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February 15, 2019

Via Electronic Submission
Christopher Kirkpatrick
Secretary of the Commission
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street, NW
Washington, DC 20581

Re: **Virtual Currency RFI**

Dear Mr. Kirkpatrick:

trueDigital appreciates the opportunity to respond to the Commodity Futures Trading Commission's (the "Commission") Request for Input ("RFI") on Crypto-asset Mechanics and Markets. trueDigital believes that the Commission's mission of ensuring the integrity of the derivatives markets will be instrumental to the advancement of cryptocurrency markets and result in deep, liquid markets for digital assets.

trueDigital is a global provider of financial technology infrastructure and products for traditional and digital asset marketplaces, utilizing blockchain-based technologies to enable frictionless asset transfer and settlement. It is the creator of the trueDigital Reference Rates for Bitcoin and Ethereum, IOSCO compliant reference rates designed for the institutional, over-the-counter ("OTC") markets. trueDigital has also created the first of its kind margined delivered swap contracts on Bitcoin.

In response to questions listed in the Commission's RFI on Crypto-asset Mechanics and Markets, we will provide an overview of the Ethereum Network and its uses, and the key difference between Bitcoin and Ether. We then review the development of the emerging Ether market and discuss the need for Ether derivatives.

A. Background

The impetus for developing Ether and the Ethereum Network is the further advancement of distributed ledger or "blockchain" technology. In 2009, Satoshi Nakamoto, developed Bitcoin, which is the first example of a digital currency maintained on blockchain. (see Bitcoin White Paper https://bitcoin.org/bitcoin.pdf) The Bitcoin protocol established a method for managing ownership through public key cryptography with a consensus algorithm and ledger for recording digital asset transactions. As a result, owners of bitcoin (the digital assets generated and recorded on the Bitcoin

Blockchain) are able to send payments to each other without use of a trusted third party. However, the Bitcoin Blockchain had limited programmability.

1. Ether - The Ethereum Network's Native Cryptocurrency

Four years later, Vitalik Buterin published the Ethereum White Paper ("Ethereum White Paper" https://github.com/ethereum/wiki/wiki/White-Paper) in which he expanded upon blockchain technology to propose an alternative, more programmable protocol for building blockchain applications and related cryptocurrency he named Ethereum and Ether, respectively. Ethereum's programmability permits anyone to write decentralized applications ("DApps") with its own set of predetermined rules known as "smart contracts". Since there is no limitation on who can upload a program on to Ethereum, smart contracts can be used for any purpose.

Just as the Bitcoin protocol compensates miners for validation of the network and processing transactions in Bitcoin, the Ethereum protocol uses Ether to power the Ethereum Network and provide compensation for computation costs of decentralized applications and smart contracts through the abstraction of "Gas" (see Ethereum White Paper). Ether is designed to provide economic incentive to run nodes, support the Ethereum Network, and pay for the hosting and execution of contracts and transfers.

2. Differences Between Bitcoin and Ethereum

As previously mentioned, the Ethereum Network supports broader programmability through a Turing complete language, which is compiled and run on the Ethereum virtual machine. This open ended design protocol is "well suited to serve as foundational layer for very large number of both financial and non-financial protocol in years to come" (see Ethereum White Paper). The basic differences between the functionality of the Bitcoin and Ethereum protocols are programmability (or "scalability") and data storage. The Bitcoin Network provides a decentralized ledger with nodes that coordinate to update the state of the ledger that records ownership of Bitcoin (i.e., the Bitcoin is either in a wallet and "unspent", or removed from wallet and "spent" following a unspent transaction output "UTXO" format, see www.investopedia.com/terms/u/utxo.asp).

3. Smart Contracts

The Ethereum Network's programing language permits two types of "accounts" known as externally owned accounts and contract accounts. Externally owned accounts are controlled by private keys and do not have any code. Contract accounts are controlled by their code and are used to create "smart contracts" and DApps. Smart contracts are computer programs that respond (i.e., self-execute) to a message in a predetermined manner based upon a set of rules imbedded in the code. As such, smart contracts can direct the transfer of information and value between accounts. Unlike the primary use case of the Bitcoin Network, smart contracts provide a native environment for application building on top of the Ethereum Network.

Development of smart contracts and DApps have a large number of use cases where decentralization is a fundamental design consideration. The development community for smart

contracts is one of the largest, with many of the publicly available decentralized applications being built on top of the Ethereum Network. In addition, Ethereum Network's development community strongly supports protocol and standardization initiatives, as well as advances in tooling for greater ease of smart contract development, monitoring and handling. DApps and smart contracts can be utilized for many conceivable use cases, such as automated payments, decentralized identity verification, prediction networks, micropayments, as well as the tokenization of non-Ethereum assets. For example, tokenization of non-Ethereum assets could be either natively digital, such as wrapped Bitcoin", or traditional assets held in trust such as stablecoins.

4. Ether

As the Ethereum Network's native currency, Ether is utilized to finance the cost of computation on the network. In addition, Ether, like many digital assets, can be utilized for general peer-to-peer payment uses. A number of commercial enterprises utilize Ether to power economic transactions such as stablecoins, prediction markets, digital advertising incentivization, decentralized document storage and hosting, and trading protocols, to name a few. There are over 1,000 decentralized applications operating on the Ethereum Network, with a large number of companies utilizing the public chain Ethereum Network as the core technological infrastructure for their business. These businesses must use Ether to fund the cost of transactions on the Ethereum Network. As a result, these businesses must purchase Ether on the open market, as needed, or buy and hold it for future use. Holding Ether, like any bearer asset, has security concerns, and in the digital asset space these are primarily technological security concerns. Similar to Bitcoin, the holder of the asset demonstrates ownership through possession of private keys Therefore, robust safeguards for securing private keys and operational models for different levels of internet connectivity of a wallet (collection of keys and addresses) are crucial to safeguarding digital assets.

B. The Ether Market

Just like in any other commodity asset class, in order to obtain Ether, a market participant must interact with the market. The Ether market is one of the largest in the digital asset space. It consistently has been the second most traded digital asset, with market participants oftentimes trading both Bitcoin and Ether in their book. A number of businesses have arisen to support the aggregation of data from exchanges and OTC trading. Most of these data aggregation services cover metrics such as current price (sourced from exchanges or OTC pricing), and current market cap based on total supply (which can be identified directly from the blockchain). Ownership concentration can be identified through insights and exploring the blockchain, which should be done in a way that excludes exchange wallets, as their hot and cold storage are effectively omnibus accounts being held on behalf of their customers, with little or no ability to identify the segregation. Total liquidity of the market can be measured by looking at the aggregate volume in exchange order books and estimating the ability for OTC dealers to handle large orders.

1. Market Liquidity

trueDigital has the unique ability to perform analysis of both exchange and OTC market pricing, as it is a provider of OTC Reference Rates (in both Ether and Bitcoin) and has access to publicly available

exchange data. Over the past year the notional volume of Ether has averaged approximately 40% of the trading volume of Bitcoin[1], meaning there exists a robust spot market for Ether that would underlie derivative contracts. From a liquidity standpoint, over the past trailing six months, average Ether spot bid / offer width, as a percentage of market price aggregated from OTC dealers, has been highly correlated to the width of Bitcoin[2]. During the same period of time, the standard deviation of mid-market spot Ether prices across these same dealers has been largely identical to Bitcoin[3]. This shows that in addition to being liquid and deep, the spot Ether market is as transparent as the spot Bitcoin market.

2. Market Risks

The following is brief overview of market risks. It should be noted that these risks are not inherent to the Ether ecosystem, and apply more broadly the entire digital asset marketplace.

i. Potential Disruptions - Forks

The Ether market is similar to the Bitcoin market in terms of the ability of market participants or other bad actors (who are not market participants) to disrupt the normal function of the market or network. In the case of network disruption that could affect the market, the largest potential impact would likely be a contentious fork of the blockchain that would spawn a new digital asset. Network governance plays a large role in alignment of development groups, miners, exchange operators and other third party network and market participants. As Ethereum, like Bitcoin, is a decentralized network with decentralized governance, it is the marketplaces' and network participants' choice to support or not support any forked asset.

ii. Potential Disruptions - Network and Market

In addition to forked assets, networks can also be disrupted by over saturation and congestion that result in confirmation delays. As transactions are recorded on the network they are confirmed in the blocks added to the network. Confirmation delays could slow the movement of digital assets from a privately held wallet or custody account not held by an exchange onto a market. Market disruptions can also occur at the marketplace level. For example, exchange closures, processing delays and traditional market manipulation can occur causing instability in that the marketplace. This is particularly true as there currently are no uniform standards regarding how marketplaces operate. Allowing derivatives on Ether would bring liquidity and transparency by creating regulated marketplaces that have uniform, government mandated requirements that promote market integrity.

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[1] Volume comparison is based on retail exchange data from February 2018 through January 2019 sourced from CoinmarketCap.com. While exact OTC market numbers are not available, it is believed that the ratio of Ether to Bitcoin trading is similar in both market segments.

[2] Analysis based on approximately 15 million bid / offer quotations for institutional size trades from ten of the largest OTC dealers between the hours of 8:30am and 4:30pm eastern time. Average bid / offer width of 1.1% for Bitcoin and 1.2% for Ether.

[3] 0.12% for both Bitcoin and Ether, based on the same data as the liquidity analysis.

iii. Commingled Custody

When converting Ether into fiat currency, market participants can do so by either transacting on an open order book exchange or through the OTC market. Many digital asset exchanges custody Ether on behalf of their market participants in an unsegregated, commingled fashion and generally do not provide a way to identify or prove individual ownership of coins. As a result, the phrase "not your keys, not your coin" is in common parlance of the market. However, there are exchanges and custodians that do have legal protections in place to demonstrate individual ownership. Recently, we have seen the entrance of a new type of exchange that does not require ownership of the digital asset by the exchange. Both non-custodial exchanges and decentralized exchanges are beginning to gain adoption, as fears of exchange closure or insufficient security protocols arise.

C. Ether Derivatives

The Ether market has a definitive need for derivative contracts. Any new business utilizing or interacting with smart contracts must hold the digital asset on their balance sheet regardless of whether or not they wish to take Ether market exposure. Due to the volatility of the Ether price, market participants have significant market risk. Permitting firms to hedge against that volatility and price risk would provide immediate benefits to these types of market participants.

In addition to corporate based hedging needs, there are market participants who are primary providers of liquidity in the Ether market. Derivative contracts would allow these market participants to more effectively manage the risk of their involvement in the market, which is a need exacerbated by the limited nature of an inter-dealer market. For institutional participants to temporarily reduce their exposure to Ether prices, they must sell their actual underlying holdings on the spot market. Derivatives would allow these investors to efficiently adjust overall exposure without the need to alter underlying holdings.

The introduction of US regulated Ether derivatives would increase volume and liquidity in the underlying Ether cash market by allowing the entrance of institutional investors who would like to gain Ether exposure, but do not want to deal in the physical digital asset. This can be achieved through cash settled contracts, or through physically settled contracts that are closed out or rolled prior to expiration. The flow of capital resulting from Ether derivatives will add to cash market liquidity, as major dealers would hedge these contracts in the Ether cash market.

In addition, the introduction of Ether derivatives will allow both dealers and buy-side institutions to hedge cash Ether positions with derivatives and vice versa. The ability for many avenues and hedging vehicles will result in dealers being willing to make markets for larger sizes at tighter spreads. Currently there exist mechanisms outside of the US for hedging through the international Ether derivatives market, which operates either unregulated or somewhat regulated internationally. These markets exist for both Bitcoin as well as Ether. These marketplaces generally utilize loss socialization (i.e., all the market participants share in the loss to some extent) and real-time auto-liquidation as primary default mechanisms, which has the potential to adversely affect the market when large liquidations occur. In addition, these markets can offer high degrees of leverage to retail market

participants. Currently, many investors have no other option but to turn to these marketplaces, as there are no federally regulated markets for these products in the US. Under Commission oversight, the ability to effectively monitor derivatives trading would be the same as other derivatives traded on regulated exchanges.

Conclusion

There is a need for robust digital asset derivative markets on Ether. Ether is one of the largest (by market cap) digital assets that is most actively traded and liquid. Derivatives on Ether will promote market integrity and provide reliable hedging and risk management solutions to US based market participants.

Very truly yours,

S/Nick Goodrich

Nick Goodrich
Director of Business Development