From: Coinbase

Subject: Decentralized Finance and Tax Reporting/Withholding

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Tl;dr *The lack of detailed regulatory guidance on the tax treatment of cryptocurrency and digital assets, particularly so-called "DeFi" transactions, has created uncertainty within the crypto ecosystem for how to properly apply tax and tax information reporting to such transactions. We would recommend the use of identity tokens and some form of transaction tax to solve for many of the gaps that currently exist in applying tax to DeFi transactions. These processes ideally would preempt more punitive measures that governments may impose.*

The following memo explores:
- *An introductory summary of DeFi transactions, information reporting and withholding tax impact (both U.S. and global)*
- *Taxation of DAO and DeFi transactions*
- *Overall recommendations*

Introduction

Decentralized Finance (DeFI) systems make available financial (and non-financial) products on a public decentralized blockchain network. DeFi products could be direct purchases, swaps, loans, derivatives, crowdfunding, and other contracts that anyone develops. Popular DeFi transactions include lending/earning products, trading on exchanges and contributions to liquidity pools (described more below). What is unique though is that unlike traditional financial products in which a bank or intermediary is involved, DeFi transactions are peer-to-peer. No centralized entity, regulated or unregulated, acts as an intermediary with user transactions.

Many DeFi transactions rely on Decentralized Autonomous Organizations (DAOs) which are member supervised or consensual organizational structures enabled to execute financial transactions. In addition, many DeFi systems use DAOs as a means to provide decentralized social governance to the execution of these financial transactions. A DAO generally is non-custodial with respect to user funds and operates without a centralized authority. Traditionally, a financial custodian holds client assets for safekeeping purposes so that such assets are not lost or stolen. Since DeFi transactions take place using blockchain

cryptography, peer-to-peer transactions are generally confirmed and secure. There is no need for a custodian or other centralized authority to safekeep or confirm transactions.

Rather, a DAO operates through the use of autonomous governance related smart contracts that have specific rights in relation to the autonomous smart contracts which operate the underlying protocol. In this user case of the DAO, the underlying protocol or underlying goal of the DAO is the DeFi product. Smart contracts function automatically through computer code and do not require a human being to trigger activity functions. Thus, a DAO executing DeFi transactions autonomously through smart contracts does so through peer-to-peer transactions without the traditional intermediary entity of a third party broker or exchange or bank being involved.

Since transactions are peer-to-peer through the use of smart contracts, the DAO itself does not function as a traditional financial intermediary transferring money from, *for example,* buyers and sellers. The DAO generally represents an immutable contract to create irreversible transactions on the blockchain without the use of intermediaries. A relevant research paper by the late David J. Shakow of the University of Pennsylvania describes smart contracts within a DAO with the following example[1]:

"For example, it [a smart contract] allows two parties to set up their computers so that the buyer's computer issues an order to purchase an item, and the seller's computer causes the item to be sent on its way without any further intervention by the seller. For example, if a company kept its supply of paper in such a way that it could mechanically determine when the supply was running low, its computer could issue an order to an office supply company for more paper, without any employee of the buyer necessarily being aware that the order had been placed. The office supply company's computer could cause a shipment of paper to be made to the buyer with no conscious intervention of any employees."

Participation in a DAO (whether as a user or as governance holder) is pseudonymous. There is no collection of any information from participants (other than their public address). No tax documentation like an IRS Form W-9 or IRS Form W-8 is required to participate. Because the DAO is decentralized and autonomous, not only does it not know who to request relevant identifying tax documentation from, but also, if it were required to perform traditional information reporting and withholding tax functions there presently is no singular responsible person/authority to file such with the IRS or any other regulatory authority.

In addition, DeFi systems can have specific purposes. For example, a DeFi exchange ("DEX") allows people to lend and trade cryptocurrencies directly with each other without an intermediary. DEX's generally rely on liquidity pools which are pools of user assets transferred to the DEX's smart contracts which enable traders to swap or borrow cryptocurrencies or perform a variety of other actions, thereby eliminating the need for a traditional market maker. Liquidity pools can be used for such other actions as yield farming (participants add their funds to pools used to generate yield, essentially earning passive

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[1] Shakow, David J., The Tao of the DAO: Taxing an Entity that Lives on a Blockchain (August 13, 2018). Tax Notes, Vol. 160, Pg. 929, August 13, 2018, U of Penn, Inst for Law & Econ Research Paper No. 18-23, Available at SSRN: https://ssrn.com/abstract=3247155

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income on their crypto holdings), insurance against smart contract risks, tranching (allows pools to select customized risk and return profiles) and any other such uses that developers will think of.

Examples of DeFi Protocols and Areas of Interest for Tax Authorities

Compound: Compound is a protocol that crypto investors use to either lend crypto through or borrow (in a secured format) from. Lenders exchange tokens such as DAI or ETH in exchange for "c"Tokens such as cDAI or cETH, which represent the underlying tokens that are transferred to the protocol's smart contracts for lending to borrowers. Borrowers pay borrow fees via the smart contracts which effectively increase the exchange rate of the "c"Tokens back to their underlying. Lenders and borrowers are also rewarded for their use of the protocol by earning COMP (governance) tokens.

U.S. tax residents are generally taxable on accessions to wealth. Clearly, a taxpayer lender in the Compound protocol, by lending ETH and ultimately receiving "more" ETH after a period of time has an accession to wealth. While it's not clear under U.S. tax law *when* that holder must recognize taxable income (is it as the cToken exchange rate climbs or only when they exchange for the original token, and/or is the exchange of the underlying token for the COMP token a taxable exchange or is it also "wait and see"), none of the returns earned by participants gets reported to the IRS on a comparable 1099 form the way a bank may have issued a 1099-INT had the lender simply deposited fiat currency into a bank account. It is also unclear whether a U.S. taxpayer should treat this accession to wealth as a capital gain or loss (from the sale of the cToken) or if they should recognize ordinary income as the income is earned "within" the cToken.

Uniswap: Uniswap is a liquidity pool that acts as an automated market maker for pairs of crypto assets. For example, one pool could be ETH/DAI. Liquidity providers send a combination of ETH and DAI to enhance the pool's supply of the pair, and traders can exchange ETH for DAI for example directly with the pool. The liquidity providers effectively exchange their original ETH/DAI in this case to become fractional owners of the ever-evolving ETH/DAI pool. The pool contains fluctuating proportions of ETH/DAI as well as fees that are charged to the traders who use the pools. While liquidity providers generally "earn" a yield, they also face "divergence loss" (also sometimes called "impermanent loss") due to changes in market values of the underlying assets of the pool. In fact, as a result of "divergence loss" there is no guarantee that the liquidity provider will earn a positive return on the assets they lend to a liquidity pool on Uniswap. In fact, many liquidity providers have in fact suffered net losses.

U.S. resident liquidity providers may already be taxable just for participating in the pool (i.e. it may be a taxable event for just converting their separate ETH and DAI for a share of a pool). Over time, when they convert their share of the pool for their proportionate share of the pool's ETH/DAI, they are ultimately at the very least taxable on the excess, if any, that has been earned from what they had originally started with. None of these transactions is visible to the IRS as associated with any specific taxpayer because

none is reported on anything similar to either a 1099-MISC (for the accrued fees) or on a 1099-B (for the actual exchange of DAI or ETH for another type of token representing the share in the pool).

Even more potentially challenging for the U.S. government though is that the traders who trade their ETH for DAI with the pool (which likely is a taxable event) can also have gains that go unreported. While today even dispositions of crypto on exchanges such as Coinbase are also not presently subject to reporting by Coinbase, these dispositions will be subject to reporting for transactions entered into starting in 2023[2]. Similarly, traditional brokers are required to report gross proceeds and cost basis of most dispositions of securities on Form 1099-B.

Information Reporting and Withholding Tax:

United States Tax Concerns

The U.S. Internal Revenue Code (Tax Code) relies entirely on intermediaries, such as financial services entities, to facilitate information reporting to and withholding of tax for the U.S. government. This is evidenced in such code sections as:

- Section 6045– requires brokers (U.S. and foreign) to issue information returns (Form 1099-B) that report client information, gross proceeds and other information.
- Section 6041– requires a person making payments in the course of a trade or business to another person of fixed or determinable income of $600 or more in any calendar year to report such payment (Form 1099-MISC).
- Section 6050W– requires payment settlement entities, including third party settlement organizations, to file an information return (Form 1099-K) for each calendar year with respect to payments made in settlement of reportable payment transactions.
- Section 1441– requires withholding agents to report payments of U.S. FDAP income to non-U.S. individuals and entities (Form 1042-S).

The U.S. government relies heavily on such intermediary entities to facilitate tax compliance, as these entities have knowledge of whom they are making payments to, what type of payments are being made and how often such payments are being made. Information reporting is considered to be one of the strongest enforcement tools the IRS has to ensure compliance with the tax laws. The theory is that if a taxpayer knows that information has been reported to the IRS, it is more likely to report income and transactions on their tax return since the IRS will match their return with the information it has collected through information reporting. The U.S. government has jurisdiction over U.S. entities (and non-U.S. entities subject to U.S. tax law) who make such payments, and is able to impose and enforce withholding

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[2] See the recent Infrastructure Jobs and Investment Act. https://www.congress.gov/bill/117th-congress/house-bill/3684/text.

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taxes, penalties and interest for any failures to report as required by law. These amounts can be quite substantial since they typically are assessed on gross proceeds, not simply on underpayments of income.

Traditional financial transactions are subject to the income sourcing rules of the U.S. Tax Code which coordinate with the various information reporting and withholding code sections mentioned above that rely on intermediary entities.

For example, U.S. persons engaged in traditional financial transactions such as trading of securities (and receiving dividends) or lending of securities (and receiving borrow fees) may be subject to withholding tax (general withholding at a rate of 30%, and backup withholding at a rate of 24%) on such income if the intermediary facilitating the transactions for the U.S. person does not have Form W-9 on file for the U.S. person. Regardless of tax, the income generally is reportable for U.S. persons on Form 1099.

Non-U.S. persons engaged in traditional financial transactions such as trading of securities (and receiving dividends) or lending of securities (and receiving borrow fees) will be subject to U.S. withholding tax if the income received is U.S. source (i.e., dividends paid by U.S. entities or interest paid by a U.S. borrower[3]). Likewise, only if the income is U.S. source is it reportable to the non-U.S. person on Form 1042-S and is it necessary for the intermediary entity facilitating the transactions to obtain a Form W-8 from the non-U.S. person.

However, this premise of an intermediary entity and knowledge of sourcing of income is challenging within the DeFi ecosystem. DeFi systems:

- Do not have a central party facilitating settlement of payments
- Do not know the identities or tax status of the users (i.e., borrowers, lenders or traders) involved in the DeFi transactions

In DeFi transactions, such as trading or lending of cryptocurrency, there is no central, authoritative, intermediary entity facilitating the transactions or payments between participants. In addition, the pseudonymous nature of the transactions makes accurate sourcing of any payments difficult or impossible. Often the "source" of a payment is determinative to whether a country has a right to tax the payment. In the U.S., such "source" may be based on identifying where the recipient or the payor is based, depending on the type of payment.

Global Tax Concerns

Besides the U.S. government, governments around the world have similar concerns about large amounts of unreported cryptocurrency income being earned by their residents that cannot be traced to them. The amounts of income being earned are assumed to be quite large, and the lack of a reporting mechanism can lead to understatements of tax. In July 2020, the EU Commission adopted the "Action

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[3] The tax treatment of the "source" of borrow fees remains unclear under U.S. tax law.

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Plan for Fair and Simple Taxation Supporting the Recovery Strategy" to fight against tax abuse. As part of this action plan, the EU Commission launched a new initiative known as DAC 8 (Directive on Administrative Cooperation, eight version). The intent of DAC 8 will be to allow the automatic exchange of information about cryptocurrency so that jurisdictions may accurately tax such income. The EU Commission has not yet published DAC 8 so its specific details are still unknown.

Similar to the U.S. though, other jurisdictions continue to struggle with how to define cryptocurrency and DeFi transactions for tax purposes. There is not consistent, widespread agreement as to treatment.

Taxation of DAOs and DeFi transactions

There is also a lack of regulatory clarity on the taxation of DAOs themselves, which may be used as part of DeFi protocols. For U.S. tax purposes, DAOs do not fit neatly into one specific tax classification. Rather, many DAOs mirror characteristics of several types of tax classifications from corporations to partnerships to trusts to cooperatives[4] and even to non-profit foundations, while some may not rise to the definition of a taxable "business entity." However, for example, even if a DAO should be treated as a partnership and thus a non-taxpayer, they are not currently equipped to issue anything similar to a K-1 to their members so the members can appropriately report their share of the DAO's activity on their returns and pay any associated taxes.

This has caused many DAOs at formation to elect "to avoid entity structures in anticipation of legislation more applicable to DAO entity structures than what the law currently provides[5]." However, the unanticipated rate at which DAO treasuries[6] have grown in value and the increasing need for DAOs to engage in activities to support their ecosystems has created significant pressure on especially unincorporated DAOs, to address their inability to file and pay taxes associated with income tax events within the treasuries. Accordingly, creating a taxable entity capable of filing and paying taxes would significantly decrease the risk associated with an unincorporated entity since the inability to pay income tax would be remediated[7]."

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[4] See 16Z paper: https://a16z.com/wp-content/uploads/2021/10/DAO-Legal-Framework-Jennings-Kerr10.19.21-Final.pdf
[5] Id.
[6] For clarification, a DAO treasury is used for seed capital purposes. Governance tokens are sold to raise funds and in return, participants who buy these tokens receive governance voting rights. Access to the treasury is only granted through approval of the participants.
[7] Id., page 11.

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Overall Recommendations

DeFi transactions are by their nature decentralized and DAOs are non-custodial (with respect to user funds), decentralized authorities. Taking into account this challenge to the current system of tax reporting, we have three recommendations:

1) The industry could agree to develop smart contracts with a tax identity token. Participants in a DeFi transaction using smart contracts would insert their tax relevant information in an identity token. Tax relevant information would encompass, for example, full legal name, country of tax residence, taxpayer identification number, all under "penalty of perjury," which is an essential component of US tax reporting. When the participant engages in a transaction as set by parameters within the smart contract, the smart contract would then send relevant tax token information and transaction information to the tax authority of the jurisdiction of the participant. The information of the identity token would be encrypted and not visible to anyone (including a DAO if the smart contract is part of a DAO). The information would only be visible to the receiving tax authority. The receiving tax authority could then use the combination of identifying information and DeFi transactions as points of reference when the participant filed his/her/its income tax return in the local jurisdiction. Such tokens also could be used to impose a simplified transaction tax, rather than a more complex income tax to ensure that governments are assured a source of revenue through the growth of DeFi and the crypto ecosystem. Such transaction taxes could be creditable by persons against their income tax liability (i.e., essentially a "prepayment" of taxes collected at the time the transaction is entered into).

2) Cryptocurrency exchanges/brokers should continue to actively engage/advocate for discussions with the U.S. government (and other governments and non-governmental organizations, including the OECD and the European Commission) to suggest a tax framework for cryptocurrency that would govern the exchange of information. Similar to the Common Reporting Standard (CRS) which was spearheaded by the OECD to provide the exchange of information amongst jurisdictions, a new framework for the exchange of cryptocurrency information could be developed and spearheaded by the U.S. government, the OECD, the European Commission or any other non-US taxing authority. The exchange of information could occur through the use of an identity token (see above) and encompass specific definitions for purposes of applicability. Given the non-custodial nature of most DeFi protocols, as well as administrability issues with imposing withholding taxes on entities/protocols outside the U.S., the DeFi tax framework could incentivize information reporting by DeFi protocols by imposing an "excise tax" (i.e., [X]% of the gross proceeds)[8] on persons that engage in transactions on

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[8] Section 4701(a) of the U.S. Tax Code and other U.S. tax rules currently disincentivize both issuers and holders from issuing or holding "bearer" debt (*e.g.* certain issuers are subject to an excise tax of 1% multiplied by the years to maturity on the entire principal amount).

protocols that do not perform tax reporting or on those persons who do not identify themselves to the protocols.

In addition, even if a protocol takes steps to implement tax reporting and exchange of information, there may be unidentified recipients who are not able to be reported to a local tax authority as recommended above. With respect to unidentified recipients, tax authorities should consider additional disincentives to persons not providing an ID to DeFi protocols. An example would be applying an additional excise tax on transactions by an unidentified participant in the protocol, which could be imposed at the protocol level. In fact, with DeFi, it actually may be more efficient to levy a transaction tax in a smart contract rather than depend on the voluntary income tax. The transaction tax could be creditable against any income tax owed by the unidentified party, while still ensuring that some tax could be collected at a minimum when the transaction is completed and the tax is remitted to the appropriate tax authority. This mechanism would likely require some form of global cooperation.

To summarize - the above framework would (i) incentivize persons to use protocols that perform tax reporting, in order for the users to avoid owing an excise tax if they were to engage in transactions on a protocol that does not perform tax reporting, and (ii) empower protocols to incentivize persons to provide their tax information for reporting purposes, as the protocol would be required to impose an additional excise tax if persons do not provide such information.

3) The cryptocurrency industry should come together with one unifying voice. A central industry association with standing meetings to discuss cryptocurrency topics, educate others and speak as one voice to governmental authorities could effectively advocate for change. For example, the Securities Industry and Financial Markets Association (SIFMA) acts as one voice for traditional financial institutions. It drafts and sends commentary letters to the IRS, meets with IRS representatives and provides educational conferences to its members. Similarly, the American Bankers Association (ABA) brings together American banking institutions to draft and send comment letters to the IRS, meet with IRS representatives and provide educational conferences to its members. A multi-member organization approaching the U.S. government can have more impact than a single taxpayer.