital currencies** (e.g. Sand Dollar, e-CNY)
Issuer	No identifiable issuer	Private entity	Sovereign body (e.g. Government, central bank)
Primary use case	Investment	Payments	Payments
Underlying value	Subject to market demand and supply	Value is backed by underlying assets or stabilised by controlling market supply	Value is backed by a sovereign body (e.g. Government, central bank)

Source: Bank Negara Malaysia, Financial Stability Board and Bank for International Settlements

Breaking Down the Pros and Cons

Potential for more efficient and inclusive financial services

Advocates have long stressed the potential for digital assets to advance efficiency in financial services. Efficiency gains include further service automation, improved liquidity management, and faster and cheaper settlement. This is particularly relevant for cross-border payments. Today, most cross-border payment services rely on correspondent banking arrangements (Diagram 3.1). A single cross-border payment could pass through multiple layers of intermediaries. This ultimately translates into slower speed and higher fees for users. The decentralised and tokenised[10] form of digital assets make it possible to transfer value instantly on a peer-to-peer basis without the need for intermediaries.

[9] The DeFi ecosystem revolves around two elements: (i) novel protocols for trading, lending and investing, and (ii) stablecoins, which are crypto-assets that facilitate fund transfers and aim to maintain a fixed face value vis-à-vis fiat currencies, mainly the US dollar (Aramonte et al. (2021, p.21)).

[10] This refers to a feature of digital asset created through the process of tokenisation, which is a process of digitally representing an asset on distributed ledger. Tokens issued exist on the ledger and carry the rights of the assets they represent, acting as store of value (Organisation for Economic Co-operation and Development (OECD) (2021, p.13)).

Beyond payments, digital assets have the potential to enhance access to financial services. Depending on the design, a digital asset can be made universally accessible to users with a smartphone and basic Internet access. This could significantly expand access to the underbanked and unbanked communities. Likewise, financial services enabled through digital assets such as initial coin offering (ICO)[11] and decentralised lending platforms could act as an alternative source of funding for those who face higher barriers to access conventional financial services.

Potential risks to the broader economy

Digital assets however also come with risks that must be managed. The widespread usage of digital assets for payments may lead to currency substitution, akin to '*digital dollarisation*'. In the event digital assets become widely used as a means of payment instead of Ringgit, this may undermine the efficacy of the Bank's monetary policy.[12] Consequently, this may impact the Bank's ability to manage inflation and implement effective counter-cyclical policies to foster sustainable economic growth.

Digital assets could also give rise to macro-financial risks, affecting both the financial system and economy. If the public find it more attractive to keep their savings in digital assets such as stablecoins, this could cause large shifts of deposits away from banks. Such shifts may increase the banks' dependence on costlier and less stable funding sources (e.g. wholesale deposits). This may in turn drive up the cost of financing for borrowers and increase vulnerabilities to bank runs. Stabilisation mechanisms during periods of systemic stress – such as deposit insurance, countercyclical capital and liquidity measures and liquidity backstop arrangements – that support bank-intermediation activities would also be rendered less effective. Digital assets could also be exploited to circumvent foreign exchange policy measures. This could lead to destabilising capital flows and complicate the management of exchange rate volatility. Exposure of financial institutions to digital assets could also lead to heightened liquidity, market, credit, and operational risks for these entities.

Digital assets may be a conduit for money laundering and terrorism financing due to the lack or absence of customer identification. There are also consumer protection concerns posed by digital assets. For instance, the largely unregulated parts of the digital asset ecosystem have contributed to lax controls by the digital asset intermediaries. This has made digital assets vulnerable to cyber hacking and theft, which in turn put users at risk. The public who invest in digital assets without adequately understanding the risks could also lose their wealth through large swings in the value of digital assets or via digital asset-related fraud.

Additionally, new sources of risk are emerging, particularly from stablecoins and DeFi. Stablecoins can experience runs if investors doubt the value of the underlying assets used to back the stablecoins.[13] Large-scale redemptions of the stablecoins may trigger a fire sale of the underlying assets. This could create disruptions in financial institutions and markets (e.g. short-term funding markets) in which such assets are invested. If DeFi becomes widespread, its vulnerabilities and growing interconnectedness with the financial system[14] might undermine financial stability. Such vulnerabilities include high leverage,[15] liquidity mismatches,[16] and limited shock absorbers such as banks which can provide liquidity during periods of stress.[17]

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[11] ICO is an operation through which companies, entrepreneurs, developers or other promoters raise capital for their projects in exchange for digital tokens or coins that they create (FSB (2018, p.17)).

[12] Dollarisation can impede central banks' effective implementation of monetary policy and lead to financial stability risks through currency mismatches on the balance sheets of banks, firms, and households (IMF (2021, p.52)).

[13] Stablecoins backed by short-term securities (with illiquid secondary markets) or crypto-assets are susceptible to investor runs due to liquidity mismatches and exposure to market risks. The viability of stablecoins hinges on investors' trust in the value of the underlying assets. Opaqueness and lack of regulation can easily erode such trust (Aramonte et al. (2021, p.31)).

[14] Financial institutions may be exposed to DeFi (i) on the asset side, through loans granted to and equity investments in DeFi or crypto-related entities that offer services on DeFi platforms, and (ii) on the liability side, through funds deposited, and FI commercial papers held, by stablecoin arrangements (Aramonte et al. (2021, p.31)).

[15] For example, funds borrowed on DeFi platform can be re-used to serve as collateral in other transactions. This allows investors to build increasingly large exposure for a given amount of collateral (Aramonte et al. (2021, p.29)).

[16] Stablecoins play a central role in facilitating trading, lending, and borrowing activity in DeFi. Accordingly, the liquidity mismatches highlighted earlier for stablecoins would impact the DeFi ecosystem.

[17] Unlike traditional finance where banks may have access to central bank balance sheet (e.g. lender of last resort facilities), DeFi relies exclusively on private backstops (collateral) to mitigate risk with no shock absorbers that can come in during stress periods (Aramonte et al. (2021, p.30)).

Prudent and Pragmatic Approach Towards Digital Assets

At their current size, digital assets are not likely to pose systemic risks to the financial system. This however may not be the case if the rapid growth continues. Given this, we are pursuing a prudent and pragmatic approach to promote responsible innovation, while ensuring the attendant risks are adequately managed.

Addressing the impact of digital assets to monetary and financial stability

Due to the various limitations highlighted earlier, there are risks involved in the use of digital assets as payment instruments. Digital assets are not recognised as legal tender in Malaysia and are not payment instruments that are regulated by the Bank. We have periodically issued cautionary statements to remind the public to exercise caution when dealing with digital assets.

Notwithstanding this, the Bank recognises the potential benefits of stablecoins, particularly for enhancing cross-border payments. Hence, we are exploring the appropriate regulatory approach to manage and mitigate risks associated with stablecoins. Given the international dimensions involved in cross-border payments, we will be guided by the principles issued by international standard setting bodies to ensure appropriate regulation, supervision, and oversight of stablecoin arrangements.

Beyond payments, the Securities Commission Malaysia (SC) regulates digital asset activities involving the trading of digital assets via digital asset exchanges (DAX), issuance of digital assets for fundraising via Initial Exchange Offering (IEO), and the provision of digital asset custodian (DAC) services. To foster collaboration, we have entered into a coordinating arrangement with the SC to ensure digital asset activities comply with the regulations of both regulators. For instance, we worked with the SC to ensure digital asset intermediaries comply with all relevant regulatory requirements to mitigate potential circumvention of foreign exchange policy measures and provisions under the Currency Act 2020.

In view of the broader impact to monetary and financial stability, the Bank has formed a Digital Currency Research Hub (the Hub). Through the Hub, which is staffed by a multi-disciplinary team, we seek to achieve several goals. First, we aim to accelerate our understanding of the current landscape and evaluate the implications of developments in the digital asset ecosystem. Next, we seek to strengthen our surveillance framework and develop appropriate policies to manage risks while promoting innovation. This may include measures to strengthen regulatory and supervisory frameworks and enhance international collaboration to promote responsible innovation in the digital asset space while mitigating negative spillovers.

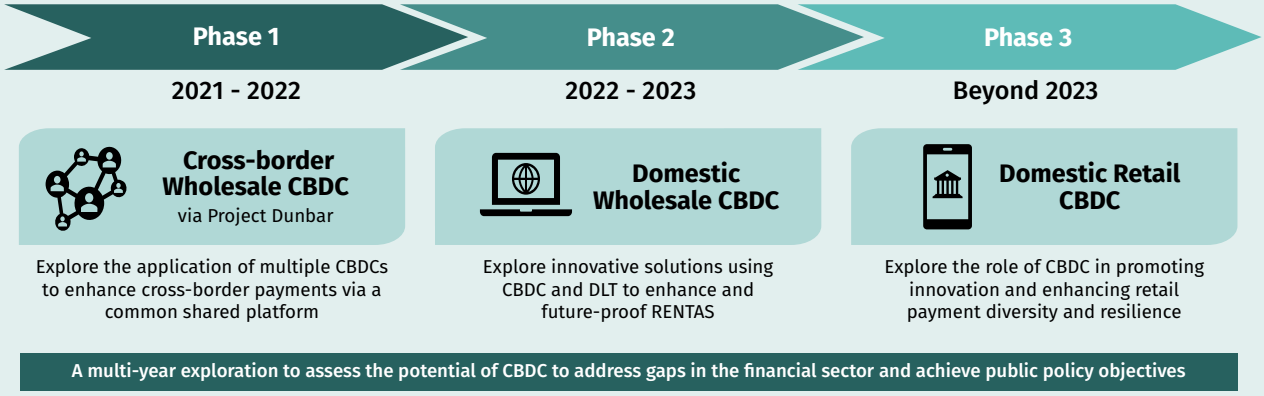
Building internal capacity on CBDC

Although digital assets may have limitations, the underlying technology (e.g. DLT) can be harnessed for other applications including the issuance of CBDC. The domestic payment systems are highly efficient and existing monetary and financial policy tools continue to be effective. While this reduces any pressing need to issue CBDC in the immediate term, we are actively scaling up our technical and policy capabilities to support our ability to issue CBDC for prospective use cases that could offer a higher level of benefits for Malaysia. To this end, we have commenced a multi-year CBDC exploration through a proof-of-concept (POC) with three phases (Diagram 2).

The POC will explore the potential for CBDC to address existing challenges, with priority given to CBDC applications for wholesale payments. For this, the Bank has collaborated with international partners on Project Dunbar to assess the potential of CBDC in addressing the frictions in cross-border payments (Diagram 3). Such international partners comprise the BIS Innovation Hub, the Reserve Bank of Australia, the Monetary Authority of Singapore and the South Africa Reserve Bank. The project aims to develop prototype shared platforms for cross-border transactions using multiple CBDCs, also known as multi-CBDC network (Diagram 3.2). Such a network enables participating financial institutions to transact directly with each other using CBDCs. By eliminating the need for intermediaries, this would significantly reduce the time and cost of cross-border payments. According to a study by Ekberg et al.,[18] a full-scale multi-CBDC network which facilitates 24/7, real-time cross-border payments could reduce the cost of cross-border transactions by approximately USD100 billion annually.

[18] Ekberg, J, T Chia, M Ho and L Liu (2021): Unlocking $120 billion value in cross-border payments, Oliver Wyman and JP Morgan Report, November 2021 at p.27.

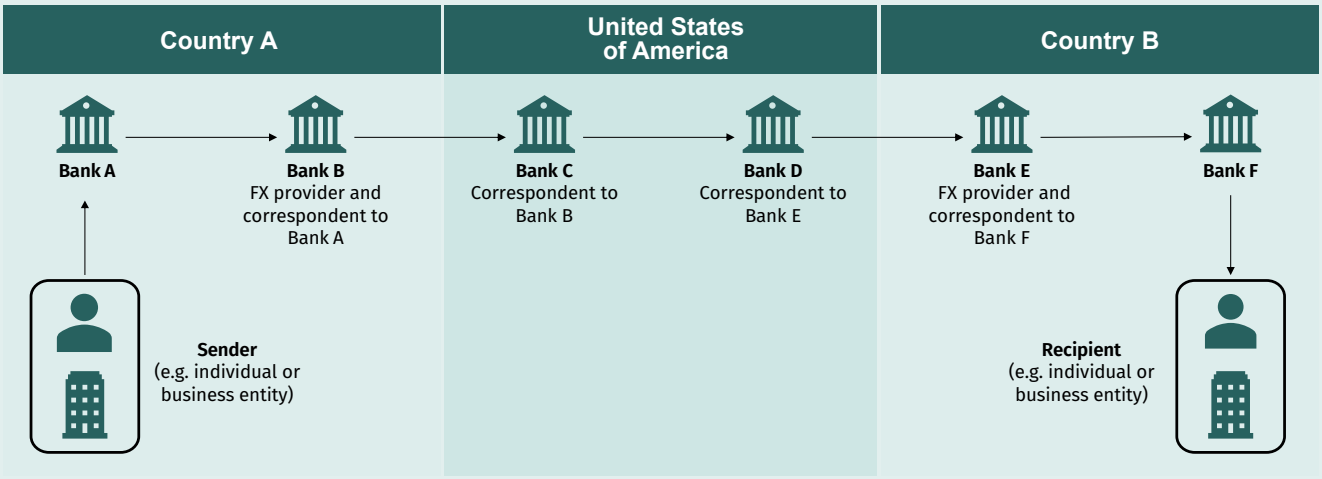
Diagram 2: Malaysia's CBDC POC Roadmap



Source: Bank Negara Malaysia

Diagram 3: Overview of Project Dunbar

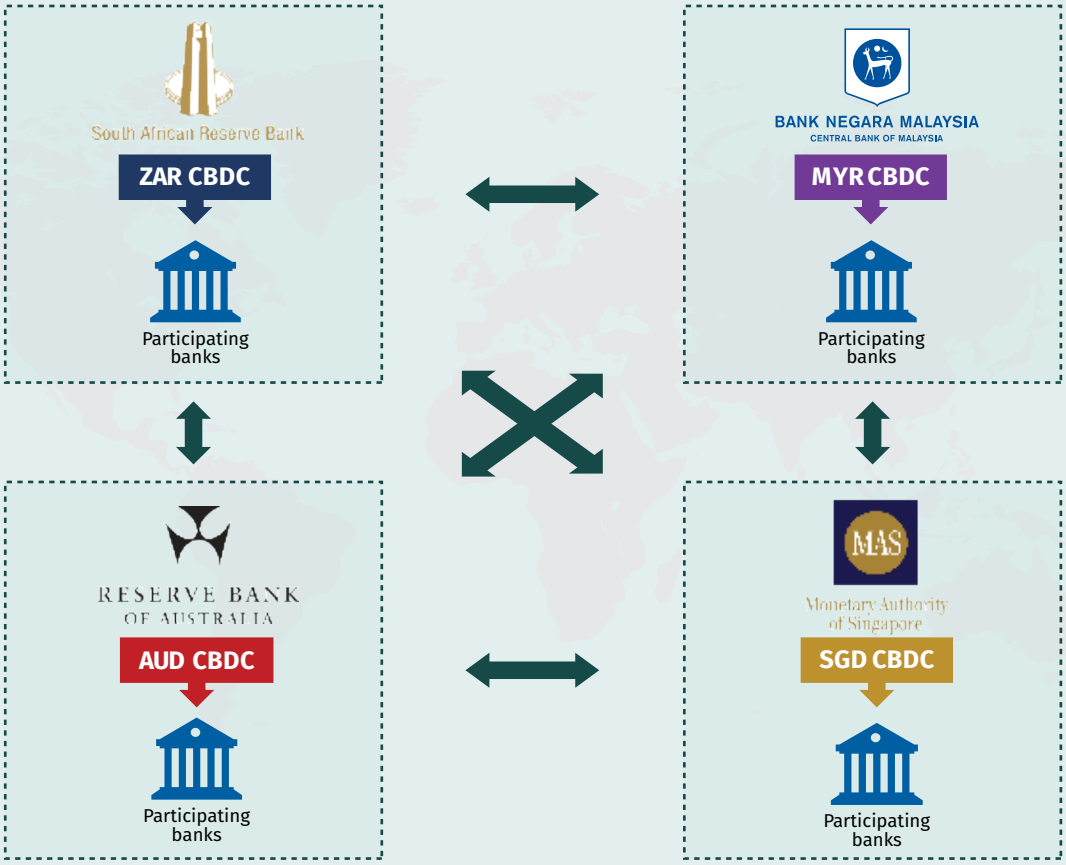
Diagram 3.1: Current Cross-Border Payment Model – Correspondent Banking Arrangement



- This diagram illustrates a typical cross-border payment flow where the transaction is routed via the US correspondent banking network.
- A single cross-border payment could pass through multiple correspondent banks.
- Each leg of the transaction takes time and effort to process, resulting in slow and costly cross-border payments.

Source: Adapted from Ekberg et al. (2021, at p.6)

Diagram 3.2: Proposed Cross-Border Payment Model Under Project Dunbar – Multi-CBDC Platform



- A single multi-CBDC shared platform to connect multiple central banks and participating banks.
- Banks can hold and transact in both local and foreign CBDCs issued by the central banks.
- This allows banks to pay each other directly in CBDCs, thus eliminating the need for intermediaries.

Source: Bank Negara Malaysia and Bank for International Settlements

Looking Ahead

We aim to adopt a prudent yet pragmatic approach to digital assets in light of the complexities and uncertainties involved. This will ensure that we can harness the benefits while mitigating the associated risks. In view of the interlinkages and potential spillover effects, we will also continue to support public-private partnerships and international collaborative efforts to advance the principles of responsible innovation in the digital asset space.

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