DeFi prospects and regulatory implications: what way forward?

1. Current market trends and opportunities associated with decentralised finance (DeFi)

1.1 Current DeFi market trends

The Chair explained that decentralised finance (DeFi) aims to replicate traditional financial activity in a decentralised manner without the use of intermediaries and based on distributed ledger technology (DLT) and cryptoassets.

Responding to a question from the Chair about how the current 'crypto winter' is affecting the DeFi market, an industry speaker explained that in the period preceding this 'crypto winter' there was significant investment and activity in cryptoassets and tokenisation, including DeFi. Many firms, including more traditional ones, were attracted to DeFi by the potential efficiency benefits of the technology in terms of e.g. automation and data distribution, and this has not changed. Some DeFi firms that were engaging in particularly risky activities experienced difficulties due to irresponsible lending practices and risk concentration but this increase in activity in DeFi also led to the development of new concepts and approaches in the crypto market. This also triggered discussions within traditional financial firms about how DeFi technology could be used to improve the structure certain securities markets for example.

Another industry representative agreed that, despite the focus in the press on the failure of certain DeFi platforms, there are many positive lessons to learn from the developments in this space and the knowledge about the opportunities and risks of engaging in DeFi activities is growing.

First, the technologies that underlie DeFi can widen the access to sophisticated financial products and services which have traditionally been the preserve of the wholesale markets. Historically it has been difficult for individual firms or small customers to participate in market making in deep liquidity pools pari passu with institutional traders for example, but DeFi offers that possibility. Automated market makers enable individuals to create sophisticated algorithms and quickly build deep liquidity pools. In addition, the decentralised peer-to-peer model of DeFi can apply to various forms of transactions that require an intermediary today (collateralized lending, interest-bearing deposits or investment portfolio management). This carries risks and brings new challenges for regulators and traditional financial institutions, but it also creates more choice. There are some obstacles to a wider participation in DeFi platforms, however, due to the difficulty to acquire the computer programming skills necessary to operate on DeFi platforms.

The other important aspect of DeFi is the speed with which scale can be built, the industry player noted. Commercial banks and public authorities will need to reimagine their roles in more open and scalable networks such as DeFi platforms. Traditionally, banks operate at the heart of their own closed network, but this role will change in the future. There are some 'crypto-DeFi maximalists' who believe in total decentralisation, but there will always be a need for scale and for some intermediation. The role of intermediaries will however need to be reimagined in this new environment.

Concerning the potential for DeFi to facilitate access to finance, an industry speaker observed that DeFi transactions are mostly fully collateralised or over collateralised, in the same way as options trades are executed on traditional platforms. While blockchain distribution can help financial firms to reach larger investor bases, it is not clear that the level of collateralisation required will widen customer access that much.

1.2 The interconnection between DeFi and traditional finance (TradFi)

An industry speaker explained that clients want a wider access to new assets and new liquidity pools in order to increase diversification and returns and at the same time solutions that are easy to use, that drive operational efficiency and that are resilient. To achieve the latter objectives, firms which are able to consistently deliver performance and scale with sufficient market integrity such as financial market infrastructures will need to play a role. This may add a layer of centralisation, contradicting somewhat the decentralised concept of DeFi. However, all DeFi platforms are run at present in a relatively centralised way, either by technology firms or by groups of developers who have the necessary knowledge and experience for running the platform and executing transactions.

Moreover, the concepts behind DeFi can help to address some areas in the market where there is a lack of infrastructure or where the infrastructure needs improvement, the industry speaker emphasized. They can also inspire traditional financial firms for the development of more efficient client solutions. The speaker's firm, a major market infrastructure, is working on a solution for some of the private equity markets in the US which lack strong infrastructure and secondary markets. These markets rely on siloed stakeholders for the issuance, trading and liquidity of the instruments involved. Driving more value for end clients in these markets requires a better distribution of data supporting quicker and faster decisions and a higher level of automation, ultimately driving efficiency. This entails bringing market stakeholders together on some form of infrastructure, which could be a ledger or a cloud based infrastructure. DTCC, for example, is developing a digital

cloud based infrastructure using APIs to interface with the public Ethereum blockchain. When this is live, it will allow clients to leverage blockchain to manage their assets in a different way. The solution's cloud based database provides an opportunity to increase resiliency, robustness and regulatory certainty. The technology is seven years into its lifecycle. As it matures further and certainty on the underlying infrastructure develops, it will be able to pivot into a more decentralised structure if needed.

Another industry representative observed that the level of interconnectedness between DeFi and regulated traditional finance (TradFi) has been limited by the lack of a clear regulatory framework for DeFi. However, the interconnectedness will almost inevitably grow because DeFi will increasingly fall within the regulatory perimeter. The next wave of DeFi growth will be very different from the current one. Until now the growth in DeFi and crypto more generally has come from the retail space. The next wave will be led by institutional money. The fiduciary responsibilities of larger asset managers and regulated banks have made them cautious about participating in crypto so far. As there is more discussion about regulating crypto and DeFi, this attitude is changing. Partnerships are developing between asset managers and cryptoasset service providers to provide institutional investors with access to cryptoassets and global banks such as Standard Chartered are working with the largest asset managers on the development of institutional custody products for cryptoassets. A growth of the cryptoasset market is expected as a consequence, as well as an increase in the interconnectedness between DeFi and TradFi and in the use of DeFi technology for traditional financial services.

An official also expected that the DeFi sector will continue to grow, as well as its interconnectedness with the traditional financial sector, leading to a progressive blending of DeFi and TradFi. This may however be limited by conduct issues and lack of risk management which have triggered the failure of certain crypto platforms at the outset of the crypto winter. The speed at which the sector addresses these issues will determine its capacity to grow, because building confidence is essential.

2. Main risks from DeFi

2.1 Specific risks from DeFi applications

A regulator explained that many of the risks associated with DeFi are present throughout the crypto space. These include conflicts of interest, custody, fraud, market integrity and market manipulation risks and the risk of bankruptcy of the platform, as demonstrated by some recent failures. Money laundering risks are also particularly important in the crypto sector because of the lack of AML/CFT (anti money laundering/countering terrorism financing) checks and the speed of transactions and they are increased in DeFi by the pseudo-anonymous and more decentralised nature of platforms. There is also significant layering risk[1] due to the complex set of activities in DeFi. The growing interconnectedness between crypto and traditional finance giving rise to contagion risk is a further issue.

The regulator suggested that one way to identify the risks which are DeFi specific is to divide DeFi into a set of layers, as IOSCO did in its recent report. Five main layers can be identified in DeFi platforms: a settlement layer, an asset layer, a smart contract layer, a user interface layer and a supply chain layer. The DeFi specific risks generally occur in the smart contract and the supply chain layers. The other layers are more generic to the crypto space. In the smart contract layer, the activity that has attracted most attention from a risk perspective is smart contract lending, which involves an automation of margining and an automatic liquidation of contracts if the collateralisation ratio falls below a given threshold. Collateralisation is indeed the basis of crypto lending because there is no credit assessment of borrowers. This mechanism creates contagion issues for lenders and close out risks for borrowers, when a contract is automatically terminated. These features do not disqualify DeFi from a risk perspective, but demonstrate that the DeFi ecosystem is providing financial services in a different way from traditional finance and with different risks. It is uncertain whether users fully understand these risks, but over time this knowledge should develop. In relation to the supply chain layer, there are also some DeFi-specific operational risks related to the use of 'oracles' for example that allow information external to the blockchain such as asset prices to be incorporated into the DeFi transaction flow. These are not fundamentally different in character from outsourcing risks that exist in traditional finance however.

More generally, DeFi raises specific governance questions related to the level of decentralisation of platforms, the regulator added. There is a spectrum of decentralisation and many DeFi platforms start as centralised projects in their development phase and intend to progressively evolve towards more decentralisation as the platform is deployed. In addition, there are certain elements of centralisation in most DeFi platforms such as the use of oracles. The level of decentralisation should be analysed when considering DeFi risks and smart contract arrangements in particular, because it is important to understand who holds the administration keys and governance tokens and whether they are held by a limited group of individuals who are responsible for the governance of the platform.

An official agreed with this assessment of the risks of DeFi applications and emphasized the risks from illegal

1. Layering is the process of making the source of illegal money as difficult to detect as possible by progressively adding layers of legitimacy to it. During the layering stage, the goal is to disconnect the money from the illegal activity that generated it. Generally, the more layers money passes through, the harder it becomes to connect the funds to criminal activity. The goal of layering is to make the process of tracking money through each layer more difficult to accomplish. Layering can include changing the nature of the assets, i.e. cash, gold, casino chips, real-estate, etc. Complex layering schemes involve sending the money around the globe using a series of transactions. The more countries the money enters and leaves, the harder it is to uncover the "dirty" source of the money – Source Dow Jones Compliance glossary.

activity and money laundering and terrorism financing, which are particularly important in DeFi, along with operational resilience and consumer protection risks.

A second official stated that central banks approach risk from a technology neutral perspective with no preference for TradFi or DeFi systems. However, it is important to evaluate DeFi risks closely because of the novelty of this activity and the lack of regulation and supervision. The risks specific to DeFi need to be considered, as well as how the traditional risks inherent in all financial activities materialise in DeFi. One difficulty is that DeFi is both an actor in the financial market and an infrastructure. DeFi applications also use alternative means of payment such as stablecoins, which requires some adaptations to the traditional approaches to supervision.

An industry representative agreed that certain aspect of the DeFi technology can exacerbate risks, but it is also possible to deploy the technology in a way which limits risks and preserves financial stability. Some DeFi features may also enhance the way institutional markets work. For example, the instantaneous movement of collateral and variation margin that happens on DeFi platforms can be used for live intraday risk mananagement, which in certain proofs of concept using FX swaps has reduced counterparty risk exposure by 80%.

2.2 Financial stability and contagion risks

An official considered that the direct implications of DeFi for financial stability are not particularly significant at this stage because it is still a minor activity. Nevertheless, these risks need to be considered because there is a potential for DeFi applications to favour overleveraging. Additionally, there is an element of procyclicality introduced by the specific features of lending in DeFi applications, which is based on the availability of collateral and not on a credit assessment of the borrower. The consequence of this is that there is more lending in buoyant cryptoasset markets and less lending when there are corrections, which may have financial stability implications. DeFi lending activities can also produce contagion risks. If there is a significant volume of lending through smart contracts, their automaticity may create a 'domino effect' in which all of the dominoes fall over at the same time.

The role of stablecoins in DeFi is also very important to consider, the official stressed, because almost all transactions performed on DeFi applications are set up and executed with stablecoins. Stablecoins are exposed to run risks and there is recent evidence of how disruptive stablecoins can be when an issuer fails to maintain convertibility at par value with fiat currency. This could be quite disruptive for DeFi and could create some contagion risk for other types of payments.

An official highlighted four main DeFi risks with financial stability implications. First, there is the direct exposure of financial institutions to DeFi and the related conduct, credit and liquidity risks. Secondly, smart contracts and automatic liquidation create a risk of amplification and volatility, which could spread into businesses and the markets that fund the real economy. Thirdly, there is risk to the payments channel. As their adoption grows, stablecoins will increasingly become a confidence channel, but their stability at par with fiat currency may be difficult to maintain unless they are backed by appropriate assets. Finally, there is a risk in terms of resilience. Since the great financial crisis of 2008, regulators have sought to build resilience in the financial sector ahead of crises rather than after them, in order to ensure that the sector acts as a stabilizer rather than an amplifier of risk in stress situations. Some aspects of DeFi suggest that it might be more of an amplifier of risks than a stabiliser. For example, the auto liquidation of loans based on smart contracts may generate procyclicality and volatility. In addition there are no credit checks and no management of credit risk since lending relies on over-collateralisation. This means there are generally fewer natural stabilisers, less use of judgment and fewer fire breaks in the DeFi system than in TradFi, which may raise financial stability concerns if DeFi were to grow in importance. Governance may be a further issue if decentralisation increases, as it may be difficult to identify who is responsible in a stress situation.

3. The regulatory approach to DeFi

3.1 The need for a specific regulatory approach to DeFi

The Chair asked whether the EU Markets in Crypto-assets (MiCA) regulation, which is the first holistic framework for cryptoassets, can address the risks outlined by the panellists and create a level playing field between DeFi and TradFi.

An official noted that MiCA currently does not explicitly address DeFi. MiCA seeks to regulate cryptoassets, including stablecoins, but it is based on a centralised view of the market in which transactions and activities are handled by cryptoasset service providers (CASPs). As a consequence, MiCA cannot be expected to tackle all of the issues associated with DeFi. However, MiCA demonstrates that cryptoasset products and activities can be addressed using a common and specific EU approach rather than trying to rely on existing regulations designed for other financial products. Similarly, the specificities of DeFi will require a different regulatory and supervisory approach. It is the right time to design this framework, because DeFi is still in its nascence. The objective to function in a decentralised way will however make it quite challenging to apply the usual regulatory and supervisory approaches, since there may be no single entity to which regulation can be applied.

A second official suggested that while it might seem like the traditional regulatory framework could address the risks posed by DeFi, since they are similar to those in TradFi – i.e. AML/CFT, consumer protection, operational resilience and financial stability risk. – doing so would be a serious mistake. The types of risks are similar, but they materialise in DeFi in a very different way. Taking AML/CFT as an example, it is clear that the channels through which DeFi applications favour illegal transactions cannot be controlled by standard Know Your Customer (KYC) requirements. Similarly, the problem of overleveraging in DeFi applications, which happens due to the possibility of using the same collateral for different

types of lending operations, cannot be addressed through the usual approach. The enforcement of regulation also needs to be adapted for DeFi because of its decentralised governance model. This means that the technology neutral principle 'Same activity, same regulation' is also not applicable to the specific problems posed by DeFi. Even the sounder concept of, 'Same risk, same regulatory outcome' may be difficult to apply to DeFi. There is a need for regulatory creativity. The case of the Tornado protocol[2] is a good example. As Tornado is not a legal entity, there is no legal entity to fine. It is not even a well established infrastructure, which means it cannot simply be closed down. The only solution is to target users of the application and try to prevent them from continuing to use it. Ultimately, there will have to be a specific regulatory regime for DeFi. In the future, this need will appear in many other policy domains beyond AML/CFT, which was the case in point regarding Tornado.

3.2 International policy approach and global coordination

An official considered that the decentralised nature of DeFi platforms makes them inherently cross-border and global. Therefore, regional or domestic approaches will be insufficient to capture the risks. There is a need to develop a global approach or at least global principles to address DeFi. There is still time to create a global framework before jurisdictions adopt their own approaches in order to avoid future harmonisation efforts.

A regulator outlined the content of the recent IOSCO report regarding the possible regulatory approach to DeFi. IOSCO felt compelled to take action on DeFi when it observed the mirroring or near mirroring on these platforms of more traditional financial products with low cost and high efficiency. It is impossible to address DeFi in isolation, however, because DeFi is part of the broader crypto space. Therefore, IOSCO decided to address the whole of the crypto space. IOSCO is intending to provide guidance on how to regulate crypto generally; on the similarities and differences between DeFi products and conventional financial products; and on how to supervise crypto activities. The aim is to complete most of this work if possible by the middle of 2023.

The regulator explained that IOSCO intends to take an outcomes focused approach, considering the principles that exist for securities markets at the international level and adapting them to crypto in a technology neutral way. There may also be a need for new standards in some areas if the risks are not covered by the existing standards. The guidance will focus on how common outcomes can be achieved through domestic frameworks and how to address particularly difficult cases. There is also a need for guidance from a financial stability, investor protection and market integrity perspective on specific DeFi products, particularly those related to the smart contract layer, which is the critical component of DeFi, Regulators must be able to judge whether DeFi products are suitably designed to be investment products for retail and institutional investors or whether some of them are closer to gambling instruments. Finally, there is a need to define how supervision can be conducted in an appropriate way on a cross-border level. When multiple jurisdictions will have developed regulatory frameworks, the question of cross border cooperation will become essential. Regulators will be encouraged to use the Multilateral Memorandum of Understanding (MMoU) designed by IOSCO to ensure the exchange of information between jurisdictions in a consistent way and allow the tackling of the more serious cross border issues such as criminal use.

Another official stated that the use of stablecoins in DeFi applications has strengthened the case for a regulatory response. The issuers of stablecoins are in the risk transformation business and therefore must be subject to some sort of prudential regulation. This might involve ad hoc prudential regulation for particular activities, which is the approach being taken by the UK. It might also be possible to treat the issuers of stablecoins as depositary institutions, which is the approach potentially favoured by the US regulators, although Congress is yet to express a view on this. Europe will be more flexible, as can be seen MiCA, and Japan appears to be following a similar approach to Europe. Ultimately, it is important for the regulatory response concerning stablecoins to be as internationally coordinated as possible. This effort should not only cover issuers but also the service providers offering related services such as wallet providers.

2. Tornado.Cash is a fully decentralized, non-custodial protocol that improves transaction privacy by breaking the on-chain link between the sender and recipients' addresses. To improve privacy, Tornado.Cash uses a smart contract that accepts ETH and other tokens from one address and allows them to withdraw to a different address. These smart contracts act as a pool that mixes all the deposited assets and generates a private key proving that you performed the deposit operation. Then, the sender can use this private key to withdraw the deposited funds into any address at the time of their choosing.
On August 8th 2022, Tornado.Cash was sanctioned by the U.S. Treasury's Office of Foreign Assets Control (OFAC) for its role in laundering more than $ 7 billion worth of virtual currency since its creation in 2019. These sanctions imply inter alia that all property and interests in Tornado Cash are blocked and that transactions by US persons or within the US that involve Tornado are prohibited. Source: US Department of the Treasury https://home.treasury.gov/news/press-releases/jy0916.