

Proof-of-Stake:

Towards a reliable taxonomy and understanding of PoS and “related” services in an EU regulatory setting.



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Foreword

The need for regulatory clarity and harmonisation in the blockchain space has never been more pressing. As blockchain technology continues to evolve, and its applications expand across sectors, the absence of clear regulatory guidelines is a major impediment to innovation and growth. Inconsistent regulations across jurisdictions not only create a complex, fragmented landscape that is difficult to navigate but also pose significant compliance challenges for blockchain-based projects and their customers. This uncertainty often stifles innovation and deters investors, creating a chilling effect on the industry. Moreover, the lack of harmonised regulations could inadvertently encourage regulatory arbitrage, where entities might relocate to jurisdictions with perceived lenient regulations.

A term that has recently gained particular significance in this context is that of "staking". To date, there is no uniform consensus on how this process and its various manifestations are to be defined in concrete terms, which has led to legal uncertainty, sometimes with considerable consequences. The importance of finding consensus among European Union Member States was recently demonstrated, in particular, by the discussions around "DAC8" (Directive amending Directive 2011/16/EU on administrative cooperation in the field of taxation) which, prior to its adoption, referred to the term "staking" as a "crypto-asset service", thereby establishing it as one of the various requirements for compliance with the reporting obligations provided for therein. Although this approach was (fortunately) dropped last minute due to a lack of consensus on what should even be considered staking, these discussions have highlighted the need for swift clarification, most notably to ensure sufficient legal certainty and clarity in the European Union.

For these reasons, some of the leading stakeholders in the blockchain space have decided to jointly draft this position paper – with the aim of not only making a clear distinction between staking and lending depending on the actual underlying technical process, but also to differentiate between the different types of staking. We hope to be able to provide a valuable contribution and a basis for the upcoming discussions in this regard.

Why recent tax developments have highlighted the importance of a common legal understanding of "Staking"

One of the key aspects for the effectiveness of EU fiscal policy is sufficiently clear guidance on taxation. However, even though there are hardly any uniform crypto taxation rules in the EU (in some countries, crypto assets are subject to income tax, others treat them as capital gains, and others do not tax them at all), this has not been a major drawback so far due to national sovereignty in de facto taxation. **In this position paper, we therefore do not intend to make any recommendations on how staking and its various manifestations should be specifically taxed. The point is rather to illustrate why a clear definition of staking, taking into account its different forms, is urgently needed.**

Taxation is currently facing a paradigm shift driven primarily by the Crypto-Asset Reporting Framework (CARF), which was adopted at the Organisation for Economic Cooperation and Development (OECD) level in late 2022 and was recently reinforced at the G20 meeting in New Delhi, India. While CARF does not contain de facto taxation provisions, it provides for the first time at the international level near-equivalent reporting requirements for crypto asset service providers (CASPs), involving front-end KYC and TradFi-style information reporting of tax relevant user data. These reporting requirements will be implemented on a largely equivalent basis at EU level by DAC8, thus a Directive that each member state has to first interpret itself on the basis of available information and then transpose into national law.

As mentioned before, until the last session prior to its adoption, DAC8 not only explicitly mentioned the term "staking" for the first time in a legal act by the European Union, but also sought to establish it as one of the prerequisites for the potential applicability of the reporting obligations it provides for by defining it as a "crypto-asset service." This was strongly criticised from the very beginning of the discussions, especially by industry players. They pointed out that to date, there is no consensus on what actually qualifies as staking. The use of this term without sufficient guidance could therefore lead to considerable uncertainty, sometimes with substantial consequences. Among other things, this concerns its distinction from lending. **In some cases, for example, processes that by their nature should qualify as "lending" are (possibly unintentionally) referred to as staking; this phenomenon, which may be referred to as "SINO" (i.e., Staking in Name Only), could be relevant not only for CASPs but also for individuals, as quite different legal regulations may apply depending on the actual type of transaction.**

It is therefore only to be welcomed that it was finally decided not to use the term "staking" in DAC8 in a legally relevant way. Nevertheless, it has become even more apparent that there is an urgent need for clarification. Unfortunately, as has now become clear, there is no one-size-fits-all solution to this. Rather it is of course of fundamental importance to also consider and be able to distinguish between the various forms of staking as they could each trigger different legal consequences. This is crucial not only for the field of taxation, but also for other areas of law – for which reason we will devote the following to the taxonomy of staking.

Taxonomy

Technical staking and staking services pertain to different components of the staking process. Technical staking requires direct participation and a higher level of technical knowledge, while staking services provide access to staking for a broader range of token holders including those with poor or low technical skills.

Staking refers to the direct process of participating in a Proof-of-Stake (PoS) consensus algorithm by holding and staking the allocation of a native cryptocurrency in a blockchain network. By staking the tokens, participants in the network have the chance to be chosen to validate transactions and create new blocks based on the quantity of their stake, their duration of holding, and other factors depending on the specific PoS algorithm. It requires a certain level of technical knowledge to properly and safely stake tokens, as it involves managing cryptographic keys and running a node that is online and in sync with the network.

Staking services are platforms or businesses that handle the technicalities of staking on behalf of their clients, who may not have the technical expertise, resources or time to engage in staking themselves. These services provide an accessible way for token holders to participate in staking and earn rewards. The token holder essentially delegates their tokens to the staking service, which then manages the staking process. This service makes it easier for individuals to participate in staking activities without having to manage the technical complexities themselves. In exchange these 'Staking-as-a-Service' (StaaS) providers typically charge a fee for their services, often as a percentage of the staking rewards. The following are several types of staking services that offer different levels of control, reward, and risk:

Technical or 'Native staking': Refers to the active involvement of users in maintaining network security on proof-of-stake (PoS) blockchain networks only. Validators (or stakers) are chosen to create new blocks and validate transactions based on the number of tokens they stake or lock up as collateral.

Delegated Proof of Stake (DPoS) Services: In DPoS-based blockchains, token holders can delegate their staking power to a trusted node (called a validator) which then participates in the consensus process on their behalf. The users still retain ownership of their tokens while participating in the network's operation and gaining rewards.

Staking Pools: Represent a collective effort where multiple participants combine their stakes to increase their chances of validating blocks and earning associated rewards. The rewards are then distributed among the participants proportional to their contribution. The key advantages of staking pools are that they offer more regular and predictable returns, and they allow individuals who may not have sufficient resources to stake independently, to still participate in staking. Users must trust the pool operator to accurately distribute rewards and not to abscond with the staked tokens. However some pools are trying to mitigate this risk via smart contracts. These services operate under the principle of shared investment and shared return.

Custodial Staking Services: Usually offered by cryptocurrency exchanges or wallet providers. Users deposit their coins with the service, and the service provider does the staking on their behalf. Notably, when a user entrusts their tokens to a Custodial Staking Service, they transfer ownership of their tokens to the provider for the duration of the staking or 'bonding' period. The provider then shares the rewards with the users, often after deducting a service fee. As custodial staking encompasses a transfer of ownership, it has a higher risk in comparison to staking pools. That being said, most of these services offer insurance or guaranteed returns to mitigate those risks.

Non-Custodial Staking Services: Unlike custodial services, non-custodial staking services do not take possession of users' tokens. They typically provide software application logic that helps users participate in staking directly from their own wallets. The service does not have access to the user's assets; instead, it merely facilitates the staking process by providing the necessary infrastructure. This offers the user a greater degree of security and control, as they're not required to entrust their assets to a third party. Moreover, users do not need to be technically adept to participate in staking, yet they can still retain control over their assets. This makes non-custodial staking an appealing choice for a wide variety of users. The distinguishing factor between non-custodial staking and other forms of 'staking' is the degree of trust and control. Non-custodial staking services eliminate token entrustment to a third party, reducing the risk of loss or theft.

Staking-as-a-Service Platforms (StaaS): Specialized platforms that manage all aspects of staking for users. They support multiple blockchains, and handle all technical requirements associated with staking including node set up and maintenance, managing infrastructure, and ensuring network security. This is particularly beneficial for users who lack the technical skills or resources to stake on their own. StaaS providers leverage user-friendly interfaces, making it easy for users to stake their assets, view their earnings, and withdraw their stake and rewards. Furthermore, similar to staking pools, they aggregate user stakes, improving the chances of earning rewards, which are then shared proportionally among users based on their stake.

Potential 'SINO' Staking-In-Name-Only Activities

"Earn Programs": Crypto service providers, like centralized exchanges or custodial wallets, may offer an "earn" or "staking" program where users lock up specific cryptocurrencies to earn interest over time. These providers use the locked-up deposits to support various activities, such as lending to margin traders or staking in proof-of-stake networks, and share the generated profits with the depositors as interest.

Yield Farming: This term is commonly misused and typically takes place within decentralized finance (DeFi) platforms. Yield farming involves providing liquidity to liquidity pools or participating in various DeFi protocols to earn rewards, often in the form of additional tokens or fees generated from the protocol's activities. Yield farming does not contribute to network security or consensus and can be more complex and risky due to the ever-changing nature of the DeFi space.



From regulatory perspective, it is important to delineate those activities which serve to enable network security through economic value at loss with market services that enable financial innovation, also through for example DeFi applications. **This will help regulators understand how to differentiate actual staking from SINO - based activities.** While technical staking, yield farming and earn programs involve earning rewards or interest and/or income on cryptoassets, they operate differently and serve distinct purposes. Regulators may view SINO - related activities as having a different regulatory treatment due to the financial innovation leveraged as different microservices atop technical staking protocols and infrastructure.

Here the question of ownership and control of the downstream crypto-assets may further help to clarify whether a protocol product or service is technical or SINO - based. By the same token, technical staking and staking services differ significantly in their operation - there are some commonalities that bring them together.

There is also ambiguity around the language used for the type of output garnered from both staking and SINO-based activities. Notably, the way industry and technologists use terms such as 'rewards,' 'interests,' and 'dividends' interchangeably in a manner not consistent with the legal, accounting, and tax definitions of this terminology. For example, whether 'rewards' constitute income or compensation, or otherwise some form of 'production outcome.' On this note, the Proof-of-Stake Alliance (POSA) advanced a set of industry principles developed after their engagement with the U.S. Securities and Exchange Commission (SEC) in 2019 which are an excellent foundation for reducing opacity in this regard. POSA encourages the use of accurate terminology and the refrainment of investment advice. They also cite that the focus should be on highlighting security and participation both at the level of network consensus and network security. Importantly, POSA also suggests that StaaS providers should focus on protocol access in a manner that doesn't suggest the StaaS provider has control over the network's inflation rate. Finally, they argue against providing any guarantees on the amount of 'rewards' earned pursuant to the service relationship.

The following chart is an exercise in organising a future staking taxonomy into its potential downstream regulatory consequences:

Figure 1. Hypothetical staking taxonomy flow chart

Technical staking
StaaS platforms
Staking pools
DPoS
Custodial & Non-custodial services



Technical or 'native' staking

Network security through economic value-at-loss

Staking in Name Only (SINO) based activities

Market services enabling financial innovation (e.g. through DeFi applications) including but not limited to earn programs, lending, yield farming.



Potential data regulatory setting

Potential data and financial regulatory setting

What does MiCA say about staking?

MiCA, the Market in Crypto-Assets Regulation, developed by the EU, aims to establish a robust legal framework for crypto-assets, with the goals of promoting legal certainty, encouraging growth, safeguarding consumers and investors, and ensuring financial stability. It provides comprehensive guidelines for various activities related to crypto-assets, including token issuance and services offered by exchanges and custodians. The regulation's scope covers both natural and legal persons involved in crypto-assets issuance, public offerings, admission to trading, transparency requirements and a wide selection of related services.

It encompasses various types of crypto-assets, such as stablecoins (e.g., asset-referenced tokens and e-money tokens), as well as other crypto-assets like utility tokens, which serve the purpose of providing access to goods or services offered by their issuers.

The regulation also encompasses a range of activities related to crypto-assets, which are provided by entities known as "Crypto-Asset Services Providers" (CASPs). These activities include custody and administration of crypto-assets on behalf of clients, operating trading platforms for crypto-assets, exchanging crypto-assets for funds or other crypto-assets, executing orders for crypto-assets on behalf of clients, placing crypto-assets, receiving and transmitting orders for crypto-assets on behalf of clients, providing advice on crypto-assets, offering portfolio management on crypto-assets, and delivering transfer services for cryptoassets on behalf of clients.

Staking as explicitly mentioned in this particular context, is not directly addressed in the text of MiCA. A thorough review of the 166 pages of MiCA reveals no specific reference to the term "staking." However, a careful analysis of the regulation does reveal mentions of mechanisms that can be related to staking activities. Specifically, it refers to (1) "reward" mechanisms for crypto-assets other than ARTs and EMTs offers, and (2) "interests" concerning ARTs and EMTs offers

Security staking and rewards for other crypto assets

MiCA outlines specific requirements for making a public offering of crypto-assets other than asset-referenced tokens or e-money tokens within the European Union. To conduct such an offer, the entity must meet several conditions, including being a legal person, creating a crypto-asset white paper in accordance with Article 6, notifying the crypto-asset white paper in accordance with Article 8, publishing the white paper in accordance with Article 9, and complying with the relevant requirements for offerors laid down in Article 14.

However, there are exceptions to these requirements to ensure a proportionate approach. Offers to the public of crypto-assets other than asset-referenced tokens or e-money tokens that are offered for free or as automatic rewards for maintaining a distributed ledger or validating transactions in the context of a consensus mechanism are exempt from the MiCA regulations. **This implies that security staking, as previously defined, is outside the scope of MiCA for crypto-assets other than ARTs and EMTs.**

Earn programs for ARTs and EMTs offers and staking as a service

To mitigate the risks associated with the use of asset-referenced tokens and e-money tokens as a store of value, MiCA prohibits issuers of ARTs and EMTs from granting interest in relation to these stablecoins. Additionally, crypto-asset service providers are not allowed to grant interest when providing crypto-asset services related to ARTs and EMTs.

Can other benefits or utilities be considered as interest under MiCA?

Although the term "interest" may not be explicitly mentioned, the regulation also covers any remuneration or any other benefit linked to the length of time during which a holder of ARTs or EMTs maintains their holdings. This includes net compensation or discounts equivalent to interest received by the holder directly from the issuer or third parties, and directly associated with the ARTs or EMTs or from the remuneration or pricing of other products.

Indeed, other programs offering benefits or utilities not linked to a specific and fixed length of time and preserving the user's asset disposability (e.g. liquid staking), though not necessarily generating interest, should be carefully examined. These benefits and utilities could be considered interest if they are linked to the duration of time a holder maintains their holdings of ARTs or EMTs, making them disallowed under MiCA. Whether such a treatment would equally apply to the holder of stETH in reference to the underlying asset being a cryptoasset (in this case ETH) under MiCA is also important to consider.

Just because a program may not provide interests per se, it may still be considered as such under MiCA if the program's benefits are tied to the holder's lock-up time related to a stablecoin. Yield farming, as mentioned previously, takes place within decentralized finance (DeFi) platforms:

MiCA defines crypto-assets as "digital representations of value or rights, which may be transferred and stored electronically, using distributed ledger technology or similar technology." This broad definition potentially encompasses DeFi platforms, as they are built on distributed ledger technology and facilitate the transfer and storage of digital representations of value.

Regarding the applicability of MiCA to DeFi platforms and their activities, the regulation states that it should apply to natural and legal persons, certain other undertakings, and the crypto-asset services and activities performed, provided, or controlled directly or indirectly by them. This includes cases where part of such services or activities is carried out in a decentralized manner. However, MiCA clarifies that fully decentralized crypto-asset services provided without any intermediaries should not fall under the scope of this regulation.

While the distinction between fully decentralised and partially decentralised DeFi platforms remains a question that has persisted since the beginning, the industry tends to consider DeFi as outside the scope of MiCA, indicating that yield farming would not be addressed under this regulation according to the industry's standard.

Custody

The blockchain and cryptocurrency industry within the EU has witnessed substantial progress over recent years, both in terms of innovation and adoption. Central to this shift has been staking, increasingly capturing the attention of institutional and retail investors alike. However, there remains a conspicuous absence of clear and harmonized regulation for custody services associated with staking in the EU. This regulatory ambiguity dampens potential for innovation and can lead to misunderstandings and misinterpretations. It is imperative, therefore, that the EU establishes clear guidelines and standards for custody services in the staking domain, crafting a secure and trustworthy environment for all stakeholders.

There's a marked demand from both B2B and B2C sectors for staking products delivered through a regulated custody solution. Institutional and retail investors are in pursuit of reliable partners that guarantee not just regulatory compliance but also bring forth technical expertise in staking. The assurance and reliability of the safekeeping of their assets is essential. The mechanics behind staking are intricate, demanding robust infrastructural commitments. It is incumbent upon custodians to shoulder this complexity, offering users a seamless and simplistic experience. This entails custodians to manage the entire technical implementation behind the scenes, ensuring clients easy and secure access to their assets and staking services.

One of the paramount challenges in staking is the counterparty risk. This risk can be mitigated if custodians consider, alongside delegated staking, operating their own validators. Such an approach would lessen dependencies on third parties and concurrently elevate the level of control and security. It would empower custodians to integrate a greater degree of control and transparency into their services, ultimately bolstering client trust.

Custody in relation to staking in the EU presents both immense opportunities and notable challenges. Through clear regulatory guidance, technical prowess, and adept risk management, custodians can play a pivotal role in the further evolution of the blockchain and cryptocurrency industry in Europe.

Staking and Alternative Investment Funds: Fit for purpose?

Central to the organisation of a Collective Investment Undertaking (CIU), the European Union's Alternative Investment Fund Managers Directive (AIFMD) is a regulatory framework designed to regulate and supervise alternative investment funds. In general the AIFMD covers a wide range of AIFs including hedge funds, private equity funds, real estate funds, and other collective investment vehicles that do not fall under the scope of the Undertakings for Collective Investment in Transferable Securities (UCITs) Directive. AIFMD covers every 'collective investment undertaking', including investment compartments thereof, which:

- Raise capital from a number of investors with a view to investing it in accordance with a defined investment policy for the benefit of those investors, and
- Does not require authorization pursuant to Article 5 of Directive 2009/65/EC (UCITs Directive).

It has been suggested that due to the organization of StaaS and related yield generation products, they may intersect with the regulatory concept of a CIU under the AIF. The act of staking itself, involves participants or validators locking up their cryptoassets in a blockchain network to perform the necessary network functions (e.g. transaction validation or block creation), so called 'technical staking.' This is typically done through smart contracts or delegation mechanisms in a structure that is often decentralized, with individual participants staking their own tokens or delegating them to validators. In such cases where users on an individual basis control their own tokens and participate directly in network consensus, such activity is unlikely to fall under the scope of an AIF as it does not involve a coordinated, strategic pooling assets or centralized management. It is the introduction of staking pools which may be more complex from a regulatory perspective.

If these pools pool multiple user tokens and distribute such rewards based on contribution they may resemble an AIF – particularly if they operate in a manner similar to traditional investment funds. It is the act of distribution that could tilt a SaaS provider into the direction of the AIF. Providers should focus on establishing mechanisms that do not involve excessive or financial intermediation by themselves but seek to preserve the binary relationship between effort and compensation pertaining to user-assets. For instance, setting specific business custom logic or trigger points to smart contracts which interact with the distribution of rewards in forms of tokens may provide distribution settings regulated within the AIF.

As regards yield generation products, classification as a potential AIF may rest on their individual structure. For example, if yield generation products pool assets from multiple investors and distribute returns pro-rata, they may qualify as AIFs. Yield generation is itself a wide domain, encompassing a range of financial activities in the crypto space, such as lending, liquidity provision, yield farming and certain Decentralised Finance (DeFi) protocols.

Following the hypothetical regulatory taxonomy in Figure 1, the case studies outlined below take a brief look at what financial regulatory thresholds may apply to potential SINO-based staking activities which may be offering financial innovation microservices built on-top of or leveraging technical staking infrastructure.

Yield generation through lending: Aave

Aave is a decentralized lending and borrowing platform built on the Ethereum Blockchain. It allows users to earn staking rewards by participating in the Staked Aave (stkAAVE) liquidity provision pool.

Stake AAVE Tokens: Users start by acquiring AAVE tokens, the native governance token of the Aave platform.

Convert to stkAAVE: To participate in the staking yield generation, users convert their AAVE tokens into stkAAVE. This conversion locks the AAVE tokens in a liquidity pool and generates stkAAVE tokens in return. The conversion process is one way, meaning AAVE tokens are staked (bonded) for a fixed period of time.

Liquidity Provision: The stkAAVE tokens represent the user's claim on the staked AAVE tokens in the pool. These staked AAVE tokens are used within the Aave protocol to provide liquidity for lending and borrowing activities. This participation contributes to the platform's liquidity and stability.

Staking Rewards: Users earn staking rewards in the form of additional stkAAVE tokens over time. These rewards are generated by the income earned by the Aave protocol, which includes interest paid by borrowers. A portion of this income is distributed to stkAAVE holders.

Un-staking and Liquidation: Users can un-stake their stkAAVE tokens after the staking period ends. However, they need to be aware that liquidation risks exist. If the AAVE tokens in the pool fall below the required collateralization threshold they may be liquidated to cover potential losses.

Aave under the AIF:

Collective Investment Undertaking: Aave operates as a decentralized lending and borrowing platform where users provide liquidity by lending their cryptoassets to the platform's lending pools. As such, the pool-based structure does involve collective contributions from multiple users.

Capital Raised from Multiple Investors: Aave's lending pools are funded by multiple users providing liquidity in the form of cryptoassets.

Investment in Accordance with a Defined Policy: Although Aave users may provide liquidity to the lending pools with the expectation of earning interest on their deposits, the interest rates offered by the platform are determined algorithmically and may vary based on supply and demand dynamics.

Taken together, Aave may be seen to satisfy the first two criteria, but it may also fail to establish a defined investment policy in accordance with AIFMD strictures.

Yield generation through liquidity provision: Uniswap

Uniswap is a decentralized exchange (DEX) protocol on the Ethereum blockchain. Users can provide liquidity to Uniswap's liquidity pools and earn staking rewards in the form of trading fees.

Choose a Liquidity Pool: Users select a liquidity pool of their choice, typically pairing two tokens (e.g. ETH/USDC).

Deposit Tokens: Users provide an equal value of both tokens in the chosen pool. For instance, if they provide \$1,000 worth of ETH, they should also provide \$1,000 worth of USDC.

Receive LP Tokens: In return for providing liquidity, users receive liquidity provider (LP) tokens representing their share of the pool.

Staking Rewards: As trading occurs on Uniswap, users earn a portion of the trading fees collected from the pool. The rewards are distributed proportionally to LP token holders, reflecting their share of the liquidity pool.

Impermanent Loss Risk: Users should be aware of impermanent loss, which can occur when the relative prices of the two tokens in the pool change. Impermanent loss can affect the overall value of the LP tokens.

Uniswap under the AIF:

Collective Investment Undertaking: Uniswap liquidity provision pools do involve collective contributions from multiple users, who provide liquidity by depositing these assets into pools.

Capital Raised from Multiple Investors: Liquidity pools are funded by multiple users who contribute assets, meaning capital is indeed raised from multiple investors.

Investment in Accordance with a Defined Policy: Here may lie the key distinction. Unlike traditional investment funds, the primary purpose of liquidity provision in Uniswap is not to invest in assets according to a predefined investment policy. Instead, users provide liquidity to facilitate decentralized trading. The assets they provide are used for swap transactions, not for investment or capital allocation decisions. It is a service that facilitates both decentralized trading and price discovery.

Therefore if one takes the entire set of AIFMD criteria, although Uniswap's liquidity provision mechanism may involve collective investment and capital raised from multiple investors, it may fall short of meeting the requirement related to investing in accordance with a defined investment policy.

Yield generation through yield farming: Compound Finance

Compound Finance is a DeFi lending and borrowing protocol on the Ethereum blockchain that enables users to engage in yield farming by providing liquidity to the platform's liquidity pools.

Select a Token: Users choose a cryptocurrency token (e.g., DAI, USDC, or Ethereum) they want to provide as liquidity.

Deposit Tokens: Users deposit their chosen tokens into the Compound protocol. By doing so, they become liquidity providers and earn interest on their deposits.

Receive Tokens: In return for depositing tokens, users receive cTokens (e.g., cDAI, cUSDC) that represent their share of the liquidity pool. These cTokens are interest-bearing and represent the deposited tokens plus accrued interest.

Staking cTokens: Users can then stake their cTokens in liquidity pools. These pools are used for lending to borrowers who pay interest. Stakers earn a portion of the interest paid by borrowers as rewards.

Compound's Governance Token: In addition to interest earned, users also earn COMP tokens, the native governance token of the Compound protocol. COMP tokens are distributed to liquidity providers and borrowers, incentivizing participation in the protocol.

Claiming Rewards: Users can periodically claim their staking rewards, which include both interest earned on their deposits and COMP tokens. They can choose to reinvest these rewards to compound their yield or withdraw them.

Case Study: Compound Finance under the AIF:

Collective Investment Undertaking: May be viewed as a collective effort to generate returns by providing liquidity to the protocol in the form of cryptoassets.

Capital Raised from Multiple Investors: Users can contribute their assets to liquidity pools, used to provide loans to borrowers and earn interest in return.

Investment in Accordance with a Defined Policy: Compound has a well-defined investment policy enabling users to earn interest or rewards by lending out their assets to borrowers or providing liquidity.

The classification of DeFi protocols, products and services involving staking or forms of yield generation as collective investments is a nuanced question. Classification as an AIF includes the appointment of a depositary, meeting capital adequacy standards, conducting risk management and adhering to disclosure and reporting obligations. As such the appointment of a depositary is a critical AIFMD requirement. Traditional depositaries may struggle to oversee cryptoassets effectively, given their unique characteristics. This entails the delegation to specialized crypto custody solutions. There is also a challenge in regards to cross-border marketing. The AIFMD provides a framework for marketing AIFs across EU Member States. Here, the cross-border marketing of crypto-based AIFs may be complex due to existing varying interpretations and implementations of the AIFMD within different EU Member States themselves.

AIFs are also judged on the degree of risk sharing by investors. Assessing the extent of risk sharing would need to be applied on a case by case basis taking into consideration the unique characteristics and operational complexities of different staking and/or yield generation protocols, products and services. It should also be noted that a traditional AIF typically involves professional management or active decision making by a manager. In the case studies mentioned above, including also other examples from the broader DeFi ecosystem, the protocols are often automated, relying on smart contracts to manage the borrowing/lending/liquidating process and are devoid of intermediaries in this crucial touchpoint.

This also may be a reason why it is difficult to determine whether an investment is in accordance with a defined policy. In many cases, the process by which investors engage with a given protocol (e.g. providing liquidity to facilitate decentralized trading) and/or expected outcomes for investors (pro-rata income determined by algorithmic supply and demand considerations) may not be aligned with the AIFMD chain of causality for a defined investment policy. Causality is important because it is the litmus test that inevitably triggers regulatory thresholds. In some cases, these products and services interact in a double structured way, where governance tokens allow users to deposit assets and acquire receipt tokens (e.g. liquid staking receipt tokens). In the case of liquid staking, emphasis on causality is especially important in determining whether liquid staking receipt tokens may trigger AIF considerations.

What is liquid staking?

Liquid staking is a software solution allowing users to directly participate in proof-of-stake (PoS) networks while still maintaining liquidity and the ability to rehypothecate their staked assets. A liquid staking receipt token is a programmatically minted cryptoasset that represents a user's direct ownership or stake in a given blockchain protocol employing a PoS consensus mechanism. The Liquid staking receipt token can be transferred, stored or traded downstream in other DeFi protocols or supported decentralized applications (dApps).

Liquid staking under the AIF:

Lack of Pooling of Investor Assets: Liquid staking protocols allow token holders to stake their cryptoassets individually. In the Ethereum ecosystem, ETH holders can stake their tokens into the network's validator pool without pooling their assets with other users, allowing individual users to stake or un-stake as they please. This is also not subject to the lengthy bonding and un-bonding periods of traditional staking methods. In platforms such as LIDO, liquid staking receipt tokens such as stETH (staked ETH) represent a claim on staked assets but also do not involve collective pooling. Holders of stETH receive a 1:1 representation of stETH plus rewards. For example, a user deposits 10 ETH into LIDO to receive 10 stETH. This user retains full ownership of their tokens with the ability to redeem them for the underlying asset at any time.

Decentralization and Lack of Centralized Management: Many liquid staking protocols operate in a decentralized manner, governed by smart contracts absent any third parties or intermediaries. An example would be the Ethereum 2.0 staking process which is fully automated and executed by the Ethereum network itself without human intervention. As discussed in the point above, the ownership and management of liquid staking receipt tokens also rests with the individual users. There is no central authority making investment decisions, actively managing assets, or representing the interests of token holders.

Self-custody and Delegation Options: Even when users choose to delegate their tokens for staking through service providers, they typically retain the ability to revoke that delegation and regain control of their assets. For example, a user may delegate their ETH to staking service such as Rocket Pool but retain the ability to withdraw and manage their assets at any time.

Middleware Operators: such as LIDO, Coinbase Cloud or Figment Networks serve as infrastructure providers that facilitate user interactions with blockchain networks and staking protocols. They provide technical support but do not perform traditional fund management functions.

Taken together, the unique characteristics of liquid staking make it potentially ill-fitting under the umbrella of an AIF.

What about other EU financial market regulations?

Recently, the International Organization of Securities Commissions (IOSCO) released a report on their policy recommendations for DeFi. In this report they provide a list of DeFi activities which may fall under various forms of collective investment schemes, while also making a note of grouping liquid staking as an activity with similarities to derivatives and synthetic derivatives. It should be noted that there is currently no Regulatory Technical Standard (RTS) from the European Securities and Markets Authority (ESMA) that touches on the issue of cryptoassets other than utility tokens, Asset-Referenced-Tokens (ARTs) and Electronic Money Tokens (EMTs) under MiCA and whether they would qualify as financial instruments under for example the Markets in Financial Instruments Directive (MiFID).

This section of the report is meant to serve as an opening discussion and by no means constitutes a binding legal assessment. That being said, the question of whether or not liquid staking receipt tokens qualify as financial instruments under an EU regulatory framework warrants a short appraisal:

MiFID does not explicitly define the term 'transferable security' within its own text. This definition is provided in the EU's legal framework more broadly, particularly in the Prospectus Directive (2003/71/EC).

"A transferable security shall mean those classes of securities which are negotiable on the capital market, with the exception of instruments of payment, such as:"

- Shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares;
- Bonds or other forms of securitized debt, including depositary receipts in respect of such securities;
- Any other securities or giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures.

This definition encompasses a wide range of financial instruments including equity securities, bonds, and certain types of derivatives.

As MiFID defines financial instruments, including securities as possessing specific characteristics such as negotiability and fungibility, it is important to consider that liquid staking receipt tokens are typically not structured as traditional securities but rather as mere technical representations of underlying staked assets. There is also a direct chain of ownership down to the underlying staked assets such as ETH. These tokens do not confer traditional security rights or ownership in the issuer's equity, profits or voting. For example, an individual who holds stETH still retains ownership of that stETH, but this ownership does not grant them rights to the governance or profits of the staking infrastructure.

stETH, derivatives and liquid StaaS providers as CCPs: fit for purpose?

(i) Risk Management:

Central Counterparty: A CCP such as LCH.Clearnet employs advanced risk management techniques. They calculate and monitor Initial Margin (IM) and Variation Margin (VM) based on Value-at-Risk (Var) models. If a trader defaults, the CCP steps in to guarantee the trade's performance.

Liquid Staking Protocol: Liquid staking protocols rely on validators to bond a specific amount of a cryptoassets (e.g. ETH) as collateral. Validators are at risk of being slashed (economic penalty leading to collateral loss) if they misbehave. However, liquid staking protocols primarily aim to secure the blockchain rather than manage counterparty risk the way a CCP would across derivative contracts.

(ii) Clearing and Settlement:

Central Counterparty: In derivatives markets, CCPs become the counterparty to every trade, ensuring trade settlement and reducing counterparty risk. For example, if Party A sells a futures contract to Party B, the CCP steps in as the buyer to Party A and the seller to Party B.

Liquid Staking Protocol: Liquid staking protocols enable users to participate in PoS networks by staking their assets. They do not engage in clearing and settlement functions.

(i) Regulatory Oversight:

Central Counterparty: CCPs are subject to rigorous regulatory oversight and must meet specific capital and operational requirements. Regulatory authorities like ESMA closely supervise CCPs.

Liquid Staking Protocol: Although not directly regulated in a fashion similar to CCPs, liquid staking protocols are subject to blockchain network governance and may be indirectly influenced by financial regulations depending on their interaction with the traditional financial system.

Furthermore, taking a closer look at liquid staking receipt tokens such as stETH on LIDO and tokens within platforms like Rocketpool – in the context of the European Market Infrastructure Regulation (EMIR) definition of derivatives – several technical details emerge which may fundamentally distinguish the practical application of these tokens from traditional derivatives.

Lack of Contractual Terms: liquid staking receipt tokens typically lack explicit contractual terms that define traditional derivatives. They do not provide options or futures contracts with predetermined exercise prices, expiration dates or other contractual features typical of derivatives.

Absence of Counter-parties: traditional derivatives involve counterparties entering into contractual agreements to exchange cash flows or assets based on future market conditions. Liquid staking receipt tokens are transferable assets that do not require counterparties to engage in contractual negotiations or agreements.

Purpose and Function: Liquid staking receipt tokens serve as a means to participate in staking activities within PoS networks. They enable users to stake their assets and receive tokens that represent their share of the collective staking pool. In contrast, derivatives are designed for hedging, speculating, or managing risk by facilitating price exposure and/or financial obligations.

Non-Financial Variables: EMIR specifies that derivatives may be linked to various non-financial variables such as climatic conditions or emission allowances. Although the act of staking itself may be linked to non-financial variables (technical PoS consensus), liquid staking receipt tokens are typically associated with financial variables like staking rewards and token value within a blockchain ecosystem.

Towards a holistic definition for liquid staking receipt tokens in Europe

It may come to pass that liquid staking receipt tokens would be best served under a new definition and taxonomy as a 'synthetic crypto asset.' They provide a synthesis of value, combining utility with yield, technical staking with a rewards based system – merging the utility of a native blockchain asset such as ETH with the yield generating capabilities of staking. Liquid staking receipt tokens also exhibit a representational nature as they are created and managed through smart contracts and staking pools. This allows them to serve as digital representations of ownership rights in the staked assets within a given blockchain network.

One key dimension is the way liquid staking receipt tokens enhance liquidity through secondary market trading, allowing users to rehypothecate their stETH on various DEXs like Uniswap or Pancakeswap. Liquid staking receipt tokens benefit from their collateralization potential – across DeFi borrowing and lending protocols, such as collateralizing stETH on Aave via smart contract interactions. Perhaps one of the most important aspects is balance between risk exposure and reward exposure. Staking by its very nature is a penalty based system from technical perspective. Holders of liquid staking receipt tokens can synthesize both price risk (exposure to the underlying asset's price movements) and reward potential (staking rewards) into a single asset. For example, a user holding stETH is exposed to the price fluctuations of ETH, directly affecting the value of their stETH holdings. Simultaneously, they receive staking rewards in the form of additional stETH tokens as their ETH participates in the staking process.

Policy recommendations for Staking services to be carried out within the EU

In order to help provide regulatory clarity for the classification and treatment of staking and various staking related services at European and Member State levels – the following is a list of overarching policy considerations that may help in aiding policymakers towards establishing this clarity.

(i) Define a clear and inclusive taxonomy of staking and staking related services, outlining which services a) perform a technical role within blockchain protocols and help to secure network propagation, and b) when for non-technical reasons, financial microservices abstracted on-top of network stability may trigger financial regulatory considerations.

(ii) Define executional tax principles that apply to CASPs which perform staking services as defined by the taxonomy and to users' tokens deposited in staking, including staked tokens yielding rewards.

(iii) Leverage the taxonomy on technical and non-technical staking provisions to determine which regulatory provisions may apply to CASPs as amendments or regarding level 2 legislation on cryptoassets (also under MiCA).

(iv) Leverage the taxonomy to define which regulatory treatment may be associated to microservices performed by SaaS providers in relation to associated yield generating protocols, products, and services (e.g. staked tokens LP tokens) and whether and when such activity triggers European financial services regulation (MiFID, AIFMD, EMIR).

Conclusion

Staking is a fundamental component in blockchain technology that helps secure the network, align participant incentives, improve transaction speed and throughput, and contribute to the overall sustainability of these innovative networks. It plays an essential role in the **functioning and security of PoS blockchain networks. It is a necessity not a luxury. No staking - no consensus - no PoS network.** By staking their tokens, users contribute to the stability of the network, as they help validate and process transactions, reducing the likelihood of fraudulent activity. The more tokens are staked, the more decentralized and secure the network becomes, since a potential attacker would need to control a significant percentage of all staked tokens to undermine the network, an often costly and prohibitive endeavor. It is incipiently a penalty based system (slashing) that requires the opt-in of willing participants to secure the stability of the network and its decentralised nature.

Furthermore, staking also helps **maintain the economic viability of a blockchain network.** It aligns the incentives of all network participants, as those who stake their tokens are rewarded for their contributions, fostering participant engagement and ongoing network activity. Furthermore, staking **contributes to the scalability and speed** of PoS networks. By having validators staked, the network can process transactions more rapidly than traditional proof-of-work models, leading to faster block times and higher transaction throughput – aiding the global adoption of blockchain solutions. Staking is also in line with the overall environmental ethos of the European Union as it has an **important role to play in the sustainability of blockchain networks.** Staking is primarily used, consume significantly less energy compared to their proof-of-work counterparts, making them a more environmentally friendly choice in the long run.

As described throughout this paper, **it is imperative to arrive at a coherent taxonomy for staking and staking related activities.** By underscoring and delineating pure, technical staking from SINO related activities, it will be more feasible to determine the appropriate regulatory pathways. That being said, even in cases where downstream SINO-based activities are prevalent, **the actual mechanics of especially DeFi protocols makes it very difficult to fit them into financial regulations designed for traditional financial players.**

The automation leveraged through smart contracts and decentralised nature of DeFi protocols leads to different outcomes based on how (dis)-intermediation and causality actually work in practice. **We therefore encourage a careful appraisal of the disintermediative and decentralized properties of DeFi applications, protocols and services as they relate to staking and SINO-based activities.** Not doing so could contribute to further regulatory uncertainty, causing confusion in the market and stifling innovation in this flourishing sector.