HM Revenue & Customs
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22nd June 2023

The taxation of decentralised finance involving the lending and staking of cryptoassets (the "Consultation Paper")

Dear Sir or Madam,

Recap Technologies Limited and Wright Vigar Ltd are grateful for the opportunity to contribute to the ongoing dialogue surrounding the proposed amendments to the taxation of decentralised finance, specifically in relation to the lending and staking of cryptoassets within the United Kingdom (UK).

As a leading provider of cryptoasset accounting and tax calculation software in the UK, Recap is uniquely positioned to offer insights into this complex and rapidly evolving sector. Our services empower individuals and businesses to monitor their cryptoasset activities effectively, accurately value these activities in sterling, and compute their tax obligations in a compliant and efficient manner. Our accounting and tax partner Wright Vigar Ltd are one of the UK's leading crypto tax specialist firms. Louise Lane, their Head of Crypto has collaborated with us on this joint response. Louise is a Chartered Tax Advisor and a Fellow Chartered Accountant.

A fair and proportionate tax policy on DeFi lending and staking is critical not only for the individuals and businesses involved but also for the broader ambition of the UK to establish itself as a major hub for cryptoassets. The formulation of such a policy requires a nuanced understanding of this unique asset class, as DeFi lending and staking often diverge significantly from the models of traditional finance. To aid in this understanding, we have included a summary of the blockchain concepts and important principles in DeFi lending and staking transactions, complete with examples, the perceived economic substance of these

transactions, and general principles on how these positions should be taxed. These concepts will be referenced throughout our direct response to the consultation questions.

In this response, we highlight what we believe should be the overarching tax principles for DeFi lending and staking. We also intend to provide pragmatic solutions for calculating a fair DeFi return that accurately reflects the economic substance of the transactions and is pragmatic to implement for taxpayers.

We would like to express our concern that the examples provided in the DeFi consultation do not accurately reflect the majority of market activity. They do not take into account transactions composed of multiple assets, nor do they consider part redemption of DeFi positions. Furthermore, we believe that 'repo-like' rules may not be an adequate solution for the taxation of DeFi. The unique characteristics of cryptoassets and the DeFi sector necessitate a more tailored approach.

We propose the development of an Asset composition NGNL approach to address these nuances and future-proof the tax treatment of these transactions. We have outlined how we believe this framework should operate and capture DeFi lending and staking universally, inclusive of liquidity pools.

In addition to the responses documented in this paper, we would also like to refer HMRC back to our earlier response to the Call For Evidence on The Taxation of Decentralised Finance Involving the Lending and Staking of Cryptoassets, which was submitted to HMRC on 31 August 2022, where we called for “Option 3” - on the basis that “The no gain/no loss option appears to be the ultimate catch-all solution in terms of getting to a tax neutral position which would also support all types of DeFi activity such as liquidity pools which are a large part of the market.”

We look forward to sharing our expertise and perspectives to help shape a tax policy that is fair and conducive to the continued growth and innovation in decentralised finance.

Background and Approach

When discussing the taxation of DeF lending and staking, many of the examples and scenarios used are simple and contrived as this can be necessary to understand the basic principles. However, there are real-world considerations that are often overlooked. The following sections attempt to explain some of the scenarios we understand well, explain the nuances of them, and how we believe they should be taxed to achieve reasonable tax results that fit with existing principles while not damaging the industry with excessive and unintended tax charges.

We focus on Ethereum throughout this document as it is the largest DeFi platform, though these concepts are very likely transferable to any Ethereum-derived chains (normally called EVM chains such as Polygon) and probably more widely as a universal approach to the market.

Ethereum Primer

These are some foundational concepts that may be important to understand the rest of this document.

- Externally Owned Accounts (EOA) are 'normal' user addresses and are essentially a public key identifier. An entity that holds the matching private key can create transactions and perform smart contract operations for that address.
- Contract Accounts (CA) are smart contract addresses which don't have public or private keys. Each CA stores data on the blockchain that allows it to operate. Any assets held by that address can only be transferred by the smart contract code when called from EOAs or other contracts.
- All assets are numeric balances stored in blockchain data against an address. ETH (the native asset) balances are stored internally against a specific address by the blockchain itself. All other assets, such as tokens like WETH or USDC or non-fungible/semi-fungible tokens, are balances stored by contracts in their internal state, which we generically just call tokens. As such, each token contract must be asked what a user's balance is, it is not an inherent property of the blockchain. Compliance of these asset contracts to standards such as ERC-20, ERC-721 and ERC-1155 denote these as assets, though non-standard assets do exist that are economically important, e.g. CryptoPunks.
- Contracts can include arbitrary code which may or may not follow standards.
- Contracts can interact with other contracts, which means it's possible to construct arbitrarily complex composite transactions with multiple effects.
- Smart contracts cannot be changed once deployed. Since contracts can interact with other contracts, it is common to deploy proxy contracts that allow a contract behaviour to be updated by a privileged address by changing the proxy target.

Technical Difficulties

Control and ownership

This is a nuanced problem and goes to the very foundation of blockchain, legal and taxation principles. It is a fact that the user that has access to an address's private key has custodial control of the (native and compliant) assets assigned to that address. It is widely accepted that, in most cases, the same user 'owns' those assets, however, from a tax perspective, that may not always be true since ownership comes in many forms.

Through contracts, it's possible to proxy this control to a contract. For example, if you have deployed your own contract and written the code to permit it, your contract may allow your address full control over the assets controlled by that contract. There may even be a string of contracts that control each other, but as the controller of the first contract you may have transitive control over them all. Depending on the contract code a user may also have partial control over the assets controlled by a contract. For example, Uniswap Labs cannot withdraw the assets controlled by their pool contracts that are assigned as liquidity, but they can withdraw the portion of the assets that represents their accumulated protocol fees.

When a user doesn't control the contract, in a similar way to us treating a token contract as assigning ownership of a balance of its tokens to a user, a contract may assign a position to a user. For example, when staking an asset to a contract, the contract may maintain data internally that tracks how much you staked, when you started staking and other related information. It then uses this information to provide the correct return when you unstake your asset. We consider that the user controls this position. Since this position may be transferable, it is important to treat it as an asset.

These contract relationships can be arbitrary, so control, beneficial ownership, legal ownership and other related concepts can be incredibly difficult to assign, especially when some of these may be shared with other users or contracts.

Composite transactions

A single transaction can perform multiple actions through the use of smart contracts. For example, a transaction can send funds to a DEX (decentralised exchange - e.g. Uniswap) to swap assets, add those assets to a liquidity pool, remove assets from a different liquidity pool and stake those assets on multiple staking contracts. These actions can interact in complex ways, so strategies such as breaking a transaction into multiple simpler transactions don't always work in practice.

It would be ideal to treat a single transaction as a single atomic action; however, it seems that since any number of arbitrary actions can be performed that the individual economic effects of the transaction should be considered. This would naturally exclude intermediate/transparent actions such as swapping assets within a transaction that do not have an impact outside of the transaction since those cannot be economic effects.

A simple example would be a single transaction swapping ETH to WBTC by executing multiple swaps of ETH -> WETH -> USDC -> WBTC. Since the intermediate steps of swapping ETH to WETH and WETH to USDC have no external effects for the user, they can be ignored and the transaction is treated as a swap of ETH to WBTC.

A more complex example would be a single transaction that swaps equal amounts of ETH for WBTC and USDC in order to deposit WBTC and USDC into a liquidity pool. In this case the economic effect would be that swaps of ETH to WBTC and ETH to USDC have occurred, and that the WBTC and USDC have been swapped for a liquidity position. However, it may be preferable to treat the liquidity position as being an ETH position if it is expected that removing liquidity from the pool would also be converted transparently to ETH.

Management vs utility contracts

The downside of considering all economic effects of a composite transaction is that users are not always in control nor understand the implications of some contracts.

For example, consider a management contract into which you deposit ETH, which then converts that ETH into many tokens and deposits those tokens into a portfolio of yield-generating positions. Users can then withdraw ETH, which will reduce or close some of these positions with the contract converting any received assets back to ETH.

From the user's perspective, they're sending ETH to a contract and receiving ETH back from that contract, intending to generate an ETH return. Users cannot unilaterally interact with the underlying position contracts; they must utilise the management contract.

We suggest that any internal actions that these management contracts perform on a user's behalf are ignored since it seems unwieldy to track, and since the user maintains no control of the positions, they realise no economic benefit. It is only the direct interactions with that contract that are considered for tax.

Where instead, a smart contract provides the utility for a user to perform operations themselves (i.e. a helper contract), but the user maintains control of the assets and positions, then those actions are considered independently for tax as it is likely indistinguishable from a user performing those actions directly.

Positions

We believe that it is necessary to treat positions as a collection of one or more rights that maintains the information necessary to understand the future tax implications of a position. This allows positions to be disposed of with the correct tax treatment.

For example, consider a staking contract that only maintains an internal ledger of a position. If a user opens a stake position and regularly adds funds to it over a period of time, and then asks the contract to assign the stake to another address (as a gift to a friend for example), the user needs to dispose of the position, even though there's no crypto asset involved. They also need to have dealt with the multiple stake additions in a consistent way if the position disposal was partial.

Partiality and tracking

Actions are often partial in nature. For example, it is common for individuals contributing liquidity to a liquidity pool to partially increase or decrease their position dynamically based on market conditions. As such, it seems necessary to track these types of positions in order to understand the relationship between assets added to a position and assets removed from a position, or utilise other contract information, in order to identify what proportion of a position relates to any specific event.

For example, if a user were to send 1 ETH to a contract one day and receive 0.5 ETH back another day, how does the user know if this represents a full exit of a position, 10% of a position, or is entirely rewards based on some yield mechanism?

Token supply

The supply of many tokens is fixed. However, there are a growing number of tokens that have variable supply, either through explicit creation and destruction based on user interactions (e.g. minting or burning tokens), or through internal mechanisms of supply adjustment, such as artificial inflation or deflation adjustments (often called rebase tokens), transaction fee sharing, or other exotic mechanisms. These adjustments to supply may or may not be easily visible to the end user.

Our thoughts around token supply are that adjustments that affect every token holder's balances proportionally should not have a tax consequence since no one is realising any economic benefits compared to others. This is comparable to a share split or merge where the section 104 pool amounts would be adjusted. Other supply changes may be more akin to an airdrop (or airlift?) and should be treated as such.

There is difficulty in tracking the change in supply and constructing the correct tax consequences. Some of these tokens will adjust their supply dynamically every time anyone uses that token which can be thousands of events per day and possibly only contribute tiny fractions of a penny each.

We propose a common sense approach of either tracking supply changes on a regular interval, such as daily, or tracking the supply change when that supply change would have an actual impact on the user's tax affairs (for example, updating the token supply directly before any disposal of that asset).

Tax Principles

Here the primary tax principles we followed when writing this response:

- There should be no tax charge when there is no economic substance disposal in a transaction or series of transactions. For example, if a user sends 1 ETH and 1,000 USDC to a liquidity pool and the following week fully closes their position and receives 1 ETH and 1,000 USDC, since there is no change in the assets and no rewards received, there should be no tax charges.
- Converting a crypto asset to a different crypto asset is always taxable under CGT. However, we suggest in 'Wrapping' that some conversions should be exempt when the two assets are equivalent and freely interchangeable, and some conversions should be treated on a no gain, no loss basis.

Rights

We utilise rights throughout this document when an individual has a claim on a smart contract, such as a right for the return of principal.

Since these rights are fungible and can be disposed of, we treat rights as capital assets and apply normal S104 pooling rules to them.

Compound rights

The nature of DeFi means that rights may be compounded. For example, a right to reclaim principal acquired by depositing an asset to a staking contract may itself be deposited in a further staking contract. It's important to appreciate these concepts when attempting to construct practical rules for taxing rights.

Token-linked rights

In a similar vein to compound rights, tokens may be linked to rights. For example, on Uniswap V2 adding liquidity mints tokens called LP tokens that can be burned to reclaim a share of the pool liquidity. However, on disposal of the LP tokens, it's actually the underlying rights that need to be disposed of.

Positions

A position is a user's exposure to a uniquely identifiable smart contract-based financial instrument, such as a staking contract, lending contract, or automated market maker (AMM) / liquidity pool (LP).

Sometimes smart contracts will manage many independent positions, so it's possible for a user to have multiple separate positions for a single smart contract.

A position is effectively defined by one or more rights. If a user sends 1 ETH and 1,000 USDC into an LP they have rights to reclaim 1 ETH and 1,000 USDC.

Automated market makers (AMMs)

AMMs are the most common type of decentralised exchanges (DEX) that allow crypto assets to be traded using a liquidity pool (LP) instead of directly matching buyers and sellers like a traditional market. LPs most commonly contain a balance of two assets, with the ratio of the assets determining the price of the market (though any number of assets is possible). For example, a simple LP with 2,000 WETH and 1,000,000 USDC would have a market price of 500 WETH/USDC.

A trade adds one asset to the pool and removes another based on the current market price, which ultimately changes that price for subsequent transactions to reflect the new ratio. The abstract amount of liquidity in the pool remains constant during trading and is only affected by liquidity providers increasing or decreasing liquidity.

Liquidity

Liquidity is provided by liquidity providers who send one or multiple assets into the pool, often in the same ratio as the current pool assets. When adding liquidity, the liquidity provider acquires a mechanism to redeem the liquidity and receive assets in exchange (sometimes crypto assets known as 'LP tokens' are received, sometimes an NFT is received, and sometimes the pool contract maintains an internal ledger); however, when the liquidity is reclaimed the assets received are based on the current market price which means the composition of assets received is often different to those sent.

For example, an individual may contribute 2 WETH and 1,000 USDC when the market price is 500 WETH/USDC, but on removing their entire liquidity if the price is now 1,000 WETH/USDC they would receive 1.41 WETH and 1,414 USDC (these calculations are based on the commonly used constant product formula).

Rewards

Providing liquidity is incentivised by liquidity providers collectively receiving some or all of the trade fees that AMM traders pay when executing a trade. The amount of fees received is proportional to the amount of total liquidity a user has contributed to the pool. This means

that by contributing liquidity you are passively receiving small amounts of the pool assets when there is trading activity in the pool.

The mechanisms of AMMs vary significantly. For example, while Uniswap V2 is a simple single liquidity pool, Uniswap V3 is effectively an aggregate of independent liquidity pools meaning that liquidity can be concentrated within certain price ranges. Some AMMs allow different liquidity asset ratios, and some allow a basket of assets to exist in the liquidity pool, such as Balancer, which allows up to 8 assets.

Impermanent loss

Impermanent loss is any unrealised decrease in value between holding assets and adding those assets to an LP. It basically answers the question, "Would I have been better off if I hadn't provided liquidity?".

This arises only where removing liquidity happens at a different price, since removing liquidity at the same price is equivalent to holding those assets. I have an impermanent loss if the current value of the assets added to the pool is less than the current value of the assets represented by my liquidity in the pool.

Liquidity providers hope to offset the risk of impermanent loss through providing rewards.

Difficulties

Holding accounts

Some AMMs allow users to hold assets. For example, a user might deposit assets to an AMM for later use in adding to a position or trading on the AMM, or might keep assets removed from a LP as a balance. They may never utilise these funds on the AMM and may simply withdraw them later.

We propose that these assets are not disposed of while being held by a contract, only when they are used to create a position.

Multiple assets

Any number of assets can be added to a liquidity position. This can either be to create an initial position or increase an existing position.

Any number of assets can be removed from a liquidity position. This can either be decreasing an existing position or removing all of the available liquidity from the pool.

Rewards

Rewards are earned which can be withdrawn from the pool. This can be done as part of removing liquidity or separately. These may need to be tracked separately depending on the final tax treatment.

Liquidity representation

Liquidity can typically be represented by LP tokens, NFTs or simply by an internal ledger.

LP tokens can be used like any other token and in addition allow the claiming of liquidity assets and rewards can be swapped, traded, staked or even appear in another LP. Since they are just a normal token they can also be used partially for any of these purposes.

NFTs received are typically less flexible and often represent the entire positions, but can still be used in a variety of ways.

An internal ledger approach means that if information about the position is needed, it must be collected from the blockchain separately from tracking transfers.

Wrapping

Wrapping is typically the process of converting a native chain asset to a token representation of that asset, and unwrapping the opposite. Wrapped assets often exist to simplify the interaction of some assets with other contracts or entities.

We suggest that a generic approach can be taken to define these assets, allowing special tax treatments, as long as they meet a narrow set of rules.

Definitions

1. **No initial supply** - Wrapped tokens must only exist because the underlying asset has been wrapped.
2. **Bidirectional** - A can be converted to B, and B can be converted to A.
3. **Unilateral and unrestricted** - A holder can freely convert any amount of A to B or B to A at any time without any external restrictions.
4. **Fixed ratio** - A and B must have a permanently fixed conversion ratio. Typically a wrapped asset is one-to-one with the original asset, but this isn't necessary as long as the ratio is fixed. If the assets are rebase assets, it may be necessary to allow a fixed ratio where A and/or B are percentages. For example, 100 A might be fixed to 1% of B's supply or 1% of A is fixed to 1% of B since absolute amounts of tokens are dynamic.
5. **No economic substance** - Owning A does not by itself offer any different economic outcomes than owning B.
6. **Pure** - The wrapping smart contract must only allow conversion between A and B, only provide any operations that assist this behaviour, and offer the same behaviour to everyone (no privileged addresses). For example, the wrapping smart contract must not offer staking functionality, and there must be no 'backdoor' to drain deposited funds or other privileged operations.
7. **Immutable** - The smart contract must not be upgradable, which would potentially allow arbitrary changes in functionality. If this isn’t the case, each implementation of the contract would need to be assessed to check whether it still complies with this definition.

Examples

ETH is not an ERC-20 token. It is simpler for developers and often cheaper for users to utilise an ERC-20 token in smart contracts since it only means supporting a single asset standard. WETH was created to enable this and is universally treated 'as ETH' in the industry.

AMPL is a rebasing token and, as such, cannot easily be listed on centralised exchanges as user balances are updated frequently. Wrapped AMPL is not a rebasing token but instead wraps a proportion of the supply of AMPL, thus, Wrapped AMPL can be listed more easily.

Tax treatment

Given this restrictive definition and to hugely simplify smart contract interactions we strongly suggest that WETH on Ethereum (contract 0xc02aaa39b223fe8d0a0e5c4f27ead9083c756cc2 on chain 0x1) is treated as the same asset as ETH on Ethereum (native asset on chain 0x1). This means that conversions between them which have no economic substance do not generate any taxable events, and users are free to interact with WETH-based smart contracts without calculating gains or losses for every interaction.

Additionally, we suggest that the wrapped and unwrapped assets defined by any contract that meets the definition are also treated this way.

Possible Tax Approaches

Untracked approaches

These approaches would only consider the incoming and outgoing assets of each transaction. Given incoming and outgoing assets from/to a contract can change, this fundamentally doesn't work since there is no mechanism to determine partiality. Without understanding the partiality of an action there is no way to correctly consider costs.

Repo-like approach

The proposed repo-like approach would mean there is no CGT disposal of an asset when it is added or removed from a position. The LP token or right which is received in order to reclaim the position is ignored for tax purposes. Although this may alleviate a dry CGT charge for some simple closed-out examples where the same assets added are withdrawn, they do not cover the majority of the market (liquidity pools) where the quantity and composition of assets redeemed is different to that originally added.

Sterling value entry/exit

We have evaluated applying a generic tax approach on a transaction-by-transaction basis. This is based on the difference between the sterling value of assets in and out of a position. This approach is elegant in its simplicity. However, it captures gains or losses associated with the underlying assets that could be returned, which does not address the economic substance of the actual position. We don't think this is a viable option because it does not meet the goals of the consultation.

No gain, no loss on entry & exit

Whilst we believe a NGNL approach works upon entry in all DeFi arrangements, the same is not true upon exit. NGNL on exit gives a fair outcome when the same type and quantity of assets are returned.

However, when different assets are returned on exit, or if the quantities of each token have varied, there is the opportunity for abuse if these situations were treated as NGNL upon exit. You could enter the pool with one token and exit with a different one. Also, with a 2 asset

pool, you could enter with 0.1 token A and 100,000 token B and receive back 100,000 token A and 0.1 token B. In both situations, you have effected a crypto-to-crypto exchange at NGNL, whereas this should be a CGT disposal.

Asset composition NGNL approach - our proposed tax framework

It is our belief that an Asset composition-based No Gain No Loss (NGNL) approach is the only way to cater for the complexities of the tax position when entering and exiting liquidity pools. In addition to this, we believe this same asset composition tax framework can apply to all DeFi arrangements. Overall it is much better suited than the proposed repo-like framework.

The overview of our proposed asset composition No Gain No Loss based tax framework is set out below; with an outline of the Proposed Tax Framework Principles and Proposed Tax Framework Examples following this approach, which are detailed in those sections.

Principal tokens entering and leaving DeFi arrangements:

- NGNL disposal of principal tokens upon entry into all DeFi arrangements and acquisition cost passed onto LP token/rights.
- Tax treatment on exit depends on type and amount of tokens removed:
    - Same type and quantity in and out – NGNL disposal of LP/token on exit and acquisition cost passed on to tokens returned.
    - Same type, but in different quantities to entry – NGNL disposal of LP token/right on exit up to the principal tokens added. Surplus/shortfall in principal tokens are subjected to CGT upon exit.
    - Different types of assets out – CGT charge on exit.

Proposed Tax Framework - Asset Composition NGNL Approach

We propose a rights-based approach that we believe will work for all DeFi activity. Rights only exist on a per-asset basis, but rights can be collected into a position. When disposing of a position, or an asset that represents a position, we perform a disposal calculation for each right, considering the change in the composition of the assets received. Differences in asset composition are treated in a similar way to acquisitions/disposals/swaps.

Overview

The overview of our proposed asset composition No Gain No Loss based tax framework for principal tokens is set out below;

- NGNL disposal of principal tokens upon entry into all DeFi arrangements and acquisition cost passed onto LP token/rights.
- Tax treatment on exit depends on the type and amount of tokens removed:
    - Same type and quantity in and out – NGNL disposal of LP/token on exit and acquisition cost passed on to tokens returned.
    - Same type, but in different quantities to entry – NGNL disposal of LP token/right on exit up to the principal tokens added. Surplus/shortfall in principal tokens are subjected to CGT upon exit.
    - Different types of assets out – CGT charge on exit.

Validation

We validate our approach by ensuring that section 104 pool costs are correctly calculated in each scenario given the gains or losses that can be generated.

Total pool costs before = Total pool costs after + gains - losses

Principles

1. A position is a user's exposure to a uniquely identifiable smart contract-based financial instrument, such as a staking contract, lending contract, or AMM and is effectively a collection of one or more rights.
2. Sometimes smart contracts will manage many independent positions, so it's possible for a user to have multiple separate positions for a single smart contract.
3. Sending an asset to a smart contract position generates a right to reclaim that asset. Each asset generates a separate right, though these may be linked in most cases when performing partial disposals of a position.
4. These rights exist per position, are pooled for that position, and can be partially or wholly disposed of both through smart contract interactions or by transferring the right.
5. Rights can be linked to other assets. For example, a common two-asset LP token is a mechanism to redeem liquidity on an AMM, but must also be linked to the position and the underlying rights. This is necessary since disposing of the LP token must also dispose of the rights and calculate the difference in assets being returned.
6. Sending assets to a smart contract and generating a right to reclaim those assets is treated as a no-gain, no-loss event. This is realised by the disposal of the sent assets with proceeds deemed equal to costs, and the acquisition of a right with equivalent acquisition costs.
7. Reclaiming assets from a smart contract and acquiring the same asset and amount as represented by the right, or proportion thereof, is treated as a no-gain, no-loss event. This is realised by the disposal of the right with proceeds deemed equal to the acquisition cost, and the acquisition of the reclaimed assets with equivalent acquisition costs.
8. Where there is a shortfall/surplus of amounts reclaimed, the net excess value received is charged to CGT. To realise this, the proceeds of the right disposal is the cost of the proportion of the disposed right that has actually been reclaimed, plus the market value of the excess and/or new assets.
9. Rewards are treated separately as acquisitions at zero cost or capital/income at market value.

Proposed Tax Framework Examples

In these examples we use the prefix 'R-' to indicate a right to reclaim, e.g. R-ETH is the right to reclaim ETH.

1. One-asset example

Setup

1. A user sends 2 ETH with an acquisition cost of £5,000 into the contract.
    - 2 ETH is disposed of with proceeds deemed to be £5,000, and a right to reclaim 2 ETH is created with an acquisition cost of £5,000.
2. The user sends 1 ETH with an acquisition cost of £3,000 into the contract.
    - 1 ETH is disposed of with proceeds deemed to be £3,000, and a right to reclaim 1 ETH is created with an acquisition cost of £3,000.
3. The positions are not unique, so there is a pool of 3 R-ETH with acquisition costs of £8,000.

Scenarios

1A - User disposes of 0% of the right, receives any assets

Since no right is being disposed of, any assets received must be treated as rewards.

1B - User disposes of 50% of the right, receives same proportion

The user received 1.5 ETH as a 50% claim against the right to reclaim 3 ETH (ie 3 R-ETH):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 3 R-ETH, cost = £8,000
2. Disposal of 50% of 3 R-ETH = 1.5 R-ETH at NGNL:
    - Proceeds = Cost = £4,000

- Cost = (50% x £8,000) = £4,000
- Gain = Nil

3. Acquisition of 1.5 ETH:
    - Cost = £4,000
4. S104 Pools after 50% claim:
    - 1.5 ETH, cost = £4,000
    - 1.5 R-ETH, cost = £4,000

1C - User disposes of 50% of the right, receives excess

The user received 2 ETH as a 50% claim against the right to reclaim 3 ETH (i.e. 3 R-ETH). This is a 0.5 ETH excess compared to 50% of the 3 ETH sent to the pool:

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 3 R-ETH, cost = £8,000
2. Disposal of 50% of 3 R-ETH = 1.5 R-ETH at NGNL; excess subject to CGT:
    - Excess = 0.5 ETH, market value = £2,000
    - Proceeds = Cost of £4,000 + £2,000 = £6,000
    - Cost = (50% x £8,000) = £4,000
    - Gain = £2,000
3. Acquisition of 2 ETH:
    - Cost = £6,000
4. S104 Pools after 50% claim:
    - 2 ETH, cost = £6,000
    - 1.5 R-ETH, cost = £4,000

1D - User disposes of 50% of the right, receives shortfall

The user received 1 ETH as a 50% claim against the right to reclaim 3 ETH (i.e. 3 R-ETH). This is a 0.5 ETH shortfall compared to 50% of the 3 ETH sent to the pool:

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 3 R-ETH, cost = £8,000
2. Disposal of 50% of 3 R-ETH = 1.5 R-ETH at NGNL; shortfall CGT loss:
    - Reclaimed 1 ETH / 3 ETH = 33.3% of the right was reclaimed
    - Proceeds = (33.3% x £8,000) = £2,667
    - Cost = (50% x £8,000) = £4,000
    - Loss = £1,333
3. Acquisition of 1 ETH:
    - Cost = £2,667
4. S104 Pools after 50% claim:
    - 1 ETH, cost = £2,667
    - 1.5 R-ETH, cost = £4,000

1E - User disposes of 50% of the right, receives different asset

The user received 5,000 USDC as a 50% claim against the right to reclaim 3 ETH (ie 3 R-ETH):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 3 R-ETH, cost = £8,000
2. Disposal of 50% of 3 R-ETH = 1.5 R-ETH; CGT disposal:
    - Excess = 5,000 USDC, market value = £4,500

- Reclaimed = 0 ETH, 0 ETH / 3 ETH = 0% of the right was reclaimed
- Proceeds = (0% x £8,000) + £4,500 = £4,500
- Cost = (50% x £8,000) = £4,000
- Gain = £500

3. Acquisition of 5,000 USDC:
    - Cost = £4,500
4. S104 Pools after 50% claim:
    - 0 ETH
    - 1.5 R-ETH, cost = £4,000
    - 5,000 USDC, cost = £4,500

1F - User disposes of 50% of the right, receives sterling

The user received £4,500 sterling as a 50% claim against the right to reclaim 3 ETH (ie 3 R-ETH):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 3 R-ETH, cost = £8,000
2. Disposal of 50% of 3 R-ETH = 1.5 R-ETH; CGT disposal:
    - Excess = £4,500
    - Reclaimed = 0 ETH, 0 ETH / 3 ETH = 0% of the right was reclaimed
    - Proceeds = (0% x £8,000) + £4,500 = £4,500
    - Cost = (50% x £8,000) = £4,000
    - Gain = £500
3. Acquisition of £4,500 sterling (not a chargeable asset for CGT):
    - £4,500

4. S104 Pools after 50% claim:
    - 0 ETH
    - 1.5 R-ETH, cost = £4,000

2. Two-asset example

Setup

1. The user sends 5 ETH with an acquisition cost of £4,000 into the contract.
    a. 5 ETH is disposed of with proceeds deemed to be £4,000 and 5 R-ETH with a right to reclaim 5 ETH is created with an acquisition cost of £4,000.
2. User subsequently sends 1 ETH with an acquisition cost of £2,000 and 1 WBTC with an acquisition cost of £14,000 into the contract.
    a. 1 ETH is disposed of with proceeds deemed to be £2,000, 1 WBTC is disposed of with proceeds deemed to be £14,000, 1 R-ETH is created with an acquisition cost of £2,000 and 1 R-WBTC is created with an acquisition cost of £14,000.
3. Both assets represent a single position, so this point the user has a right to reclaim 6 ETH with an acquisition cost of £6,000 and a right to reclaim 1 WBTC with an acquisition cost of £14,000.

Scenarios

These scenarios are based on redeeming liquidity on a two-sided AMM, but they could also represent trading/selling or otherwise disposing of the rights in return for other assets. We use 50% as a proportional example for simplicity.

2A - User disposes of 0% of both rights, receives any assets

Since no right is being disposed of, any assets received must be treated as rewards.

2B - User disposes of 50% of both rights, receives same proportion

If a user received 3 ETH and 0.5 WBTC as a 50% claim against the respective right to reclaim 6 ETH (6 R-ETH) and the right to reclaim 1 WBTC (1 R-WBTC):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 0 WBTC
    - 6 R-ETH, cost = £6,000

- 1 R-WBTC, cost = £14,000
- Total cost = £20,000

2. Disposal of 50% of 6 R-ETH = 3 R-ETH at NGNL:
    - Proceeds = (50% x £6,000) = £3,000
    - Cost = (50% x £6,000) = £3,000
    - Gain = Nil
3. Acquisition of 3 ETH:
    - Cost = £3,000
4. Disposal of 50% of 1 R-WBTC = 0.5 R-WBTC at NGNL:
    - Proceeds = (50% x £14,000) = £7,000
    - Cost = (50% x £14,000) = £7,000
    - Gain = Nil
5. Acquisition of 0.5 WBTC:
    - Cost = £7,000
6. S104 Pools after 50% claim:
    - 3 ETH, cost = £3,000
    - 0.5 WBTC, cost = £7,000
    - 3 R-ETH, cost = £3,000
    - 0.5 R-WBTC, cost = £7,000
    - Total cost = £20,000

2C - User disposes of 50% of both rights, receives both assets in different proportions

If a user received 4 ETH and 0.3 WBTC as a 50% claim against the respective right to reclaim 6 ETH (6 R-ETH) and the right to reclaim 1 WBTC (1 R-WBTC):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 0 WBTC
    - 6 R-ETH, cost = £6,000
    - 1 R-WBTC, cost = £14,000
    - Total cost = £20,000
2. User received 4 ETH for disposal of 50% of 6 R-ETH = 3 R-ETH at NGNL; excess of 1 ETH subject to CGT:
    - Excess of 1 ETH, market value = £1,500
    - Proceeds = (50% x £6,000) + £1,500 = £4,500
    - Cost = (50% x £6,000) = £3,000
    - Gain = £1,500
    - Acquisition of 4 ETH, cost = £4,500
3. Acquisition of 4 ETH:
    - Cost = £4,500
4. User received 0.3 WBTC for disposal of 50% of 1 R-WBTC = 0.5 R-WBTC; shortfall CGT loss:
    - Reclaimed 0.3 WBTC / 1 WBTC = 30% of the right was reclaimed
    - Proceeds = (30% x £14,000) = £4,200
    - Cost = (50% x £14,000) = £7,000
    - Loss = £2,800
5. Acquisition of 0.3 WBTC:
    - Cost = £4,200
6. Net capital position = £1,500 - £2,800 = £1,300 loss
7. S104 Pools after 50% claim:
    - 4 ETH, cost = £4,500

- 0.3 WBTC, cost = £4,200
- 3 R-ETH, cost = £3,000
- 0.5 R-WBTC, cost = £7,000
- Total cost = £18,700

2D - User disposes of 50% of both rights, receives one asset

If a user received 0 ETH and 2 WBTC as a 50% claim against the respective right to reclaim 6 ETH (6 R-ETH) and the right to reclaim 1 WBTC (1 R-WBTC):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 0 WBTC
    - 6 R-ETH, cost = £6,000
    - 1 R-WBTC, cost = £14,000
    - Total cost = £20,000
2. User received 0 ETH for disposal of 50% of 6 R-ETH = 3 R-ETH; shortfall of 3 ETH with CGT loss:
    - Reclaimed 0 ETH / 6 ETH = 0% of the right was reclaimed
    - Proceeds = (0% x £6,000) = £0
    - Cost = (50% x £6,000) = £3,000
    - Loss = £3,000
3. User received 2 WBTC for disposal of 50% of 1 R-WBTC = 0.5 R-WBTC at NGNL; excess of 1.5 ETH subject to CGT:
    - Excess of 1.5 WBTC, market value = £25,000
    - Proceeds = (50% x £14,000) + £25,000 = £32,000
    - Cost = (50% x £14,000) = £7,000
    - Gain = £25,000
4. Acquisition of 2 WBTC:

- Cost = £32,000

5. Net capital position = £25,000 - £3,000 = £22,000 gain
6. S104 Pools after 50% claim:
    - 0 ETH
    - 2 WBTC, cost = £32,000
    - 3 R-ETH, cost = £3,000
    - 0.5 R-WBTC, cost = £7,000
    - Total cost = £42,000

2E - User disposes of 50% of both rights, receives different asset

The user received 15,000 USDC (market value £12,000) as a 50% claim against the respective right to reclaim 6 ETH (6 R-ETH) and the right to reclaim 1 WBTC (1 R-WBTC):

1. S104 Pools before the 50% claim:
    - 0 ETH
    - 0 WBTC
    - 6 R-ETH, cost = £6,000
    - 1 R-WBTC, cost = £14,000
    - Total cost = £20,000
2. Since a different asset is received as proceeds, the market value of the asset must be apportioned to the disposed rights. We do this on an equal split, so £6,000 apportioned to each right disposal - 7,500 USDC each (£6,000 market value). Apportionment could also be based on cost, though the overall figures would be the same.
3. User received 0 ETH & 7,500 USDC for disposal of 50% of 6 R-ETH = 3 R-ETH; CGT disposal:
    - Reclaimed = 0 ETH, 0 ETH / 6 ETH = 0% of the right was reclaimed
    - Proceeds = (0% x £6,000) + £6,000 = £6,000
    - Cost = (50% x £6,000) = £3,000

- Gain = £3,000

4. User received 0 WBTC & 7,500 USDC for disposal of 50% of 1 R-WBTC = 0.5 R-WBTC: CGT disposal
    - Reclaimed = 0 WBTC, 0 WBTC / 1 ETH = 0% of the right was reclaimed
    - Proceeds = (0% x £14,000) + £6,000 = £6,000
    - Cost = (50% x £14,000) = £7,000
    - Loss = £1,000
5. Acquisition of 15,000 USDC:
    - Cost = £12,000 (£6,000 + £6,000 for 7,500 + 7,500)
6. Net capital position = £3,000 - £1,000 = £2,000 gain
7. S104 Pools after 50% claim:
    - 0 ETH
    - 0 WBTC
    - 15,000 USDC, cost = £12,000
    - 3 R-ETH, cost = £3,000
    - 0.5 R-WBTC, cost = £7,000
    - Total cost = £22,000

3. Real Uniswap V3 liquidity example

This is a 'simple' scenario, typical of basic Uniswap activity, which consists of 2 transactions, the first adds liquidity and the second partially removes liquidity. The initial pool costs are contrived.

Transaction 1 - Add liquidity

https://etherscan.io/tx/0xb371fa6e991e64dcef54a4bc397780eecd91e253a5055ff4a3c304f502051e91

The user sends 0.165382431848743397 ETH and 500 USDC tokens into the liquidity position.

A liquidity amount of 31053939841889 is added (this is the internal representation of the amount of liquidity and is necessary for partial calculations).

1. S104 pools before the transaction:
    - 0.165382431848743397 ETH, cost = £100
    - 500 USDC, cost = £400
2. Disposal of 0.165382431848743397 ETH
    - Proceeds = £100 (NGNL)
    - Cost = £100
3. Acquisition of 0.165382431848743397 R-ETH, cost = £100
4. Disposal of 500 USDC
    - Proceeds = £400 (NGNL)
    - Cost = £400
5. Acquisition of 500 R-USDC
6. S104 pools after the transaction:
    - 0 ETH

- 0 USDC
- 0.165382431848743397 R-ETH, cost = £100
- 500 R-USDC, cost = £400

Transaction 2 - Remove liquidity & claim fees

https://etherscan.io/tx/0x5b4aa9a316420db400363101a7e49fe1450bdfd74957d41525f84bf751dd02f8

The user receives 0.109701401654899328 ETH and 93.159782 USDC tokens.

A liquidity amount of 7763484960472 is removed from the pool. This means that 7763484960472 / 31053939841889 of the position has been disposed of, or 25%.

It can be determined by tracking the pool interactions that 0.077918961616927513 ETH and 37.460470 USDC are reclaimed principal, meaning 0.031782440037972 ETH and 55.699312 USDC are claimed rewards.

1. S104 pools before the transaction:
    - 0 ETH
    - 0 USDC
    - 0.165382431848743397 R-ETH, cost = £100
    - 500 R-USDC, cost = £400
    - Total cost = £500
2. User received 0.077918961616927513 ETH for disposal of 25% of 0.165382431848743397 R-ETH = 0.041345607962186 R-ETH; excess of 0.036573353654742 ETH:
    - Excess of 0.036573353654742 ETH, market value = £68.85
    - Proceeds = (25% x £100) + £68.85 = £93.85
    - Cost = (25% x £100) = £25

- Gain = £68.85

3. User received 37.460470 USDC from the disposal of 25% of 500 R-USDC = 125 R-USDC; shortfall of 87.53953 USDC:
    - Reclaimed 37.460470 USDC / 500 USDC = 7.5% of the right was reclaimed.
    - Proceeds = (7.5% x £400) = £30
    - Cost = (25% x £400) = £100
    - Loss = £70
4. Net capital position = £68.85 - £70 = £1.15 loss
5. Assuming the rewards of 0.031782440037972 ETH and 55.699312 USDC are acquired as zero cost capital acquisitions, section 104 pools after transaction:
    - 0.109701401654899328 ETH, cost = £93.85
    - 93.159782 USDC, cost = £30
    - 0.087463470231816 R-ETH, cost = £75
    - 375 R-USDC, cost = £300
    - Total cost = £498.85 (considering £1.15 loss)

4. Example 6 from consultation

We assume a pool of 10 T6 with costs of £10,000 and 1 T7 with costs of £10,000.

Transaction 1 - Open position

User sends 10 T6 and 1 T7 to a platform.

1. Section 104 pools before the transaction
    - 10 T6, cost = £10,000
    - 1 T7, cost = £10,000
2. Dispose of 10 T6
    - Proceeds = £10,000 (NGNL)
    - Cost = £10,000
    - Gain = Nil
3. Dispose of 1 T7
    - Proceeds = £10,000 (NGNL)
    - Cost = £10,000
    - Gain = Nil
4. Acquisition of 10 R-T6 with costs of £10,000
5. Acquisition of 1 R-T7 with costs of £10,000
6. Section 104 pools after the transaction
    - 0 T6
    - 0 T7
    - 10 R-T6, cost = £10,000
    - 1 R-T7, cost = £10,000

Transaction 2 - Close position

User disposes of their entire position and receives 16 T6 and 0.5 T7. We assume a price per token for T6 of £2,000.

1. Section 104 pools before the transaction
    - 0 T6
    - 0 T7
    - 10 R-T6, cost = £10,000
    - 1 R-T7, cost = £10,000
    - Total costs = £20,000

2. Dispose of 10 R-T6
    - Excess of 6 T6, market value = £12,000
    - Proceeds = (100% x £10,000) + £12,000 = £22,000
    - Cost = (100% x £10,000)
    - Gain = £12,000
3. Dispose of 1 T7
    - Reclaimed 0.5 T7 / 1 T7 = 50% of the right was reclaimed
    - Proceeds = (50% x £10,000) = £5,000
    - Cost = (100% x £10,000) = £10,000
    - Loss = £5,000
4. Acquisition of 16 T6 with costs of £22,000
5. Acquisition of 0.5 T7 with costs of £5,000
6. Capital gains position = £12,000 - £5,000 = £7,000 gain
7. Section 104 pools after the transaction
    - 16 T6, cost = £22,000
    - 0.5 T7, cost = £5,000
    - 0 R-T6
    - 0 R-T7
    - Total cost = £27,000

Market Size Assessment

1. UK Market Size			
Population size	68.9M		https://www.worldometers.info/world-population/uk-population/
Adult age percentage	82.40%		https://en.wikipedia.org/wiki/Demography_of_the_United_Kingdom
Adult population	56.8M		
Percentage of crypto users	10%		https://www.gov.uk/government/publications/individuals-holding-cryptoassets-uptake-and-understanding
Crypto users in the UK	5.7M		
2. Ethereum DeFi Market Size			
Number of Ethereum addresses	40.0M		https://dune.com/queries/2972/5739
Addresses per user	Market share	Number of addresses	https://newsletter.defitimes.io/p/how-many-people-use-defi?triedSigningIn=true
Power users	5%	10	
Regular users	45%	2	
Newbies	50%	1	
Average addresses per user		1.9	
Ethereum Defi users globally	21.1M		

3. UK DeFi Market shares			
Lido	7.67%	1.6M	https://pro.similarweb.com/#/digitalsuite/websiteanalysis/audience-geography/*/999/3m?key=lido.fi&webSource=Total
MakerDAO	5.36%	1.1M	https://pro.similarweb.com/#/digitalsuite/websiteanalysis/audience-geography/*/999/3m?key=oasis.app&webSource=Total
AAVE	6.16%	1.3M	https://pro.similarweb.com/#/digitalsuite/websiteanalysis/audience-geography/*/999/3m?key=aave.com&webSource=Total
Uniswap	4.77%	1.0M	https://pro.similarweb.com/#/digitalsuite/websiteanalysis/audience-geography/*/999/3m?key=uniswap.org&webSource=Total
CurveFinance	5.30%	1.1M	https://pro.similarweb.com/#/digitalsuite/websiteanalysis/audience-geography/*/999/3m?key=curve.fi&webSource=Total
Average Traffic share	5.85%	1.2M	
Estimated Defi users in the UK		1.2M	
Estimated UK cryptoasset users		**5.7M**	
Estimated UK Defi lending and staking users		**1.2M**	
Estimated Defi lending and staking users market share		**4.61%**	

Consultation Questions

Question 1

Do you consider that the rules above are sufficiently wide to cover most DeFi lending and staking models available in the market? If not, please provide details of the models that would not be covered.

As the creators of leading tax software for cryptoassets, we appreciate the effort in formulating these rules. However, we believe they may not comprehensively cover the breadth and depth of the current DeFi lending and staking models.

The proposed rules seem to focus predominantly on straightforward lending and staking scenarios where the same asset is put into a position and then later withdrawn. While this does cover a portion of the market, it needs to fully encapsulate the complexity and diversity of models that have emerged in the DeFi space. For example, it is currently unclear if the proposed rules would work for Lido, the largest DeFi staking protocol by TVL at $13.4bn or Uniswap and Curve (Liquidity pools) with a TVL at $7.5bn.

The market has seen a significant shift in user behaviour following the collapse of prominent players such as BlockFi, Celsius, Voyager, and FTX. More and more users are turning towards decentralised, counterparty-free services that operate in a permissionless environment on various blockchains. These services often involve more intricate mechanisms, such as liquidity pools, yield farming, and complex token swaps, which need to be adequately addressed by the current rules. We do not believe 'repo-like' rules as proposed would create any meaningful impact on UK taxpayers, as the majority of the market is centred around liquid staking protocols (Lido) and Liquidity pools (Uniswap/Curve), which comes with the challenges of transactions composed of multiple assets in and out of a position and the partial redemption of positions. We estimate that there are over 5.7m crypto users in the UK, with 1.2m now participating in DeFi lending and staking activities that are generating passive earning opportunities, so the potential impact is huge.

Furthermore, the rapid evolution and innovation in the DeFi sector mean that new models and mechanisms are constantly being introduced. Therefore, it's crucial that any new tax policy is versatile and future-proofed to accommodate these ongoing changes.

To address this, we suggest broadening the scope of the rules to consider more complex DeFi models and building a degree of flexibility that allows for the accommodation of future innovations in the sector. We have set out a Proposed tax framework - Asset composition NGNL approach, which demonstrates a unified approach to ensuring an equitable outcome for all DeFi lending and staking transactions, including anti-avoidance measures.

Question 2

Do you consider that the rules above would give rise to any unintended consequences or significantly restrict the development of the DeFi lending and staking market? If so, please provide details.

We believe the repo-like proposed rules, based on a same asset in and same asset out approach, would not fit the majority of situations in the current market; nor offer any level of future-proofing protection for the industry. The major concern is the lack of flexibility, and that it fails to recognise the nuances of the asset class.

The HMRC examples show very simple closed situations which are not reflective of real-world transactions. Most DeFi lending and staking transactions are open-ended, where taxpayers can continually add to and partially close positions. Whilst on the surface, it would seem a simplification to ignore a disposal of the principal for tax purposes and ignore the received 'right', the taxpayer would still be required to track positions, which introduces complexity. Each interaction with a DeFi position would require tracking in addition to the s104 pool cost basis tracking and the matching rules applied. When a position is closed or partially closed, the amount returned would need to be examined to determine the amount of rewards and principal.

One example of this is a user A sending 10 ETH to a lending contract with a variable interest rate. Over the course of a few months, user A sends another 10 ETH and 20 ETH into the same contract, taking the position to 40 ETH; while the position accrues

5 ETH in rewards. User A then withdraws 10 ETH from the position. In this case, user A would have to determine what ratio of the 10 ETH is the return of principal and rewards. Or would this all be treated as a return of principal, with the rewards only treated as received once all the principal has been withdrawn?

We think the proposed new rules will bring as much uncertainty and complexity as there is at present, in determining if each DeFi activity engaged in is 'eligible' for the favourable CGT tax treatment. HMRC may slightly alleviate this with comprehensive guidance and examples; however, we are unlikely to be able to access all the necessary information to determine the correct tax position.

Under the current regime, we need to determine whether or not there has been a change in beneficial ownership when entering the DeFi activity. This is a grey and uncertain area which is complex to do, given the lack of available information/ever-changing terms and conditions of the protocols and the lack of detailed guidance relating to the interaction between DeFi activity and beneficial ownership from HMRC. Under the proposed new rules, based on the 'Overall Principle' under section 3 Policy Approach of the consultation, we will need to determine if the economic interest is retained in the tokens staked or lent, over the duration of the transaction. The consultation indicates that the economic interest is retained where they have a legal right to receive the same quantity of the crypto token back at some point in the future and will benefit in full from changes in value of the token over the term of lending/staking. As terms and conditions are very hard to access and are ever-changing, this is going to make the question of eligibility to disregard the transactions for CGT just as difficult as at present.

We believe that our proposed tax framework alleviates this burden and complexity. As there will always be a no gain, no loss disposal of the principal tokens when entering all DeFi arrangements, there is no need to try to work out whether or not there has been a disposal of beneficial ownership or the economic interest at the time of entry. At the time of exit from the DeFi arrangement, the amount and asset returned will be known, informing the tax treatment for the return of principal tokens upon exit. If the same assets and the same amount are returned, there would be no gain and no loss for the principal upon exit, so it achieves the same tax outcome as the proposed rules, without the complexity and admin burden.

Based on this response, our recommendation would be that HMRC looks to adopt a NGNL type approach as per our proposed tax framework, which is broadly in line with 'Option 3' in the Call for Evidence to assist in achieving their objectives. Our tweaks to option 3 aim to counter anti-avoidance where different assets and different quantities are removed from the DeFi arrangements. The proposed tax approach needs to address the broader market, including coverage of Liquidity Pools and more complex DeFi scenarios (where assets returned differ from those entered into a position). We believe this will create the biggest impact and positive outcome and ensure the ability to future-proof the growth of the sector and adoption of new technology, whilst managing the administrative burden for both the user and for HMRC.

We believe all these aspects can be addressed with our proposed tax framework.

Question 3

Do you consider that the rules would be open to abuse?

Considering close-out positions are per examples 1-5 we do not consider there to be angles of abuse apart from 'disguised repo-like arrangements'. This is where a taxpayer could interact with a wallet or service and deem it as a repo-like arrangement when it isn't.

Since this is very much a global market, it seems unlikely that providers would create arrangements which specifically circumvent UK tax rules, since this would most likely have a large negative impact on their much larger non-UK client base.

Most DeFi lending and staking transactions are happening on-chain in a permissionless environment. There is often no business, organisation or company running the platforms and, therefore, no governance or regulation. As the barriers to entry for providing a DeFi platform are so low, it could be possible for one to be set up specifically to abuse the tax rules.

Question 4

Are the rights of the lender to receive the lent or staked tokens of a legal nature? Please respond to this question with reference to any specific DeFi models you have an involvement in, highlighting any legal uncertainties.

We do believe rights to be of a legal nature, and in fact, we believe these are critical 'instruments' in modelling claims to assets lent or staked. There is existing case law which recognises legal rights such as these as capital assets, and there seem to be no distinguishing factors that point to an alternative view.

Question 5

Other than (1) the sale of rights during staking or lending and (2) the borrower not being able to return staked or lent tokens, are there any other situations in which the lender may cease to hold the right to receive back the lent/staked tokens?

We assert that the following situations should be included in our consideration: instances of forced liquidation due to collateralisation, risks and potential exploits associated with smart contracts, bankruptcy and liquidation scenarios, and possible blacklisting of wallet addresses (which could occur, for example, by the contract developer). If liquidity pools are deemed outside the scope, it is essential to factor in liquidity issues, such as 'impermanent loss.' This loss occurs when the market price of a token deposited in a liquidity pool changes, causing the user's deposited assets to be worth less than their current market value. As a result, the profits generated from token deposits in the liquidity pool are lesser than what the user would have earned by simply holding the asset instead of depositing it into the pool.

Question 6

Do you favour a change in the rules to always treat the DeFi return as being of a revenue nature? What are the pros and cons?

We do not agree with or support the proposed treatment of all DeFi returns as being treated as income. This exaggerates the mismatch between the economic substance of the transaction and the tax position, which is contrary to the aims and objectives of the consultation.

We applaud HMRC for recognising the current complexities and problems regarding the current position and agree that the position needs to be simplified and provide a

fairer reflection of the economic substance of transactions. However, treating all rewards as income would increase the administrative burden on users and HMRC.

Cryptoassets are a new and nuanced asset class, and most DeFi lending and staking activity is against low liquidity assets, with no primary market. There is no fair market valuation in the UK, and this needs to be given due consideration given the volatility challenges.

We believe that it is more appropriate to treat all DeFi rewards as capital. This will help HMRC's objectives to reduce the admin burden on users and themselves and better reflects the economic substance of their participation in the market and their ability to work out their tax. From Roundtable events, there seems to be a misconception amongst some parties that most DeFi rewards are revenue in nature.

However, it is much more likely that rewards from DeFi arrangements are capital in nature, when the characteristics of how they operate is considered. To provide much-needed clarity and simplicity and to avoid determining the precise nature of every reward based on the facts, we recommend treating all rewards as capital, on the basis this reflects the majority of the rewards anyway. Marren v Ingles would need to be switched off as well, to reduce the admin burden.

To simplify the tax position and admin burden as much as possible, for HMRC and the taxpayer, we strongly recommended that DeFi capital rewards are treated as a Nil cost acquisition of the tokens at the time of receipt. They will then later be subject to CGT at the time of future economic disposal (ie sold for fiat or crypto to crypto trade).

There are many reasons while a Nil cost acquisition and capital rewards deliver the simplest burden free solution as below:

- It removes the complexity of identifying the reward aspect when tokens are returned from a DeFi arrangement. Where there are many instances of adding/removing principal tokens, it is very difficult to track them or determine the composition. There is more often than not insufficient detail to work this out. Also inconsistent terminology between different providers and

smart contracts means that the automatic detection and classification of the principal vs rewards is not possible.

- Obtaining a reliable fair market value at the time of receipt is very challenging. Available data is difficult to obtain, arbitrary, subjective, and subject to extreme volatility, especially around the time of a token launch. The price could easily half or double from one day to the next, which is not the case for any other asset class. The low liquidity problems also cause issues with the reliability of values.

- Low liquidity problems often prevent a taxpayer converting rewards to fiat for their tax bill. This leaves them exposed to a very high volatility risk, if the tokens drop in value between receipt and their economic disposal. Such rewards are often received in low quality assets, with no primary market and thin order books.

- Working out the time of receipt for tax purposes (for accrued, escrowed, locked, compounding) is not clear. It is very challenging to work out the amount of rewards a user is entitled to, before they have been received into the user's wallet. Furthermore the frequency of rewards can be extreme, and it is difficult to apply a reliable valuation when rewards are rolling up or into the wallet sometimes as often every 10 seconds.

- HMRC stated in a Roundtable that they don't want tax policy distorting the market. However, because users are forced to sell income rewards as soon as received, when the market permits, to pay their income tax bill this distorts the market. Most users want to keep holding their reward tokens and reinvest them in other DeFi protocols. Forced sales to pay the income tax causes price dips.

Nil cost acquisition of reward tokens alleviates the complexity of determining the reward element of tokens received and counters the price volatility issues at the time of receipt. Instead they are subjected to CGT when economically disposed of, at which point the value of the tokens is clear.

On a practical level Nil cost acquisition capital rewards work very well with our Proposed Tax Framework detailed separately in the section with this title.

Conclusion on rewards:

- Treat all rewards as capital
- Switch off Marren v Ingles
- Nil cost acquisitions, so subject to CGT when economically disposed of (i.e. cash for fiat or crypto to crypto exchange)

Question 7

a. **Do you agree that the proposed treatment of DeFi transactions has been applied correctly in each of Examples 1 to 5?**

   Yes, the proposed repo-like rules appear to work well for examples 1-5 in the consultation. However, these examples are not reflective of the market.

b. **Do you foresee any practical difficulties applying the proposed treatment to situations similar to those in these examples?**

   The process cannot be simplified for situations involving multiple assets coming in and going out. While Examples 1-3, as presented, do not raise any immediate issues, it should be emphasised that these examples do not truly reflect the market's reality, as we have repeatedly stated in this response.

   Example 4 is likely to pose practical challenges, particularly in identifying the accrued return and then applying different tax treatments to the 'sale of rights' (as Capital Gains Tax) and the accrued return (as miscellaneous income). In the case of decentralised/on-chain lending and staking, transaction data is unlikely to indicate the amount of accrued return, making it difficult for crypto tax software, taxpayers or accountants to decipher this information. Similarly, Example 5 is likely to lead to broader practical tracking issues.

   Example 5 - Again, this will likely cause wider practical tracking difficulties. There is no current HMRC guidance on the tax treatment of NFTs however, taxpayers are required to report and pay any tax over in relation to the

disposals of the NFT' and/or the underlying assets. NFTs are generally, in their nature, non-fungible and are not subject to s.104 pooling or matching rules where they are non-fungible.

c. **Please provide any further examples of DeFi transactions that you think would be helpful, including an explanation of how the proposed tax treatment would apply.**

We don't think further examples using the proposed repo-like approach are helpful as they are not able to cover most situations in the market (ie. liquidity pools and serial adding to and removing from a position). Please refer to the Proposed Tax Framework examples.

d. **Please provide examples of any DeFi transactions where you consider it would be problematic to apply the proposed new rules, with an explanation. If you think a different treatment would be easier to apply, while retaining broadly the same level and timing of tax charges, please set this out.**

Please refer to the Proposed Tax Framework examples.

Question 8

a. **Do you think that the transaction in Example 6 should be within the scope of the proposed tax rules for DeFi? On what principles have you based your response?**

It is essential the proposed tax rules for DeFi provide a clear tax position for liquidity pool activity or, in fact, any DeFi lending and staking position that is composed of multiple assets. As stated in earlier responses in this paper, liquidity pools represent a significant share of DeFi activity in the UK.

The fact that the return can be for different amounts or proportions should not be a limitation for the scope of this consultation, and we should be actively looking for a legislative approach that recognises the use cases of DeFi. We believe this is essential for the UK to ensure we gain a competitive position specifically when benchmarked against other jurisdictions such as the US.

b. **If you think that this transaction should be within the scope of the proposed DeFi rules, how should they treat the economic conversion between the 2 types of token while the tokens are staked as a pair, given that crypto to crypto transactions are taxable?**

   Please see the Proposed tax framework - Asset composition NGNL approach and worked example 6 where we have set out anti-avoidance provisions through return adjusted rights disposals.

c. **Noting that this transaction does not meet all the conditions for the proposed rules, how could those rules be modified to provide a fair outcome for this transaction?**

   Please see the Proposed tax framework - Asset composition NGNL approach.

d. **Do you foresee any difficulties for users who engage in these and similar transactions to establish the value of the DeFi return? If so, please provide examples where this may be an issue.**

   As a crypto tax software company and their accounting partner, we understand the complexity of DeFi returns. Typically, these are lump sum transactions combining the returned principal and any yield. The challenge lies in segregating these components to accurately determine the value of the reward for tax purposes.

   Please see our detailed comments on problems with valuing and identifying the amount of DeFi returns in our reply to Question 6.

Question 9

Do you have any general comments regarding the proposed tax framework for DeFi that you have not included in the previous questions?

1. The consultation seems heavily in favour of a repo-like rules set. We would like to stress that a NGNL treatment as per our proposed framework would be a much better and universal approach for any DeFi lending and staking

activity to ensure full coverage of the current market and aim to future proof for new developments.

2. Boundaries - establishing the tax point of receiving rewards is a significant issue (which can be overcome with Nil acquisition cost capital rewards). Another important consideration is whether or not activity and transactions undertaken within a smart contract, or within a composite transaction, are treated as taxable transactions or not. Is the smart contract and/or composite transaction treated as opaque for tax, and the only concern is what went in and out? Or is it transparent for tax, and the user needs to account for all actions within the confines of the smart contract or composite transaction?

3. Retrospective - whilst it may not be possible to create retrospective legislation, it is vital that taxpayers have clarity on their tax position for earlier years and even for the next couple of years whilst we await the implementation of new legislation. It has been recognised that the current law applied to DeFi activity does not give a fair tax position representing the economic substance of the activity. There is also a significant complexity and admin burden associated with the current position. Therefore it would be essential for an election to be available for taxpayers to opt into the new legislation for prior years.

4. Multichain fungibility - the practice of using cryptoassets across different blockchains - requires clarification from HMRC. Specifically, it is crucial to determine how cryptoassets that are native to one blockchain should be treated when utilised on a different blockchain.

   For instance, consider a user sending 1 ETH (Ethereum) from their Ethereum wallet to a Binance Smart Chain wallet through a "bridge" such as the Rainbow Bridge or Chainlink CCIP. Here, the 1 ETH is native to the Ethereum blockchain. Does the act of sending the 1 ETH to the Binance Smart Chain constitute a disposal of ETH at market value and the acquisition of a new ETH version on the Binance chain?

Further, it is unclear whether the ETH held on Ethereum and Binance Smart Chain should be combined into the same pool under section 104. These areas require clarification to ensure compliance and ease of use for crypto investors.

5. Wrapped assets - the process of wrapping involves converting a native blockchain asset into a tokenised representation of that asset, which is crucial for these assets to be utilised within smart contracts on their respective blockchain. This bidirectional process is unrestricted, operates at a fixed ratio, and provides no additional economic substance for the holder. Importantly, the smart contracts used for wrapping are pure, immutable, and immune to external interference.

   Given the economic equivalency of the original and wrapped assets, conversions between these two forms should be exempt from tax. This is particularly relevant given the industry's treatment of such assets as equivalent, with platforms often displaying wrapped assets under the same designation as their native counterparts. For instance, Ethereum (ETH) and its wrapped version (WETH) are often treated as interchangeable, with WETH frequently used in smart contracts to optimise gas fees when closing positions.

   Given these circumstances, it's crucial for HMRC to provide clear guidance on whether wrapped assets are treated as separate assets for tax purposes.

6. Rebase tokens - a recent development in the cryptocurrency market, feature variable supplies that adjust based on internal mechanisms such as artificial inflation or deflation (rebasing), transaction fee distributions, and other unique mechanisms. These adjustments, while integral to the token's function, may take time to be apparent to the end user and present new challenges for tax interpretation.

   We propose that supply adjustments affecting all token holders in a proportional manner should not invoke a tax consequence, as no individual holder is gaining an economic benefit over others. This situation is akin to traditional stock splits or merges, where the quantity of shares changes, but

the overall value remains the same for each shareholder. In such cases, the section 104 pool amounts would be adjusted accordingly, similar to how these events are treated in traditional securities markets.

However, supply adjustments that are not evenly distributed among holders may be more similar to airdrops and should be taxed as such. In these situations, individual holders may realise an economic benefit from the supply adjustment, and thus a tax consequence is appropriate.

The challenge lies in accurately tracking these supply adjustments for tax purposes. Some rebase tokens dynamically adjust their supply with every interaction, potentially amounting to thousands of adjustments each day. To address this, we propose adopting a pragmatic approach. Supply changes could be tracked at regular intervals, such as daily, or updated immediately before any event that could impact the user's tax situation, such as a disposal of assets. This would provide a realistic and manageable method for calculating the tax implications of holding rebase tokens.

In light of these complexities, it is crucial for HMRC to provide clear guidelines on the tax treatment of rebase tokens. This will ensure that the tax treatment aligns with the practical realities of how these assets operate and are used within the industry.

Question 10

What impact do you expect the proposals in this document, if implemented, to have on administrative burdens and costs for users of DeFi?

Crypto is a nuanced asset class, and we are dealing with a market where you can create an asset or DeFi protocol with no/low barriers to entry. This creates an environment where transactions and their associated value are difficult to track. Software is already essential in order to aggregate all your activity into one place to operate the pooling rules, to provide the necessary sterling valuations at the time of every transaction and to operate the S104 pooling and matching to calculate gains and losses. It is only the very simplest of situations where there is no need to use software at present to work out the crypto income and gains. Therefore, applying any

new DeFi lending a staking rulesets, there will be the need for software to track positions.

It is important to state that crypto tax software such as Recap can handle much of the admin burden, however there will always be cases where software cannot automatically reconcile transactions and require user intervention.

Question 11

Are there any other impacts, benefits or costs arising from the proposals in this document, if implemented?

The only benefit we can see is that it removes the dry CGT charge for some very simple situations. We think the costs of these proposals will be neutral when compared to the existing position and the costs associated with the alternate tax framework we have proposed.

Question 12

How common is direct lending of tokens between 2 parties compared to the use of staking?

From our perspective, the scenario you're referring to isn't common among retail investors. Until a year ago, it was fairly normal to lend to firms like Celsius, BlockFi, FTX or Voyager. But after the downfall of such companies, we've seen a major move towards decentralisation in the market, which has greatly diminished this practice.

Yours sincerely

Dan Howitt - Recap

Ben Shepheard - Recap

Louise Lane - Wright Vigar