

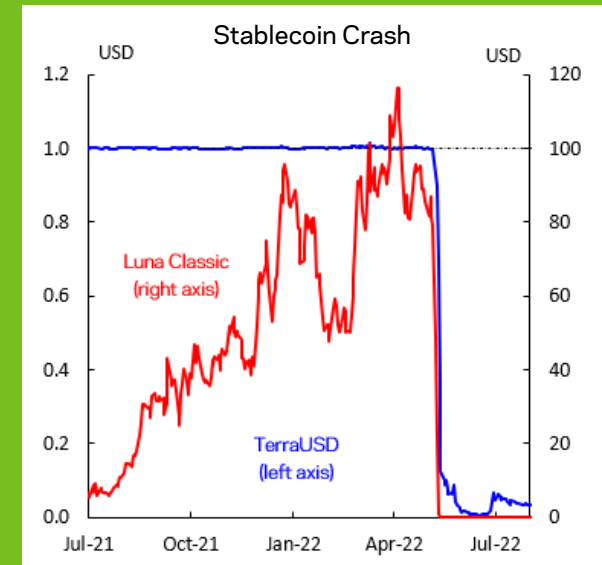
December 2022

Cryptocurrency Special Report

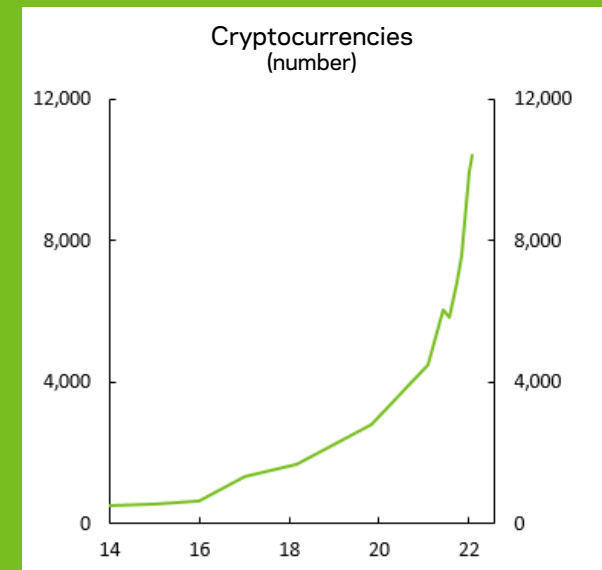
Part 2: Wild West of Rapid Innovation

Summary

- In their current form, cryptocurrencies do not exhibit the key characteristics of money: medium of exchange, store of value, unit of account. New blockchains and cryptocurrencies have been introduced to address some of the shortcomings of early cryptocurrencies such as Bitcoin.
- Development in the space continues and new innovations may lead to increased adoption of some forms of cryptocurrency in the future. More than 10,000 cryptocurrencies currently exist.
- Despite investment and innovation, challenges continue. Scalability remains a significant hurdle, volatility is extreme and environmental impacts remain significant.
- Stablecoins, introduced to address challenges associated with the extreme volatility of digital currencies, have generated their own controversy. During the 'crypto crash' of 2022, the value of the then largest algorithmic stablecoin collapsed to near zero in the space of a few days.
- Research and development into Central Bank Digital Currencies (CBDCs) has increased. CBDCs could provide the benefits of central bank money, while facilitating cryptocurrency innovations.
- Decentralised finance (DeFi) is a growing area of development. DeFi seeks to automate and decentralise financial products and services (e.g. lending).
- The global regulatory framework is fragmented as countries take different approaches to balance innovation and consumer protection. Increased regulation is likely as the space grows and following the 2022 controversy.



Source: Bloomberg



Source: Statista

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Introduction

In their current form, cryptocurrencies do not adequately exhibit the key characteristics of money: medium of exchange, store of value, or unit of account.

However, innovation continues and new advancements are being developed which may lead to increased adoption of some forms of cryptocurrency in the future.

Over time, the traditional finance and investment community has moved from completely rejecting cryptocurrencies to slowly considering their potential uses. However, scepticism justifiably remains high.

Rapid innovation continues. Central banks and traditional financial companies are increasingly working on blockchain technologies and potential applications for the various innovations that have emerged. Investment has also increased, including through venture capital and other forms of investment.

Cryptocurrencies have evolved from Bitcoin, which only provides the ability to transfer coins from one wallet to another, to more advanced blockchains. Other protocols, such as Ethereum, enable the use of 'smart contracts' on the blockchain and the digitisation of various assets. Decentralised Finance (DeFi) applications are a growing area within the space. Proponents claim that these applications enable savers and

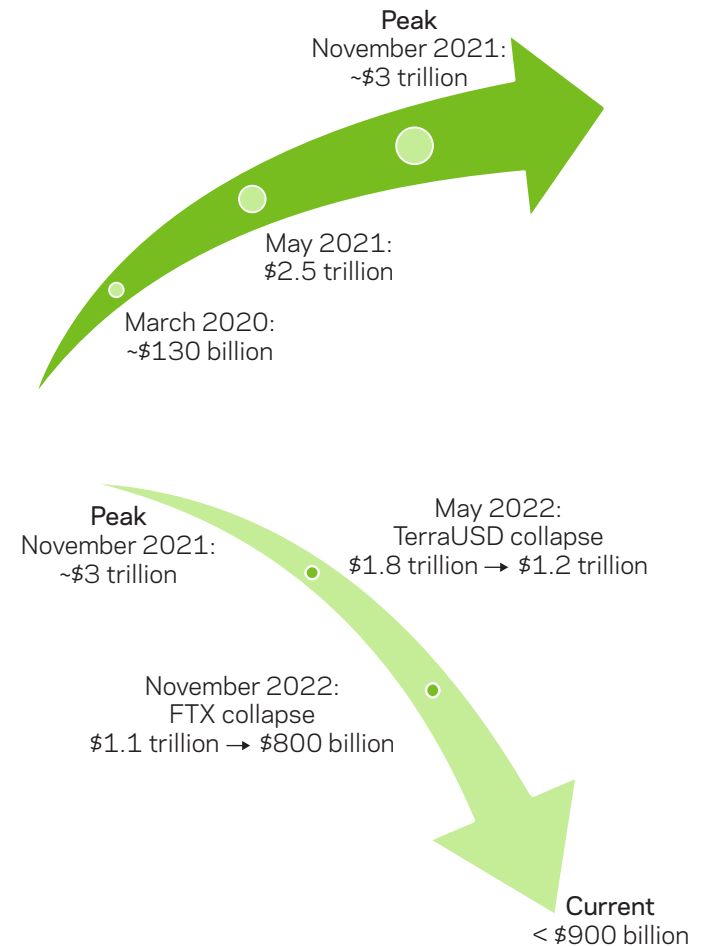
borrowers to interact with one another without the need for trusted intermediaries.

Innovation is likely to continue in the future and global regulators and policymakers are considering how to adapt regulatory frameworks to enable innovation, while also protecting consumers.

Despite increased investment and growing innovation, challenges continue to inhibit the adoption of most cryptocurrency applications. Scalability remains a significant technological hurdle. Volatility is extreme and the prices of digital coins continue to fluctuate wildly.

Some 'stablecoins' have proved to be anything but stable as their value has crashed to zero. During the COVID-19 pandemic, a frenzy ensued as the market capitalisation of cryptocurrencies surged from around US\$300 billion prior to the pandemic, to almost US\$3 trillion at its peak, before crashing again to under US\$900 billion as investor sentiment turned. Several large players in the industry have also collapsed or experienced significant difficulty during 2022, further adding to volatility.

Figure 1: Cryptocurrency Market Capitalisation since COVID-19 Trough (US\$):



Stablecoins

To address some of the challenges associated with the extreme volatility of Bitcoin and other digital coins, stablecoins were introduced.

Stablecoins are cryptocurrencies which are intended to closely track the value of another asset, such as the US dollar, gold, or another commodity. The first stablecoins were introduced in 2014 and a range of different coins exist today.

The mechanisms intended to maintain their peg with their underlying assets vary. However, they can be aggregated into two broad categories; those which are collateralised by other assets (i.e. asset-backed) and those which are not.

Collateralised stablecoins can be fully or partially backed by real-world assets, such as US dollars, short-term debt instruments, money market securities, commodities, and other assets.

Non-collateralised stablecoins include algorithmic stablecoins, such as the now defunct TerraUSD. These are not backed by real-world assets. Rather, they utilise an algorithm to control the supply and demand of coins. Through impacting supply and demand, creators claim that they can maintain a peg against other assets.

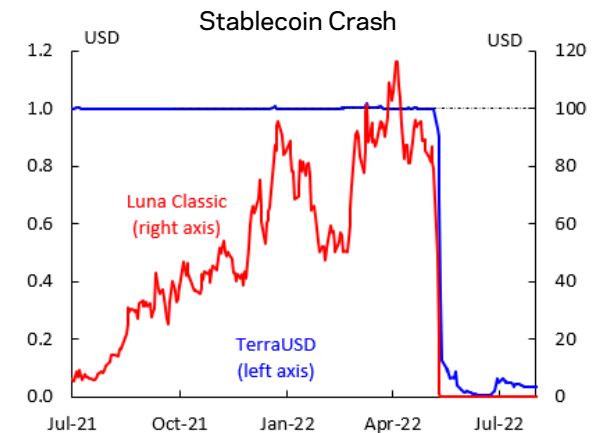
However, stablecoins have generated considerable controversy. In May 2022, TerraUSD broke its peg to the US dollar and the value of the currency plummeted to near zero in the space of a few days. The value of the associated Luna

token also collapsed to zero. The Luna token was intended to provide market participants with an arbitrage opportunity when the value of TerraUSD deviated from its peg, thereby impacting the supply and demand of TerraUSD and helping to return the value back to its peg. However, market participants lost confidence, undermining the arbitrage trade and pushing the value of TerraUSD lower.

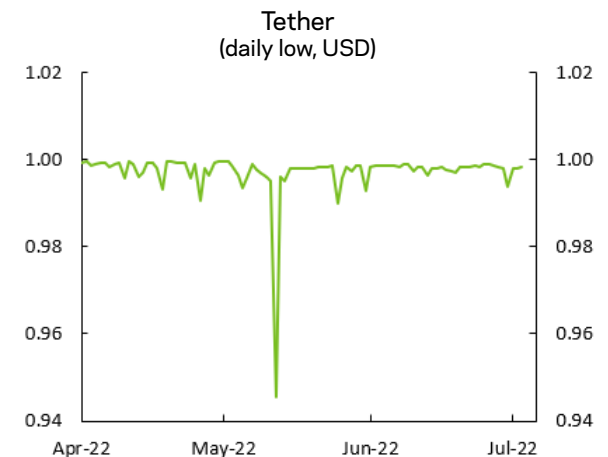
The high-profile collapse of TerraUSD and Luna demonstrates the speculative nature of these coins. It also demonstrates that stablecoins may not be credible if the peg comes under pressure during bouts of market volatility. Despite the name, their value can deviate significantly.

Asset-backed stablecoins have also experienced considerable controversy. Typically, these coins fall outside of existing regulatory frameworks and lawmakers are working to develop fit-for-purpose regulatory frameworks to protect investors. Stablecoin issuers are not regulated in the same way as banks or other major financial institutions. Disclosure surrounding the holdings can be limited. This means that the value of assets available to back coins may be unknown. This can affect confidence and potentially lead to a 'run' on the stablecoin, if a significant number of investors seek to redeem their funds at the same time.

During the TerraUSD collapse, the largest stablecoin, Tether, temporarily broke its peg to the US dollar as redemptions spiked following concerns surrounding whether Tether had enough assets to support the coins in circulation.



Source: Bloomberg



Source: Bloomberg

Central Bank Digital Currencies (CBDCs)

Central banks have also increased their research and development in the area, particularly regarding Central Bank Digital Currencies (CBDCs).

These could take the form of a digital coins issued directly by a central bank. CBDCs could provide the benefits associated with central bank money, including a medium of exchange, store of value and unit of account, in addition to facilitating innovations developed in the cryptocurrency community. For example, smart contracts could be overlaid on top of a CBDC and the cost of transactions and transfers, such as international remittances, could be lowered. This would enable continued product innovation to be built on top of a stable digital currency issued by a central bank.

A 2021 Bank for International Settlements survey found that a majority of central banks were either actively researching or experimenting with CBDCs. A small number of central banks have also launched proof-of-concept pilot projects. A few smaller countries have even issued a digital currency. In 2022, China become the first large economy to issue a CBDC.

However, while most central banks are researching this field, it remains in the early stages of development.

The Reserve Bank of Australia is actively researching

a CBDC as a complement to existing forms of money. It is involved in projects with other central banks, academic researchers, and private sector participants to further investigate this area and consider the public policy case behind the issuance of a CBDC.

Development is expected to continue to grow. Given their centralised nature and that issuance would be direct from a trusted monetary authority, CBDCs may address many of the key drawbacks of privately issued digital currencies. Additionally, the issuance of a CBDCs by a trusted monetary authority is also likely to engender greater levels of stability, trust, legitimacy, and confidence, leading to increased adoption.

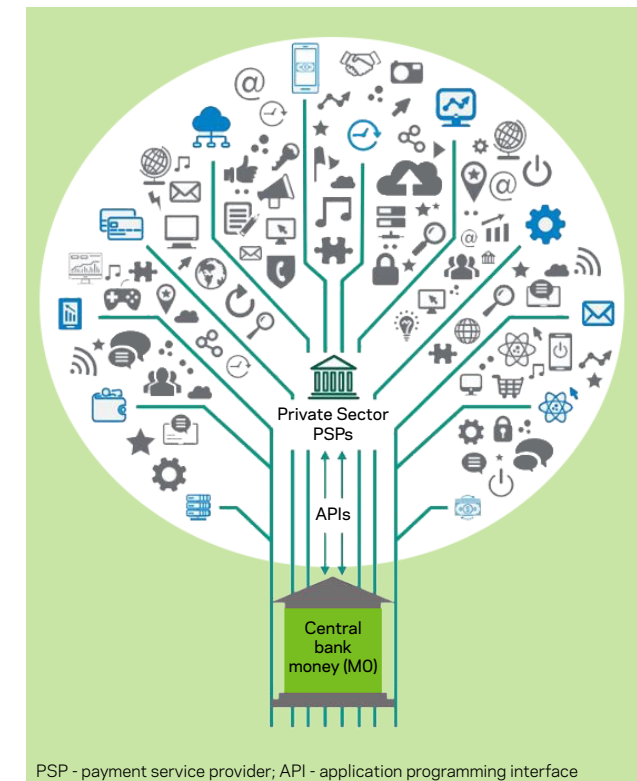
As the technology develops, it is likely that CBDCs may take the centre stage of the future of digital money, payments systems, smart contracts, and asset tokenisation, rather than private cryptocurrencies. This could lead to the market share of CBDCs growing at the expense of private cryptocurrencies.

There are also advantages for innovators and creators of the applications that sit on top of a

blockchain, as the number of users on the network impacts the likelihood of success of an application.

However, demand for privately issued digital currencies may continue, particularly among users who highly value decentralisation and are sceptical of government-issued currencies.

Figure 2: Stylised example of a CBDC



PSP - payment service provider; API - application programming interface

Source: Bank for International Settlements

Decentralised Finance (DeFi)

A rapidly growing area of the cryptocurrency universe is the Decentralised Finance (DeFi) space.

DeFi is a broad term encompassing a range of different protocols and applications built on top of a range of blockchains.

At a high-level, the essence of DeFi is to replicate many of the existing functions of the traditional financial system, while reducing the need for central counterparties (i.e. making the system more decentralised), and thereby claiming to decrease costs. Additionally, DeFi could be used to provide new financial products and services.

DeFi applications utilise the 'smart contract' functionality of new blockchains, such as Ethereum. This allows simple programs to be encoded on the blockchain which are executed once certain conditions are met. Effectively, smart contracts are small bits of 'if, then' type computer code.

For example, a smart contract may determine that a certain amount of cryptocurrency is transferred from one wallet to another if certain conditions are met. This can replicate the payment of interest from a borrower to a lender. However, since the conditions are coded into the contract, proponents claim that the need for a central counterparty can be reduced or even

eliminated. This has the potential to reduce intermediation and lower costs of certain financial products and services.

However, the DeFi space, like the broader cryptocurrency universe, has also found itself mired in controversy. DeFi platforms often claimed that investors could generate double-digit returns – well in excess of returns on traditional financial products. However, during the crypto crash in 2022, several DeFi platforms froze customer withdrawals as the underlying collateral behind loans made on the platforms collapsed in value. This led to large losses for investors.



Where to from Here?

The crypto crash of 2022 promoted louder calls for increased regulation and oversight of the cryptocurrency industry, including stablecoins and DeFi. The current global regulatory framework around cryptocurrencies, DeFi and other digital assets is fragmented. Different countries are approaching the issues from various perspectives to balance innovation with consumer protection needs. Regulatory frameworks are likely to continue to evolve alongside innovations in the space, as regulators settle on best-practice approaches.

Innovation will continue. As development grows, CBDCs may become the prominent forms of digital currencies in mainstream use by the public. These have the potential to address many of the current drawbacks of digital currencies, while providing a 'nominal anchor' onto which other digital financial services could be built.

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