DEFI FINANCE: PROSPECTS AND POLICY CHALLENGES

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DeFi: opportunities and challenges from a regulatory perspective

Decentralized finance (DeFi) is one of the most significant emerging technological evolutions in global finance. DeFi platforms use blockchain technology and crypto assets, possibly stable coins, to create a decentralized, digital and open source alternative to traditional financial services; a kind of financial metaverse with very tangible implications. The various activities in DeFi reproduce traditional banking and financial activities including lending, exchanges, asset management or derivatives and, in some cases, offer new and innovative services. As any new technology, DeFi brings about its share of opportunities and challenges.

The DeFi ecosystem has rapidly grown in recent years with total value locked in these applications increasing from $500 million in 2019 to $100 billion today. Compared to traditional finance, it is still small but volumes are growing quickly, partly driven by the steep rise in the capitalization of crypto-assets, which has reached around $ 2 trillion.

At this juncture, Decentralized finance is not (yet?) ready to overtake traditional finance. First, the DeFi ecosystem is geared predominantly towards speculation, investing and arbitrage in crypto assets, rather than real economy use cases. Secondly, it suffers from certain limitations that stifle user experience as tools allowing for interaction with DeFi services are not easily accessible to the general public. For example, management of private keys to access crypto assets wallets, in particular, is today a major barrier to the adoption of these crypto-asset services and a brake on the widespread adoption of crypto-assets in the real economy. Lastly, several frauds or irregularities have been highlighted in recent years and there is a general concern that individual and institutional investors cannot yet entirely insure against the technical and management risks underlying these protocols.

The risks that it involves should trigger a closer regulatory look.

The growth of this ecosystem and the risks that it involves should trigger a closer regulatory look at the decentralized and nebulous nature of the DeFi architectures. Based on the principle that activities displaying functionally the same risks should be subject to the same rules, an appropriate regulation of this ecosystem is inevitable if one wants to provide security and confidence in these protocols and to avoid an unhealthy competition to traditional finance. This may be achieved either by applying existing rules to DeFi platforms or by establishing an ad hoc set of rules. In any case, the current self-regulation is not sustainable if the DeFi phenomenon continues to grow.

Part of the DeFi could be regulated through the stable coins on which its protocols rely. However, the most widely used stablecoins, including Tether and USDC, do not really qualify as DeFi services since the reserve assets backing these stablecoins are held by a centralized provider. Instead, Defi operates algorithmic or crypto-collateralized stablecoins, which are not kept stable through the maintenance of fiat currencies reserves by a legal person.

Through the forthcoming Regulation on Markets in Crypto Assets (MiCA), the EU will establish a framework for stablecoins as well as a harmonised regime to enable the EU-wide cross-border supply of services by Virtual Asset Service Providers (VASP). At this stage, the draft regulation focuses on so-called "centralized" crypto-assets activities only and does not include any regulatory treatment of DeFI services. DeFI seems therefore to be a topic left in store for the review clause of MiCA 18 months after its entry into force.

In the meantime, it does not mean that DeFI is completely out of reach of any kind of supervision. Interestingly, the Financial Action Task Force (FATF) guidelines published in October 2021, while leaving wide discretion to national authorities, suggests an approach to decentralized finance protocols. While acknowledging that DeFi protocols (i.e the decentralized applications themselves) are not VASPs, the FATF suggests that where a legal person has sufficient influence on the operation of the protocol and the provision of services offered by it, then such person may be considered a VASP.

In any case, the challenge ahead is to start considering what appropriate framework could be devised to regulate DeFI in order to protect it from abuse, enhance trust and transparency and support its potential for transformation and technological innovation. In particular, authorities will need to outline a proper interpretation of the concept of "sufficient influence", exploring in more details the situations in which a person could be considered to exercise such influence on the operation or governance of a DeFi protocol.

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DeFi: Why it matters to policy makers and recent developments

DeFi is the latest development in the crypto-asset space, and claims to replicate traditional finance in an open, decentralised, permissionless and autonomous way. Not all distributed ledger technology (DLT)-based financial applications are DeFi, and not all self-proclaimed DeFi projects are truly decentralised. Composability, non-custodial nature and community-driven governance are some of its key defining characteristics.

Evolution of the DeFi market

The DeFi market started making headlines in the summer of 2020 and has experienced spectacular growth: The total value of crypto-assets locked in DeFi applications built on Ethereum peaked in November 2021, exceeding USD 110 bn – a more than 50-fold increase in a year, albeit from a low base. This does not account for an increasing number of applications built on alternative blockchains. Important feedback loops exist between DeFi and the wider crypto market, and the high volatility of mainstream crypto (Bitcoin, Ether) intensifies DeFi's fragility.

DeFi risks calling for policy consideration and action

DeFi has been attracting an increasing number of retail and institutional investors in an environment that lacks any of the traditional safeguards for investor protection and market integrity, existing across the board of financial services regulation, giving rise to risks that call for policy consideration and action.

Such risks are associated with excess volatility, unregulated leverage and other forms of regulatory arbitrage, governance-related weaknesses, risk of market manipulation and new forms of concentration risks. The risk of illicit finance or outright fraud is high given the pseudonymous nature of participation.

DeFi is giving rise to risks that call for policy consideration and potential action.

Institutionalisation of crypto-assets and increasing interconnectedness between DeFi and traditional finance

Investors joined the DeFi market for fear of missing out, driven by speculation and in search for yield in an –until recently- ultra-low rate environment. Traditional financial service providers are getting into crypto and have even piloted the refinancing of tokenised assets in DeFi.

Increasing institutional investor adoption of digital assets and the mainstreaming of crypto are making the boundaries between DeFi and traditional finance more porous. The recent sell-off and previous crypto market downturns have induced automatic liquidations of collateral pledged in DeFi through their margin call mechanism. Such liquidations, together with crypto-asset futures liquidations, could have a domino effect on investor holdings. Investors exposed to losses in DeFi may also have to close positions in traditional markets, propagating the shock.

The central role of stablecoins

The use of major stablecoins as collateral or as the bridge between DeFi and traditional finance constitute one of the greatest points of vulnerability of the DeFi market and a potential channel of risk transmission to the traditional financial markets.

The market cap of stablecoins issued by the largest issuers exceeded USD 150bn at the end of 2021 (c. 500% increase over the last year) and is largely dominated by two issuers.

In a scenario where a major stablecoin 'breaks the buck' due to solvency issues related to the reserves backing the stablecoin or its under-collateralisation, decentralised exchanges would go under severe stress and liquidity pools would be forced to mass liquidations.

Such risks are exacerbated due to limited trustworthiness associated with the auditability and reporting around their reserves, as well as with the composition of such reserves and stability of the custodian of such reserves.

The role of policy makers

Supervisory authorities and international standard-setters have a role in assessing risks involved in DeFi, exploring ways to enforce existing rules in decentralised structures, and addressing any regulatory gaps. DeFi's decentralised nature requires policy makers to reconsider the conventional oversight framework that was built with intermediaries at its core, given the absence of single regulatory and supervisory access points and the absence of defined jurisdiction and geographical location for their operations.

Nevertheless, the level of innovation involved in DeFi is remarkable. DeFi impels us to consider what value decentralisation or the use of DLTs can bring to investors, consumers, traditional financial market infrastructure and the existing processes of delivering financial products and services.

The OECD and its Committee on Financial Markets remain committed to exploring how to foster the benefits of digitalisation for financial markets and their participants, while proactively addressing the prudential and potentially systemic risks emerging from applications such as DeFi at a global level.

For more on DeFi see https://www.oecd.org/finance/why-decentralised-finance-defi-matters-and-the-policy-implications.htm

JOS DIJSSELHOF
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DeFi at a crossroads - Between business opportunity and onstitutional readiness

The market for decentralized finance [DeFi] is very dynamic and increasingly gaining traction. DeFi is used as an umbrella term for a variety of financial applications in crypto aimed at automating business processes without relying on a central party through the use of smart contracts running on decentralized networks. Today, two types of DeFi applications have gained popularity:

- Decentralized exchanges [DEXs]
- Lending platforms

DeFi – A Perspective

In January 2021, the combined volume of DEXs, such as Uniswap, Sushiswap, 0x, Curve, Serum, and Balancer, surpassed USD 150bn, compared to a combined monthly DEX volume of approximately just USD 5bn in July 2020 – an astounding increase of over 3,000%. Although the combined volume of centralized exchanges [CEXs] – e.g., Coinbase, Gemini, and Kraken, to name a few – was considerably higher at USD 1.04tn in December 2021, DEX volume is catching up with a current volume ratio of 11.7%, up from 4.6% in July 2020.

On the back of these developments, SIX has been closely following the evolution of the DeFi space and has started executing Proof of Concepts [PoCs] and pilot projects. One example of an initial PoC was the successful implementation of an Automated Market Maker on Corda. At the same time, we are exploring with our partners and clients ways to develop cryptocurrency market offerings leveraging DeFi functionality and insights.

Challenges

However, DeFi is still undergoing the pains of rapid expansion and growth, in part stemming from the fact that it is built on cryptocurrencies that exhibit extreme price volatility. We believe that decentralization without accountability is a major impediment for wide-scale institutional adoption of DeFi and Decentralized Autonomous Organizations.

While DeFi is creating notable economic opportunities for borrowers and lenders in the financial ecosystem, further investigation into key aspects is required to achieve broader adoption in the institutional space. Some of the most significant bottlenecks include regulatory uncertainty, lack of verifiable identities, compliance, transparency, the steep learning curve, and smart contract risks.

At present, many DeFi protocols exist in a regulatory gray area as they facilitate the exchange of potentially unregistered securities and movement of funds between anonymous parties.

> **Instead of just "Faster, Better, Cheaper" DeFi will develop entirely novel ways of doing business.**

Market participants need to perform their own due diligence and risk analysis to determine which protocols do not violate securities or money transmission laws until such time that regulation catches up with DeFi development. Furthermore, DeFi protocols possess an additional risk that the underlying smart contracts may not perform as intended during times of stress or could be poorly controlled (e.g., developers with administrator rights making unauthorized or harmful changes to the underlying smart contract).

Securities Regulation is about to make its imprint on crypto and DeFi. As such, one could make the assumption – and build infrastructure and propositions accordingly – that global standard will develop and that regulatory [jurisdictional] arbitrage will diminish over time. Building blocks for a comprehensive regulatory environment are among others: Know Your Client [KYC], Anti Money Laundering [AML], Know Your Token [KYT] and Transaction Monitoring across the entire customer journey, including on/off ramp into CRYPTOland.

Over time, most coins and tokens will be considered and regulated as securities or a new form of regulated asset.

Another challenge to tackle is the design of some Automated Market Makers [AMM] which can limit institutional adoption. For example, certain AMMs are subject to impermanent loss that can put liquidity providers' capital at risk.

Outlook/ Perspective

First Institutional initiatives addressing some of the challenges mentioned above are entering the market, e.g., DeFi protocols experimenting with permissioned pools. As an example, Aave Arc is using Fireblocks for whitelisting while decentralized governance continues to control protocol decisions. Participants in these pools will need to be legally identifiable and accountable, which helps to manage and mitigate risks.

SIX will continue to monitor the DeFi space. True business model innovation goes beyond simply replicating the same underlying business on a new technology platform. Instead of "Faster, Better, Cheaper" we will develop entirely novel ways of doing business. For example, integrated trading and clearing models provide both centralized and decentralized exchange models with an opportunity to create more capital-efficient derivative trading models that offer a more cost-effective way to obtain cryptocurrency exposure.

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Decentralised finance: finding the balance

Decentralised finance (DeFi) proposes a fully disintermediated approach based on Distributed Ledger Technologies (DLT). It aims to replicate core financial market functions such as insurance, asset management, lending and borrowing, price formation and transaction processing, and perform them peer-to-peer, removing the intermediary that traditional finance relies upon. This disruptive model is gaining both users and value: today, more than $100 billion is locked in DeFi applications, 400% up on last year, although this represents just 0.1% of the money deposited in banks globally.

With its promises of borderless access, transparency, auditability and programmability, the concept of DeFi is leading established institutions to question the way they operate. But it's not without its challenges.

The ambition to replace oversight with a decentralised technology, while attractive, is open to technological shortcomings that can impact performance and security. Take latency: Solana, the fastest blockchain to date, executes transactions in a bit less than one second. This is a long way from the 15 microseconds it takes on average to execute an order on Euronext. Likewise, the argument that DeFi transaction costs are more advantageous for the user, precisely because of this absence of intermediary actors, is a moot point.

We expect technological improvements in this sector but the paradigm remains challenging. Financial instruments are critical assets that channel savings into economic growth. Can markets for these assets be operated solely by relying on technology, with no party accountable for potential shortcomings? This notion of oversight is the most challenging aspect of DeFi. To ensure market integrity, financial markets rely on investor protection measures, the strict definition of ownership rights, systemic risk prevention and overall safeguards. They depend on strict enforcement mechanisms, relying extensively on regulators and regulated parties that can be held responsible. Should we replicate effective oversight in DeFi, or rely exclusively on the discretion of non-regulated parties in running and operating in a parallel financial system? There is a dilemma between embracing innovation and defending the existing oversight model, which has demonstrated its ability to feed investments towards the real economy and let new entrants in.

There is a dilemma between embracing innovation and defending the existing oversight model.

The EU's DLT pilot regime and proposed Markets in Crypto-Assets (MiCA) regulation exemplify the intrinsic difficulty of a middle-ground approach. By permitting the use of DLT in financial services and providing a regulatory home for crypto-assets, they are testament to Europe's openness to innovation and desire to build a strong local industry. However, both texts introduce material changes to the framework currently applicable to the provision of services in financial instruments, removing key MiFID's standards, such as best execution, market integrity safeguards, or the strict distinction between order matching and transaction execution functions. Under the DLT pilot regime, supervisors will have to ensure exemptions are not at the detriment of the principles of investor protection, market integrity and transparency. MiCA will have to respect similar principles and ensure there is no potential arbitrage with existing regulations. The boundaries between the qualifications of crypto-assets and financial instruments can often be blurred and have to be made clear. In recent months, the existing ambiguity has been illustrated by the varying regulatory responses given to proposals by pure crypto exchanges to offer exposure to stocks, without financial instrument services provision licences.

DeFi challenges existing functions such as borrowing, lending, exchange of assets, and forces traditional intermediaries and market infrastructures to reassess their core value proposition. At Euronext, we are actively monitoring the sector's evolution and opportunities. We have invested in a post-trade Blockchain provider, LiquidShare, and in the tokenisation sector via Tokeny Solutions. We are assessing the value of leveraging DeFi to enhance liquidity and operational efficiencies in some specific segments of our markets. Since June 2021, we have enabled indirect exposure to crypto assets with the same security and resiliency standards as for other instruments, via now more than 30 carefully whitelisted Exchange Traded Products. We also recently took part in a successful experiment to validate the payment of a stock transaction against a Central Bank Digital Currency issued and managed by Banque de France.

Our position is thus both active and exploratory, at a time when the regulatory framework for DeFi remains to be structured and the value proposition confirmed. DeFi is a fascinating space and while we recognise the need to embrace innovation, we feel that its appeal does not exempt it from the same level of expectations in terms of investor protection, systemic risk prevention and fair and orderly markets.

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A new asset class: asset servicing of Decentralized Finance (DeFi)

In the recent past, we have seen an increased emergence of asset managers launching digital asset investment products, so far focusing on crypto currencies and derivative products, such as Bitcoin futures. Some of these instruments are traded on-exchange. However, due to regulatory investment restrictions, UCITS (Undertakings for the Collective Investment in Transferable Securities) funds are currently prohibited from investing in crypto currencies. As a result, the available products tend to be either marketed to professional investors or are structured such that they do not qualify as a collective investment.

The market is developing rapidly since the first EU crypto investment product started trading in 2015. Whilst the investment approach used to be focused on single currency investments, asset managers are increasingly offering basket funds tracking multiple crypto currencies or deploying long-short strategies involving derivatives. It is no surprise that alternative fund managers are also exploring Decentralised Finance (DeFi), which involves the lending or 'staking' of digital assets, in order to earn interest-like returns. Stablecoins, which would be regulated under the proposed Markets in Crypto-Assets Regulation (MiCA), will emerge as a critical component of this ecosystem.

Yet there are many other areas that DeFi applications are used for, e.g. trading, market-making or derivatives. What is common to all these activities is that smart contracts are used to enforce financial obligations between counterparties. Changes to the smart contracts are governed proportionately in decentralised processes, e.g., voting rights that are equivalent to investments held. This structure and the lack of a clear regulatory framework applicable to DeFi constraints the involvement of regulated financial institutions.

What are the DeFi-related opportunities in the securities markets?

Blockchain technology has the potential to be the most significant industry disrupter since the internet. Crypto currencies are an important use case of the digital assets universe. Tokenization, the process by which financial instruments are issued and settled in a blockchain system, could lead a transition towards more peer-to-peer markets that are characteristic for blockchain driven solutions.

DeFi will create a need for custodian banks to contemplate how they can safeguard the assets.

DeFi would be the next logical evolution for markets leveraging tokenized securities. The dynamics of such a model could be appealing: interest could be paid intraday for example and automation through smart contracts presents significant efficiency potential for asset managers. It would allow the automated exchange of collateral, lending and other financial securities transactions without the need for traditional centralised market infrastructures. The original code design and management needs to begin with a responsible party, although the ongoing maintenance could be managed more collectively. This would allow regulators to identify a responsible party that could be subject to some form of supervision.

What are the challenges?

DeFi investment requires participants to allocate their crypto assets to a pool of assets from which counterparties can borrow through decentralized exchange mechanisms. This requires the ability to move and segregate crypto assets while they are on loan. DeFi will create a need for custodian banks to contemplate how they can safeguard the assets through wallet solutions and support clients in accessing such protocols.

Crypto currency networks are typically anonymous and permissionless thus presenting unique challenges for regulated financial institutions with respect to anti-money laundering (AML) obligations. Work is underway by various blockchain providers to create networks that provide better control about the actors allowed to participate in these transactions.

What are the regulatory implications?

Although the 2020 EU Digital Finance Strategy does not mention DeFi (and neither does MiCA), a number of areas that are needed to enable tokenized securities in the EU under the digital finance strategy will be equally relevant in assessing the impact from DeFi. This includes progress in digital identity solutions to support meeting AML obligations, progress in digital payments solutions such as Central Bank Digital Currency (CBDC) or wholesale cash tokens, and clarity on how asset management needs to evolve e.g. how to manage investment limits and related risks stemming from DeFi smart contracts. Regulators have an opportunity to support the market developing a trusted DeFi offering of the future, which would in turn allow regulated financial institutions to participate.

DeFi is currently a crypto-centric activity but there is no reason why tokenized financial instruments could not be used in such structures in futures. Investor protection will be advanced if there would be a legal framework applying to both the DeFi protocol and its participants in future.