MINUTES OF THE DECEMBER 14, 2020 MEETING OF THE
U.S. COMMODITY FUTURES TRADING COMMISSION'S
TECHNOLOGY ADVISORY COMMITTEE

The Technology Advisory Committee (TAC) convened for a public meeting on Monday, December 14, 2020, at 9:30 a.m., via teleconference hosted by the U.S. Commodity Futures Trading Commission's (CFTC or Commission). The meeting consisted of one panel and a TAC vote. In the panel, the Virtual Currencies Subcommittee discussed the growth of decentralized finance (including smart contract-based financial services), as well as their development, potential regulatory challenges, and proposed courses of action. The TAC then voted on a recommendation from the TAC Cybersecurity Subcommittee that the CFTC provide clear, concise, and updated guidance on how the CFTC reviews highly sensitive cybersecurity and sensitive intellectual property.

TAC Members in Attendance
Richard Gorelick, TAC Chairman and Director, Eventus Systems, Inc.
Christopher Chattaway, Managing Director, Goldman Sachs
Thomas Chippas, Chief Executive Officer, ErisX
Gary DeWaal, Special Counsel, Katten Muchin Rosenman L.L.P.
Christopher Hehmeyer, Managing Member, Hehmeyer Trading and Investments
Julie Holzrichter, Chief Operating Officer, CME
Mayur Kapani, Chief Technology Officer, Intercontinental Exchange (ICE)
Derek Josef Kleinbauer, Vice President, Bloomberg SEF LLC, and Global Head of Rates and
        Equities Electronic Trading, Bloomberg L.P., Bloomberg
John Lothian, President and Chief Executive Officer, Jonathan J. Lothian Co. Inc.
Timothy McHenry, Vice President, Information Systems, National Futures Association (NFA)
Supurna VedBrat, Global Head of Trading, BlackRock
Eddie Wen, Global Head of Digital Markets, JP Morgan Chase
Haimera Workie, Senior Director for Emerging Regulatory Issues, FINRA
Aaron Wright, Associate Clinical Professor of Law, Cardozo Law School, and Special
        Government Employee (SGE)
Yesha Yadav, Professor of Law, Vanderbilt University, Special Government Employee (SGE)

CFTC Commissioners and Staff in Attendance and Speakers
Brian D. Quintenz, Commissioner and TAC Sponsor
Heath P. Tarbert, Chairman
Rostin Behnam, Commissioner
Dan Berkovitz, Commissioner
Dawn D. Stump, Commissioner
Meghan Tente, Acting Deputy Director, Product Review Branch, TAC Designated Federal Officer (DFO)

Invited Speakers in Attendance
Hunter Landrum, Government Affairs Council, Two Sigma
Jerry Perullo, Chief Information Security Officer, ICE

I.   Opening Remarks

Ms. Tente called the meeting to order.

Commissioner Quintenz then gave his opening remarks, welcoming all who were attending. He discussed the past work of the TAC and its subcommittees, and stated that the TAC Cybersecurity Subcommittee may make recommendations regarding data protection initiatives at this meeting. The Algorithmic and Modern Trading Markets Subcommittee along with the CFTC's Market Intelligence Branch helped the TAC develop an understanding for the implementation of best practices for automated and electronic trading risk controls by both exchanges and firms. This informed the Commission's final rule regarding electronic risk controls and resulted in entirely principles-based risk controls. Commissioner Quintenz thanked all who have contributed to the TAC's work during his time as Sponsor, including the members and especially the TAC Chairman, the Designated Federal Officer, and the Alternate Designated Federal Officers who coordinated and facilitated subcommittee discussions. He then stated the meeting today would cover decentralized finance and a re-presentation and vote on recommendations for the Cybersecurity Subcommittee.

Next, Chairman Tarbert gave his opening remarks. He thanked all for their attendance, and specifically thanked Commissioner Quintenz and his staff, the DFO, the TAC Chair, and all TAC members for taking the time to share their valuable perspectives.

Following the Chairman, Commissioner Stump thanked Commissioner Quintenz and Mr. Gorelick for their leadership of the TAC. Commissioner Berkovitz also thanked Commissioner Quintenz for his leadership and the speakers in advance for their presentations. He also thanked Ms. Tente and Mr. Gorelick for their hard work. (Commissioner Behnam had difficulty joining the call and did not provide opening remarks.)

II.   Panel I: Virtual Currencies Subcommittee Presentation: The Growth and Regulatory Challenges of Decentralized Finance.

Mr. Gorelick introduced the first panel. He stated that the panel would begin with a presentation from the TAC's Virtual Currencies Subcommittee regarding the growth and regulatory challenges of decentralized finance. In particular, they would discuss a broad category of emerging smart contract-based financial services being built on top of blockchains, known as decentralized finance (DeFi).

Mr. DeWaal opened the panel by asking Mr. Wright to answer the question, what is DeFi? Mr. Wright stated that DeFi was part of the blockchain ecosystem and that it uses smart contracts to create financial services and other products that aim to be noncustodial in nature. He stated that a smart contract can be thought of as a small bit of computer code or computer script that's running on a blockchain. Each node on a blockchain-based network like Ethereum will execute a portion of a smart contract. Once the computer software or script is deployed on a

blockchain-based network, it is difficult to remove or stop the software if users are interacting with it.

Mr. DeWaal then asked Mr. Wright to define certain other key terms. He explained, for example, that "apps" are applications that are often administered via an online portal, supported by individuals or entities that pull together assets into what is known as a liquidity pool. Those that deposit assets into a liquidity pool lock their assets, and often earn fees and/or automatically receive digital assets in the form of governance tokens. These tokens give the holders the ability to steward and weigh-in on certain aspects of how these protocols operate. The practice of submitting assets to a DeFi protocol is referred to as liquidity mining. And the process of earning fees and/or governance tokens or other forms of assets is referred to as yield farming.

Mr. Wright then described broader trends in the DeFi space. He observed that DeFi is growing incredibly fast. Currently, there is about $14 billion in digital assets locked in various different DeFi products and services, which is a massive increase over even recent months. Moreover, over 10% of the amount locked in DeFi protocols is in Bitcoin.

Mr. Wright then discussed some of the products and players in the DeFi landscape. He observed that there are a number of smart contract-based protocols and centralized aggregation tools that are beginning to hit the market. On the protocols side, there are decentralized exchanges (DEXes); borrowing and lending protocols; derivatives and synthetic asset protocols; and insurance prediction markets. On the services side, there are DEX aggregators, and yield and asset management protocols.

As Mr. Wright explained, at the base of the ecosystem is the blockchain; a number of protocols that are smart contract-based perform certain financial functions like borrowing/lending, exchanging derivatives and synthetics assets, prediction markets, and insurance. Mr. Wright discussed the general benefits and risks associated with DeFi. Potential benefits include the following: lower costs, possible community-run financial infrastructure with a number of stakeholders involved, permission-less access, composable and interoperable products, and a high security profile. With regards to potential risks, Mr. Wright stated that risks were just emerging and include the following: the software is complex and requires time to understand, unknown systemic risk if there is a run on liquidity, lower levels of liquidity, limited (but increasing) ability of blockchains to process transactions, increased security risks, and because so many individual systems are involved, regulatory uncertainty.

Mr. Wright then opened a discussion on the regulatory and legal issues related to DeFi. Mr. DeWaal stated that DEXes rely on an automated market maker's smart contract or set of smart contracts, and allow for the trading of digital assets without necessarily using the order book. Generally, DEXes rely on two smart contracts. One is an exchange smart contract, which holds a pool of one or more tokens. The other is a related factory contract, which is a contract that actually creates one or more exchange contracts, and makes it easy to identify the available

liquidity pools. These smart contracts are open and permission-less. They have been designed to work on a technical level, but they do not necessarily incorporate regulatory compliance. Interacting with decentralized exchanges will look and feel a lot like interacting with any other website, but the interface is not being served for a central company, thus creating regulatory complexity. The contracts are traded algorithmically and traded in a pool-to-peer transaction, which allows for fairly stable pricing.

Mr. Wright also discussed the emergence of various DeFi lending protocols. He observed that, generally, these protocols provide lending or borrowing-related functionality and are overcollateralized to maintain stability.

Mr. Wright then discussed how the smart contracts themselves contain the rules with regard to how the DEXes and lending protocols function. Since the rules generally are not modified, users can interact with a degree of confidence and security. He also discussed the creation of derivative and synthetic protocols that derive their value from an underlying digital or real-world asset. He discussed how DeFi protocols and services are becoming more and more complex as users interact with them. As a result, there is an increase in the number of aggregators (including DEX aggregators, yield aggregators, and asset managers) that make it easier to interact with these new types of services. These aggregators have a non-custodial relationship, and control of the underlying asset is never transferred.

Mr. Gorelick then opened the floor for questions. Generally, the concerns and discussions raised in this session included: how to ensure that DeFi projects remain truly decentralized; the fact that mechanisms to govern these smart contracts vary on a case by case basis; and whether and how to deal with governance tokens that can be used for nefarious purposes in secondary markets.

Mr. Wright then discussed the regulatory and legal aspects of DeFi. In terms of regulatory oversight, many regulators could be involved depending on the issues involved. For example, the decentralized autonomous organization (DAO) token itself was deemed to be a security by the U.S. Securities and Exchange Commission (SEC) and could be subject to regulatory issues arising under the Securities and Exchange Act and Investment Advisor Act. There could also be potential issues under the Bank Secrecy Act and state money transmittal laws. In the context of the CFTC, if unregistered futures commission merchants (FCMs), designated contract markets (DCMs), swap execution facilities (SEFs), or designated clearing organizations (DCOs) were involved, if there was fraud, or if commodity pool operator (CPO) or commodity trading advisor (CTA) rules were violated, there could be some potential regulatory issues. He further stated that proving liability under any of these rules and regulations could be difficult as a developer would have to reasonably foresee at the time that they create the code that it may be in violation of the relevant rules and regulations. He further discussed the various factors in determining whether there is secondary liability for potential violations. While secondary liability could be a deterrent, it cannot stop a DeFi protocol because they cannot

generally be stopped from running once they have started. He also discussed a new theory of liability called contributory liability. To deal with the concerns regarding liability, he suggested regulators consider a safe harbor to create a regulatory incentive to build and support compliance. Another approach is to regulate decentralized finance through secondary liability under the Commodity Exchange Act and other statutes. He highlighted that it was important to ensure that innovation is not being limited by regulation.

Mr. Wright concluded by observing that the TAC was considering recommending to the Commission a number of things, including: a wait and see approach to see where risk manifests in protocols; to carefully consider whether to impose direct liability on smart contract developers, miners, and validators; to consider the level or fairness when applying liability; and to research and explore theories of secondary liability.

Mr. Gorelick next opened the floor for questions. Since there were no questions, he called for a break before the TAC voted on a recommendation from the Cybersecurity Subcommittee.

[Break]

### III.	TAC Vote on Recommendation from the Cybersecurity Subcommittee
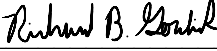
Mr. Gorelick introduced the last matter for the morning, a vote on a recommendation from the Cybersecurity Subcommittee. The Subcommittee had recommended that the TAC recommend to the CFTC that the agency provide clear, concise, and up-to-date guidance on how the Commission reviews highly sensitive cybersecurity artifacts and sensitive intellectual property. As members of the TAC had been briefed on these issues previously, Mr. Gorelick asked for brief explanations of the recommendations. Mr. Landrum stated that regulated financial institutions have identified significant risk in the collection, concentration, storage, and securing of highly sensitive cybersecurity artifacts and sensitive intellectual property during regulatory examination procedures. Mr. Perullo stated that as a large multinational exchange, they see many different approaches to regulation. He stated that the Commission has been effective in dealing with the clearing side and the market side, and viewing sensitive artifacts in a shared location and taking notes rather than taking the artifacts away. With the vote today, the subcommittee is ensuring regulators are able to access the data they need in a secure manner and minimize the need to take possession of artifacts.

Mr. Gorelick then moved that the TAC adopt the recommendation from the Cybersecurity Subcommittee. All voted in favor except NFA, which abstained because of its regulatory role.

IV.   Closing Remarks

In closing, Commissioner Quintenz, Chairman Tarbert, and the remaining Commissioners all expressed enthusiasm for the excellent discussion and stated they were looking forward to future discussions.

Ms. Tente adjourned the meeting at 11:30 a.m.

_Richard B. Gorelick_____   _March 23, 2021_____
Richard Gorelick   Date
TAC Chair