

Reflections on DeFi, digital currencies and regulation

A central graphic featuring a globe with a network of nodes and lines overlaid on it. Several currency symbols, including the dollar sign (\$), pound sterling (£), and yen (¥), are scattered around the globe, some appearing to float or be part of the network. The background is dark with a bokeh effect of light circles.

Jon Cunliffe reflects on recent crypto market developments, and discusses the work that authorities are doing on the regulation of crypto stablecoins and a potential central bank digital currency

I had intended to talk about the work the Bank of England, is doing with the Treasury, the FCA on the regulation of crypto stablecoins and our work on a potential central bank digital currency in Sterling. That remains the bulk of what I will talk about. But between beginning to draft these remarks and delivering them, we have seen what is probably the largest – and certainly the most spectacular – failure to date in the crypto ecosystem, by which of course I mean the collapse of the crypto trading platform FTX and most of its associated businesses.

So I thought it might be worthwhile to start with a brief look at the FTX implosion to frame some of the points I intend to make on regulation of the use of crypto-related technologies to provide financial services and on why, as a central bank, we are actively exploring the issuance of a digitally native Pound sterling.

Untangling exactly what happened at FTX will no doubt take a great deal of time, effort and investigation by the relevant authorities. For anyone interested in the scale of the challenge, I can only recommend a quick read of FTX's bankruptcy filing.

But while we will not know in full how it happened for some time, there do appear to be some general themes that are very familiar to those who regulate and supervise conventional financial firms and financial instruments.

The first are fundamental issues around how financial institutions should be organised, by which I mean their corporate structure, governance, internal controls and record keeping. Regardless of the financial service activity – be it banking, insurance, exchanges, clearing houses – regulation in the conventional financial sector imposes stringent/substantive requirements. Supervision aims to ensure that these are implemented.

These requirements reflect the risks inherent in financial services – risks to the users, risks to other financial firms and risks more broadly to the financial system. Technology in and of itself does not change the need for

transparency in corporate structures, governance, audit and systems and controls – for example to protect customers' funds.

In a similar vein, and to prevent conflicts of interest, regulation imposes requirements and constraints on the connections between a financial firm and its affiliates, while also requiring controllers to be fit and proper. In this respect, transparency in corporate structures and the relationships between them is the key foundation.

Our aim is to ensure that innovation can take place but within a framework in which risks are properly managed and which safeguards the sustainability of such innovation

The connections between activities carried out within the firm matter also. Lending, brokering, providing an exchange platform, clearing and settlement perform different economic functions that carry different risks.

For financial market infrastructure firms, such as a central counterparty or an exchange or custody of assets (both/all of which activities FTX sought to undertake, the regulatory system and international standards in place aim to stop these important pieces of financial market infrastructure from taking on credit/liquidity/market risk beyond what is absolutely necessary to discharge their core functions. Where they happen within one group, regulation requires separate, independent governance, to ensure the risks inherent in each is properly managed¹.

FTX, along with a number of other centralised crypto trading platforms, appear to operate as conglomerates, bundling products and functions within one firm. In conventional finance these functions are either separated into different entities or managed with tight controls and ring-fences.

It is worth noting that this bundling appears to have been primarily organisational rather than technological – that is to say, the functions were offered by different parts of the FTX group but were not bundled in the sense of being run as one single piece of code performing multiple functions. I will return to the question of integration of functions in smart contracts later on.

I have mentioned some familiar regulation issues around the organisation and governance of conventional financial firms. There appear, in the FTX case, also to be familiar issues around the financial instruments involved.

Collateral performs a variety of vital function in financial services. It protects lending counterparties from credit risk. It can also serve as margin in clearing processes. The higher the credit quality and lower the volatility of assets used

as collateral, the better suited it is to serving as assurance against risk. For this reason, there are stringent, material conditions on collateral that can be accepted, for example, in central counterparty clearing.

Unbacked cryptoassets are highly volatile, given that they have no intrinsic value. They are subject to runs and their value can change very quickly as we have seen in recent months.

Moreover, a firm accepting its own unbacked cryptoasset as collateral for loans and margin payments, as there are indications may have happened with FTX, creates extreme 'wrong way' risk – ie. when the exposure to a counterparty increases together with the risk of the counterparty's default².

Indeed, in the FTX case, there are indications that it could have been a run on its crypto coin, FTT, which triggered the collapse.

Moreover, protection of client funds is crucial. In many of these platforms the platform takes possession of the cryptographic keys and manages transactions on the ledger for a pool of assets. It is far from clear whether these practices deliver the assurance of either custody of assets in the conventional finance world or of a claim on the balance sheet in the way that occurs with accounts at a bank.

'Crypto' was born in unregulated space: indeed, part of the objectives of its early developers was to create a financial system outside regulation. While not yet of systemic scale, the crypto ecosystem has grown very rapidly in recent years and broadened to encompass a range of financial services.

The experience of the past year has demonstrated that it is not a stable ecosystem. Part of this is because, its foundation is completely unbacked instruments of extreme volatility that can swing wildly in value. But part is also

because the crypto institutions at the centre of the much of the system exist in largely unregulated space and are very prone to the risks that regulation in the conventional financial sector is designed to avoid.

It is in part for this reason that, since September, the FCA has warned publicly on FTX that *“this firm may be providing financial services or products in the UK without our authorisation... you are unlikely to get your money back if things go wrong”*³.

Some, of course, would argue that the answer is not proper regulation of the risks in centralised crypto platforms, like FTX, but rather the development of decentralised finance in which functions like lending, trading, clearing etc. take place through software protocols built on the permission-less blockchain.

In such a world, it is effectively the ‘code’ that manages the risks rather than intermediaries. And indeed, there is some tentative and limited evidence that the failure of FTX has stimulated some transfer of activity to decentralised platforms.

From the standpoint of a financial stability authority and a financial regulator, I have yet to be convinced that the risks inherent in finance can be effectively managed in this way. That scepticism is greater if the activity in question is the trading, lending, etc. of super volatile assets without intrinsic value.

The robustness and resilience of the permission-less blockchain has not been demonstrated at scale and over time. And some of the protocols themselves may carry risks – for example automatic liquidation of volatile collateral, no matter how rapid, does not remove the need for liquidity providers to avoid the amplification of fire sale dynamics.

Moreover, it is not clear the extent to which these platforms are truly decentralised. Behind these protocols typically sit firms and stakeholders who derive revenue from their operations. Moreover it is often unclear who, in practice, controls the governance of the protocols.

More generally, as with driverless cars, they are only as good as the rules, programmes and sensors which organise their operations. We would certainly need a great deal of assurance before such systems could be deployed at scale in finance.

Against that background, the question – more pointed now, following the collapse of FTX - is whether we should bring the financial service activities and the entities that now populate the crypto world within the regulatory framework. And, if so, how?

My answer to the first question is that we should continue to bring these activities and entities within regulation, for three reasons.

First, and most obviously, the need to protect consumers/investors. Whether or not one thinks it is sensible to invest or trade in the highly speculative assets that make up most of the activity in the crypto world, investors should be able to do so in transparent, fair and robust marketplaces, with the protections that they would get in conventional finance.

There will probably always be some who prefer – for a variety of reasons – to invest and trade in an unregulated, opaque world. But we should not push the majority who do not want those risks into that world because there is no regulated alternative.

My second reason is the need to protect financial stability. While the crypto world, as was demonstrated during last year's crypto winter and FTX's implosion is not at present large enough or interconnected enough with mainstream finance to threaten the stability of the financial system, its links with mainstream finance have been developing rapidly.

We should not wait until it is large and connected to develop the regulatory frameworks necessary to prevent a crypto shock that could have a much greater destabilising impact. The experience in other areas of digitalisation has demonstrated the difficulty of retrofitting regulation on new technologies and new business models after they have reached systemic scale.

It is, of course, possible that neither of these two reasons - investor protection and protection against financial stability risk - will be relevant because the very instability and riskiness of the world of unregulated crypto finance, most recently demonstrated by FTX, will in the end ensure that the sector cannot grow.

Indeed, some have argued for regulators grappling with the crypto world to keep it outside the regulatory framework to ensure that users' 'caveat emptor' concerns prevents both growth and connection with mainstream finance⁴.

And that leads to my third reason.

Forecasting the direction and pace of technological innovation is an even more uncertain game than economic forecasting. Promising technologies fall by the wayside; unexpected ones flourish. And technologies combine in ways that cannot be anticipated.

But the technologies that have been pioneered and refined in the crypto world, such as tokenisation, encryption, distribution, atomic settlement and smart contracts, not only seem unlikely to go away as our everyday lives become more 'digital', but may well have the potential to improve efficiency, functionality and reduce risk in the financial system.

A potential example of this is the integration of functions in 'smart contracts' that I mentioned earlier. A possible use case for such integration, which has been pioneered in the defi world is the combining the functions of trading, clearing and settlement of tokenised financial assets into a single, instantaneous contract, rather than being carried out in sequence by three separate institutions over a number of day.

This, if applied to 'real world' assets, like equities, could offer a substantial improvement in the efficiency of financial market infrastructure and reduce risks by enabling instant settlement – T plus now⁵.

There are of course risks in such integration as I mentioned earlier, whether it happens organisationally or technologically. The Bank of England is working with the FCA and the Treasury to set up a regulatory 'sand box' for developers to explore whether and how those risks can be managed to the level of assurance we expect from the current system⁶.

So my third reason for bringing the activities of the crypto world within the relevant regulatory frameworks is to foster innovation. This may appear counter intuitive to those who see regulation as opposed to innovation. But, as I have said before, 'people do not fly in unsafe aeroplanes'.

Innovation may start in unregulated spaces. But it will only be developed and adopted at scale within a framework that manages risks to existing standards.

And by holding innovative approaches, using technological advance, to the same standards as existing approaches we can ensure that the benefits of new technology and new business models actually flow from innovation rather than from regulatory arbitrage.

This in turn, determines the answer to the second question of 'how' regulation should be extended to these areas. The guiding principle should be 'same risk, same regulatory outcome'. The starting point should be our existing regulatory frameworks – for investment products, for exchanges, for payments systems and other financial functions – and the level of assurance we require that the relevant risks have been managed.

Technological change and different business models may mean we have to find new ways to deliver that assurance. We should be under no illusions that this will always be an easy process. For example, as I have said, it remains for me a very uncertain question whether use of the permission-less blockchain could deliver the necessary level of assurance for activities that are integral to the stability of the financial system.

Our approach as regulators should be open – by which I mean we should be prepared to explore whether and if so how the necessary level of assurance – equal to that in conventional finance - could be attained. But we should also be firm that where it cannot, we are not prepared to see innovation at the cost of higher risk.

This is very much the approach we are looking to take in the UK for the extension of the regulatory framework to the use of crypto technologies and business models in finance. The Financial Services and Markets Bill, currently in Parliament addresses the regulation of payment systems using 'digital settlement assets' defined as 'digital representations of value' – in other words digital tokens representing money.

The objective is to extend the current Bank of England and FCA regulatory regimes for e-money and payment systems to cover the use of stablecoins for payments⁷.

The powers in the Bill will extend not only to the systems for transferring such coins between parties to make payments, but to the issuance and storing of the coins. The Bank will have responsibility for such payment systems which are systemic or likely to become systemic. This will apply whether such systems exist to make payments for real things or for cryptoassets should the latter activity become systemic in scale.

We intend early next year to consult in detail the regulatory framework that will apply to such systemic payment systems and the services, like wallets, that accompany them. In doing so, we will be guided by the principle of 'same risk, same regulatory outcome' set out above.

In the case of stablecoins used as money to make payments, the regulatory outcome has been expressed by the Financial Policy Committee of the Bank as an expectation that stablecoins used in systemic payment chains should meet standards equivalent to those expected of commercial bank money. And that's in terms of stability of value, robustness of legal claim and the ability to redeem at par in fiat⁸.

Some of the likely foundational features of the regulatory regime on which we will consult are already clear. The FPC made clear last year that to deliver that regulatory outcome *"regulatory safeguards will be needed for a non-bank systemic stablecoin to ensure that the coin issuance is fully backed with high quality and liquid assets, alongside loss absorbing capital as necessary, to compensate coinholders in the event that the stablecoin fails"*⁹.

It also made clear that in the absence of deposit protection for coinholders, other elements of the regime would need to be strengthened to deliver the necessary level of assurance.

The consultation will set out in more detail how the coinholders' claims on the stablecoin issuer and wallets should be structured to deliver redemption at par in line with commercial bank money, how the backing assets should need to be managed to ensure they are always available to meet redemptions and, more generally the requirements for corporate structure, governance, accountability and transparency necessary to meet the standards we expect in other parts of the financial system that carry out the same functions. The FTX example underlines how important these aspects are.

The legislation covers the use of crypto technologies for the payments function. The Treasury intends to consult in the near future on extending the investor protection, market integrity and other regulatory frameworks that cover the promotion and trading of financial products to activities and entities involving cryptoassets. At present, in the UK, it is, to a large extent, only the anti-monetary laundering regulatory framework which applies to these activities and entities.

Finally, let me turn to our work with the Treasury on central bank digital currency, or, to put it more plainly on the issuance by the Bank of England of a digitally native pound sterling. Our plan remains to issue a consultative report around the end of year setting out the next steps that we propose.

Recently I have had a few comments both to the effect that the collapse of FTX shows that we need to get on and issue a digitally native pound – and to the effect that FTX shows that we do not need do so.

My initial reaction to both points of view was that there really was no connection between FTX and our work on a digitally native, general purpose form of Bank of England money, for use by households and businesses in making payments.

But on reflection, I think I understand the comments better. FTX in particular and the crypto ecosystem in general are emblematic of these new technologies and the possibility that they might revolutionise financial services and the forms that money takes in our economy.

For some perhaps the lesson is that tokenisation and digitalisation of finance should not take place in unregulated space and, moreover, needs to be underpinned by a robust and reliable of digital settlement asset.

For others, the message is perhaps that the crypto world and its technologies are a very long way from influencing, let alone changing, the way financial services, including payments, are delivered at scale in the real world.

It is, as I said earlier, very difficult to predict which technologies will be successful and when and how they might begin to change the way we do things. The bursting of the dot.com bubble in the early years of this century did not herald the end of the development of internet commerce though it took longer than its original enthusiasts imagined and emerged in a very different form, dominated by big tech platforms.

Our work on a digitally native pound is driven by the trends we now see both specifically in payments, including the reducing role of cash, and more generally in the increasing digitalisation of daily life.

It is motivated by two primary concerns.

First, that in a world in which new, tokenised forms of money emerge, enabled by new technology, we remain able to ensure that all forms of money that circulate in the UK are robust, interchangeable without loss of value and denominated our unit of account – the pound sterling.

Physical cash plays a role in ensuring that, at present, all forms of commercial bank money in the UK have to be redeemable in cash - Bank of England money - on demand in cash and without loss of value. Given the trends away from physical cash, which cannot be used in an increasingly digital economy, and, potentially, towards new forms of tokenised money, a digital pound may be needed in future to fulfil the same function.

Second, to ensure that there can be competition and innovation in the development of new functionalities using tokenised money. Given the network externalities around money and the likely cost of developing robust and risk managed tokenised money like stablecoins, it is possible that the development of digital settlement assets will converge on a few large players who will dominate and perhaps control innovation in payment services.

We have seen a similar dynamic in the emergence of large internet platforms and marketplaces. A digital pound would provide a digital settlement asset available to a wide variety of private sector innovators and developers of payment services.

The first concern is primarily for central banks, charged with ensuring the stability of money in the economy. The second is more of a concern for government. And of course there are other motivations, such as financial inclusion and resilience.

I do not have the time to go into those in detail, and, in any event, I do not wish to pre-empt the report on the next steps for this work that we and the Treasury intend to issue soon. But I do want to emphasise that this work, and any future decision to introduce a digitally native pound should not be seen in the context of the status quo but rather in the context how current trends in money, payments and technology might evolve.

And above all, in this, as in the work on regulation that I discussed earlier, our aim is to ensure that innovation can take place but within a framework in which risks are properly managed and which safeguards the sustainability of such innovation. The FTX events provide a compelling demonstration of why that matters. ■

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Endnotes

1. 'CPSS-IOSCO Review of Standards for Payment, Clearing and Settlement Systems. (2010).'
2. The intuition here is generally quite familiar to people - you probably would think twice before buying fire insurance from a company being run out of the house next door for example.
3. [Information for FTX customers](#) | FCA.
4. For an argument of this position see for example '[Let Crypto Burn: Just say no to legitimacy-inferring regulation](#)' – FT Alphaville (17.11.2022).
5. See the discussion of the potential risks and benefits in Cunliffe (2022): 'Innovation in post trade services - opportunities, risks and the role for the public sector'.
6. Financial Services and Markets Bill – Articles 21 and 22.
7. The Banking Act 2009 provides the statutory basis for the Bank's oversight of payment systems. It allows HM Treasury to recognise systems for supervision by the Bank of England as part of the Bank's objective to maintain UK financial stability.
8. Bank of England [Record of the Financial Policy Committee Meeting](#) 13 December 2019.
9. Bank of England [Record of the Financial Policy Committee Meeting](#) 24 March 2022.

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