Decentralized finance (DeFi): prospects and policy challenges

1. Decentralised Finance (DeFi) characteristics and market trends

1.1 Objectives and characteristics of DeFi[1]

An industry representative explained that the promise of decentralised finance (DeFi) is to disintermediate financial services as much as possible with a high degree of automation and an easier access for customers. Customers should be able to execute transactions directly for example on a decentralised stock exchange operating on a blockchain or obtain a loan directly on a DeFi app without any intermediary or bank. DeFi proposes many attractive features, but there are issues to address and changes to make for fulfilling this promise.

Another industry representative explained that the main features of DeFi are clearly articulated in the 2013 Ethereum white paper. First DeFi applications run on a permissionless blockchain, which means that individuals using DeFi applications can transact directly on the blockchain and join as validators and that there is no central entity controlling the blockchain. This also means that transactions on a DeFi platform are peer-to-peer. A second characteristic of DeFi is that it uses smart contracts (i.e. self-executing programmes) to automate the execution of transactions and the implementation of business or product rules when predetermined conditions are met, without the need for intermediaries. A third characteristic is the decentralised governance of DeFi platforms, normally based on voting schemes, for making decisions concerning the protocols and the operation of the platform and also the services or products offered on the platform, replacing in effect traditional product or infrastructure governance rules. A final important feature is the importance of stablecoins, which are used as collateral or for the payment of interest in DeFi protocols and are therefore essential to the functioning of DeFi markets facilitating fund transfers between users and across platforms.

1.2 State of development and market trends

An industry representative stated that the growth of DeFi was outstanding in 2021 with a total value locked in DeFi platforms reaching $250 billion and an increase of almost 2,000% in a single year. Trading on decentralised exchanges (DEXs) has also grown significantly in particular, with around $300 billion per month now being traded on DEXs.

A second industry representative agreed that DeFi has been growing dramatically in recent months. A large part of the value is locked in crypto-asset trading on DEXs, but crypto-asset based lending platforms and to a lesser extent other services such as decentralised crypto-asset management, payment services or derivative products are starting to get into the DeFi space. DeFi is developing mainly through retail participation, but it is expected that the applications of DeFi in the institutional and business-to-business space will also pick up when a proper regulatory and legal framework is in place.

A third industry representative emphasized the growing importance of stablecoin lending, which is one of the most significant DeFi activities at present. This can be explained by the fact that an individual can currently earn abnormal returns (up to 10% interest) by borrowing and lending stablecoins. The issuance and purchase of NFTs (non-fungible tokens) is also an important activity on DeFi with around $20 billion of the 250 billion of value of DeFi locked in NFTs. Traditional players such as custodians, are observing these developments, even though they are not currently actively facilitating these services, because their clients are expressing an interest in DeFi. For example asset managers are currently assessing how they could integrate DeFi into their portfolio management and investment activities. Exchange traded funds and products (ETFs and ETPs) investing in crypto-assets are also expected to extend their investments to DeFi products in the near future. At present, however, DeFi is still very much linked to speculation on crypto-assets.

Other industry representatives on the panel confirmed that stock exchanges are also active in this space, creating digital exchanges, investing in blockchain solution providers or in tokenisation solutions and handling ETPs investing in crypto-assets.

1.3 Limited level of decentralisation of most DeFi platforms

An industry representative stated that DeFi is not as decentralised as is claimed. The code is created by a foundational organisation and a pre-determined governance process is used in most cases to make changes to that code. Data oracles[2] are also used to connect DeFi platforms to external sources of data or applications, providing a bridge between the DeFi blockchain and the real world. These are points that could be potentially regulated in the future.

1. Decentralised finance (DeFi) refers to financial applications which are run on a permissionless blockchain and use smart contracts automating the provision of financial services without the need for intermediaries.
For further detail on the characteristics and related opportunities and challenges of DeFi see: OECD report "Why DeFi matters and the policy implications" January 2022 https://www.oecd.org/daf/fin/financial-markets/Why-Decentralised-Finance-DeFi-Matters-and-the-Policy-Implications.pdf
and Eurofi note on DeFi: opportunities, challenges and policy implications (Eurofi Regulatory Update February 2022) https://www.eurofi.net/wp-content/uploads/2022/02/regulatory-update_paris_february-2022.pdf
2. So-called oracle services allow data and content external to the blockchain (e.g. asset prices needed to execute transactions or to price derivatives), to be incorporated into the DeFi transaction flow, enabling the execution of smart contracts. Connections can also be established with external wallets, allowing users to store, transfer and manage their digital assets.

Another industry representative considered that the decentralisation of DeFi is somewhat of a "paradox". Everything is presented in a decentralised way in DeFi, but the main activities of DeFi such as crypto exchanges are actually quite centralised. Most of the liquidity and settlement is managed in a centralised way[3] and only certain activities are conducted on decentralised blockchains. Although these platforms have many features of third parties intermediating transactions, they are not regulated. In addition, accessibility to DeFi platforms for ordinary customers is not that easy, therefore they will probably have to use some form of intermediation to access them in the future.

An official observed that while some features of centralisation in DeFi are related to the newness of the market and to the current level of maturity of platforms, there are other structural and more durable factors that may limit decentralisation. For example, the principle of completeness in contracts shows that there are limits to the way that contractual outcomes can be predetermined with smart contracts. in a multivariable environment, meaning that human decisions (made in a centralised way) will probably be needed at some point.

The Chair added that the BIS has reached similar conclusions in a paper written about the "illusion" of decentralisation in DeFi[4] and how the functioning of these platforms can result in them being much more centralised than they look.

2. Opportunities, challenges and risks associated with DeFi

2.1 Opportunities

An industry representative stated that the possible opportunities offered by DeFi include a higher level of automation and a higher level of direct interaction with the end customer. DeFi can allow financial services providers to operate 24/7 across the globe, extending also their reach to "unbanked" areas. If regulations are updated to take DeFi into account then opportunities could be further opened up and this would encourage more companies and institutional players to move into the DeFi space.

Another industry representative noted that the main potential benefit of DeFi in their view is to create more efficiency. DeFi could help to deal with general inefficiencies of transaction settlement, such as delays, uncertainties, failures, by reducing the level of intermediation in the system, and could also help to address the illiquidity of some assets, such as mid caps. In the future, the characteristics and underlying technologies of DeFi may also help to handle some new use cases that the current financial system is not addressing.

2.2 Challenges

An industry representative stated that there are challenges in the development of DeFi, particularly in the institutional and business-to-business spaces because of a lack of regulation. The development of DeFi across borders and sectors may also be limited by the current fragmentation of legal systems and regulatory frameworks across national and sector-specific lines. A first objective is therefore to adapt regulation to the cross-border and cross-sector nature of DeFi. Moving transactions to a DeFi environment is a second challenge, as it is still unclear how the liquidity, latency, speed and volatility issues handled at present by stock exchanges can be managed in a decentralised environment. A third challenge concerns the scalability of DeFi platforms, which would need to be improved in order to compete with stock exchanges and payment infrastructures that handle large volumes of transactions and are available at all times.

A second industry representative added that a significant problem with DeFi is that on paper it can provide a great deal of efficiencies and very palatable use cases, but for market players to achieve them, significant investments are needed. These investments are difficult to justify with the current volumes and development prospects of DeFi, creating a situation of lock-in.

An official observed that there are also network congestion issues at an operational level. These problems of scalability combined with high fees that are impeding the participation of retail investors with a small size of transactions mean that retail access is difficult, which is the opposite of what DeFi is claiming to promote.

Another official emphasized that it is important to take a dynamic approach to considerations of opportunities and challenges associated with DeFi. A major issue with DeFi at present is that there are differences between aspiration and reality. DeFi promises changes in the way that financial services are delivered, but currently there are few real economy use cases. DeFi is still mostly a way of facilitating activity across different digital asset markets. In addition, while DeFi promises decentralisation, many features of DeFi platforms are actually quite centralized, as previously mentioned. It is therefore important to understand aspirations, realities, and the underlying factors to evaluate the real potential of DeFi.

2.3 Risks

An industry representative stated that the most significant risk in the DeFi space are currently cybercriminal hacking and theft from DeFi platforms. Lending platforms have been particularly vulnerable, with criminals exploiting bugs or flaws in certain open-source software protocols to steal funds from these platforms. Around $10.5 billion in losses were suffered from cybercriminal hacking of DeFi platforms in 2021. A week before the Eurofi conference, $325 million was stolen in a single instance from a DeFi platform. That

3. While some DEXs match orders through order books which are on-chain and therefore totally decentralised, order books are more frequently off-chain and managed by centralised third-parties which provide participants with the information they need to select an order they would like to match.

4. DeFi risks and the decentralisation illusion – BIS Quarterly Review, December 2021 https://www.bis.org/publ/qtrpdf/r_qt2112b.pdf.

type of criminal activity will continue as long as the space remains outside proactive regulatory oversight. Money laundering activity is also occurring through parts of the DeFi ecosystem, particularly through DEXs. Nation state actors like North Korea are exploiting some of those platforms and using them to try to launder funds.

The industry representative stated that while a great deal of DeFi activity is currently sitting outside the regulatory perimeter, a large part of it is quite transparent. Transactions and activities are recorded on smart contracts and on the blockchain in a very open fashion, making the tracking of fund flows actually more transparent than in many centralised institutions. A regulator agreed that distributed ledger technology (DLT) allows a tracking of funds and in some cases it is easier to track flows in a DLT environment than in some more traditional ones. How this tracking is performed is the first element that domestic regulators check when authorizing a crypto-asset service provider.

An official stated that criminal activity with DeFi is mainly linked to the anonymity of users on the platforms. Many DeFi apps also involve the provision in a noncompliant manner of financial services that are normally regulated. For example, the governance tokens that DeFi protocols issue to their community have characteristics of securities or investment contracts, but their issuance, trading or promotion is unregulated in many jurisdictions. In addition, DeFi platforms do not provide their users with basic safeguards that exist in regulated environments, such as investor protection, recourse possibilities, market integrity rules or due diligence audits. Moreover, the governance of most DeFi platforms is weak and there is no accountability. As a result there is evidence of significant fraudulent activity on DeFi platforms, including 'pump and dump' schemes that artificially inflate or manipulate cryptoasset prices, making trading more costly than on centralized exchanges.

The official added that there are systemic risks associated with DeFi related to uncontrolled leverage, which is currently one of the main drivers of investor participation in the space. Channels of risk transmission in DeFi from highly volatile crypto-asset markets to traditional financial services also create new vulnerabilities. Stablecoins are the bridge between the decentralised space and the traditional financial markets, and are one of the greatest vulnerability points for DeFi. There is a lack of transparency in some issuers of stablecoins around reserves and a lack of clarity around redemption rights, which could bring DeFi protocols down and also disrupt some parts of the traditional financial markets such as short term commercial paper markets.

3. The regulatory approach to DeFi

3.1 Stablecoin and crypto-asset service provider regulation

The Chair emphasised that there are different time horizons to consider regarding the regulation of DeFi. A first step underway is the regulation of crypto-assets. New crypto-asset regulations are being implemented in Europe with the Markets in Crypto Assets (MiCA) regulation. Central banks are working on central bank digital coins (CBDC) but with an extended time horizon. An issue to consider regarding DeFi however is how to undertake an appropriate regulation at a time when it is unclear what the ecosystem will look like in five years' time.

An official stated that the key issue that policy-makers and supervisors have to resolve regarding truly decentralised protocols is the absence of a single regulatory access point.

A regulator considered that Europe is behind the curve on DeFi. The EU is in the process of delivering the MiCA regulation but it does not cover DeFi protocols per se. One reason for this is that some stakeholders prefer not to provide DeFi with an official recognition in regulation at this stage. The regulation of DeFi is not a pressing concern because the size of the market remains limited, but the issue needs to be addressed. There should be a focus on stablecoins in MiCA applying both to private and public coins, because outside stablecoins, the use case for DeFi is quite weak and this will therefore provide part of the answer. The level two of MiCA will be key in this regard. Another part of the answer is the regulation of digital asset service providers, such as custodians and platforms. It is important not to approach that regulation at the domestic level, because most of these players operate on a cross-border basis. International standard setters have a role to play in that field in order to deliver rules which are consistent and which can support deep cooperation between supervisors. There are also issues of consistency to address at the EU and international levels regarding securities investment services, which are regulated services, but with a definition that varies across countries. An issue however is that there are different views on the need to regulate coins and service providers at the international level. The idea to address crypto-asset intermediaries and platforms has been pushed by some European regulators in FSB forums and in discussions with US regulators, but at present the focus internationally is mainly on coins. Once these two elements are in place a further step for Europe would be to deliver a full DeFi framework based on the principle of 'same service, same risk, same rules'.

An official agreed that it is vital to get the requirements for stablecoins right in the first instance. In the US, stablecoins that are intended to be used as means of payment were the subject of a report of the President's Working Group on financial markets that came out at the end of 2021. The report asks the Financial Stability Oversight Council (FSOC), which has authorities to designate certain activities that are deemed systemic, to consider the steps it has available to address risks from stablecoins. U.S. banking agencies and market regulators are also utilizing their existing regulatory powers to address the payment chain run risks and concentration risks associated with stablecoins that were identified in the report. There is also a recommendation to Congress to pass legislation that would address some of the fundamental gaps that the report identifies in the regulation and supervision of stablecoins in the United States. That would include requiring issuers of stablecoins to be depositary institutions, falling within the banking regulation umbrella.

At the international level, the discussion focused first mostly on the use of stablecoins for retail payments, the official explained, but it is now moving towards a more holistic assessment of the broader digital asset ecosystem including DeFi and other types of market intermediaries. This follows the recognition that analysing stablecoins in isolation is not sufficient and that it is necessary to understand how the whole ecosystem is working. In this perspective, the FSB is conducting a holistic mapping of the current regulatory treatment of the broader digital asset market, to be published in October 2022. The second workstream is a deep dive on DeFi, with an emphasis on challenges that policy-makers face in understanding risks and opportunities in the DeFi ecosystem. There is a considerable data challenge that needs to be addressed for analysing financial stability issues, such as the extent of leverage in the system, which is a significant impediment for policymakers.

An industry representative noted that if security tokens used in DeFi were to be regulated then a large part of the permissionless nature of the platforms would no longer work. The industry representative also emphasized that there are a number of specific technical questions to solve in terms of regulation to allow regulated financial institutions to operate in the DeFi space. For example, if investments are made by an asset manager via a DeFi platform, a question for the custodian is how to provide ownership verification under the AIFMD and UCITS directives. A regulator observed that the EU DLT pilot project would help to answer such questions, and this is also why there is an on-going review of existing legal frameworks in the context of the EU Digital Finance Strategy.

Another industry representative was hopeful that regulation of the DeFi space will eventually deter theft and crime, trigger institutional money and enhance financial stability. A regulation of DeFi is also necessary to ensure a level playing field and reduce regulatory arbitrage. A balance however needs to be found so that crypto-asset service providers that are playing by the rules can continue to innovate.

An official stated that it is crucial to promote greater international regulatory cooperation due to the ease and speed at which players in the DeFi space can change geographical locations. Europe may need to also consider bringing in non traditional parties to the conversation such as software or protocol developers which are also active in the DeFi space.

3.2 AML/CFT rules

An industry representative noted that there is an increasing emphasis on how regulatory compliance principles can be carried out in the DeFi space, with market players seeking ways to embed aspects of anti money laundering (AML) and countering the financing of terrorism (CFT) compliance into their platforms.

In terms of regulation, an official stated that the Financial Action Task Force (FATF) has clarified that the existing AML and CFT recommendations apply across the board to all activities involving crypto assets. Another official added that the FATF published an updated risk-based guidance in October 2021, with details on how AML/CFT rules should apply to crypto-assets including in a DeFi environment, but implementation is not yet there. In addition, a number of the large DeFi protocols are coming out with institutional versions of their protocols, including white listed pools of investors, in order to be able to comply with AML/CFT rules.

A regulator explained that the two main historical concerns for regulators with crypto-assets were AML and mis selling. How authorized digital asset service providers handle AML/CFT requirements is the main issue that national competent authorities are checking at present. It is now clear that the AML rules will apply to crypto-assets including in the DeFi environment, which is a step forward. An industry representative agreed, noting that any ransomware attack in the world asks for cryptocurrencies, which shows that the area is not yet covered properly. The issue of AML/CFT should be addressed at international level, because illegal activities happen at a cross-border level.

An industry representative stated that the fundamental principles that have been laid out in the FATF guidance are sound. The FATF is assuming that someone can be held accountable for the implementation of AML/CFT rules in DeFi platforms, which is feasible at present since many platforms are not as decentralised as they appear, as previously mentioned, with significant points of centralisation in those ecosystems. The situation may evolve however in the coming years and the issue of how to address a truly decentralised ecosystem and who to hold accountable for the proper implementation of AML/CFT rules may become more relevant. There is also a potential problem of inconsistent implementation of rules across jurisdictions, due to the speed at which the DeFi space is evolving, leading to possible regulatory arbitrage across jurisdictions if they do not move at the same speed in terms of implementation of AML/CFT rules.

The Chair concluded that there has to be a learning process with DeFi. The FATF has learned in the past about other issues such as un-hosted wallets and how to address them, and the same kind of learning process might be expected regarding peer-to-peer transactions in DeFi.