February 15, 2019

Mr. Christopher Kirkpatrick
Secretary of the Commission
Commodity Futures Trading Commission

Three Lafayette Centre
1155 21st Street, NW
Washington, DC 20581

Re: Request for Input on Crypto-Asset Mechanics and Markets

Dear Mr. Kirkpatrick:

ErisX appreciates the opportunity to submit this letter in response to the Commodity Futures Trading Commission's ("CFTC" or "Commission") request for input on crypto-asset mechanics and markets. ErisX believes that the introduction of a regulated futures contract on Ether ("ETH") would have a positive impact on the growth and maturation of the market for Ether, as well as the Ethereum Network ("Ethereum") more broadly. The CFTC plays an important and vital role in enabling institutions and consumers to participate in the market for Ether and on the Ethereum Network--managing individual and systemic risk by monitoring for and addressing fraud and manipulation, and enabling participants to trade on compliant, resilient market(s) with strong operational controls, transparency, and integrity from trade through settlement.

Introduction

ErisX is a designated contract market (DCM) and pending derivatives clearing organization (DCO) that is building on more than seven years of experience operating a DCM to launch a new electronic exchange and clearinghouse for crypto asset cash and futures trading. ErisX's team is composed of experienced industry practitioners, and includes senior industry leaders with backgrounds and operating experience spanning multiple regulated asset classes and global jurisdictions. ErisX's investors represent a diverse group of industry participants including, broker-dealers and futures commission merchants, regulated exchange operators, professional trading firms and market makers. This group also includes commercial end-users, firms that engage in crypto-mining and consumer and enterprise software development and consulting, and venture capital firms. As a result, ErisX is well positioned to provide responses the CFTC's various questions, in particular those related to Markets, Oversight, and Regulation.

Discussion

ErisX believes that robust, transparent, regulated financial markets are critical infrastructure that enable price discovery and risk transference. These are foundational elements of well functioning capital, commodity, and commercial markets globally. Commodity futures contracts are designed to enable risk transfer and hedging. In 2014, the CFTC declared virtual currencies to be a "commodity" subject to its oversight pursuant to its authority under the Commodity Exchange Act (CEA)[1], ErisX applauds the CFTC and it's LabCFTC initiative for seeking to promote responsible innovation and development that is consistent with its statutory mission to foster open, transparent, competitive, and financially sound derivative trading markets and to prohibit fraud, manipulation, and abusive practices in connection with derivatives and other products subject to the CEA. A path to listing and trading Ether futures compliantly on CFTC regulated markets is consistent with this approach.

Beginning with the launch of Bitcoin in 2009 - driven by the combination of concepts drawn from computer science, economics, game theory, and cryptography, and enabled by the dramatic increases in computational power, communications speed, and capacity in recent decades - new forms of record keeping, markets such as prediction markets and distributed exchanges, crypto assets, and modalities of organization such as distributed autonomous organizations have emerged. Ethereum built upon some of the architectural principles of Bitcoin to extend the functionality of Bitcoin's distributed, (crypto-economically) secured, (blockchain-based) record-keeping system to include new computational capabilities for the execution of arbitrary code. In other words, where Bitcoin is designed as a means of recording and transferring value in the form of digital ledger entries, Ethereum is akin to a cloud-based computer that can execute programs that are limited only by the imagination of developers.

Since its launch in 2015, Ethereum has generated much excitement and interest globally. Initially, the Ethereum community was comprised of a mainly technical population of computer scientists and hackers, cryptographers, mathematicians, and academics - visionaries and pioneers. In the years since its launch more people and professional organizations have become interested in crypto assets and blockchain technology. As interest has grown, the crypto/blockchain community broadly, and the Ethereum community specifically, has grown to include speculators, product developers, and organizations and enterprises that include governmental[2], nonprofit[3] and for-profit entities[4]. Use cases for Ethereum, and its native crypto

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[1] *See* CFTC Backgrounder on Oversight of and Approach to Virtual Currency Futures Markets, www.cftc.gov/sites/default/files/idc/groups/public/%40customerprotection/documents/file/backgrounder_virtualcurrency01.pdf; citing testimony of Chairman Timothy Massad before the U.S. Senate Committee on Agriculture, Nutrition & Forestry, https://www.cftc.gov/PressRoom/SpeechesTestimony/opamassad-6.

[2] *See e.g.* Muyao Shen, "A Canadian Government Body Has Built an Ethereum Blockchain Explorer" CoinDesk (Aug. 2018) www.coindesk.com/a-canadian-government-body-has-built-an-ethereum-blockchain-explorer; and David Canellis, "Australia will use Ethereum to track up to $1.3B in government bonds" TheNextWeb (Sept. 2018) www.thenextweb.com/hardfork/2018/09/27/austria-ethereum-government-bonds/.

asset Ether, currently run the gamut from potential financial and commercial applications, prediction markets, voting and identity systems, digitized physical assets, unique non-fungible digital assets, trading and exchange applications, payments and remittances, to data management platforms and beyond.

In some ways the maturity of the underlying technology and operational practices of businesses operating in the crypto/blockchain space have not kept up with or met the standards required for full-scale commercial enterprise applications. In our view, lack of regulatory clarity has, in some instances, hampered the participation of enterprises, particularly regulated enterprises, and consequently, a number of unregulated or lightly regulated "exchanges" and "brokers" have emerged to fill the gap, many of them off-shore.

ErisX believes the introduction of standardized, CFTC-regulated products, on a robustly operated trading and custody infrastructure will produce the following benefits for Ethereum:

- Broader participation and diversity of actors, especially institutional actors, including investors, speculators, intermediaries, hedgers, miners/validators, and commercial users;
- A diversity of time horizons and trading objectives, expressed through transparent instrument pricing and trading;
- More robust, liquid, and resilient markets;
- Markets able to integrate more information, quicker, into more efficient and accurate price discovery; and
- Improved risk management for asset owners, market makers, and miners/validators.

Better fundamental infrastructure on the market side can foster more investment into the fundamental blockchain technology infrastructure, upon which additional and better commercial use cases can be realized. Such combined infrastructure can enable the entire ecosystem to continue to grow, evolve and improve in a virtuous cycle.

Markets, Oversight and Regulation

Below are responses to what ErisX believes are primary questions related to the offering and regulation of Ether contracts. These are not, of course, the only questions, nor are other questions unimportant, but these are fundamental questions related to the CFTC's mission.

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[3] *See e.g.* Roger Huang, "WeTrust Spring Will Match Your Cryptocurrency Donations Through Giving Tuesday" Forbes (Nov. 2018) www.forbes.com/sites/rogerhuang/2018/11/20/wetrust-spring-will-match-your-cryptocurrency-donations-through-giving-tuesday/#4c92a40e2461

[4] *See* Enterprise Ethereum Alliance membership (last referenced February 2019) www.entethalliance.org/members/.

Question 16. What impediments or risks exist to the reliable conversion of Ether to legal tender? How do these impediments or risks impact regulatory considerations for Commission registrants with respect to participating in any transactions in Ether, including the ability to obtain or demonstrate possession or control or otherwise hold Ether as collateral or on behalf of customers?

Similar to other commodities and assets that are not legal tender, when seeking to sell their Ether in exchange for legal tender, Ether owners face market risk related to price volatility, and liquidity risk related to finding ready counter-parties with offsetting interest. These risks will fluctuate in proportion to the fluctuations of price volatility and liquidity supply/demand in each of the independent Ether/legal tender trading pairs. These risks are not unique to Ether, but in the current fragmented global market structure of trading platforms and "exchanges" with significantly varying degrees of regulatory oversight and operational transparency and integrity, they may be exacerbated. For example, some markets may have thin liquidity at or beyond the top price levels in the crypto assets that trade there, including Ether. There may be no, or limited, safety mechanisms, such as order and trade size/price limits, or trade suspension thresholds. The lack of transparency around fees, matching models, and internal operations related to, for example, segregation of duties, information barriers, and principal trading, may amplify these risks.

Ether owners may also face settlement risk and counterparty risk. These two risks will vary depending on the nature of the conversion trade, e.g. on-chain Ether settlement vs. off-chain legal tender settlement (via commercial/central banking system) in a peer-to-peer transaction. This risk also depends on the reliability of the exchange/broker in the case where both the Ether and the legal tender have been deposited at the exchange/broker/custodian and trades are settled on a book-entry basis. These risks are also not unique to Ether but may be exacerbated in the context of the various methods of conversion-trade settlement with few formal standards and controls. As noted in the Virtual Markets Integrity Initiative Report by the Office of the New York State Attorney General, quantity and quality of actions taken by markets to develop their operational reliability, safety, and transparency varies.[5] For market participants, they do not know to what extent the market on which they are trading has implemented common policies and procedures governing, for example, risk disclosures AML/KYC, segregation of funds/assets, segregation of duties across employees, market surveillance, cybersecurity, and digital asset storage. In certain instances, once Ether has been converted into legal tender, it may be difficult for the Ether seller to withdraw their legal tender to a commercial bank account they control. This depends on the policies and procedures of the receiving bank and how it views the source of the funds, both the sending entity and the beneficial owner, from a compliance standpoint. Though mostly anecdotal, there are a variety of examples[6] of the challenges faced by people and companies engaged in business related to crypto.

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[5] *See* Virtual Markets Integrity Initiative Report (Sept. 2018) www.ag.ny.gov/sites/default/files/vmii_report.pdf

[6] *See e.g.* Tim Enneking "Bank of America is Closing My Three-Year-Old's Account Over Crypto" (April 2018) www.coindesk.com/bank-america-closing-three-year-olds-account-crypto

The current gaps in operational controls, regulation, transparency and their resultant risks when transacting in Ether, present a need for Commission registrants specifically, and all participants generally, given the opportunity, to participate on a transparent, regulated, operationally robust market based on clear standards. Further, a market that operates a regulated clearinghouse that adheres to global operational standards where Ether owners can store their assets, both legal tender and Ether, presents an opportunity for both sides of a fully-funded conversion trade to settle DvP atomically, eliminating settlement risk. Where Ether is to be pledged as collateral, possession can be obtained and demonstrated through control of private keys, held and managed by the clearinghouse, in accordance with rigorous policies and procedures subject to third party audit and certification/attestation.

The current crypto asset market structure is in many ways similar to that of the precious metals market structure, so it may offer a useful precedent in considering some of the CFTC's questions relating to the Ether market. For example, precious metals owners can face challenges in converting assets to legal tender, taking physical gold as the most prominent example. The physical gold market is an over-the-counter (OTC) market that can be subdivided into a number of sub-segments: the interdealer wholesale market, the retail dealer-to-consumer market, and the industrial producer-dealer-manufacturer market. The physical cash market does not fall under CFTC jurisdiction, except in cases of market manipulation and fraud, but futures on the physical gold are under CFTC's jurisdiction. As with cryptocurrencies, some aspects of the cash gold market in the United States fall under FinCEN rules in accordance with the Code of Federal Regulations (CFR)[7]. For the purposes of this response, we will focus on the U.S. consumer retail dealer-to-consumer market for gold.

Similar to the technical aspects of Ethereum, the process of mining and refining gold are extremely technical in nature and most of the end purchasers are unlikely to have expertise in the underlying processes, including any risks associated therewith. There are environmental and labor considerations in the underlying supply chain as well. Where and how gold is stored varies according to the preference of the owner: commercial vaults, sovereign vaults, personal safes, safety deposit boxes etc. with associated varying degrees of control over the asset by the final beneficiary - full control where the owner holds the gold in his/her physical possession, or intermediated control where the owner has chosen to store the gold in a commercial or sovereign vault, for example. The value of gold is set by the market (with the COMEX futures contracts and/or LBMA fix as the predominant reference prices) but can vary widely from one dealer and/or storage location to the next. The quality, reliability, safety, liquidity and location of storage facilities can impact how the market values the gold held there. For example, two 100oz COMEX good delivery bars of identical weight and purity may have different values if one is held in Chicago and the other in Singapore.

[7] 31 CFR § 1027.100(b)

There are echoes of this in the crypto asset market too. Crypto assets can be custodied - defined by whom and by what means private keys are recorded, secured and managed, and where ownership records are maintained. There are a variety of means and locations with varying degrees of control and security. Private keys can be recorded in different ways where the owner exercises a greater or lesser degree of control. For example, an owner can maintain full control by holding private keys themselves in their physical possession, such as in a person's biological memory, on a piece of paper, in a file on a computer, or using a hardware wallet. Alternatively, an owner can rely on a third-party to manage private keys. Further, private keys can be secured in a variety of ways including via technical, physical, and operational means. For example, private keys can be "sharded" such that the key is divided up into several pieces, with each piece distributed/secured separately. Each shard by itself is useless, meaning multiple shards must be assembled to reconstruct the private key. This can address single points of failure and enable operational checks and balances. Finally, ownership records can be managed directly on a given blockchain, or in internal books and records system "off-chain". The quality, reliability, and safety of a crytpo storage facility, like a gold storage facility, is driven in large part by the security and operational controls it has implemented.

As with the gold market, liquidity and price of fungible underlying crypto assets can also vary by location[8]. This can occur for similar reasons such as the reputation[9] and credit risk[10] of the facility/platform, operational cost and speed relating to the deposit/withdrawal of assets[11], and the number of customers and potential counterparties with access and volume/value of assets stored/traded there, which may contribute to the availability of liquidity.

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[8] The widest differential can be found between geographical regions. On Zimbabwe's leading digital currency exchange Golix, for example, bitcoin traded at a 30 to 40% premium to the international market price last year. That was because there was more demand for bitcoin in Zimbabwe due to its dire economic situation but fewer options to purchase the digital currency than in other countries. Hence, the price traded higher in the Southern African nation. Substantial price differentials can also often be witnessed when comparing Korean exchanges and U.S. exchanges. For example, during the peak of 2017, the regularly higher prices for cryptocurrencies in South Korea driven by strong local demand have led traders to dub this price differential the "kimchi premium". Having said that, cryptocurrency price differentials also exist on exchanges based in the same jurisdiction and these can be more easily exploited than trading across borders as there is no added currency risk when cashing out into fiat currency. Cryptocurrency prices vary across exchanges due to differences in liquidity, a lack of international price referencing standards, and the inefficiency of making fund transfers between exchanges. Moreover, prices on some exchanges, e.g. Bitfinex, might be higher due to fact that it's expensive to withdraw fiat from an exchange and this increases demand for cryptocurrency as this is a much cheaper way to move your funds from the exchange. *See generally* Alex Lielacher, "A Rich Man's Game: Crypto Arbitrage Trading" Cryptonews (Feb. 2019) www.cryptonews.com/exclusives/a-rich-man-s-game-crypto-arbitrage-trading-3341.htm.

[9] *See e.g.* Julia Magas, "Bitfinex: The Rumors of 'Insolvency,' Banking Partners' Escape, and the Suspension of Fiat Deposits" CoinTelegraph (Oct. 2018) www.cointelegraph.com/news/bitfinex-the-rumors-of-insolvency-banking-partners-escape-and-the-suspension-of-fiat-deposits.

[10] *See e.g.* Andrew Young, "Pricing Crypto Exchange Credit Risk" Hackernoon (Oct. 2018) https://hackernoon.com/pricing-crypto-exchange-credit-risk-f91b5996eaad.

[11] *See e.g.* SFOX, "Bitcoin Arbitrage: How You Can (and Can't) Profit from It" Medium (Jul. 2018) "https://blog.sfox.com/bitcoin-arbitrage-how-you-can-and-cant-profit-from-it-e69b46fd526f.

There is no guarantee of the price at which an owner of physical gold can convert their assets to legal tender or, in fact, that they can convert to legal tender at all. An owner may seek to compare prices by requesting quotes from a number of dealers, but this can be a time consuming and labor intensive process. In practice, most dealers will quote a price as an offset to the futures contract, which helps to create a degree of transparency. Dealers are able to quote more firmly, and at narrower spreads, because the futures contracts enable them to hedge their risk. Crypto owners may face similar structural challenges in converting their crypto assets to legal tender. The efficiency that futures contracts introduce into the gold market enables gold owners to convert their assets into legal tender more efficiently and at better prices than may otherwise be available in the absence of the futures contract. Regulated futures markets can be similarly expected to benefit the Ether market.

Gold futures contracts do not take into account the underlying technologies and processes for the mining, manufacture, transportation and storage of gold beyond those related explicitly to the storage of gold deemed as good delivery to satisfy the requirements of the futures contract settlement[12]. Similarly, it is unclear whether a futures contract on Ether ought to consider the technical aspects of mining and storing the Ether beyond whether the Ether is stored in a facility that meets acceptable security and settlement requirements for the futures contracts, such as a DCO-licensed clearinghouse.

Question 18. Given the evolving nature of the Ether cash markets underlying potential Ether derivative contracts, what are the commercial risk management needs for a derivative contract on Ether?

As Ethereum grows and evolves through further adoption and development of distributed applications (dApps) and smart contracts extending the supported use cases, the current set of commercial risk management use cases will also evolve and extend. Some examples include the following:

Transaction Validations/Miners. Like the Bitcoin Network, Ethereum Network is "secured" by a protocol that enables open participation by individuals and companies. Currently, this occurs through a "proof of work" protocol for both networks, where the participants are "miners." The Ethereum Network will transition to "proof of stake" protocol, where participants are "validators." Under both protocols, for the Ethereum Network, participants earn Ether for processing transactions. The process of validating transactions involves costs, including consumption of electricity, labor, purchase of computer hardware, and opportunity costs. These costs, such as electricity, often must be paid for with legal tender. As a result, miners and validators who have generated legal tender liabilities through activities for which they are

[12] *See* "What is the Precious Metals Delivery Process?" CME (last referenced Feb. 2019) www.cmegroup.com/education/courses/introduction-to-precious-metals/what-is-the-precious-metals-delivery-process.html.

compensated in Ether may want to lock in a conversion price using a futures contract to create revenue certainty and reduce volatility in their earnings versus their operating costs.

This is a nearly identical use case to a traditional physical commodities producer, e.g. a gold miner, that uses futures contracts to lock a price at the present for the future sale of the commodity. The producer foregoes the potential upside if the commodity increases in price beyond the settlement price of the futures contract, but is also protected on the downside if the price falls.

Merchants/Commerce. In cases where merchants prefer to accept payment for goods and services in Ether, they face the market risk of the price of Ether when their liabilities, general and administrative overhead, cost of goods sold, etc. are priced in legal tender. For example, a vendor that offers services via a smart contract may prefer to have payment for the contract in the form of Ether so it can be automated and issued atomically at the execution of the contract per the terms of the contract. The vendor will incur Ether costs to process the smart contract and, if that vendor must pay its employees in legal tender, it will need to convert Ether into legal tender. A product or service sold at a profit at time 0 could become a loss at time 1 if the conversion rate of Ether to legal tender moves against the merchant between time 0 and time 1.

This is a nearly identical use case to a traditional importer/exporter merchant, e.g. an electronics vendor, that uses futures contracts to lock in a foreign exchange rate at present for payment of foreign currency denominated liabilities that are to be paid in the future. The merchant may forego any benefit of its home currency appreciating in value versus foreign currencies in which it must pay its supplier, but at the same time is protected against losses resulting from adverse foreign exchange movements.

Market Making. In cases where market makers actively participate in the cash Ether market quoting bids and offers for conversion trades of Ether to legal tender, they may at times build up inventory positions in Ether that they wish to hedge to manage risk.

This is a nearly identical use case to traditional market makers in existing commodities, cash equities, ETFs, and other common assets, who hedge their positions in the associated futures market. If the market maker is able to more effectively manage its risk with futures it may be able to quote larger size and tighter spreads in the underlying, improving liquidity and price for liquidity seekers.

dApp Creators/Users. In the current implementation, computation on Ethereum requires the expenditure of “gas”, i.e. Ether that dApps must pay in order to perform their intended functions. Gas functions as a structural defense mechanism to network abuse by implementing a cost of consumption of network resources. However, at the same time, if creators/users intend to make regular use of dApps they will need to maintain an inventory of readily available Ether to pay their gas fees. As a result of the conversion price fluctuations, the necessity of perpetually purchasing Ether in the future at an uncertain legal tender price is not without risk. In

cases where dApps and their users may reach global or institutional scale, the creators/users may find it desirable to hedge their inventory risk with futures potentially allowing users to lock-in the cost of dApps for longer periods.

This is a nearly identical use case to traditional consumptive industries such as commercial aviation, where airlines are committed to providing a regular service of flight routes but do not know in advance what the future cost of jet fuel will be. When airlines are able to effectively manage the risk of fuel price fluctuation, it should create more operational cost predictability and the ability to offer more consistent and better prices for customers.

Question 19. Please list any potential impacts on Ether and the Ethereum Network that may arise from the listing or trading of derivative contracts on Ether.

There are a number of structural impediments that may be preventing greater participation in the Ether market and on Ethereum. Some of these have been referenced in earlier question responses and include, for example, lack of institutional-grade trading and post-trade technical infrastructure and operational capabilities, transparent and regulated operations, secure and compliant custody options, fragmented liquidity, and lack of effective hedging options for commercial actors as well as financial intermediaries. At the user interface layer, participation often requires direct, un-intermediated interaction with the blockchain (e.g. via applications such as MetaMask or an application programming interface (API)) or it requires establishing an account with a new, potentially unregulated technology/services provider that may or may not offer service level agreements. In the aggregate these current shortcomings introduce risks and impede the volume and diversity of participants.

The introduction of standardized futures contracts that trade and settle on regulated exchange and clearinghouse platforms that are made available via well-known and trusted intermediaries through familiar interfaces and alongside familiar service offerings may have the effect of making the market more accessible, at lower risk, with lower volatility, for a larger, broader diversity of actors. This includes the potential for greater liquidity, more effective price discovery, and more efficient risk transference. A higher quality market invites greater participation, which can lead to increased quality in a positive feedback loop.

With such improved market quality and increased participation as is present in other commercial and financial markets; futures contracts on Ether and the associated order, transparency, and structure they bring, may have the effect of contributing to the Ether market and Ethereum progressing and developing.

Question 21. What other factors could impact the Commission's ability to properly oversee or monitor trading in derivative contracts on Ether as well as the underlying Ether cash markets?

Where the design of the futures contract includes a settlement price set by a physically settled cash market that is operated in the United States that complies with all necessary

regulations, this may be expected to have a positive impact on the Commission's ability to properly oversee or monitor trading in derivative contracts on Ether by improving the Commission's ability to monitor the cash market for fraud and manipulation. The Commission should expect a positive effect on the underlying Ether cash markets, too. A regulated US futures DCM/DCO will have central clearing/settlement, an AML/KYC program, market surveillance infrastructure, and policies and procedures, along with trading and settlement rules that participants must adhere to. Users of Ether, investors, and market makers, will benefit from better liquidity and price discovery and by bringing the derivative and cash markets into such an environment can be expected to produce greater protections for participants from fraud and manipulation, by enabling the Commission to properly oversee and monitor trading on such platform.

Conclusion

Again, we appreciate the opportunity to respond to the Commission's request for information and hope that our responses will help the Commission to continue to promote responsible innovation and development in the derivatives market.

Sincerely,

/s/ Thomas Chippas
CEO, ErisX