Testimony of Brian C. Avello

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BEFORE THE

United States House of Representatives Committee on Financial Services

Subcommittee on Digital Assets, Financial Technology and Inclusion Subcommittee

**Tuesday, September 10, 2024, 10:00 am.**

I.   <u>**Introduction**</u>

Thank you for the invitation to speak today. My name is Brian C. Avello, and I am the Chief Legal Officer for the Universal DeFi Holding Company, a principal investment fund focused on the divide between decentralized and centralized finance ("DeFi" and "CeFi," respectively). I have worked as an attorney in the cryptocurrency space since 2016, counseling projects and capital on how best to comply with our ecosystem's developing legal frameworks. Most recently, I was General Counsel for the now-dissolved Maker Ecosystem Growth Foundation ("Maker Foundation"), a software development company that worked with its industry partners to bring the leading credit generation platform, MakerDAO ("Maker"), and decentralized stablecoin, multi-collateral Dai, to market in November 2019.[1]

Two experiences in my career have molded my worldview with regard to DeFi and its burgeoning place in our society. First, I was counsel to Maker while it grew from an incipient platform in 2018 to a circulating supply of approximately nine billion Dai by December 2021, so I've witnessed how Dai's growth supported the development of Ethereum's onchain economy. Part and parcel to that

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[1] I also serve as a non-executive director for multiple companies and foundations in DeFi (Nayms, a decentralized insurance market), CeFi (Oasis Pro, a FINRA-registered broker dealer and alternative trading system) and the wider crypto industry (Optimism, the leading Ethereum Layer 2, and Iron Fish, a privacy-centric Layer 1).
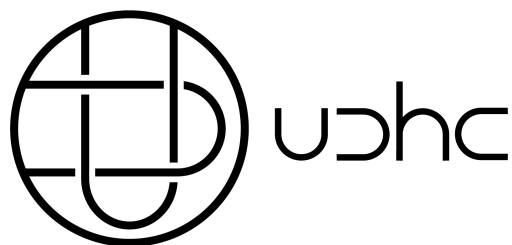
success was launching the framework for a "fully decentralized" DAO to Maker's long-standing community and dissolving the Maker Foundation once its useful life concluded.

Second, as a principal investor, I've had the privilege of supporting various real world asset ("RWA") projects bridging or straddling DeFi and CeFi. Many of their products could become, in my opinion, ubiquitous as they augment on-chain access to treasuries and institutional lending and lower barriers to participation in global finance, creating new possibilities in and reach for finance.[2] I've also borne witness to DeFi's evolution beyond a niche vertical on Ethereum Layer 1, to being a primary driver of growth on Ethereum Layer 2s[3] and Solana, among other ecosystems.

The trials and tribulations of my time in crypto also have crafted my thinking on regulation: if DeFi is to move towards full inclusion with traditional financial rails, a common-sense regulatory apparatus that recognizes DeFi's unique aspects and focuses foremost on compulsory disclosure is paramount to our industry's success in the coming years.
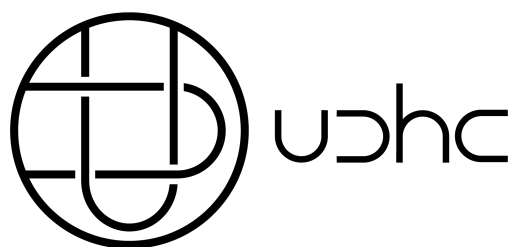
II.   Brief Primer on DeFi Business Models and Decentralized Protocols

Since ours is a highly technical space with varying definitions, I do not intend to cover all the different business models that have arisen since "DeFi Summer" in 2020, nor will I cover well-trodden topics such as DeFi technical infrastructure (*e.g.*, oracles) or centralized stablecoin models (*e.g.,* Tether

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[2] In many ways, I believe this intersection is similar to how ChatGPT has established a new paradigm for retrieving and presenting data and information.

[3] For instance, Optimism (including Base), Arbitrum and Scroll, saw total value locked ("TVL") increase substantially due to the growth of DeFi in their respective ecosystems. *See* State of DeFi Q2 2024, Messari.io, *available at* https://messari.io/report/state-of-defi-q2-2024 (last visited on August 27, 2024).

and USDC)[4]. Rather, I describe below several generic product categories in DeFi[5], and briefly discuss decentralized protocols.

(a) DeFi Business Models

(i) Borrowing and Lending; Credit Creation

Multiple DeFi protocols have come to market offering users the means to lend their crypto assets to earn a fixed or variable return by depositing them in a smart contract or lending pool that simultaneously allows other participants to borrow those assets.[6] Depositors receive a different crypto-asset, representing his or her pro rata interest in the lending pool and can be redeemed at any time for the amount of the original deposit plus the accrued interest.[7] The above describes a "simple" borrowing and lending protocol; however, many modified versions have come to market in recent years, including protocols that permit "self-paying" loans.[8]

Credit creation is a unique twist on the traditional concept of borrowing and lending made possible by the permissionless nature of smart contracts. A well-known example of a credit creation engine is the Maker Protocol, an open-source suite of permissionless smart contracts designed to allow users to generate (*i.e.*, draw) a price-stable decentralized digital currency called Dai against their own
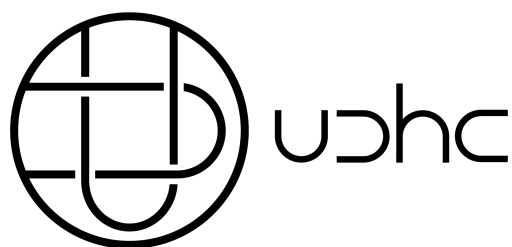
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[4] Stablecoins are a (if not, *the*) critical infrastructure that makes DeFi work. Notably, despite a tepid crypto market through summer 2024, the stablecoin market cap recently reached all-time highs ($168.1b), further evidencing their positive trajectory and, I hope, foreshadowing similar growth for DeFi. *See* "Stablecoin Market Cap Hits New All-Time High, Beating Early 2022 Record." The Block, *available at* theblock.co (last visited August 29, 2024).
[5] For further reading, there are voluminous examples of succinct explanations of the varied business models in DeFi (*see e.g.,* DeFi and the Future of Finance, by Campbell R. Harvey, Ashwin Ramachandran, et al) as well as a plethora of media that covers our industry's latest innovations (*e.g.*, Messari.io, Bankless.com and the Bell Curve Podcast).
[6] *See* Final Report with Policy Recommendations for Decentralized Finance (DeFi), p. 11, The Board of the International Organization of Securities Commissions.
[7] *Id.*
[8] With these debt positions, users deposit their yield bearing assets (*e.g.*, staked ETH) into a smart contract and that smart contract automatically uses the yield generated by the token to pay down one's debt. *See e.g.,* Alchemix ("self-repaying loans"), https://alchemix.fi/; *see also* Altitude.fi (users configure the parameters of their debt positions and the Altitude protocol "borrow[s] against it and deploys excess collateral into generating yield, which is used to pay [off one's debt].)"

crypto-collateral.[9] Notably, a user's collateral is segregated into the individual's personal position, called a vault, and is not pooled with the assets of any other user, a key differentiator when compared with notable lending and borrowing protocols.

(ii) Decentralized Exchange

Best described as a verb,[10] *decentralized exchange* ("DEX") is the process for peer-to-peer swapping of different crypto assets on-chain. Although different models of exchange were prominent before 2018[11], the dominant model[12] to arise since then is the "automated market maker" ("AMM"). AMMs "are a type of [DEX] that use algorithmic mechanisms to facilitate the trading of digital assets."[13] Unlike "traditional financial markets that rely on buyers and sellers, AMMs aim to maintain liquidity in the DeFi ecosystem through liquidity pools."[14] Users supply these pools with crypto tokens, and "the prices of these tokens are determined by a constant mathematical formula."[15] When a user wants to trade, they swap one token for another directly through the AMM, and this system allows the protocol to provide continuous liquidity for a wide range of assets, including less liquid

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[9] The Maker Community changed its branding and purportedly added new product offerings in August 2024 while making revisions to the current versions of Maker and Dai. *See, e.g., "*MakerDAO is now 'Sky' as $7B Crypto Lender Rolls Out New Stablecoin, Governance Token." Coindesk, *available at* www.coindesk.com (last visited on August 28, 2024). Neither my UDHC colleagues nor I was involved in these changes as we stepped away from Maker in 2021.

[10] *See* "There's No Such Thing as a Decentralized Exchange," Van Valkenburgh, Peter, The Block, *available at* https://www.theblock.co/post/79768/theres-no-such-thing-as-a-decentralized-exchange (last visited on September 2, 2024).

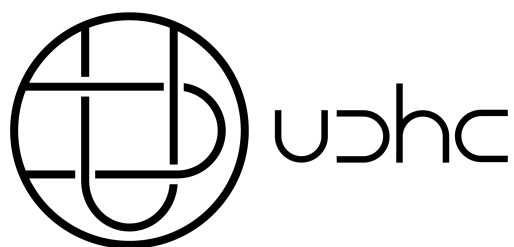[11] Many early DEXes ran some variant of the "order book" model, whereby users created orders using a smart contract protocol and those orders were then matched with other buyers and sellers. Oftentimes, DEX operators incorporated an offchain order book, and incorporated the underlying Layer 1 blockchain as the settlement layer. *See e.g.,* Final Report with Policy Recommendations for Decentralized Finance (DeFi), p. 17, The Board of the International Organization of Securities Commissions (Dec. 2023). That said, other DEXes were fully decentralized, with non-custodial and permissionless on-chain matching markets (order matching between buyers and sellers and settlement happened completely on-chain, which, with high Ethereum gas prices at the time, became cost-prohibitive in comparison with AMMs). *See e.g.,* OasisDEX Protocol FAQs, *available at* https://oasisdex.com/faq (last visited on August 28, 2024).

[12] The leading DEXes on Ethereum and Solana use variants of the AMM model.

[13] *See* "What is an Automated Market Maker?" Coinbase.com (last visited on August 28, 2024).

[14] *Id.*

[15] *Id.*

cryptocurrencies.[16] Many users access AMMs to trade assets at spot but many markets also list an ever-growing cornucopia of leverage tokens and exotic options, like perpetual futures.[17]

(iii) Miscellaneous

These last categories, which overlap with the three mentioned *supra*, have seen considerable growth as of late:

- **Synthetic Assets:** these are "tokenized, blockchain-powered financial products mirroring the values and characteristics of real-world assets (RWAs),"[18] and include any variety of underlying assets from commodities (*e.g.*, gold) to government bonds (*e.g.*, US treasuries) and stablecoins.
- **Aggregators:** these "provide services that offer users optionality to access trading, liquidity or yield-generating opportunities" from a variety of protocols through one easy-to-use front-end interface.

(b) Decentralized Protocols

A Decentralized Protocol is a distributed, permissionless, non-jurisdictional protocol that serves as infrastructure to manage value, help build an ecosystem and afford users autonomy.

The objective of a Decentralized Protocol is self-sovereignty. A user should have the autonomy to engage with the protocol freely on a person-to-protocol or business-to-protocol basis with little or

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[16] *Id.*

[17] Also known as perpetual swaps, these popular futures contracts have no expiration or settlement. Rather than "expiring on a given day, a funding rate mechanism is used to tie the price to an index of the price of the underlying asset, [] and several times a day participants must pay each other based on the imbalance between mark price and index price: (i) if the mark price is over the index price, longs pay shorts or (ii) if the mark price is under the index price, shorts pay longs." *See* The Quest for Perp AMMs, by Deribit, *available at* https://medium.com/deribitofficial/the-quest-for-perp-amms-662124742dd1 (last visited on August 28, 2024).

[18] *See* "What are Synthetic Assets in Crypto?" Unchained Crypto, *available at* https://unchainedcrypto.com/synthetic-assets-in-crypto/ (last visited on August 28, 2024).
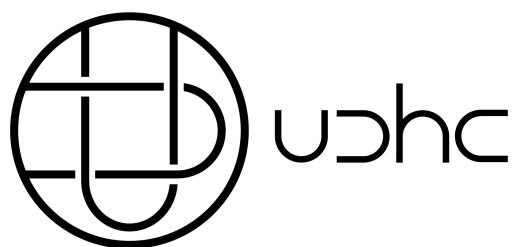
no intermediation. For example, Citibank should be able to use the protocol to create products and services just as easily as an entrepreneur could use it to run her business.

The arc of decentralization is how a project starts up and develops into a decentralized protocol. However, we call a project that develops this protocol within the guardrails of an evolving regulatory landscape the Compliant Arc of Decentralization.[19] At the heart of it is anticipating how regulation will apply to decentralized protocols and DeFi specifically.

III.   **Bridging DeFi and CeFi: Real World Assets**

Over the last two years, RWAs, on-chain representations of off-chain assets, have moved from an experimental niche in DeFi to a central ecosystem pillar offering users exposure to various yield-bearing assets and strategies. There are multiple strands of RWAs – stablecoins,[20] equity and debt-like instruments and tokenized versions of alternative assets – gaining considerable traction not only with retail users but also with institutions.[21]

Many RWA projects incorporate and overlap with proven DeFi business models (*e.g.*, lending and borrowing protocols) and, as such, expand upon options for yield generation that are available to users. I provide a brief review on what I see as the three prominent categories.

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[19] My colleagues at the UDHC have written extensively about decentralized protocols. *See e.g.,* "On Being Sufficiently Decentralized"; "On Optimal Decentralization"; "The Arc of Decentralization"; and "The Compliant Arc of Decentralization," UDHC, *available at* https://www.udhc.com/writing (last visited September 2, 2024).

[20] As mentioned *supra*, stablecoins were the first RWAs providing synthetic exposure to the US dollar. Given the enormity of that topic, in addition to widespread familiarity with stablecoins, I focus more on recent developments in the wider market.

[21] Notably, RWA protocols have returned to the fore as the crypto market entered a more bullish phase in Spring 2024, with the total value locked ("TVL") "growing from $2 billion to $8 billion since Q1 2023, excluding traditional stablecoins." *See* "Welcome to the Real World," Messari.io, *available at* messari.io/reports/welcome-to-the-real-world (last visited on August 20, 2024).
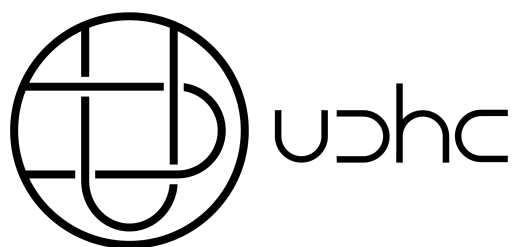
(a) Yield-Bearing Assets

Over the last eighteen months, many new RWA protocols have offered users exposure to Treasury-backed yield-bearing assets in DeFi, including the stability of government-issued securities with the accessibility and programmability of blockchain technology. Typically, platforms tokenize US Treasury bills or similar government debt to back dollar-denominated stablecoins that earn yields comparable to traditional Treasury securities.[22] These tokens can automatically distribute interest to holders, providing returns while also permitting holders to use these fungible assets to pursue other opportunities in DeFi.[23] Notably, they tend to be offered only to organizations and individual purchasers outside the United States.

(b) Alternative Assets

Notably, some borrowing and lending protocols have pivoted from purely crypto-asset plays such as BTC or altcoin lending to corporate credit, overcollateralized lending and receivables financing and have incorporated more stringent borrowing standards and formal lending desks to professionalize their operations.[24] In many ways, these teams represent an actual bridge between DeFi and CeFi: institutions and accredited investors can lend their assets and get the benefits of using permissionless, smart contract-based lending while being serviced by an institutional grade team that screens, verifies, and manages borrowers.

In addition, some physical commodity-backed tokens, such as Tether Gold, have come to the market, though it's unclear whether there is significant demand on par with stablecoins. Other parties have attempted to launch other precious metals-backed tokens in the past but

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[22] *See e.g.*, Ondo Finance's USDY, https://ondo.finance/usdy; *see also* Mountain Protocol's USDM, https://mountainprotocol.com/.
[23] *Id.*
[24] *See* Maple Finance, https://maple.finance/.
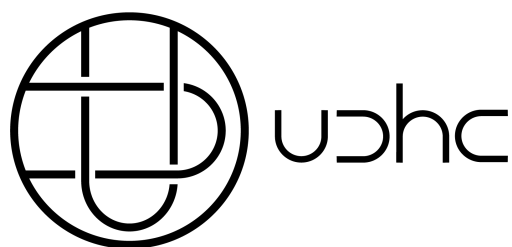
failed.[25] It remains to be seen whether there is robust demand for these sorts of items though it's reasonable that they could grow in popularity for investors who are comfortable maintaining portions of their wealth on-chain.

(c) Tokenized Funds

Tokenized funds typically provide exposure to traditional assets, such as US Treasuries, while issuing digital tokens that represent shares in the fund.[26] By tokenizing fund shares, investors can benefit from the efficiency and flexibility of blockchain-based transactions, including daily liquidity and the ability to use the tokens in DeFi applications. For example, some projects allow qualified purchasers to buy or redeem shares using USDC or USD, with the fund's net asset value ("NAV") updated daily, and integrate with oracle networks like Chainlink to bring critical data NAV on-chain. These steps allow for real-time pricing information and even use the tokenized shares as collateral in DeFi, further melding DeFi and CeFi. Perhaps one day we may see these RWAs issued, living and operating onchain, rather than simply creating token representations of custodied assets.

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[25] Many such projects launched in the early days of DeFi but failed to take hold. *See* "More Than 77 Crypto Projects Claim to Be Backed by Physical Gold – After 30 Failed," Bitcoin.com (last visited on August 31, 2024).
[26] *See e.g.,* Superstate's USTB (https://superstate.co/ustb) (last visited on August 30, 2024). Projects such as Blackrock's BUIDL have seen tremendous growth in less than six months on the market. *See* BlackRock Tokenized Treasury Fund BUIDL Reaches $500M," Cointelegraph.com (last visited on August 29, 2024).
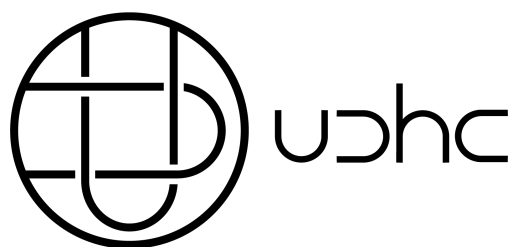
IV.   <u>Regulatory Challenges and Potential Considerations</u>

Permissionless, genuinely decentralized (tech, social, and governance) technology poses perplexing questions for regulators accustomed to intermediary touchpoints for market insight and enforcement. Tomes have been written on the issues that arise from DeFi[27], but from my perspective, boiling down the challenges to their essence helps when considering potential solutions.

(a) Challenges

(i) Under-Informed Users

DeFi presents considerable *initial* barriers to entry for nascent users unfamiliar with its underpinning technology or significant jargon. What's more, projects often fail to present fulsome information on topics like token distributions and unlock schedules, in addition to simple-to-follow documentation on how the protocols work and summaries and annotations of important parts of the applicable code. It's a common criticism but one that, when combined with the cumbersome UX for new participants[28], rings true. How can we expect DeFi to truly be inviting when much of what users or investors would expect – who are the largest token holders and what are the lockup schedules, for instance – must be ferreted out and reported on by third parties.[29]

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[27] *See generally,* "Decentralized Finance: Report of the Subcommittee on Digital Assets and Blockchain Technology, Technology Advisory Committee (TAC) of the US Commodities Futures Trading Commission.

[28] This point – criticism about the difficulty for new users to easily understand and access cold storage and hot wallet software – is a tired trope in my opinion, and industry leaders like Coinbase are releasing the UI/UXs for onboarding the next ten million users. *See e.g.,* Introducing Base (Coinbase's L2), *available at* https://www.coinbase.com/blog/introducing-base (last visited on August 29, 2024).

[29] While this statement is still true and has been since DeFi's early days, market standards in the industry have rapidly matured. In my experience, common business practice dictates that many teams and DAOs publish detailed breakdowns on token issuances and token distributions, while making available information to their communities regarding large token sales or movements from their respective treasuries. Moreover, details on token distributions
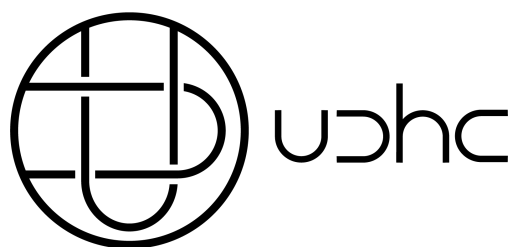
(ii) A (Sometimes Futile) Search for Intermediaries

Our regulatory financial apparatus generally assumes the existence of intermediaries that interact with user funds at different points in a given transaction and places the onus for compliance on said intermediaries (be they firms or individuals).[30] But that need becomes problematic when there is no one playing a traditional intermediary role in a permissionless, non-custodial protocol and where users always maintain total, independent control of their assets, rather than placing them with a third-party custodian. Finding the right regulatory touchpoint for DeFi protocols then becomes a novel task with commentators suggesting that responsibility may sit with protocol founders,[31] development teams,[32] validators, miners, node operators and/or front-end operators. Regardless of the approach, identifying and addressing gaps and the regulatory perimeter around DeFi places authorities in the difficult and unenviable position of searching DeFI "projects, enterprises and ecosystems" to identify responsible actors for "regulatory compliance and the imposition of systems, processes and controls ... both consistent with [] objectives and robust to changing circumstances."
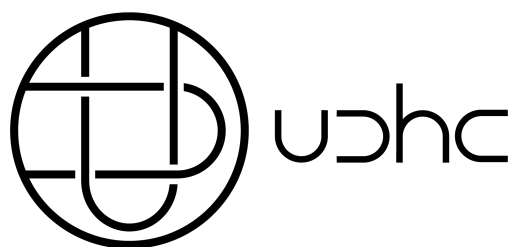
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and related transactions are synthesized by web3 reporting companies like Messari, Token Flow and Dune Analytics.

[30] *See generally*, the Bank Secrecy Act, Know-Your-Client record collection obligations sit with custodial service providers and the Commodities Exchange Act requires registration for individuals or firms acting "on behalf of another person in connection with trading futures, swaps, or options."

[31] *See generally*, "Decentralized Finance: Report of the Subcommittee on Digital Assets and Blockchain Technology," p. 55, fn. 67, Technical Advisory Committee (TAC) of the US Commodity Futures Trading Commission.

[32] *See* Walch, Angela, In Code(rs) We Trust: Software Developers as Fiduciaries in Public Blockchains, p.19 (June 27, 2018). Chapter in Regulating Blockchain. Techno-Social and Legal Challenges, edited by Philipp Hacker, Ioannis Lianos, Georgios Dimitropoulos & Stefan Eich, Oxford University Press, 2019.

(b) Considerations

(i) Disclosure Regimes and Consumer Protections

Before approaching thornier questions about decentralization, I believe it's essential to address DeFi's lowest-hanging fruit: enhancing customer protection by mandating information disclosures. For instance, a notice and disclosure regime[33] may suffice to ensure that users are fully informed about the tooling they use. The breadth of information I'd expect to see should include (1) plain English descriptions of the protocol and its component pieces; (2) annotated copies of the code highlighting what material lines of code enable what functions for the protocol's smart contract architecture; (3) detailed information regarding token distribution to investors and insiders; (4) information on individuals, firms or both holding a certain percentage of tokens (*e.g.*, 10%); and (5) dates and amounts applicable to investor and insider token unlocks.[34]

Admittedly, information disclosure regarding DeFi tokens and governance appears to tread closely to what could arguably be expected from traditional disclosures required by financial regulators, such as the Securities and Exchange Commission,[35] though many commentators have noted why current disclosure regimes do not suffice for crypto.[36] From my
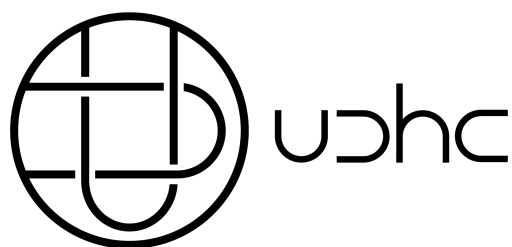
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[33] I do not suggest efficiency or effectiveness will be found in a restrictive licensure regime whereby any potential DeFi project must apply and be approved for a license. Quite conversely, such an approach appears to be motivated by eliminating DeFi in the US, rather than creating appropriate guardrails for its growth and maturity.

[34] Notable crypto-focused academics have made similar suggestions. *See e.g.*, Center, C. B., Agnes N. Williams Professor of Law at Georgetown University Law. (2022). *Disclosure, Dapps and DeFi*. Stanford Journal of Blockchain Law & Policy.

[35] *See generally,* "The Current SEC Disclosure Framework Is Unfit for Crypto," Paradigm, *available at* https://policy.paradigm.xyz/writing/secs-path-to-registration-part-iii (last visited on August 28, 2024).

[36] *Id.* at 4-5 (noting, for example, several difficulties in applying current SEC disclosure to crypto, including (a) that "[m]ost crypto assets do not provide legal rights against an identifiable issuer…" and (b) "[c]rypto assets can exist independent of the existence of an 'issuer'.").

vantage point, modified disclosure forms, along the lines of what Commissioner Mark Uyeda recently suggested for a "Crypto S-1", could be a good start.[37]

Nevertheless, without delving into the token classification debate, there is still room to ensure that projects publish material disclosures required by educated consumers and face enforcement, private litigation or both should they publish false, misleading or incomplete information.

(ii) Controlling Teams and Centralized User Interfaces

This is a complicated area where, admittedly, no easy answer exists. From my perspective, while finding the right framework for building a regulatory structure for DeFi is paramount, it also is imperative to continue ensuring that software developers writing code for DeFi protocols do not unwittingly become responsible for the control and compliance of what they launch but do not operate. [38] Moreover, putting the onus for compliance with money transmissions laws, or the like, on parties like validators or node operators seems counterintuitive as those infrastructure-supporting actors are (i) functionally similar to Amazon Web Services and not Stripe, and (ii) may arguably fall outside the definition of money transmitter (and within the Network Services Exemption). [39]
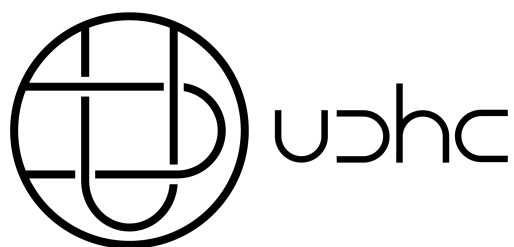
On the other hand, most end-user interactions with DeFi protocols occur through graphical user interfaces and other "off-chain" components. These tools are often hosted on centralized servers and rely on traditional internet infrastructure to enable users easy access to

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[37] *See* "SEC Commissioner Mark Uyeda Calls for S-1 Form Tailored for Digital Assets," Coindesk, *available at* coindesk.com (last visited on September 5, 2024).
[38] *See* FIN-2019-G001, *"Application of FinCEN's Regulations to Certain Business Models Involving Convertible Virtual Currencies" May 9, 2019 ("FinCEN May 2019 Guidance")*, §5.2.2 Status of a DApp Developer ("[T]he developer of a DApp is not a money transmitter for the mere act of creating the application…").
[39] 31 CFR § 1010.100(ff)(5)(ii)(A).

DeFi through websites or mobile apps. Some interfaces even extract various fees from users, for instance, by charging a "swap fee" when a user makes a trade. At times, founding developer teams both launch their protocols with one hand and operate with the other businesses that channel users to their protocols. That situation, with one team centrally controlling the decentralized application's entire tech stack (through governance of the protocol plus ownership of more than 10% of the governance token and with fee extraction from a market-dominant user interface), would be a logical focus for regulatory application. And which regulatory regime and regulator depends on the service or activity permitted through the interface.

V.   Conclusion

DeFi has shown incredible traction since 2017 and 2018, when many of the current blue chip projects (Maker, Aave (f/k/a EthLend), Uniswap and Compound) came to the fore. My hope in testifying today is that my practical experiences through the years of attempting to address DeFi's complicated legal questions as outside counsel and a General Counsel may benefit the Committee not only with its understanding of this technology but also with possible ways to begin considering its regulation.