Under the western sky: the crypto frontier

Carolyn Wilkins talks about cryptoassets and the ‘financial ecosystem’ they are a part of. She looks at the risks and opportunities decentralised finance may bring and the regulatory response to these

"I'm a poor, lonesome cowboy and a long way from home." - Lucky Luke

I am writing about cryptoassets and the ecosystem of financial services that is developing around these assets. This new frontier has been compared to the Wild West, conjuring up images of lawlessness, and bandits whose purpose is crime. We should not forget the Wild West is also home to law-abiding pioneers, whose purpose is reinvention and expansion[1].

We are seeing expansion now. The crypto market has exploded from just US$16 billion five years ago to some US$2.6 trillion today[2]. Whilst that is a small share of the US$250 trillion global financial system, it is still an average annual growth rate of over 150 per cent.

We are seeing reinvention. The crypto ecosystem is challenging a traditional financial ecosystem that is, in places, inefficient and exclusive. Pioneers - from fintech to big tech – are creating new markets and targeting the margins of traditional financial services. And, Canada has been home to pioneers like Vitalik Buterin, the co-founder of Ethereum.

Unfortunately, we are also seeing crime. Much of the crypto-related illicit activity has so far been made up of scams and darknet markets[3]. Ransomware attacks grew an astonishing 300 per cent last year as work-from-home practices to combat COVID-19 presented new vulnerabilities for businesses[4].

It is all enough to make one feel somewhat like Lucky Luke; a poor lonesome cowboy and a long way from home.

I hope to help us feel a little closer to home by sharing my views on three features of the crypto ecosystem that are relevant to those who depend on efficient, stable, and trustworthy financial services.

1. Cryptoassets are the bedrock of the emerging financial ecosystem, so supporting consumer protection and financial soundness is the first order of business for regulators. In this regard, there are important differences between cryptoassets that are backed and those that are not.

2. The opportunities and risks extend well past the cryptoassets themselves to encompass a rapidly expanding range of financial services, from lending to insurance. These crypto-based services are increasingly being enabled by decentralised protocols – or DeFi.

The future of this new frontier depends critically on the regulatory response to these new activities and how fast the traditional financial system modernises

3. The future of this new frontier depends critically on the regulatory response to these new activities and how fast the traditional financial system modernises. This will take major investments in domestic and cross-border payments, as well as digital governance.

Before I delve in, I will mention that the views I express here are my own and do not necessarily reflect those of the Bank of England or any of its policy committees.

Cryptoassets are the bedrock of the emerging financial ecosystem

Let me start with the bedrock of the emerging financial ecosystem. The world's first cryptoasset based on blockchain technology was launched over a decade ago by the mysterious Satoshi Nakamoto. It initiated a wave of innovation with now more than 14,000 cryptoassets in existence[5].

A handful, including Bitcoin, Ether, Litecoin and Cardano, have dedicated communities of backers and investors, although many others have little or no trading volume.

While cryptoassets are often discussed as a single asset class, they differ in terms of whether they are backed and their underlying economic function. These differentiators are important when it comes to understanding what value these assets could add to the financial system, and what type of risks need to be managed.

Let us start with unbacked cryptoassets, taking Bitcoin as an example. Many proponents initially heralded Bitcoin as a revolutionary challenge to fiat-based monetary systems. Yet, Bitcoin has no intrinsic value and lacks a credible mechanism to stabilise its value, so its price is highly volatile.

This means it is not useful as a store of value or a means of payment[6]. The claims that the finite supply of Bitcoin somehow protects its value from eroding are doubtful because the total supply of cryptoassets has no upper bound.

In fact, Bitcoin serves as a speculative asset rather than money, and is at least in part a symptom of the prevailing low interest rate environment and search for yield. That is why, in many jurisdictions, individual holdings are viewed as investments and subject to capital gains tax at disposal[7].

When you add to the mix estimates showing that the Bitcoin network currently uses as much energy as the Netherlands, the overall net benefit of Bitcoin to the public interest is questionable[8].

Since around 95 per cent of the US$2.6 trillion crypto market is unbacked, the bulk of these assets are vulnerable to major price corrections. This raises significant issues related to investor protection and market integrity, particularly given that exposure to these assets is widening to the retail investor via crypto exchanges like Binance, Coinbase and Wealthsimple, and new financial products such as crypto-based ETFs.

That is why regulators around the world have turned from simply monitoring the situation to action. The Basel Committee on Banking Supervision has proposed that banks back crypto positions one-to-one with capital, which sends a strong signal about their assessment of the risks associated with unbacked crypto exposures[9].

The Canadian Securities Administrators has recently required crypto trading platforms that offer custody services and that are operating in Canada to register and is developing its regulatory and supervisory capacity[10].

In the UK, cryptoasset businesses must comply with the Money Laundering Regulations (MLRs) and register with the Financial Conduct Authority, which has also banned the sale to retail clients of crypto derivative products[11].

This work is critical to driving out the bandits and creating an environment for crypto businesses and investors that both supports innovation and competition and mitigates risks.

To try to address the issue of instability of unbacked cryptoassets, crypto pioneers have introduced 'stablecoins'. These aim to achieve a stable value against a fiat currency or other assets by maintaining reserves or backing-assets to help achieve this.

Stablecoins, such as the USD coin, are not yet widely used for mainstream payments. Instead, they currently act as a bridge for investment in unbacked cryptoassets or collateral for loans and play a key role in the development of decentralised finance (DeFi).

In theory, stablecoins could yield important benefits in terms of lower-cost, real-time and competitive payments services, both domestic and cross border. In practice, these will only be realised if stablecoins are safe.

US regulators found that Tether, another big stablecoin, had falsely claimed that its tokens were fully backed by US dollars. This highlights legitimate concerns about both quality and transparency of backing arrangements[12].

The Bank of England's Financial Policy Committee on which I am a member has set out two main expectations for systemic stablecoins. These were clearly articulated in a recent speech by my colleague Sir Jon Cunliffe[13].

The first is that any payments chains that are based on a stablecoin should be regulated to standards equivalent to those applied to traditional payments chains.

The second is that stablecoins used as money-like instruments should meet standards that are equivalent to those provided by commercial bank money – bank deposits. As Canada considers its regulatory response to stablecoins, it can look to these examples and the international work in this area.

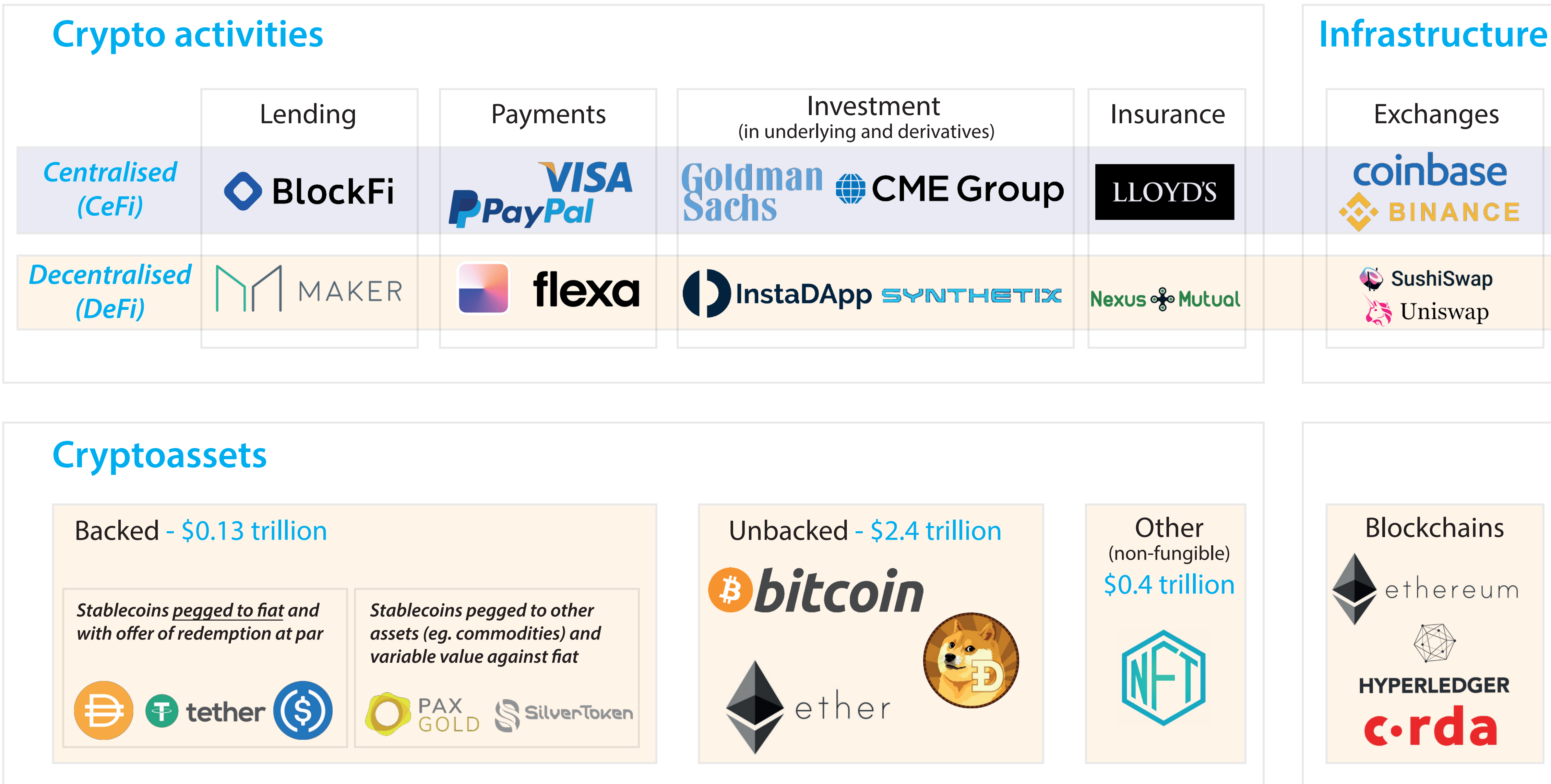
I agree with Jon that international co-operation is critical to ensure common stablecoin standards and avoid regulatory arbitrage across sectors and jurisdictions. The recent CPMI-IOSCO consultation on how the international standards for FMIs, the Principles for Financial Market Infrastructures should apply to stablecoin arrangements is a major step forward in applying 'same risk, same regulation' to systemically important stablecoins that are used for payments[14]. The Financial Stability Board is also working with standard-setting bodies to address any potential gaps in international standards.

The issue extends past cryptoassets themselves to the emerging financial ecosystem

Stablecoins and unbacked cryptoassets are facilitating a broader range of services than just payments, including lending, investment products, and even insurance. This brings me to my second point, which is that the issues extend past the cryptoassets themselves to the emerging financial ecosystem. The fact that this ecosystem is increasingly interconnected with the traditional financial system raises financial stability concerns.

These crypto-enabled services are offered in both a centralised (CeFi) and decentralised (DeFi) manner (Figure 1). In the CeFi space, I have already mentioned the exchanges run by newcomers, Binance and Coinbase, but traditional financial institutions such as Goldman Sachs and the CME Group have also begun facilitating investment in crypto underlying and derivatives.

Figure 1. Stylised map of cryptoassets, crypto activities and infrastructure



Because these entities have a legal structure and centralised governance, regulation and supervision should be straightforward. Compliance is nonetheless an issue, as the UK Financial Conduct Authority said that Binance's UK affiliate had failed to respond to some of its basic queries, and therefore was prohibited from undertaking regulated financial services activity in the UK[15].

DeFi has more novel features than CeFi, and so presents some unique opportunities and risks. First a definition. 'DeFi' refers to a variety of financial products, services, activities, and arrangements that are supported by smart contract-enabled distributed ledger technology. The distinguishing factor from centralized finance is that these DeFi protocols take the place of intermediaries.

Ethereum is now the predominant blockchain on which DeFi protocols and applications function, with 70 per cent of the DeFi value locked in worldwide on the Ethereum blockchain.

I see from my work with the Creative Destruction Lab at the Rotman School of Management that there is a lot of energy and investment dollars going into development. The total value locked in DeFi now is over US$100 billion, and growing fast[16].

That is because DeFi has several potential advantages over centralised ecosystems. Decentralisation reduces the reliance on intermediaries and their inefficient infrastructure.

The real opportunity is with smart contracts, which enable automated execution and creation of new financial instruments and digital assets. These contracts are enabled by the fact that DeFi protocols can integrate with each other and so data are easily shared, as opposed to traditional siloed platforms that do not talk to each other. DeFi protocols are also open source, so the code is also visible and auditable, and every transaction is visible on the blockchain.

Despite some asserted distinctions from more traditional or centralised financial products, services, and activities, DeFi arrangements raise familiar issues.

The most immediate relate to fraud, misappropriation, and conflicts of interest, including those arising from misleading disclosures, misuse of inside information, and manipulative trading activities.

And, in some cases, despite claims of decentralisation, operations and activities within DeFi are governed or administered by a small group of developers and investors. This raises serious governance issues, including whether miners, programmers, and others should have fiduciary duty[17].

There is also risk related to money laundering and terrorist financing. That is why FATF (the Financial Action Task Force) recently updated their guidance for virtual assets and virtual asset service providers and added new guidance on how DeFi and distributed applications (DApp) relate to the FATF Standards[18].

Investors and users of DeFi are also exposed to important risks related to the underlying technology.

Security around smart contracts has improved since US$50 million of Ether was stolen in the decentralized autonomous organisation ('DAO') in 2016, but significant losses from cyber attacks remain frequent. One major DeFi platform disclosed last summer that cyber bandits made off with digital assets worth more than US$600 million, and there have been over 24 such robberies so far this year[19].

Many of these hacks have been 'flash loan attacks' that take advantage of temporary defects in price feeds. This has prompted insurance markets – like Lloyd's of London - to provide users with insurance against losses due to hacks or malfunctioning software[20].

The question for financial stability regulators is what risks does DeFi present, and are they important enough to be of systemic importance – either now or in the future. Price volatility is one issue that I've already mentioned. The share token of a DeFi protocol called Titanium that was once worth US$2 billion fell precipitously to near zero earlier this year[21].

The emergence of leveraged players only magnifies this risk. A sharp fall in the value of cryptoassets could trigger margin calls, forcing leveraged investors to liquidate positions. This could snowball into other asset class, especially if interconnectedness with traditional financial system keeps growing.

We are even starting to see synthetic collateral to get leverage. For instance, Synthetix allow users to take positions without ever holding the underlying asset[22].

This is reminiscent of the emergence of synthetic collateralised debt obligations (CDOs) leading up to the global financial crisis. The Bank of England, along with international partners, is developing a framework on how to deal with these important financial system issues.

Future depends on how traditional players modernise

The 200-Bitcoin question is how successfully DeFi will ultimately compete with CeFi and traditional finance. When I refer to 'traditional', I am referring to a system that has fiat at the core, and relies on intermediaries and trusted third parties, including central banks. The advantage of this is an ability to see who you are dealing with and who is accountable.

Nevertheless, as Jeff Bezos famously said, *"your margin is my opportunity."* That means the traditional world cannot avoid competing along similar lines as DeFi – increasing quality of services, reducing costs to customers, and increasing inclusion.

Modernisation efforts in the traditional space will have to push further than replacing mainframes and better mobile banking apps. And, competitors are not standing still, whether they are banks and other FIs, or Big Tech.

This is a very positive outcome in terms of contestability of financial services.

Central banks also need to modernise. In that regard, there are over 50 central banks that are researching and experimenting with their own digital version of cash – central bank digital currency. The Bank of Canada and the Bank of England have been collaborating closely on these efforts[23].

No decision has been taken yet in most jurisdictions, including Canada and the UK. Much of the public discourse so far has focussed on winners and losers if this were to happen. One particular concern is that a CBDC would compete too successfully with bank deposits, and potentially raise the cost and undermine the stability of this source of bank funding. I think increased contestability for deposits would be positive, and the CDBC could be designed to avoid any instability in bank funding.

The deeper issue relates to importance of universal access to a safe medium of exchange. It is foundational to trust in the financial system and is therefore a public good. Do we really want private profit-making institutions or protocols to be the only game in town in a modern economy? Also, there is potential for CBDC to enable innovations like private, fiat-backed stablecoins, and smart money.

If the traditional financial system to compete with the emerging ecosystem private and public efforts will need to focus on three building blocks. The first, I have already spoken about: a legal, policy and regulatory framework for the crypto ecosystem.

The second relates to modernising the payments landscape both domestically and cross-border. We urgently need more efficient wholesale and retail cross-border payments, including remittances; the door is wide open for disruption from cryptoassets given how inefficient and costly payments systems are today.

International and domestic authorities are taking forward implementation of the G20 Roadmap to enhance cross-border payments and ambitious targets for addressing challenges have been set for 2027[24]. Enhanced operating hours and increased direct access to domestic payments systems will help support cross border payments.

Payments Canada and the Bank of Canada are working right now on a domestic payments infrastructure that delivers 24/7, real-time, and low-cost clearing and settlement of transactions that can accommodate a wider universe of payment service providers. And the Bank of England is also developing a Renewed RTGS system[25].

The third building block relates to up-to-date data governance. We need a well-articulated data management framework, including for open banking, which recognises the rights of users of financial services and the protection of their privacy, as well as ethical use of personal data.

Whilst central banks have a role to play in this space, there is a vital role for government. GDPR covers this for UK and EU, but we are still waiting in Canada.

While the work related to these building blocks is underway, the many outstanding issues and divergent interests call into question whether progress will be made fast enough and risk producing a fragmented regulatory landscape and further unchecked growth in the crypto ecosystem.

Conclusion

I have said that cryptoassets are the bedrock of the emerging financial ecosystem, so supporting consumer protection and financial soundness is the first order of business for regulators. We must recognise that the opportunities and risks extend well past the cryptoassets themselves to encompass a rapidly expanding range of financial services.

The future of this new frontier depends critically on the regulatory response to these new activities and how fast the traditional financial system modernises.

Regulators and policymakers may feel like poor lonesome cowboys and a long way from home in this modern Wild West, but we must crack on.

To get the most out of these innovations, we need to modernise our legal and regulatory frameworks so that businesses and investors have clear and predictable rules of the game, and the risks to the financial system are managed.

This will take major investments in domestic and cross-border payments, as well as digital governance. If we do that, we will realise the promise of reinvention and expansion for those who rely on efficient and trustworthy financial services. ■

Carolyn A Wilkins is an external member of the Financial Policy Committee at the Bank of England

Endnotes

1. For example, see Gary Gensler's remarks before the Aspen Security Forum.

2. Given the volatility in cryptoasset prices, it is worth noting that the figure quoted is as of 18 November 2021 (Global Cryptocurrency Market Charts | CoinMarketCap).

3. Chainalysis (2021) "The 2021 Crypto Crime Report", February 2021.

4. See recent remarks by Homeland Security Secretary Alenjandro Mayorkas.

5. Given the volatility in cryptoassets, it is worth noting that the figure quoted is as of 18 November 2021 (All Cryptocurrencies | CoinMarketCap)

6. See Foley, Karlsen and Putnins (2019) "Sex, drugs and Bitcoin: How much illegal activity is financed through cryptocurrencies" The Review of Financial Studies, 2019.

7. See Guide for cryptocurrency users and tax professionals - Canada.ca and UK: Overview of the taxation of cryptoassets - KPMG United States

8. See, Bank of International Settlements (2021) "Central Bank Digital Currencies: an opportunity for the monetary system", Annual Economic Report 2021, Chapter 3, p.67.

9. See Consultative document - Prudential treatment of crypto-asset exposures | BIS

10. See Joint Canadian Securities Administrators/Investment Industry Regulatory Organization of Canada Staff Notice 21-329 Guidance for Crypto-Asset Trading Platforms: Compliance with Regulatory Requirements | OSC
11. HM Treasury has also consulted on bringing certain cryptoassets into scope of financial promotions regulation to enhance consumer protection.
12. Because of lack of transparency Tether recently was compelled to deny claims that it held commercial paper held by Chinese real estate firm Evergrande.
13. See Is 'crypto' a financial stability risk? - speech by Jon Cunliffe | Bank of England
14. See the recent CPMI-IOSCO consultative report.
15. See UK's FCA says it is 'not capable' of supervising crypto exchange Binance | Financial Times
16. Source: defipulse.
17. See for example FSB (2019) "Decentralised financial technologies: report on financial stability, regulatory and governance implications", June 2019.
18. See FATF (2021) Updated Guidance for a Risk-Based Approach for Virtual Assets and Virtual Asset Service Providers
19. See Decentralized Finance—Risks, Regulation, and the Road Ahead | King & Spalding – JDSupra
20. Lloyd's Launches New Cryptocurrency Wallet Insurance Solution For Coincover | Lloyd's
21. Iron Finance's Titan Token Falls to Near Zero in DeFi Panic Selling | CoinDesk
22. See Synthetix – Synths
23. See Central bank digital currencies - executive summary | BIS
24. See G20 Roadmap for enhancing cross-border payments: First consolidated progress report | Financial Stability Board
25. See RTGS Renewal Programme | Bank of England

I would like to thank Teresa Cascino, Laure Fauchet, Katie Fortune, Jeremy Leake, Richard Lewis, Irina Mnohoghitnei and Andrew Walters for their help in preparing this speech. I would also like to thank Andrew Bailey, Sarah Breeden, Victoria

Cleland, Jon Hall, Andrew Hauser, Anil Kashyap and Nikhil Rathi for their helpful comments on these issues. The views here, however, are my own and should not be ascribed to any other individuals or to the policy committees of the Bank of England. This article is based on a speech delivered at the Rendez-vous avec l'Autorité des marchés financiers, Palais des Congrès de Montréal, 22 November 2021.