DeFi Education Fund

November 7, 2023

Submitted via the Federal eRulemaking Portal at www.regulations.gov

Internal Revenue Service
Attn: CC:PA:LPD:PR (REG–122793–19)
Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

Re: **Comment on the Proposed Rule on Gross Proceeds and Basis Reporting by Brokers and Determination of Amount Realized and Basis for Digital Asset Transactions, REG-122793-19**

The DeFi Education Fund (**DEF**) submits this comment letter in response to the digital assets broker reporting regulations proposed by the Internal Revenue Service (IRS) on August 29, 2023, docket number REG-122793-19 (the **Proposed Regulations**).[1] If finalized in their current form, the Proposed Regulations would stretch the definition of "broker" beyond what section 6045(c)(1)(D) contemplates or the Constitution allows,[2] require information collection and reporting by individuals and entities incapable of collecting that information, unnecessarily endanger the personal data of millions of Americans, confuse taxpayers, stress government resources, stifle innovation, and cripple American businesses and competitiveness.

By way of background, DEF is a non-partisan research and advocacy group. Our mission is to educate lawmakers about the technical workings and benefits of decentralized finance (**DeFi**), achieve regulatory clarity for the future of the global digital economy, and advocate for individual users and developers in the DeFi space. This letter addresses transactions effected through a self-hosted wallet, even if those transactions are predominantly nonfinancial like buying a collectible nonfungible token (**NFT**). DeFi has immense potential to advance innovation

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[1]   88 Fed. Reg. 59576.

[2]   Except as otherwise specified, all section references herein are to the Internal Revenue Code and to proposed and final regulations thereunder.

in the world economy, and we believe that potential can best be realized only in conjunction with smart policy.

The Proposed Regulations interpret the term "broker" to include "digital asset middleman," a vague and expansive category of market participants that bears little resemblance to the persons historically considered brokers and required to report under section 6045. Part I explains why the digital asset middleman category stretches the statutory language beyond its breaking point in direct contravention of the relevant legislative history.

Part II illustrates the result of the Proposed Regulations' extra-statutory interpretation of "broker": a definition of "digital asset middleman" that is both so vague and overbroad as to be impossible to apply or administer.

Part III explains why the Proposed Regulations, if finalized in their current form, would increase rather than reduce taxpayer confusion.

Parts IV and V explain why the Proposed Regulations violate the Fourth Amendment's prohibition on warrantless searches and seizures and are void for vagueness under the due process clause of the Fifth Amendment.

Parts VI and VII explain that the Proposed Regulations would impose an undue financial burden on the IRS and market participants.

The Proposed Regulations' concept of digital asset middleman appears to be predicated on a misconception that the DeFi technology stack (technologies that are stacked together to build an application) includes identifiable "platform operators" who are closely analogous to traditional brokers and are in a position to collect customer information but choose not to.[3] Part VIII offers a plain-English explanation of the entire technology stack involved in the execution and transmission of a typical DeFi transaction to illustrate the impossibility of applying the "digital asset middleman" concept in practice and how overreaching it would be based on the preamble to the Proposed Regulations (the **Preamble**).

Part IX requests a delay in the effective date of the Proposed Regulations insofar as they apply to digital asset middlemen, assuming the IRS still plans to finalize them in their current form in spite of the more than 100,000 comments it has received to date.

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[3]   *See* Preamble, Explanation of Provisions, Part I.B. ("The Treasury Department and the IRS expect that this clarified proposed definition will ultimately require operators of some platforms generally referred to as decentralized exchanges to collect customer information and report sales information about their customers, if those operators otherwise qualify as brokers. This decision was made because the reasons for requiring information reporting on dispositions of digital assets do not depend on the manner by which a business operating a platform effects customers' transactions.").

Table of Contents

I.   The Proposed Regulations adopt an extra-statutory definition of "broker"

The Proposed Regulations would, if finalized, exceed the statutory authority Congress has granted to the Treasury and the IRS by expanding the concept of "broker" beyond any reasonable interpretation of section 6045(c)(1)(D).

A.   The legislative history does not support the new definition of "broker"

The concept of "broker" for tax purposes has a long history. Since 1917, Congress has authorized the IRS and its predecessor to request information returns from brokers on Form 1099.[4] For as long as that authorization has existed, brokers subject to IRS reporting requirements have always been limited to persons doing business as brokers on regulated centralized marketplaces,[5] or, beginning in 1983, acting for customers in a trade or business in one of two roles:

- Agent (*i.e.*, custodians or persons directing payments on behalf of customers), if they ordinarily would know the gross proceeds from the sale; or

- Principal (*i.e.*, persons providing liquidity to the market).[6]

When Congress amended the definition of "broker" in 2021 to include "any person who (for consideration) is responsible for regularly providing any service effectuating transfers of digital assets on behalf of another person,"[7] it expressed a clear desire for the language to be interpreted in a manner consistent with the traditional understanding of "broker."

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4   *See generally* Joseph Thorndike, *Wall Street, Washington, and the Business of Information Reporting*, Tax Notes (Feb. 13, 2006), https://www.taxnotes.com/tax-history-project/wall-street-washington-and-business-information-reporting/2006/02/14/y014.

5   *See* Revenue Act of 1917, P.L. 65-50, section 1211, https://babel.hathitrust.org/cgi/pt?id=iau.31858047996222&seq=86/ (defining "broker" as a person "doing business as a broker on any exchange or board of trade or other similar place of business").

6   T.D. 7873 (1983) (adopting current regulatory definition of "broker," which explicitly limits brokers to (1) agents who ordinarily would know the gross proceeds from the sale and (2) principals).

        Proposed Regulations section 1.6045-1(a)(10)(i)(B) would clarify that a person who acts as a principal to a sale would be treated as "effecting" the sale only to the extent they are acting as a broker.

7   Section 6045(c)(1)(D).

First, a colloquy from the Senate Floor relating to section 6045(c)(1)(D) (the **Colloquy**),[8] which the Treasury has explicitly recognized as legislative history,[9] specifically instructs the Treasury not to interpret the new provision to apply to persons other than "brokers." In light of the over 100-year-old history of legislative and regulatory interpretation of the term "broker," it would stretch credulity to conclude Congress used "brokers" in that context to mean persons other than those acting for customers as agents or principals.[10]

Second, Congress used the word "effectuate" in the text of section 6045(c)(1)(D). "Effectuate" is synonymous with "effect," the operative verb that has appeared in the regulatory definition of "broker" since 1983.[11] The plain meaning of both words is "to cause" or "to bring about,"[12] such that a close causal relationship is a precondition to broker treatment under the statute.[13]

Thus, the legislative history and statutory text establish that "providing any service effectuating transfers" under section 6045 does not—and never did—include the following:

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[8]   *See Colloquy Among Senators Mark Warner and Rob Portman* (Aug. 9, 2021), https://www.warner.senate.gov/public/index.cfm/2021/8/on-senate-floor-warner-portman-conduct-colloquy-clarifying-cryptocurrency-provision-in-infrastructure-investment-jobs-act.

[9]   *See* Letter by Jonathan C. Davidson, Assistant Secretary for Legislative Affairs, to Senators Portman, Warner, Crapo, Toomey, and Lummis (Feb. 11, 2022), https://www.stradley.com/-/media/files/publications/2022/02/crypto-davidsonletter.pdf?la=en&rev=b70305b 1549241499395d19f03d4b32e&hash=72BF0360EABE4BC8EACCB8198F51371C ("This colloquy constitutes part of the legislative history of the…amendment to the definition of 'broker' in section 6045(c). The Treasury Department is considering these statements as part of the development of a notice of proposed rulemaking.").

[10] *See also* Joint Committee on Taxation, *Technical Explanation of Section 80603, "Information Reporting for Brokers and Digital Assets," of the Infrastructure Investment and Jobs Act*, at 5 (Aug. 2021), https://www.jct.gov/CMSPages/GetFile.aspx?guid=26e36c6d-3f46-4ac8-aa8b-f9975a4c7692 ("The change *clarifies present law* to resolve uncertainty over whether certain market participants are brokers.") (emphasis added).

[11] *See* regs. section 1.6045-1(a)(1) ("The term broker means any person…that, in the ordinary course of a trade or business during the calendar year, stands ready to effect sales to be made by others.").

[12] *See Effect*, Merriam-Webster Online, https://www.merriam-webster.com/dictionary/effect#dictionary-entry-2; *Effectuate*, Merriam-Webster Online, https://www.merriam-webster.com/dictionary/effectuate.

[13] *See Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983) ("effect" requires "a reasonably close causal relationship").

- Providing information that helps others effectuate transactions, such as Google, Yahoo! Finance, or Wikipedia (which we refer to as *informational services*);[14]

- Impartially transmitting information that might include requests to effectuate transactions, such as FedEx, Gmail, or an internet service provider (which we refer to as *information transmission services*);[15] or

- Providing forums in which others might effectuate transactions, such as stock exchanges, online peer-to-peer marketplaces, or flea markets (which we refer to as *marketplace availability services*).[16]

The Treasury itself has acknowledged the import of the legislative history. In February 2022, in an open letter (the **Treasury Letter**) to several Senators regarding section 6045(c)(1)(D), the Treasury acknowledged that Congress did not intend to fundamentally change the meaning of the term "broker" by expanding Form 1099 reporting to digital assets.[17] The Treasury Letter explicitly assures the Senators that any regulations proposed under section 6045(c)(1)(D) "will be based on principles broadly similar to those applicable under current law for broker reporting on securities transactions," and confirms that "ancillary parties who cannot get access to information that is useful to the IRS are not intended to be captured by the reporting requirements for brokers."

Notwithstanding the plain language of the statute, the Colloquy, and its own acknowledgement in the Treasury Letter, the IRS would rewrite the historical definition of "broker" to include persons who are neither agents nor principals and cannot obtain identifying information from users except, possibly, by dramatically altering their businesses. More specifically, the Proposed Regulations introduce a brand-new category of broker, called "digital asset middleman," which they define as any person who (1) provides a "facilitative service" and (2) "ordinarily would know or be in a position to know" the identity of the party that makes a

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[14] *See, e.g.*, regs. section 1.6045-1(b), Example 2(i) (transfer agents who provide recordkeeping for stock transfers generally are not brokers). *But see* proposed regs. section 1.6045-1(a)(21)(iii)(A) (facilitative services include "providing services to discover the most competitive buy and sell prices").

[15] *See, e.g.*, regs. section 1.6045-1(b), Example 2(iv) (escrow agents that transfer assets "incidental to the purpose of the escrow" generally are not brokers). *But see* proposed regs. section 1.6045-1(a)(21)(iii)(A) (facilitative services include "providing a party in the sale with access to an automatically executing contract or protocol" and "providing access to digital asset trading platforms").

[16] *See, e.g.*, regs. section 1.6045-1(b), Example 2(ii) ("A person (such as a stock exchange) that merely provides facilities in which others effect sales" is not a broker). *But see* proposed regs. section 1.6045-1(a)(21)(iii)(A) (facilitative services include "providing an automated market maker system").

[17] *See* Treasury Letter, *supra* n.9.

sale and the nature of the transaction potentially giving rise to gross proceeds.[18] The new and expansive definition would push the IRS's jurisdiction far beyond what Congress authorized or envisioned.

B.   The IRS's new definition of "broker" is impermissibly limitless in scope

The Proposed Regulations would rewrite the Internal Revenue Code by deputizing as brokers, for the first time in history and in contravention of Congress's stated intent, persons who (1) do not collect users' tax information as part of their business, (2) have no reason to collect tax information other than by reason of the Proposed Regulations, and (3) do not receive tax information voluntarily.

First, the Proposed Regulations define "facilitative service" to include "a service that directly or indirectly effectuates a sale of digital assets." Because the Proposed Regulations do not offer any clarity on the outer bounds of "indirectly,"[19] the term "facilitative service" has no discernible limits. The laundry list of facilitative services in the Proposed Regulations appears to confirm the term's limitlessness by casting such a wide net as to include informational services,[20] information transmission services,[21] and marketplace availability services.[22]

Second, the Proposed Regulations provide that the "position to know" standard is satisfied if the person offering "facilitative services" has "the ability" to "request" a user's identifying information and to determine whether a transaction gives rise to gross proceeds.[23] Because everyone with an internet connection has "the ability" to "request" identifying information from everyone else with an internet connection, as well as "the ability" to inspect

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[18]   Proposed regs. section 1.6045-1(a)(21).

[19]   Proposed regs. section 1.6045-1(a)(21)(iii)(A).

[20]   *Id.* ("providing services to discover the most competitive buy and sell prices").

[21]   *Id.* ("providing a party in the sale with access to an automatically executing contract or protocol, providing access to digital asset trading platforms").

[22]   *Id.* ("providing an automated market maker system").

[23]   Proposed regs. section 1.6045-1(a)(21)(ii)(A) ("A person ordinarily would know or be in a position to know the identity of the party that makes the sale if that person maintains sufficient control or influence over the facilitative services provided to have the ability to set or change the terms under which its services are provided to request that the party making the sale provide that party's name, address, and taxpayer identification number upon request."); proposed regs. section 1.6045-1(a)(21)(ii)(B) ("A person ordinarily would know or be in a position to know the nature of the transaction potentially giving rise to gross proceeds from a sale if that person maintains sufficient control or influence over the facilitative services provided to have the ability to determine whether and the extent to which the transfer of digital assets involved in a transaction gives rise to gross proceeds").

the public blockchain and thereby determine whether a transaction gives rise to gross proceeds, the "position to know" standard is as boundless as the definition of "facilitative services." Moreover, under a *per se* rule, the Proposed Regulations automatically treat any "person with the ability to change the fees charged for facilitative services" as being in a position to know[24] so that virtually every for-profit business even tenuously involved in blockchain technology would be in a "position to know" and therefore be a broker under the Proposed Regulations.

While the Preamble suggests that the "position to know" standard is similar to the "ordinarily would know" standard applicable under the current broker reporting regulations,[25] no reasonable comparison of the two standards supports that view. The Proposed Regulations abandon an objective test in favor of an inquiry into whether a person has "the ability," under some set of hypothetical circumstances that might not exist in reality, to newly "request" information from third parties and assumes that the ability to request equates to the ability to obtain. This concept represents a dramatic departure from the traditional understanding of what a broker is. Historically, broker status has hinged on whether a person acted as a customer's agent or principal and *ordinarily would know* information about the customer that only those engaged in broker-like activities would know. By contrast, the Proposed Regulations would require anyone who provides *any* help with an on-chain transaction and *could theoretically* request and collect personal information to do just that—and to securely store and report the information—even if doing so would fundamentally change their business model, be prohibitively expensive, or have a ruinous effect on the goodwill of users of their products.

It is unclear, for example, why Google's search engine is not a broker under the limitless scope of the Proposed Regulations. First, if a user searches for information on how to exchange a digital asset and Google provides instructions on how to do so, Google has "indirectly" effectuated the exchange and therefore provided "facilitative services." Second, because Google has "the ability" to "request" a user's identifying information and to determine whether the user's on-chain transaction occurs and gives rise to gross proceeds, Google is in a "position to know" the user's identity and whether and the extent to which the user's transfer of digital assets gives rise to gross proceeds. Moreover, because Google has "the ability to change the fees charged" for its facilitative services, either by changing its ad revenue model or by pay-walling its search engine, Google is in a "position to know" under the Proposed Regulations' *per se* rule. Clearly, Google never would be treated as a broker under current law, yet it appears to be a broker under a plain reading of the Proposed Regulations.

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[24]   Proposed regs. section 1.6045-1(a)(21)(iii)(A).

[25]   *See* Preamble, Explanation of Provisions, Part I.B. ("This definition is similar to the definition in the existing regulations with respect to agents."); reg. section 1.6045-1(a)(10)(i).

Because the Proposed Regulations' interpretation of "broker" to include "digital asset middleman" is limitless in scope and manifestly contrary to the plain language of Section 6045(c)(1)(D), it is arbitrary and capricious under the Administrative Procedure Act.[26]

II.   The category "digital asset middleman" is both vague and overbroad

The Proposed Regulations' definition of "digital asset middleman" is vague to the point of being unintelligible. What does it mean to "indirectly effectuate" a sale, or to provide "access to" smart contracts or protocols? What is a "platform" and what does it mean to provide "access to" one? What is a "system" and what does it mean to provide one? What are "services to discover the most competitive buy and sell prices"—do they include, for example, Google, CoinMarketCap, and CNN? These questions all relate just to the definition of "facilitative services" contained in regulations section 1.6045-1(a)(21)(iii)(A). The definition of "position to know" and the examples relating to "digital asset middleman" raise a multitude of additional questions, as further discussed in Part VIII.

Further, the definition is overbroad. Any attempt to construe "digital asset middleman" in a practical manner, taking into account statements made in the Preamble, inexorably leads to the conclusion that the Proposed Regulations could treat *every* participant in the blockchain technology stack as a broker.

In an effort to illustrate these dual problems, while potentially paving the way for a more productive dialogue with the Treasury and the IRS in the future, Part VIII describes the execution of a typical DeFi transaction from start to finish, from the perspective of a user, and comments on why each participant in the technology stack is not a broker under any historical, reasonable, or commonly understood interpretation of the term.

As Part VIII explains, broadly, there are three phases of a DeFi transaction. During the information creation phase, a user interacts with *informational services* (similar to Google, Yahoo! Finance, and Wikipedia) to build a transaction instruction. During the information transmission phase, the user directs *information transmission services* (similar to FedEx, Gmail, or internet service providers) to impartially transfer the transaction instruction to validators for inclusion on-chain. During the state change phase, a transaction is settled in accordance with the user's instruction and software deployed and governed by *marketplace availability services* (similar to stock exchanges, online peer-to-peer marketplaces, or flea markets).

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[26]   *See Chevron USA Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 844 (1984) ("legislative regulations are given controlling weight unless they are arbitrary, capricious, or manifestly contrary to the statute").

The Proposed Regulations would apply to virtually every participant in the tech stack, as well as to any other technology providers who "indirectly" enable people to send messages over the internet (*e.g.*, browsers, internet service providers, and smartphone manufacturers), because the meaning of "indirectly effectuating" has no limits. As a result, the Proposed Regulations directly contradict the plain language of the statute and legislative history by treating, as brokers, providers of *informational services*, *information transmission services*, and *marketplace availability services* who, in each case, either cannot easily or cannot realistically obtain information from users.

Engaging with the details of how the DeFi space and DeFi users operate makes these points clear. Self-custodied digital assets are the online equivalent of physical cash and collectibles, and the technology stack participants described in Part VIII do not "cause" or "bring about" transfers of digital assets any more than physical banner printers, ticker tape publishers, courier services, or flea market operators "cause" or "bring about" transfers of physical cash and collectibles. As the Preamble itself recognizes, "*only* the user of an unhosted wallet has access to both the public and private keys *necessary* to effect transactions in the digital assets associated with those keys."[27] The purpose of the Internal Revenue Code's broker reporting requirements is not to compel the creation of otherwise absent intermediaries by coercing developers and users of software to upend the way they interact, and the Proposed Regulations' attempt to do so contradicts both the plain language of the statute and constitutional limits.

III. The Proposed Regulations would increase taxpayer confusion

According to the Preamble, one of the rationales for creating a new and expansive information collection and reporting regime is to provide taxpayers with sufficient information to prepare their tax returns.[28] However, if finalized in their current form, the Proposed Regulations are likely to result in significant taxpayer confusion that would actually make it more difficult for taxpayers to prepare their tax returns.

First, because the Proposed Regulations do not treat digital asset brokers as exempt recipients, taxpayers would receive multiple Form 1099s for every transaction they effectuate. Accordingly, taxpayer income is likely to be significantly overreported.

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[27] Preamble, Background, Part I (emphasis added).

[28] *See* Preamble, Background, Part IV. ("[T]axpayers use information provided to them by brokers to prepare their tax returns. The lack of such information reporting for digital assets may make it difficult for taxpayers to properly track and report their gain or loss from dispositions of digital assets.").

Second, because there remain significant questions about the U.S. tax treatment of typical DeFi transactions, taxpayers are likely to receive incorrect or inconsistent information depending on how brokers interpret U.S. tax law. For example:

- **Wrapping.** "Wrapping" involves depositing one token (such as ETH) into a smart contract in exchange for a 1:1 pegged representation of the same token (such as wETH). DeFi users can wrap or unwrap a token by (1) interacting directly with the wrapping software, (2) exchanging the token for its wrapped counterpart on a decentralized exchange, or (3) engaging a transaction that automatically wraps or unwraps a token within a series of actions. Wrapping is very common in DeFi; as of November 2022, over 7% of all Ethereum transactions, or about 125 million transactions, involved wETH.[29] While most tax practitioners believe wrapping transactions are nontaxable because a token and its wrapped version are not materially different in kind or in extent,[30] because a token and its wrapped version are each digital assets within the meaning of the Proposed Regulations, brokers might report an exchange of a token for its wrapped token on Form 1099, resulting in overreporting.

- **Liquidity provision.** As discussed in Part VIII.C.2., the U.S. tax treatment of liquidity provision is unknown. Some brokers might report liquidity provision as a taxable exchange; others might report the underlying transactions as multiple taxable exchanges.

- **Token borrowing.** In a DeFi borrowing protocol, users who contribute tokens to a smart contract can "borrow" other tokens from the smart contract up to a percentage of the value of the tokens they contributed, and can reacquire tokens identical to the ones they contributed by replacing the borrowed tokens and paying a time-based usage fee.[31] The U.S. tax treatment of on-chain token borrowing is unknown. Under one theory, token borrowing is an exchange of one token for another, and therefore is a taxable exchange. Under an alternative theory, token borrowing is a deferred exchange of property for identical property and therefore is nontaxable under the same principles that led to the enactment

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[29] *See* Stephen Tong, *Formally Verifying the World's Most Popular Smart Contract* (Nov. 18, 2022) ("As of block 15934960 (November 9, 2022), WETH has been in 125,581,756 transactions. This count includes all 'top-level' transactions which call the WETH contract at any point, including via an internal transaction."), https://www.zellic.io/blog/formal-verification-weth/.

[30] *See, e.g.*, Jason Schwartz, *Taxation of Decentralized Finance*, Tax Notes (Feb. 7, 2022), https://www.friedfrank.com/uploads/siteFiles/Publications/Schwartz%20%2802-07-2022%29.pdf.

[31] DeFi borrowing protocols are discussed in greater detail in Part VIII.C.2.

of section 1058. The broker classification of many market participants could turn on the U.S. tax treatment of on-chain token borrowing. If on-chain borrowing triggers a tax event, front ends for DeFi borrowing protocols are likely to be brokers. If it is not, a further question arises as to whether a smart contract's liquidation of a borrower's collateral if its value falls below a specified threshold nevertheless causes the front end to be a broker.

The Preamble recognizes that the tax treatment of the above transactions remains uncertain, and requests comments on their treatment.[32] However, without official guidance from the IRS, tech stack participants and their tax counsel are likely to reach conflicting views as to whether they are brokers and which transactions are required to be reported, depending on how they believe the above transactions are treated for U.S. tax purposes.

Given that tax professionals at large internationally recognized law and accounting firms are unable to comfortably conclude how the most common DeFi transactions are treated for U.S. tax purposes, the average taxpayer will fare no better. Accordingly, the Treasury's suggestion that the Proposed Regulations would make it easier to prepare tax returns does not ring true. A far more likely outcome is that taxpayers (and the IRS) would be inundated with confusing and contradictory information.

IV.   The Proposed Regulations violate the Fourth Amendment

If finalized in their current form, the Proposed Regulations would violate the Fourth Amendment's prohibition on warrantless searches and seizures of a person's papers and effects because users of "facilitative services" do not currently turn over the personal information brokers would be required to report, and providers of those "facilitative services" do not have any reason to collect that information.

The Fourth Amendment to the U.S. Constitution guarantees "the right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures." That guarantee is foundational in preserving the privacy and security of American citizens against arbitrary invasions by governmental authorities.

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[32]   *See* Preamble, Explanation of Provisions, Part I.C. ("[T]hese proposed regulations do not specify whether a loan of digital assets is required to be reported. These proposed regulations also do not specifically address whether reporting is required for transactions involving the transfer of digital assets to and from a liquidity pool by a liquidity pool provider, or the wrapping and unwrapping of a digital asset, in light of the absence of guidance on those transactions. Comments are requested on whether the definition of sale or other parts of the regulations should be revised to address transactions not described in these proposed regulations.").

In *Katz v. United States*, the Supreme Court explained:

> What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.[33]

Thus, the government *can* constitutionally compel telephone companies to report phone numbers dialed by customers without a warrant because those customers "voluntarily convey" that information and the companies have a "legitimate business purpose" for collecting it.[34] However, the government *cannot* constitutionally compel telephone companies to turn over customer location data gleaned from cell phone tower connections, because "in no meaningful sense does the user voluntarily assume the risk of turning over a comprehensive dossier of his physical movements," and the companies do not need individualized customer location data to connect calls.[35]

When old rules meet new technology, courts must "assur[e] preservation of that degree of privacy against government that existed when the Fourth Amendment was adopted."[36] Blockchains enable users to transact on a peer-to-peer basis without relying on trusted intermediaries. The Proposed Regulations attempt to force those users into an intermediated regime without considering their constitutional right to privacy. Any assertion that users would voluntarily turn over their names, addresses, social security numbers, and other personal information to "digital asset middlemen" runs crosswise with the explicitly stated goal of the Proposed Regulations: to require "digital asset middlemen" to newly collect and report users' information when they were not already doing so.

Because individuals do not voluntarily turn over their personal data to "digital asset middlemen," and because those persons neither collect nor have any legitimate business reason to collect that information, the Proposed Regulations' requirement that "digital asset middlemen" collect and turn over that information without a warrant violates the Fourth Amendment.

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[33]   389 U.S. 347, 351 (1967).

[34]   *Smith v. Maryland*, 442 U.S. 735, 743-45 (1979).

[35]   *See Carpenter v. United States*, 138 S. Ct. 2206, 2220 (2018) ("[T]his case is not about 'using a phone' or a person's movement at a particular time. It is about a detailed chronicle of a person's physical presence compiled every day, every moment, over several years.").

[36]   *Kyllo v. United States*, 533 U.S. 27, 34-35 (2001).

V.   The Proposed Regulations violate the Fifth Amendment

The Proposed Regulations violate the Fifth Amendment because they are impermissibly vague. The Fifth Amendment prohibits the government from depriving any person of "life, liberty, or property, without due process of law." According to the Supreme Court, "[i]t is a basic principle of due process that an enactment is void for vagueness if its prohibitions are not clearly defined."[37]

The Proposed Regulations are unconstitutionally vague for two reasons. First, they are impossible to apply in practice, leaving software developers and other market participants to guess as to their meaning and application.[38] If a person of reasonable intelligence cannot figure out whether they would be subject to penalties for failing to file Form 1099s, they cannot plan accordingly and do not have fair warning of any penalties they might incur for noncompliance.[39]

Second, as discussed in Part II, the limitlessness of the Proposed Regulations' definition of "digital asset middleman" allows for arbitrary and discriminatory enforcement.[40] Based on the breadth of "facilitative services" and the "position to know" standard, the proposed broker definition would cover such far-flung market participants as internet browsers, internet service providers, and smartphone manufacturers. The Proposed Regulations thus would give the IRS unfettered discretion to wield its enforcement authority to decide what types of businesses survive or fail.

VI.   The Proposed Regulations would unduly strain government resources

The Proposed Regulations are likely to put an unprecedented burden on the IRS. Based on the IRS's own recent estimate, the Proposed Regulations would result in at least 8 billion additional information returns annually.[41] That estimate is more than 551 times greater than the

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[37]   *Grayned v. City of Rockford*, 408 U.S. 104, 108 (1972).

[38]   *See Connally v. General Construction Co.*, 269 U.S. 385, 391 (1926) ("A statute which either forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to it application, violates the first essential of due process of law.").

[39]   *Id.*; *see also United States v. Merriam*, 263 U.S. 179, 188 (1923) ("If the words are doubtful, the doubt must be resolved against the government and in favor of the taxpayer.").

[40]   *See Grayned,* 408 U.S. at 108 ("[I]f arbitrary and discriminatory enforcement is to be prevented, laws must provide explicit standards for those who apply them. A vague law impermissibly delegates basic policy matters to policemen, judges, and juries for resolution on an ad hoc and subjective basis, with the attendant dangers of arbitrary and discriminatory application.").

[41]   *See* Jonathan Curry, *IRS Prepping for at Least 8 Billion Crypto Information Returns*, Tax Notes (Oct. 26, 2023), https://www.taxnotes.com/featured-news/irs-prepping-least-8-billion-crypto-information-returns/2023/10/25/7hhdp (reporting statements by Julie Foerster, IRS director of digital assets).

Preamble's estimate of 14.5 million additional information returns.[42] By comparison, the IRS processed only 3.2 billion *total* information returns in 2020.[43]

Even the IRS's own recent estimate is likely to be conservative if it does not include many persons the Proposed Regulations appear to treat as brokers, such as RPC node managers, layer 2 aggregators, block builders, smart contract deployers, liquidity providers, and holders of governance tokens (each of which is described in Part VIII), and it does not account for the likelihood that each transaction effected on-chain will be reported by multiple digital asset brokers. An estimate that includes those parties and allows for duplicative reporting could be multiple orders of magnitude greater than 8 billion.

The Preamble also fails to consider the costs to the IRS of the significant market outreach that it would be required to perform under the Proposed Regulations. As discussed in Part VIII, most of the persons who would be "digital asset middlemen" under the Proposed Regulations are leanly staffed financial technology firms. Even assuming these firms were capable of complying with the Proposed Regulations, the Treasury's cost estimates for implementing the Proposed Regulations must consider what additional resources it would have to expend on educating them as to how compliance might be possible.

As a threshold matter, we respectfully request that the IRS release for comment its revised analysis of the additional returns the Proposed Regulations would generate.

VII.   The Proposed Regulations would impose a disproportionate and unbearable financial burden on businesses

The Treasury and the IRS have failed to fully consider and disclose the expected costs of the Proposed Regulations to so-called "digital asset middlemen."

As mentioned above, the Preamble estimates that the Proposed Regulations would generate an additional 14.5 million additional information returns annually.[44] On that basis, the Preamble estimates that the Proposed Regulations would impose an annualized cost on brokers of $136,350,000 in the aggregate, or $27,000 per broker, in each case disregarding startup costs. However, the IRS has recently revised its estimate of 14.5 million additional information returns

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[42]   *See* Preamble, Special Analyses, Part II.

[43]   IRS Statement, *Information Returns*, https://www.irs.gov/newsroom/irs-statement-information-returns (May 13, 2022).

[44]   *See* Preamble, Special Analyses, Part II.

annually under the Proposed Regulations to 8 billion.[45] Based on the IRS's own expectation that each Form 1099-DA would cost $9.40 to generate,[46] the updated estimate of 8 billion new information returns annually means the Proposed Regulations would impose an annualized cost on brokers of approximately $75.2 billion in the aggregate, or $14.9 million per broker, in each case disregarding startup costs.[47]

In addition, whereas the Preamble estimates approximately 2.15 million aggregate hours of compliance costs, or 425 hours per broker (*i.e.*, 1,034 full-time jobs, assuming a 40-hour workweek),[48] the IRS's revised expectation that the Proposed Regulations would generate 8 billion new forms each year means the Proposed Regulations would impose approximately 1.2 billion aggregate hours of compliance costs, or 237,623 hours per broker.[49] That is the equivalent of nearly 600,000 new full-time jobs, assuming a 40-hour workweek.

Moreover, because the Preamble's cost and time estimates are "based on survey data collected from filers of similar information returns,"[50] whereas most of the persons treated as brokers under the Proposed Regulations' definition of "digital asset middleman" are leanly staffed financial technology firms without any preexisting infrastructure for requesting, collecting, storing, or reporting personal data, those estimates are likely to have been grossly optimistic. Accordingly, based on the IRS's own estimates, it is highly probable that, in many situations, the Proposed Regulations would impose insurmountable costs on market participants that deprive them of the ability to continue operating as going concerns.

VIII.   No participants in the DeFi technology stack are brokers

This section examines the Proposed Regulations in the context of how DeFi protocols and market structure exist today. It is critical to note, however, that DeFi is a nascent technology

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45   *See* Jonathan Curry, *IRS Prepping for at Least 8 Billion Crypto Information Returns*, Tax Notes (Oct. 26, 2023), https://www.taxnotes.com/featured-news/irs-prepping-least-8-billion-crypto-information-returns/2023/10/25 /7hhdp (reporting statements by Julie Foerster, IRS director of digital assets).

46   *See* Preamble, Special Analyses, Part II (assuming 14.5 million Form 1099-DA recipients, 5,050 brokers, and $27,000 ongoing annual compliance costs per broker). 14.5 million forms ÷ 5,050 brokers = approximately 2,871 forms per broker. $27,000 annual compliance costs per broker ÷ 2,871 forms per broker = approximately $9.40 per form.

47   8 billion forms annually × $9.40 per form = $75.2 billion annualized costs. $75.2 billion annualized costs ÷ 5,050 brokers = $14,891,089 annualized costs per broker.

48   *See* Preamble, Special Analyses, Part II (estimating 0.15 hours per form).

49   0.15 hours per form × 8 billion forms = 1.2 billion total hours. 1.2 billion total hours ÷ 5,050 brokers = 237,623 total hours per broker.

50   Preamble, Special Analyses, Part II.

and market, having existed for only five years, and this section cannot be treated as an evergreen description and analysis of what is a rapidly evolving sector.

Attempting to apply the Proposed Regulations in practice to the current participants and technologies in DeFi clearly illustrates how vague and expansive the Proposed Regulations are. The technology stack is divided into three phases: (1) information creation; (2) information transmission; and (3) state change.

During the information creation phase, a user, often with the help of a front end and/or wallet application, generates a call function to effectuate a change to the state of the blockchain and packages the call function with a digital signature establishing their authority to effectuate the state change. Front end administrators and wallet application developers are not brokers because they are providers of *informational services* (similar to Google, Yahoo! Finance, and Wikipedia) who provide data in response to user inputs, and who can obtain personal information from users only by dramatically changing the way they do business.

During the information transmission phase, the call function and digital signature generated in the information creation phase are transmitted via an RPC node to a transaction pool. If the user is transacting on a blockchain's "base layer," or **layer 1**, block builders aggregate data from the transaction pool into block templates, and validators propose and settle those block templates to the blockchain in accordance with a consensus mechanism. If the user is transacting on a blockchain scaling solution (commonly called a **layer 2**), an analogous process first occurs on the layer 2 before the resulting data is submitted to the underlying blockchain's transaction pool. Remote procedure call nodes, block builders, validators, and layer 2 aggregators are not brokers because they are providers of *information transmission services* (similar to FedEx, Gmail, or internet service providers) who impartially transmit transaction data, and who cannot obtain personal information from users.

During the state change phase, the state of the blockchain changes in response to the settlement of a new block that includes a user's call function. If the call function implicates one or more smart contracts, those smart contracts automatically perform the operations they were coded to perform in response to the call function. Smart contract developers, liquidity providers, and protocol stewards are not brokers because they are providers of *marketplace availability services* (similar to stock exchanges, online peer-to-peer marketplaces, or flea markets) who provide forums in which users can transact, and who cannot obtain personal information from users.

A. Information creation phase

1. Front end administrators

a) Background on front end administrators

The vast majority of DeFi users interact with a front end, which is a user interface that makes it easier to interact with the relevant smart contracts. Smart contracts are self-executing pieces of code that live on a blockchain.

Front ends often are colloquially referred to as "websites," a term used in the Proposed Regulations. We use the term front end because it captures not only visual elements (i.e., the website) but also the code that powers interactive features like forms, buttons that trigger actions, and dynamic page updates without full page refreshes.

A DeFi front end typically serves two roles: browser and data object generator.

- In its browser role, the front end shows the user information about the state of the blockchain relating to a set of DeFi smart contracts and provides an intuitive user interface to indicate what actions they would like to perform through the smart contracts.

- In its data object generator role, the front end translates a user's input into a data object, i.e., a set of data with the necessary information to submit a transaction for inclusion on-chain. Typically, DeFi front ends with data object generators include a "connect wallet" button, which, when selected, establishes a secure connection between the front end and the user's crypto wallet. The data object generator uses that connection to send the data object to the user's wallet, which the user might or might not submit through their wallet for inclusion on-chain.

Crucially, a front end does not monitor whether a user will deploy a data object they received, just like an encyclopedia does not monitor whether a reader uses information they gleaned from its pages. Any deployment of a data object to the blockchain is done through the user's crypto wallet, without the front end's involvement.

Front end administrators for DeFi websites might receive trade-based fees or might instead receive periodic payments under a services agreement from a DeFi governance organization, like a foundation or decentralized autonomous organization (**DAO**), set up to steward the underlying smart contracts.[51] While a front-end administrator might collect data on

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[51] Protocol governance is discussed in Part VIII.C.3.

protocol use (such as number of transactions and average transaction size) in setting their fees under their services agreement, the data is anonymized by blockchain technology, does not approach the level of specificity that would make it helpful in complying with the Proposed Regulations, and only tenuously reflects actual front end use, since some users access the relevant smart contracts directly or through different front ends.

Front end administrators for block explorers usually do not receive any remuneration from smart contracts or DeFi governance organizations, and instead profit from advertising revenues and donations. Block explorers are, primarily, visual interfaces for viewing and querying any of a blockchain's data. Most block explorers also act as data object generators, but require considerable sophistication to use.[52] Their administrators have no reason to collect information on who uses the front ends' data object generators.

b) Front end administrators are not brokers because they do not "effectuate transfers"

As explained above, a DeFi front end's data object generator translates user input into a data object that can be fed into a separate wallet application and then transmitted by the wallet for inclusion on-chain should the user decide to do so.[53] Generating a data object is an *informational service* like Google, Yahoo! Finance, or Wikipedia. In each case, the informational service's purpose is to generate and display information in response to user inputs; the provider of the informational service neither cares nor has any reason to care whether or how the user actually uses the information.

Neither the Proposed Regulations nor the Preamble sufficiently explain the point at which an informational service rises to the level of a "service effectuating transfers" within the meaning of section 6045(c)(1)(D). Instead, the Preamble enigmatically provides that the Proposed Regulations "will ultimately require operators of some platforms generally referred to as decentralized exchanges to collect customer information and report sales information about their customers."[54] While that is one of 138 appearances of the term "platform" in the Preamble and Proposed Regulations, the term is never defined.

The Proposed Regulations are similarly confounding. Under Proposed Regulations section 1.6045-1(b)(1), example 1(ix), a person generally is a broker if they are in a business of

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[52]   *See, e.g.*, Fang Jun, *How to Interact with Smart Contracts*, Web3 University, https://www.web3.university/article/how-to-interact-with-smart-contracts (Feb 9, 2022) (describing how to "write" to Ethereum through block explorer Etherscan).

[53]   Transmission is made through an RPC node, as described in Part VIII.B.1.

[54]   Preamble, Explanation of Provisions, Part I.B.

operating a "website that stands ready to effect sales of digital assets for others…including by providing access to automatically executing contracts, protocols, or other software programs." As explained above, DeFi front ends never "provide access" to contracts, protocols, or other software programs—they generate data objects—so it is unclear what the IRS has in mind.

Even if DeFi front ends *did* provide access to smart contracts—which they don't—it is far from clear why front end administrators would be brokers. As both the current regulations and Proposed Regulations acknowledge, "a person (such as a stock exchange) that merely provides facilities in which others effect sales" is not a broker.[55]

If generating data objects constitutes standing ready to effect sales of digital assets for others, the Proposed Regulations leave it to market participants and their counsel to guess whether there are any limitations at all to "indirectly effectuating" a sale of digital assets. For example:

- Would any front end that posts data objects into a connected wallet be treated as providing a facilitative service, even if a typical user would need to consult a tutorial to determine how to coax the front end into posting the desired data object?[56] Would the tutorials themselves also be treated as facilitative services?

- Assume a front end dynamically generates a data object in response to a user's inputs but does not allow the user to connect their wallet to it, so that the user has to copy and paste the object into their wallet if they want to use it. Would the front end be treated as providing a facilitative service?

- Would a static front end that merely explains how to write a blockchain call function into a crypto wallet be treated as providing a facilitative service?

Without articulating a clear standard for "facilitative service," the Proposed Regulations do not provide taxpayers with sufficient notice as to whether they are brokers and, correspondingly, how they might avoid broker status.

c) Front end administrators are not brokers because they have no reason to know users' personal information

It is hard to overstate what a profound change the Proposed Regulations' practically unlimited "position to know" standard would require to the business models of front end

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[55]   Regs. section 1.6045-1(b) Ex. 2(ii); proposed regs. section 1.6045-1(b)(2) Ex. 2(ii).

[56]   *See, e.g.*, Fang Jun, *How to Interact with Smart Contracts*, Web3 University, https://www.web3.university/article/how-to-interact-with-smart-contracts (Feb 9, 2022).

administrators who wish to continue to allow U.S. persons to access their front ends. Currently, even a mere techno-tinkerer can spin up a front end; ChatGPT can get even a complete Luddite most of the way there.[57] Deeming those persons to be brokers merely because, in theory, they *could* have built front ends that geoblock users who fail to provide identifying information is likely to require many of them to spend more resources requesting, collecting, managing, and securing information than they spend actually conducting their current business.

The Proposed Regulations also would expose innocent users to new and unnecessary cybersecurity risks. As the Preamble acknowledges, "digital asset brokers are not necessarily subject to the type of prudential or supervisory regulation" as brokers under current law.[58] Notwithstanding that acknowledgement, the Proposed Regulations deputize those persons to request, collect, and store taxpayers' names, social security numbers or other taxpayer identification numbers, and public blockchain addresses. While even well-meaning front end administrators are likely to fall victim to security breaches, a predictable effect of the finalization of the Proposed Regulations in their current form would be the proliferation of "spoof" front ends set up by nefarious actors to harvest users' personal data. A common tactic among scammers is to create front ends that imitate the official versions and link them to similar addresses (e.g., addresses that end with ".com" instead of ".io," or that replace one or more Latin letters with similar looking Cyrillic letters).[59] Users would have no reason to question a spoofed front end's request for their personal details if the IRS requires it.

The association of a public blockchain address with an individual's identity does not merely reveal mundane financial transactions; it also can provide a gateway into highly intimate life details, such as net worth, personal associations and preferences, and charitable contributions. Requiring persons who do not collect tax information as part of their business to set up systems to request and safely store those details thus jeopardizes the security of millions of Americans' personal data.[60]

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[57]   For illustration, we urge personnel at the IRS to query ChatGPT-4 with a prompt such as: "Write me a front end for Uniswap that enables me to swap ETH for an equal amount of wrapped ETH."

[58]   *See* Preamble, Explanation of Provisions, Part I.H.

[59]   *See, e.g.*, Alex Scroxton, ComputerWeekly.com, *Rise in Fraudsters Spoofing the Websites of Leading UK Banks* (Aug. 7, 2023), https://www.computerweekly.com/news/366546952/Rise-in-fraudsters-spoofing-the-websites-of-leading-UK-banks.

[60]   Coinbase estimates 50 million Americans currently own crypto. *See* Coinbase Blog, *New survey of 2,000+ American adults suggests 20% own crypto and the vast majority see an urgent need to update the financial system*, https://www.coinbase.com/blog/new-national-survey-of-2-000-american-adults-suggests-20-of-americans-own (Feb. 27, 2023).

2. Crypto wallet providers

a) Background on crypto wallet providers

Each pseudonymous blockchain address has an associated private key. Both the address and private key are long strings of alphanumeric characters. To send tokens or interact with a smart contract from a specific blockchain address, a DeFi user must produce a digital signature, which cryptographically proves that they know the associated private key without revealing the key to anyone else.

Crypto wallets are devices or software applications that (1) store a DeFi user's private keys; (2) enable the user to transact from their blockchain address by entering a memorable password or pin code into the wallet instead of their private key; and (3) generate a digital signature when required. Broadly, there are two types of crypto wallets: hardware wallets and software wallets.

(1) Hardware wallets

A hardware wallet stores a user's private key in a secure element isolated from the internet and the user's personal computer. Users unlock their hardware wallets by entering a password or pin code directly on the device. When a user wants to submit a transaction for inclusion on-chain, their hardware wallet generates a digital signature using the stored private key. The signature is then transmitted to a companion wallet application, typically via a USB connection or Bluetooth.

A wallet application is software that, like a DeFi front end, includes a browser role and a data object generator role. The browser offers an intuitive interface that allows users to view their balances, transaction histories, and other relevant information related to their crypto assets. The data object generator pairs a call function (e.g., the data object received from a DeFi front end) with the digital signature generated by the hardware wallet, then submits the package for inclusion on-chain.

Most hardware wallet providers publish their own wallet application software. However, users are not required to use that software and can use any wallet application with their hardware wallet.

(2) Software wallets

A software wallet stores the user's private key in a software file on a computer or mobile device instead of isolating it in a secure element, and includes a built-in wallet application. Users unlock their software wallets by entering a password or pin code directly into the wallet application. When a user wants to submit a transaction for inclusion on-chain, the application

generates a digital signature using the stored private key. It then pairs that digital signature with the relevant call function and transmits the package for inclusion on-chain.

The vast majority of crypto wallets do not charge fees for receiving data objects from front ends, packaging them with digital signatures, and transmitting them for inclusion on-chain. However, crypto wallet applications often integrate DeFi front-end application programming interfaces (**APIs**) to enhance the user experience,[61] and charge fees when users leverage the integration.

For example, many wallet applications contain a built-in token swap feature. When a DeFi user clicks an "in-wallet swap" button, the wallet application queries the APIs of several popular DeFi front ends, whose browser functions return information about the price of executing a token swap through the smart contract protocols they monitor. The wallet application's user interface displays the information it receives and offers the DeFi user the option of simply submitting a transaction using a data object transmitted by one of the queried APIs. If a user elects to effect their transaction without visiting the chosen front-end themselves, their wallet application typically debits from their funds a "licensing fee" for using the wallet provider's information aggregation software, in addition to any other transaction costs they incur in the transaction.

While a wallet developer might collect data on the frequency with which third-party APIs are called, the data is anonymized by blockchain technology and does not approach the level of specificity that would make it helpful in complying with the Proposed Regulations.

b) Crypto wallet providers are not brokers under any reasonable interpretation of the term

The application of the Proposed Regulations to crypto wallet providers shares the same deficiencies as those for front end administrators: lack of clarity and overbreadth.

Proposed Regulations section 1.6045-1(b) contains three examples relating to crypto wallet providers—examples 21-23. The examples suffer from a casual use of undefined terms and again leave taxpayers and their counsel unable to determine whether there are any limits to "indirectly effectuating" a sale.

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[61] An API is a set of functions and procedures allowing access to the features or data of an operating system, application, or other service.

Under example 21, a hardware wallet developer is not a broker if users are required to use a third party's "connecting software."[62] Similarly, under example 23, a software wallet developer is not a broker if the wallet lacks "wallet connection services." The Proposed Regulations do not define "connecting software" or "wallet connection services," and the terms' meanings are not self-evident.

Adding confusion, the outcome in example 23 seems to turn on the assumption that users of the hypothetical software wallet "initiate" trades on a third-party "platform," which provides the wallet with "functionality" to execute a trade. As mentioned above, the term "platform" is used 138 times in the Preamble and Proposed Regulations (34 times in the Proposed Regulations alone), but is never defined. If "platform" means a front end, it cannot have "initiated" a trade; front ends generate data objects, and users of software wallets initiate trades through the associated wallet application, which does not need a front end to provide it with "functionality." Accordingly, the purpose and effect of example 33 is a mystery.

By contrast, under example 22, a software wallet developer *is* a broker if their wallet application integrates DeFi front-end APIs for token swaps to enhance the user experience.[63] (The example also assumes the developer "requests each user's name, address, and tax identification number," but, given the breadth of "position to know," it is unclear why that assumption is made.) Example 22 raises the question whether inclusion of an API integration results in a "cliff effect" that makes a wallet developer a broker for *all* transactions effected using that wallet, even for users who do not leverage the API integration.

Assuming the Proposed Regulations intend to treat a wallet application's data object generator as a facilitative service, that treatment is inappropriate for the exact same reasons articulated above for why treating a front end administrator as a broker is inappropriate. A wallet application's data object generator simply aggregates several front-end APIs, so it would be nonsensical to treat a wallet application as a broker if DeFi front ends are not brokers. The wallet application's imposition of a fee for users who opt not to visit the associated front ends themselves does not alter the analysis; providers of informational services do not have to be nonprofit organizations to avoid broker status.

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[62] *See also* proposed regs. section 1.6045-1(b), Ex. 2(x) ("a person solely engaged in the business of selling hardware or licensing software, the sole function of which is to permit a person to control private keys which are used for accessing digital assets on a distributed ledger, without providing other functions or services," is not a broker).

[63] The example describes the API integration as "a digital asset trading service…that compares pricing at several unrelated non-custodial trading platforms to facilitate access to the most competitive buy and sell prices offered by these unrelated platforms."

Moreover, as with front ends, the Proposed Regulations' expansive "position to know" standard would require wallet software developers to profoundly change their business models. Currently, most of those developers build wallets that employ a "freemium" model, whereby the core wallet software is free but licensing fees are charged if (1) the software queries DeFi front end APIs in response to user inputs and (2) the user deploys one of the data objects retrieved from the query. Deeming software developers to be brokers merely because, in theory, they *could* have built wallets that geoblock users who fail to provide identifying information is likely to require them to materially modify the way they do business if they wish to continue making their software available to U.S. persons. As in the case of front ends, it also would jeopardize the security of millions of Americans' personal data.

B. Information transmission phase

1. Remote procedure call (RPC) node managers

a) Background on RPC nodes and RPC node managers

RPC nodes are servers that, within the context of a transaction's order of operations, impartially relay information from a crypto wallet to a blockchain's transaction pool, or "mempool," which is a repository of pending transaction requests. RPC nodes also relay information about the state of the blockchain to front ends and wallet applications, often for a fee if the RPC node manager is a third party. RPC node managers may be third party service providers, wallet providers running their own RPC nodes, or hobbyists running their own RPC nodes.

Third-party RPC node managers who transmit data for wallet applications for a fee do not have contractual privity with the users of those wallet applications and thus have no way of determining those users' identities. Moreover, while RPC node managers theoretically have the ability to inspect the raw data submitted to them for transmission to a transaction pool, determining the intent and ultimate effect of that data would require a deep understanding of the technical details of each smart contract implicated by the data, and of the context within which the relevant raw data is being submitted. Considering that a blockchain typically hosts tens of millions of smart contracts,[64] each potentially with its own semantics, and that the

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[64] For illustration, 4.6 million new smart contracts were deployed to Ethereum in the fourth quarter of 2022 alone. *See* Andrew Asmakov, DeCrypt, *Ethereum Smart Contracts Deployment Jumped 293% in 2022: Alchemy Developer Report* (Jan 17, 2023), https://decrypt.co/119371/ethereum-smart-contracts-deployment-jumped-293-2022-alchemy-developer-report.

effects of those contracts include tremendous variability,[65] RPC node managers generally cannot in practice track the effects of every data object they transmit on behalf of others.

> ### b) RPC node managers are not brokers under any reasonable interpretation of the term

Neither the Proposed Regulations nor the Preamble mention RPC nodes, so it is unclear whether the Treasury and the IRS contemplated the potential application of the Proposed Regulations to them. However, the apparent breadth of the definition of facilitative services raises the possibility that mere *information transmission* is a facilitative service. If RPC node managers are treated as providing a facilitative service by virtue of transmitting call functions from a wallet application to a transaction pool, the Proposed Regulations' *per se* rule that treats someone with "the ability to change the fees charged for facilitative services" as being in a "position to know" would cause them to be brokers.

Treating RPC node managers as providing a "service effectuating transfers of digital assets on behalf of another person" within the meaning of section 6045(c)(1)(D) would be tantamount to treating courier services like FedEx, or email clients like Gmail, as providing a service effectuating transfers merely because someone might transmit purchase or sale requests through them. In each case, the information transmitter impartially relays information from a source to a destination in exchange for a fee that does not take the nature of the information into account. Moreover, in each case, the information transmitter has no business reason to know the identities of the senders or the nature of the information transmitted and, as a practical matter, are unlikely to be able to retrieve that information.

As discussed in Part VIII.B.3, the Proposed Regulations exclude validation services from the definition of facilitative services because validators "may not be in a position to know the identity of the parties making a sale and the nature of the transaction."[66] It would be internally inconsistent for the Proposed Regulations to exclude validators from the broker status but to include RPC node managers, who likewise are not in a position to know the identity of the parties making a sale and the nature of the transaction.

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[65] *See, e.g.*, Polygon Labs, *The Value Prop*, https://thevalueprop.io/database (open database of on-chain applications).

[66] Proposed regs. section 1.6045-1(a)(21)(iii)(A); Preamble, Explanation of Provisions, Part I.B.

2. Block builders

a) Background on block builders

In some blockchain networks, block builders organize blockchain order flow (e.g., transactions transmitted to a blockchain's transaction pool) into block templates. Block templates are blocks that have not yet been proposed by a validator and settled to a blockchain in accordance with its consensus mechanism. Validators might be block builders, or might outsource the block building role to specialists.

b) Block builders are not brokers under any reasonable interpretation of the term

Block builders perform a critical role in the transmission of information from a transaction pool to a blockchain. Treating them as brokers would directly violate both the Colloquy's imperative not to treat persons "who play a key role in validating transactions" as brokers[67] and the Treasury's own commitment not to treat "ancillary parties who cannot get access to information that is useful to the IRS" as brokers.[68]

Nevertheless, the absence of any clear limitation on "indirectly effectuating" a sale suggests that block builders provide facilitative services within the meaning of the Proposed Regulations. The possibility that block builders are brokers under the Proposed Regulations underscores just how unreasonably vague and overbroad the Proposed Regulations are as currently drafted.

3. Validators

a) Background on validators

In proof-of-stake networks like Ethereum and Solana, validators (in their block proposer roles) lock up, or "stake," a material amount of a blockchain's native token in a smart contract and run open-source validator software on their computers. The software selects validators at random to propose new block templates for inclusion on the blockchain. Of those validators not selected, the software selects several to vote on block proposals; those "attesters" generally must approve a proposed block if it does not contain falsified information like unsigned transactions.

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[67] *See* Colloquy ("We want to be sure that miners and stakers and others who play a key role in validating transactions now or in the future, or hardware and software sellers for digital wallets will not be subject to the rules for those activities. Again, you will need to provide the information reporting only if you are functioning as a broker.").

[68] *See* Treasury Letter.

Participating validators are rewarded for good behavior (i.e., proposing valid blocks and maintaining uptime) and risk having all or a portion of their stake destroyed if they misbehave. Rewards are credited to validators in the blockchain's native token. On the Ethereum blockchain, validator rewards consist of newly minted ETH and priority gas fees. Newly minted ETH represents the majority of the rewards. Priority gas fees are fees some users pay in excess of a mandatory "base fee" for faster inclusion in a block.

b) Validators are not brokers, even if they engage in block building, RPC node management, liquid staking, or similar arrangements

As mentioned above, the Colloquy explicitly cautions that persons "who play a key role in validating transactions" are not brokers. Presumably in response to that admonition, the Proposed Regulations exempt from the definition of facilitative services "validating distributed ledger transactions…without providing other functions or services if provided by a person solely engaged in the business of providing such validating services."[69] However, the Proposed Regulations do not define validating services, so it is unclear what it means to be "solely engaged in the business of providing such validating services." For example, are validators "solely engaged in the business of providing such validating services" if they also (1) run an RPC node, (2) build their own blocks instead of outsourcing that role to specialists, and/or (3) participate in liquid staking protocols?[70]

Moreover, although the validator exclusion appears in the Proposed Regulations' definition of facilitative services,[71] the Preamble justifies the exclusion by explaining that validators "may not be in a position to know the identity of the parties making a sale and the nature of the transaction."[72] That justification evidences the Treasury's determination that there *is* a limit to being in a "position to know." However, the Proposed Regulations do not articulate any such limit, and we are unable to discern a limit from the language of the Proposed Regulations. Moreover, it is not at all clear why validators are less likely to be in a "position to know" than the other participants in the technology stack described in Part VIII. We respectfully request that the Treasury articulate the contours of the "position to know" standard in a manner that enables it to be applied coherently by potentially affected parties.

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[69] Proposed regs. section 1.6045-1(a)(21)(iii)(A).

[70] RPC nodes, block builders, and liquid staking protocols are discussed in Part VIII.B.1., VIII.B.2., and VIII.C.2., respectively.

[71] *See* Proposed regs. section 1.6045-1(a)(21)(iii)(A).

[72] Preamble, Explanation of Provisions, Part I.B.

4. Layer 2 aggregators

a) Background on layer 2s and layer 2 aggregators

A significant amount of DeFi is effected on "layer 2" blockchain technology. Very generally, a layer 2 is a protocol built on top of a blockchain that batches transactions off-chain, compresses them into a single summary transaction or cryptographic proof, and submits that summary transaction or proof to the blockchain at regular intervals. (In this context, the blockchain is the "layer 1.") Layer 2s enable faster transaction throughput and lower transaction costs while retaining the security of the related layer 1.

The technologies underlying layer 2 protocols vary significantly but always include an aggregator function.[73] Layer 2 aggregators are highly analogous to a blockchain's validators: they order transactions and transmit them to the underlying blockchain. Some layer 2s use a single aggregator or small group of "permissioned" aggregators. Others enable anyone to be an aggregator and employ a process closely analogous to a consensus mechanism to determine the order in which aggregators submit batched data to the blockchain.

b) Layer 2 aggregators are not brokers under any reasonable interpretation of the term

Neither the Proposed Regulations nor the Preamble mention layer 2 aggregators. However, as discussed above, layer 2 aggregators are highly analogous to blockchain validators and, like validators, are not in a position to know user identities.[74] Accordingly, layer 2 aggregators should be explicitly exempted from the definition of facilitative services.[75]

C. State change phase

1. Smart contract coders and deployers

a) Background on smart contracts

Once a block is validated and added to a blockchain, the blockchain's "virtual computer" executes the transactions within the block. That execution includes interactions with smart contracts. If a transaction modifies the state of a smart contract, those changes are reflected in the blockchain's state.

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[73] For layer 2 protocols that use "optimistic rollup" technology, the aggregator is referred to as the sequencer. For those that use zero knowledge proof technology, the aggregator is referred to as the proposer.

[74] *Cf.* proposed regs. section 1.6045-1(a)(21)(iii)(A).

[75] *See also* Colloquy ("validation methods, *now or in the future*, associated with other consensus mechanisms that are developed and *might come into the market as the technology evolves*") (emphasis added).

As mentioned above, smart contracts are self-executing pieces of code stored on-chain. Anyone can deploy a smart contract to a blockchain for a gas fee. Thus, it often is difficult to determine the identity of a particular smart contract's deployer, although smart contracts that form part of a DeFi protocol typically are deployed by a member of one of the development teams building the protocol.

Smart contracts generally are incapable of collecting and verifying tax information because they can react only to predefined inputs and, by default, can "see" only other information stored on-chain.

b)   Smart contract coders and deployers are not brokers under any reasonable interpretation of the term

The Proposed Regulations include as an example of a facilitative service "providing an automated market maker system."[76] Because the Proposed Regulations do not define "system," the example raises the possibility that merely coding or deploying a smart contract to a blockchain, including one that figures into an automated market maker suite, could cause the coder or deployer to be a broker.

Smart contracts are on-chain marketplaces for peer-to-peer transactions. Treating people who code smart contracts or deploy them to a blockchain as brokers would be tantamount to treating stock exchanges, online peer-to-peer marketplaces, and flea market operators as brokers. Providers of such *marketplace availability services* have never been treated as brokers,[77] and it would be intellectually inconsistent to treat them as brokers merely because the relevant marketplace is on-chain. Moreover, smart contract coders and deployers currently have no practical way of determining the identities of the users of their software. Accordingly, treating smart contract coders or deployers as brokers would both contradict the Colloquy and impose an impracticable compliance requirement.

2.   Liquidity providers

a)   Background on liquidity provision

Liquidity provision is a foundational component of many DeFi smart contracts: liquidity providers contribute tokens to a smart contract, which other users can interact with in various ways (such as engaging in token swaps or token borrowings). In exchange for their contribution,

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[76]   Proposed regs. section 1.6045-1(a)(21)(iii).

[77]   *See* regs. section 1.6045-1(b), Example 2(ii) ("A person (such as a stock exchange) that merely provides facilities in which others effect sales" is not a broker).

liquidity providers receive transferrable tokens that can be redeemed for a portion of the assets held in the smart contract.

This section illustrates how liquidity provision works in the context of automated market makers (**AMMs**), borrowing protocols, and liquid staking protocols.

(1) Automated market makers

An AMM is a suite of smart contracts that facilitate token swaps. Typically, each smart contract handles one token pair (e.g., ETH-USDC, ETH-DAI, CRV-USDT, etc.). A liquidity provider can contribute equal values of each token within a pair to the related smart contract in exchange for a so-called **LP token**.

A smart contract in a "simple" AMM executes token swaps with users at prices determined algorithmically based on the relative amount of each token the smart contract holds, and charges the same percentage fee for each trade. Liquidity providers can redeem their LP tokens at any time for a proportionate share of whatever is in the smart contract at that time. The smart contract's transaction fees are set by the contract deployer.

The simple AMM model distributes liquidity evenly across the theoretical range of a token pair's relative prices. In a more complex AMM, liquidity providers can select the price range to which they wish to add liquidity (e.g., from [1 ETH = 1600 USDC] to [1 ETH = 1800 USDC]), and can redeem their LP tokens only for a proportionate share of whatever is in the smart contract within that price range at that time.[78] They also typically can set their own fees, so that traders potentially bear different fees within different price ranges.

(2) Borrowing protocols

A DeFi borrowing protocol is a suite of smart contracts that facilitate overcollateralized token "borrowings."[79] Users who contribute tokens to a smart contract can "borrow" other tokens from the smart contract up to a percentage of the value of the tokens they contributed, and can reacquire tokens identical to the ones they contributed by replacing the borrowed tokens and paying a time-based usage fee.

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[78]   Because LP tokens for complex AMMs are fungible only with other LP tokens that have the same parameters, they typically are represented as NFTs (i.e., ERC-721 tokens on Ethereum).

[79]   Borrowing protocols are sometimes referred to as "lending protocols," but the transactions that they enable do not involve "lending" or "loans" in a traditional sense and do not give rise to debt for U.S. tax purposes. *See, e.g.*, Jake Chervinsky, *DeFi Protocols Don't Do 'Lending,'* Bankless, *available at* https://www.bankless.com/defi-lending-doesnt-exist-yet (Sep. 3, 2020).

Each user who contributes tokens to a DeFi borrowing protocol is not just a potential borrower, but also a liquidity provider, because the tokens they contribute can be borrowed by other users. When a user contributes tokens to the protocol, they receive a fungible token that is redeemable for (1) their contribution and (2) any usage fees accrued in respect of that contribution.[80]

(3)   Liquid staking protocols

Liquid staking protocols are designed to socialize the costs, risks, and rewards of running Ethereum validator software. Very generally, non-validators contribute their ETH into a smart contract in exchange for fungible tokens redeemable for a portion of the assets within the smart contract. Based on the pre-defined logic of the smart contract, users' contributed ETH is allocated among participating validators to ensure that each has the minimum stake required by Ethereum's consensus mechanism.[81] A portion of validator rewards are credited to participating validators as a fee; the remainder accrue inside the smart contract or are credited on a current basis to the non-validators.

b)   Liquidity providers are not brokers under any reasonable interpretation of the term

The U.S. tax treatment of liquidity provision is unknown. Under one approach, a liquidity provider is treated as engaging directly in the activities of the applicable smart contract. Under an alternative approach, the smart contract is deemed to be a tax "person" that is not looked through.[82] It is also possible that some liquidity provision arrangements are looked through and others are not.[83]

If liquidity providers are treated for purposes of the Proposed Regulations as engaging directly in the activities of the applicable smart contract, many could be brokers under the Proposed Regulations, but would have no way to comply. For example, liquidity providers to AMMs arguably would be treated as providing "market making functions" by standing ready (through a smart contract) to buy and sell tokens, and market making functions are an example

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[80]   Alternatively, usage fees might be credited on a current basis to liquidity providers.

[81]   Validators might be required to contribute some value as "collateral" to the smart contract.

[82]   *See, e.g.*, Jason Schwartz, *Squaring the Circle: Smart Contracts and DAOs as Tax Entities*, https://www.friedfrank.com/uploads/siteFiles/Publications/Decentralized%20Autonomous%20Organizations%20_%20Decentralized%20Law.pdf (July 29, 2022) (suggesting some pooled smart contracts might be treated as foreign corporations that are not passive foreign investment companies).

[83]   *See, e.g.*, Jason Schwartz, *The Latest DeFi Alpha Is Tax-Optimized Staking*, https://www.friedfrank.com/uploads/documents/cc68fd4ecd02c64da95a5c0752355f73.pdf (May 25, 2022).

of a facilitative service.[84] Moreover, many of those liquidity providers have the ability to set their own fees. (Fees for using the "simple" AMM described above are set by the smart contract deployer; fees for using the more complex AMM described above can be set by each liquidity provider.) Someone who is able to set fees is deemed under the Proposed Regulations' *per se* rule to be in a "position to know."[85] However, liquidity providers are never, in fact, in a position to know the identities of smart contract users. Accordingly, treating liquidity providers as brokers would be inconsistent with the IRS's own commitment not to treat "ancillary parties who cannot get access to information that is useful to the IRS" as brokers and impose an impracticable compliance requirement.

3. Protocol stewards

a) Background on protocol stewards

Typically, a group of developers creates a suite of smart contracts that comprises the initial version of a DeFi protocol. Once deployed to a blockchain, a smart contract's code cannot be altered. However, smart contracts can be, and often are, coded with configurable parameters, such as fees, collateralization requirements, and liquidation thresholds. The ability to adjust those parameters as market conditions change could be essential to ensuring the smooth functioning of a DeFi protocol.

b) Protocol stewards are not brokers under any reasonable interpretation of the term

The Preamble to the Proposed Regulations provides that the ability of "a digital asset trading platform operator" to replace a contract within a protocol or modify its parameters "strongly suggests" the operator is in a "position to know."[86] Neither the Preamble nor the Proposed Regulations define "platform" or "operator." Based on context, we assume "platform" includes a suite of smart contracts and "operator" includes a development team or DAO stewarding the suite.

As discussed in Part VIII.C.1., smart contract coders and deployers are not brokers under any reasonable interpretation of the term. Publishing code does not constitute a "service

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[84]   *See* proposed regs. section 1.6045-1(a)(21)(iii)(A).

[85]   *See* proposed regs. section 1.6045-1(a)(21)(ii)(A) ("a person with the ability to change the fees charged for facilitative services is an example of a person that maintains sufficient control or influence over provided facilitative services to have the ability to set or change the terms under which its services are provided to request that the party making the sale provide that party's name, address, and taxpayer identification number upon request").

[86]   Preamble, Explanation of Provisions, Part I.B.

effectuating transfers," and smart contract deployers currently have no practical way of determining the identities of the users of their contracts. Thus, regardless of who an "operator" is, replacing a smart contract within a smart contract suite cannot cause the operator to be a broker.

For the same reasons, the ability to modify the parameters of a smart contract cannot cause someone to be a broker. Modifying code does not constitute a "service effectuating transfers," and smart contract stewards—whether they are software developers or DAOs—currently have no practical way to determine the identities of the users of those contracts.

IX.   If the IRS proceeds with the Proposed Regulations, it should significantly delay the implementation timeline

In light of the concerns raised in this report and the sheer number of comment letters already submitted raising myriad issues, the Treasury and the IRS should delay the effective date of any broker reporting obligations that would apply to digital asset middlemen. Simply put, there is not enough clarity in the Proposed Regulations to be able to implement them in general, and even a set of clearer rules would require a tremendous development effort. This is especially true given that the persons affected do not currently have any infrastructure for complying and had previously received assurances from the Treasury that they would not be captured by the Proposed Regulations.[87]

For comparison, Congress amended section 6045 to require basis reporting in 2008, but the requirement did not take effect for debt instruments and options until eight years later, in 2016.[88] Traditional brokers subject to basis reporting tend to be financial institutions with customer relationships that give them reason to collect personal information as part of their business. By contrast, digital asset middlemen are not financial institutions, often do not have customer relationships under a traditional understanding of the term, and do not have any non-tax reason to collect personal information.

Furthermore, a significant number of non-brokers who otherwise would be subject to the Proposed Regulations may choose to instead block the internet protocol (**IP**) addresses of U.S. persons instead of completely altering their businesses to become brokers. However, the Proposed Regulations are unclear on what measures are required to avoid application of the Proposed Regulations. Specifically, the Proposed Regulations provide that a customer's communication from a U.S. IP address could cause a sale otherwise treated as effected at an
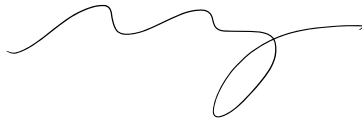
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[87]   *See* Treasury Letter.

[88]   *See* regs. section 1.6045-1(n)(3).

office *outside* the United States by a non-U.S. digital asset broker to be treated as effected from *within* the United States.[89] If the IRS proceeds with the Proposed Regulations, it should clearly delineate the criteria necessary to avoid application of the Proposed Regulations to entities outside the United States.

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We appreciate your consideration of our observations and recommendations. If you have any questions or comments regarding this letter, please feel free to contact us.

Sincerely,

Miller Whitehouse-Levine
Chief Executive Officer
DeFi Education Fund

Amanda Tuminelli
Chief Legal Officer
DeFi Education Fund

cc: Jason Schwartz, Fried, Frank, Harris, Shriver & Jacobson LLP

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[89]   Proposed regs. section 1.6045-1(g)(4)(iv)(B)(1).