SUBMISSION COVER SHEET

IMPORTANT: Check box if Confidential Treatment is requested ☐

Registered Entity Identifier Code (optional): <u>21-005</u>

Organization: <u>Chicago Mercantile Exchange Inc. ("CME")</u>

Filing as a: ☒DCM   ☐SEF   ☐DCO   ☐SDR

Please note - only ONE choice allowed.

Filing Date (mm/dd/yy): <u>01/22/21</u>   Filing Description: <u>Initial Listing of the Ether Futures Contract</u>

SPECIFY FILING TYPE

Please note only ONE choice allowed per Submission.

Organization Rules and Rule Amendments

☐	Certification	§ 40.6(a)
☐	Approval	§ 40.5(a)
☐	Notification	§ 40.6(d)
☐	Advance Notice of SIDCO Rule Change	§ 40.10(a)
☐	SIDCO Emergency Rule Change	§ 40.10(h)

Rule Numbers:
New Product   Please note only ONE product per Submission.

☒	Certification	§ 40.2(a)
☐	Certification Security Futures	§ 41.23(a)
☐	Certification Swap Class	§ 40.2(d)
☐	Approval	§ 40.3(a)
☐	Approval Security Futures	§ 41.23(b)
☐	Novel Derivative Product Notification	§ 40.12(a)
☐	Swap Submission	§ 39.5

Official Product Name: <u>Ether Futures.</u>

Product Terms and Conditions (product related Rules and Rule Amendments)

☐	Certification	§ 40.6(a)
☐	Certification Made Available to Trade Determination	§ 40.6(a)
☐	Certification Security Futures	§ 41.24(a)
☐	Delisting (No Open Interest)	§ 40.6(a)
☐	Approval	§ 40.5(a)
☐	Approval Made Available to Trade Determination	§ 40.5(a)
☐	Approval Security Futures	§ 41.24(c)
☐	Approval Amendments to enumerated agricultural products	§ 40.4(a), § 40.5(a)
☐	"Non-Material Agricultural Rule Change"	§ 40.4(b)(5)
☐	Notification	§ 40.6(d)

Official Name(s) of Product(s) Affected:
Rule Numbers:

CME Group

Christopher Bowen
Managing Director and Chief Regulatory Counsel
Legal Department

January 22, 2021

VIA ELECTRONIC PORTAL

Mr. Christopher J. Kirkpatrick
Office of the Secretariat
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street, N.W.
Washington, DC 20581

Re: CFTC Regulation 40.2(a) Certification. Notification Regarding the Initial Listing of the Ether Futures Contract.
CME Submission No. 21-005

Dear Mr. Kirkpatrick:

Chicago Mercantile Exchange Inc. ("CME" or "Exchange") hereby certifies to the Commodity Futures Trading Commission ("CFTC" or "Commission") the initial listing of Ether Futures contracts ("Ether Futures" or "Contract"), for trading on the CME Globex electronic trading platform ("CME Globex") and for submission for clearing via CME ClearPort effective on Sunday, February 7, 2021, for trade date Monday, February 8, 2021, as set forth below.

Contract Title	Commodity Code	Rulebook Chapter
Ether Futures	ETH	CME 349

The underlying reference for the Contract shall be the CME CF Ether-Dollar Reference Rate ("ETHUSD_RR"). The ETHUSD_RR is a once-a-day reference rate of the U.S. dollar price of ether. It represents the aggregate executed trade flow on major cryptocurrency spot exchanges during a specific calculation window; 3:00 p.m. - 4:00 p.m. London time.

The ETHUSD_RR is calculated and administered by CF Benchmarks Ltd ("CF Benchmarks"), a benchmark administrator registered with the European Securities and Markets Authority in accordance with Article 34 of the EU Benchmarks Regulation and pursuant to the regulatory supervision of the UK Financial Conduct Authority.

Section 1 - Contract Specifications

Contract Size	50 ether
Trading Unit	The unit of trading shall be 50 ether, as defined by the CME CF Ether-Dollar Reference Rate (ETHUSD_RR).
Trading and Clearing Hours	Sunday - Friday 5:00 p.m. - 4:00 p.m. CT (6:00 p.m. - 5:00 p.m. ET) with a 60-minute break each day beginning at 4:00 p.m. CT (5:00 p.m. ET) CME Globex Pre-Open: 4:45 p.m. CT – 5:00 p.m. CT CME ClearPort: Sunday 5:00 p.m. - Friday 5:45 p.m. CT with no reporting Monday - Thursday 5:45 p.m. – 6:00 p.m. CT
Commodity Code	CME Globex/CME ClearPort: ETH
Settlement Method	Financial
Listing Schedule	Monthly contracts listed for six (6) consecutive months and two (2) additional December contract months. If the six (6) consecutive months includes a December contract month, list only one (1) additional December contract month.
Initial Listing Schedule	February 2021, March 2021, April 2021, May 2021, June 2021, July 2021, December 2021, and December 2022 February 2021 shall expire on Friday, February 26, 2021 at which time August 2021 shall be listed.
Price Basis	Prices are quoted and traded in U.S. Dollar
Minimum Price Fluctuation	Outright: 0.25 index points = $12.50 per contract Calendar spread: 0.05 index points = $2.50 per calendar month spread contract
Termination of Trading	Last Day of Trading is the last Friday of the contract delivery month. Trading terminates at 4:00 p.m. London time on the last Friday of the contract month. If that day is not a business day in both the U.K. and the US, trading shall terminate on the preceding day that is a business day for both the U.K. and the U.S.
Final Settlement	Delivery is by cash settlement by reference to the Final Settlement Price, equal to the CME CF Ether-Dollar Reference Rate on the Last Day of Trading.
Daily Settlement	Prior to Final Settlement, daily settlements for the Contract will be based on trading activity between 14:59:00 and 15:00:00 CT (the "Settlement Period") and will follow the same procedure as the Exchange's Bitcoin Futures contract.[1]

[1]https://www.cmegroup.com/confluence/display/EPICSANDBOX/Bitcoin

Position Limits and Reportable Levels	Spot Position Limits are set at 8,000 contracts. A position accountability level of 20,000 contracts shall be applied to positions in single months outside the spot month and in all months combined. The reportable level shall be 1 contract.
Block Trade Minimum Threshold	5 contracts Reportable window: RTH 5 minutes; ETH/ATH 15 minutes
CME Globex Matching Algorithm	F: First In First Out (FIFO)

Section 2 – Index Administration, Governance, and Methodology

Ether Market Overview

Ethereum is a decentralized open source blockchain featuring smart contract functionality. Ether is the native cryptocurrency token of the Ethereum network.

Vitalik Buterin founded Ethereum as a concept in a White Paper[2] in late 2013. Since then, the development of Ethereum has been managed by a community of developers. A crowdsale to fund development took place in July 2014, and the blockchain went live on 30 July 2015.

Ethereum's inbuilt native token is called ether. Ether is a digital asset transacted peer-to-peer. It can be traded for other cryptocurrencies or other sovereign currencies, similar to bitcoin (BTC). As of January 12, 2021, ether's current value is approximately USD 1,100 per ether. It is the second-largest cryptocurrency by market capitalization, behind bitcoin.

According to Coinmarketcap.com[3] (the market cap for all digital assets is over $963 BN. Ether has a market cap of $125 BN second to bitcoin which has a market cap of $660 BN (at January 12, 2021).

Figure 1 displays the price history and market cap for ether. The record high, for one ether was $1,385 in January of 2018.

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[2] White paper can be accessed at: https://ethereum.org/en/whitepaper/
[3] Data Source: https://coinmarketcap.com/currencies/ethereum/markets/

Figure 1: Ethereum Market Cap and Price History

Source: CoinMarketCap.com

Bitcoin has been the leader in terms of market capitalization dominance, while ether has consistently been the second frontrunner as demonstrated in Figure 2.

Figure 2: Ether's Percentage of Total Market Capitalization (Dominance)
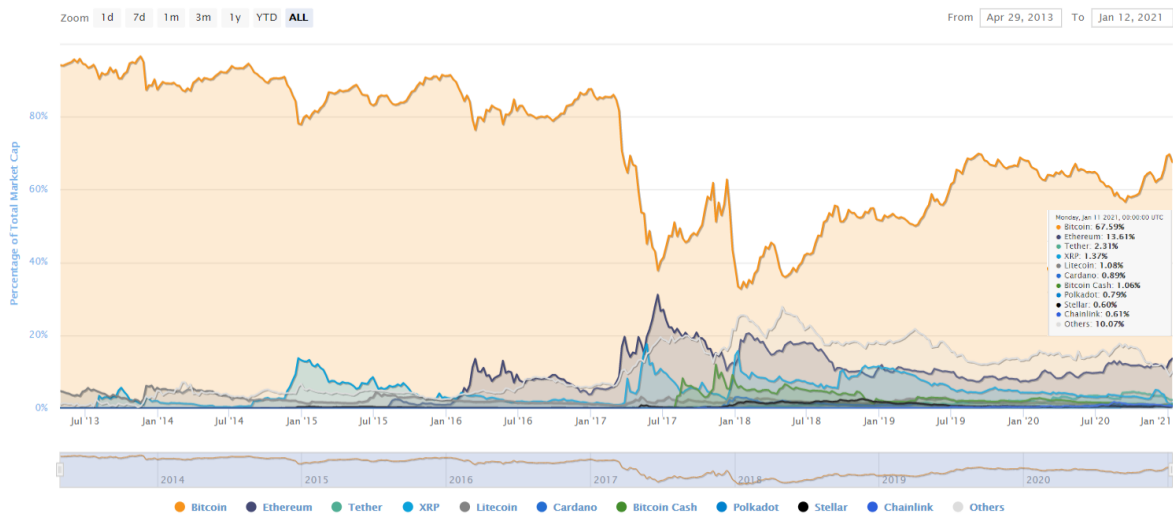
Source: CoinMarketCap.com

The 24-hour trading volume of ether is $51 BN as compared with $105 BN of bitcoin as at January 12, 2021[4]. Many alt-coins are based on the Ethereum network, which brings liquidity into the network's native cryptocurrency. Ether is actively traded across approximately 400 spot exchanges and other execution platforms that offer leveraged exposure. Ether is traded against many other crypto pairs (e.g., bitcoin to ether) and in a number of fiat currency pairs. The dominant fiat currency pair is against the USD.

CME CF Ether-Dollar Reference Rate

The Contract's final settlement is determined by reference to the ETHUSD_RR, which is calculated and administered by CF Benchmarks. The methodology parallels the CME CF Bitcoin Reference Rate which is the basis for CME's Bitcoin Future contract.

The Exchange commenced daily publication of the ETHUSD_RR in May 2018. At 4:00 p.m. London time 365 days per year, the Exchange publishes on the CME Group website a reference rate of U.S. dollar price of ether which represents the aggregate executed trade flow on major cryptocurrency spot exchanges during a specific calculation window; 3:00 p.m. and 4:00 p.m. London time.

Selection of Constituent Exchanges

The ETHUSD_RR is calculated from ETH:USD data transacted on constituent exchanges. Specific eligibility criteria must be adhered to, in order to become a constituent exchange. The constituent exchanges eligibility criteria are publicly available on the CF Benchmark website.[5]

To assure that the ETHUSD_RR reflects global cryptocurrency trading activity in a representative and unbiased manner, a geographically diverse set of constituent exchanges are included within the current framework for deriving ETHUSD_RR valuations. Applications in connection with potential additions of new constituent exchanges will continue to be based on the predefined eligibility criteria, and the operation of all existing constituent exchanges will continue to be monitored against the same criteria.

Currently, there are five (5) constituent exchanges: Bitstamp, Coinbase, Gemini, itBit and Kraken as more specifically noted in Figure 3 below. The list of current constituent exchange is also available on the CF Benchmarks website.[6]

Figure 3: Constituent Exchanges

CME CF Ether-Dollar Reference Rate	
Constitute Exchange	**Date Added**
Bitstamp	14-May-2018
Kraken	14-May-2018
itBit	15-July-2019
Gemini	30-August-2019
Coinbase	28 October-2019

Calculation Methodology

The ETHUSD_RR is a daily reference rate of the U.S. Dollar price of one ether. As described above, it is the aggregation of executed trade flow of major cryptocurrency spot exchanges that participate in

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[4] Data source: https://coinmarketcap.com/
[5] CME-CF Constituent Exchanges Eligibility Criteria: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Constituent+Exchanges+Criteria.pdf
[6] CME-CF Constituent Exchanges List: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Constituent+Exchanges.pdf

the price discovery process as constituent exchanges during a specific one-hour calculation window (3 p.m. to 4:00 p.m. London time). All relevant transactions are added to a joint list, recording the trade price and size for each transaction. This one-hour window is then partitioned into twelve, five-minute intervals. For each partition, the volume-weighted median trade price is calculated from the trade prices and sizes of all relevant transactions across all constituent exchanges. The ETHUSD_RR is then derived from the equally-weighted average of the volume-weighted medians of all partitions and published daily at 4:00 p.m. London time.

The ETHUSD_RR calculation methodology is publicly available on the CF Benchmarks website.[7]

A pre-defined policy has also been established to evaluate any hard fork for its significance and impact on the ETHUSD_RR. Full details are detailed in the Hard Fork Policy document on the CF Benchmark website[8].

Quality of Data Inputs

The methodology adheres to rules in consideration of the following factors to ensure the robustness of the index:

- Delayed data and missing data
- Erroneous data
- Potentially erroneous data
- Calculation failure

The calculation process includes automated screening for erroneous data for non-numeric or non-positive trade price or trade size and un-parseable data.

Automated data validation checks are implemented for each constituent exchange individually. Such validation checks are made to ensure that the volume-weighted median trade price for one constituent exchange does not deviate too widely from the median of the volume- weighted median trade prices of all constituent exchanges. Any data that is outside of a pre-defined deviation tolerance of the other constituent exchanges results in the entire data set from that particular constituent exchange being discarded.

Methodology Design Choices

The ETHUSD_RR calculation methodology mitigates to a high degree against price anomalies, while being replicable through spot trading on the constituent exchanges. This is achieved through several design choices around partitions, the weighting of those partitions, medians and the volume weighting of medians. Further details on the ETHUSD_RR's methodology are available on the CF Benchmarks website.[9]

Overall, the ETHUSD_RR is designed to have limited susceptibility to temporary price swings and outlier prices. There are criteria for an exchange to charge a fee for trading, which eliminates wash trading to increase volumes. The ETHUSD_RR also only includes trades executed between ETH and USD and does **not** (1) use alternate currency pairs or crypto to crypto trading, (2) apply conversion calculations, and (3) include stable coin transactions into the orderbook.

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[7] CME-CF Reference Rate Methodology: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Reference+Rates+Methodology.pdf
[8] CME-CF Hard Fork Policy: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Hard+Fork+Policy.pdf
[9] CME-CF Reference Rate Methodology: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Reference+Rates+Methodology.pdf

Not Readily Susceptible to Manipulation

The ETHUSD_RR is not readily susceptible to manipulation due to the design of the methodology. As noted above, the use of medians reduces the effect of outlier prices on one or more constituent exchange. The volume-weighting of medians filters out high numbers of small trades that may otherwise dominate a non-volume weighted median. The use of twelve (12) non-weighted partitions assures that price information is sourced equally over the entire observation period. Influencing the rate would therefore require trading activity during multiple partitions on several exchanges over an extended period, which would prove a costly and an operationally intensive undertaking. The methodology is designed to remove the reliance on any single contributing exchange, where delayed or missing data from an exchange does not cause a calculation failure.

In accordance with the methodology, if for any constituent exchange the absolute percentage deviation of the volume-weighted median trade price, from the median of the volume-weighted median trade prices of all constituent exchanges exceeds a given threshold (currently set at 10% and defined in the methodology) all relevant transactions of that constituent exchange are flagged as potentially erroneous and are disregarded in the calculation of ETHUSD_RR for that calculation day.

Furthermore, a constituent exchange's ETH:USD spot trading volume must meet the minimum threshold (currently, 3% relative contribution over two (2) consecutive quarters) as detailed in the methodology.

The criteria collectively cause that constituent exchanges deliver transparent and consistent trade data and order data available via an API with sufficient reliability, detail and timeliness.

Furthermore, the constituent exchanges maintain fair and transparent market conditions to impede illegal, unfair or manipulative trading practices, not place undue barriers to entry and comply with applicable law and regulation including, capital markets regulations, money transmission regulations, client money custody requirements, know-your-client (KYC) requirements, and anti-money-laundering (AML) regulations.

The constituent exchanges are also required to cooperate with inquiries and investigations of the administrator and execute data sharing agreement with CME.

According to coinmarketcap.com, ether trades on approximately 400 spot exchanges/platforms. The ETH:USD pair, is traded on approximately 20 spot exchanges and its price varies from exchange to exchange. A recent analysis based upon coingecko.com[10] data indicates that roughly twelve (12) dominant exchanges account for nearly 95% of all ETH:USD trading activity globally.

In aggregate, the five (5) contributing constituent exchanges host several thousand ether transactions on a daily basis and represent over 60% of ether to USD transactions. The ETHUSD_RR has become a source of price discovery and transparency for the market.

Governance

The ETHUSD_RR is calculated and administrated by CF Benchmarks, a leading provider of cryptocurrency benchmarks and indices. It is registered with the European Securities and Markets Authority ("ESMA") as a benchmark administrator in accordance with Article 34 of the EU Benchmarks Regulation and under the regulatory supervision of the UK Financial Conduct Authority. The CME CF

[10] Data Source: https://www.coingecko.com/en/coins/ethereum#markets

Benchmark Statement, which provides additional details on the regulatory compliance, is available on the CF Benchmarks website.[11]

Furthermore, an oversight committee is responsible for overseeing certain activities undertaken in connection with the ETHUSD_RR by approving and regularly reviewing the calculation methodology, practice, standards and definition of the reference rate to ensure it remains relevant and robust. Currently there are seven (7) members of the oversight committee. The committee is comprised of a (1) CF Benchmarks representative, two (2) representatives from CME Group, and at least two (2) independent experts. The oversight committee meets at least once per quarter and publishes its minutes publicly on the CF Benchmarks website. Further details of the oversight committee's charter and related governance policies are available on the CF Benchmarks website.[12]

Section 3 – Volatility

Ether prices can be highly volatile, annualized realized volatility in ether rose to over 160% in April 2020, it has averaged about 80% the past three years. After sliding to about 35% in July 2020, ether volatility almost doubled to around 67% at the end of August 2020, as shown in Figure 4.

Figure 4: Ether Annualized 30-Day Volatility
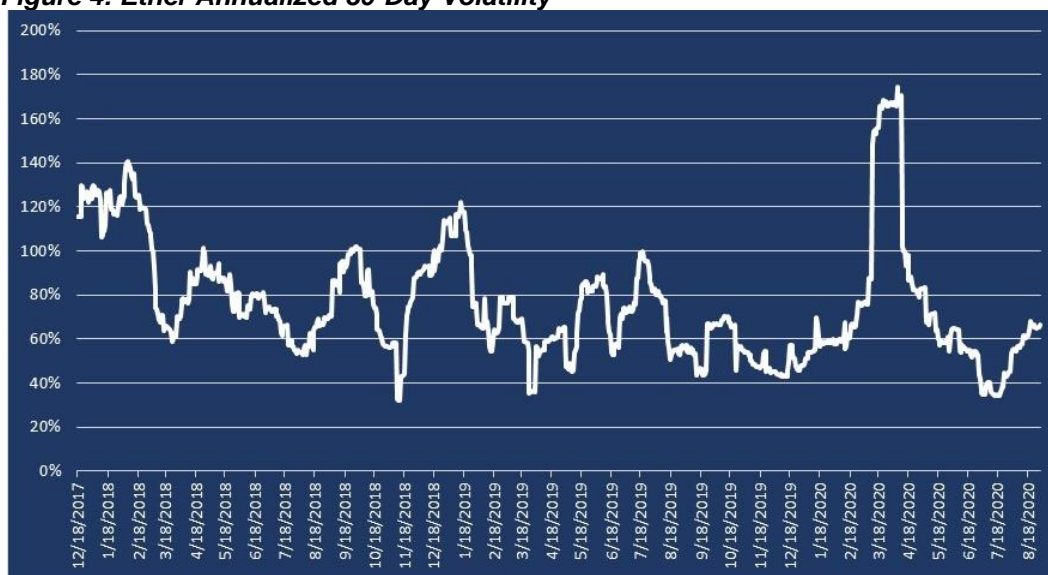
Source: CME

The Exchange is adept at managing periods of prolonged volatility as well as spikes in volatility as has been demonstrated through its risk management of a variety of asset classes including commodities, agriculture and financial products. The Exchange will implement certain risk controls on the Contract, including special price fluctuations limits, daily price limits, and margin levels that appropriately reflect the volatility of ether. Though the spikes in ether volatility can look extreme, the daily price movements of the ETHUSD_RR is routinely in line with other CME Group contracts and reference rates that underlie exchange-listed contracts.

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[11] CME-CF Benchmark Statement: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Benchmark+Statement.pdf
[12] CME-CF Oversight Committee Charter: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Oversight+Committee+Charter.pdf
CME-CF Practice Standards: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Practice+Standards.pdf
CME-CF Conflicts of Interest Policy: https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Conflicts+of+Interest+Policy.pdf

Section 4 – Customer Feedback

Demand for Ether Futures has been strong, and the Exchange has fielded inquiries since the announcement of the launch of Bitcoin Futures in October 2017, as well at the subsequent launch of the ETHUSD_RR on May 14, 2018.

In the early development stages of the Contract, the Exchange engaged a group of market participants across a multitude of customer segments including proprietary trading firms, brokers, OTC platforms, crypto lending platforms, as well as traditional and crypto-focused hedge funds. During this extensive market participant validation period, contract specifications and other details of a futures contract were deliberated and validated.

Interest has come from crypto lending platforms, traditional, as well as, crypto-focused hedge funds, futures liquidity providers and intermediaries. Such parties indicated that a cash-settled contract on a regulated exchange would be a welcome addition to the ecosystem which is currently dominated by unregulated platforms. A futures contract would allow participants to hedge their long physical ether positions, allow others to gain exposure to this growing asset class and attract new participants who are not able to transact in unregulated markets.

Interest in ether, has been further fueled by increased development Decentralized Finance (DeFi) projects. These projects have the possibility of delivering operational and cost efficiencies through smart contracts across many existing businesses and systems.

As a result of the extensive market participant validation, the Exchange understands that miners and institutions with accumulated ether positions could use an ether futures contract to hedge their long exposure. It is expected that professional trading companies looking to arbitrage price differences across other ether exchanges will provide additional liquidity. It is also expected that crypto lending platforms, OTC desks, hedge funds and crypto-focused hedge funds will participate as both buyers and sellers of the Contract depending on their specific trading book and market view. In general, the ether market structure will be similar to other asset classes and will be comprised of hedgers, speculators and market makers.

The Exchange also engaged its clearing member firms to assess their operational readiness and assess potential impacts of the Contact. Clearing members generally did not express concern regarding the launch of the Contract from an operational or risk perspective. The Ether Futures is a standard cash-settled futures contract and as such will have minimal operational impacts on clearing members. The Exchange also deliberated with clearing members who are material participants in this market. Such clearing members advised of their intent to approve of trading of the Contract on a strict client-by-client basis.

Subsequent to publicly announcing its intention to launch the Contract, the Exchange has been in receipt of a significant amount of interest from market participants, inclusive of buy-side, commercials, exchange-traded fund (ETF) providers, and potential market makers spanning from spectrum of both market segment and geographic location. Several bank and non-bank futures commission merchants have indicated early support, and several have expressed commitment of trading the Contract on the first launch date.

Section 5 – Compliance with Core Principles

The Exchange reviewed the designated contract market core principles ("DCM Core Principles") as set forth in the Commodity Exchange Act ("CEA" or the "Act") and identified that the following DCM Core Principles may be impacted as follows:

Core Principle 2 – Compliance with Rules
Trading in the Contract shall be subject to CME Rulebook Chapter 4, which includes prohibitions against fraudulent, noncompetitive, unfair, and abusive practices. Additionally, trading in this Contract shall be subject to the Exchange's trade practice rules, the majority of which are contained in Chapter 5 and Chapter 8 of the Rulebook. Trading activity in this Contract shall be subject to monitoring and surveillance by CME Group's Market Regulation Department, which has the authority to exercise its investigatory and enforcement power where potential rule violations are identified.

Core Principle 3 – Contracts Not Readily Subject to Manipulation
The Exchange certifies that the underlying reference rate, the CME CF Ether-Dollar Reference Rate (ETUSD_RR), is not readily subject to manipulation. The index is calculated from a large number of trades observed during the calculation window. The combination of volume weighting of medians plus non-weighted partitions prevents manipulation in the reference rate. Ultimately, influencing the ETUSD_RR would require significant trading activity on several exchanges over an extended period of time.

ETHUSD_RR is calculated and administered by CF Benchmarks (registered with the European Securities and Markets Authority as a benchmark administrator in accordance with Article 34 of the EU Benchmarks Regulation) under the regulatory supervision of the UK Financial Conduct Authority.

The ETHUSD_RR was first published on May 14, 2018 and has been calculated and published daily without exception to date. It is published daily on the CME Group website.

Core Principle 4 – Prevention of Market Disruption
Trading in the Contract will be subject to CME Rulebook Chapters 4 and 7, which include prohibitions on manipulation, price distortion, and disruption to the expiration and assignment process. As with any new product listed for trading on a CME Group designated contract market, trading activity in the contracts certified herein will be subject to monitoring and surveillance by CME Group's Market Regulation Department. The Exchange will initially and may on an ongoing basis supplement the monitoring process by providing expiration surveillance reports to the Commission's Division of Market Oversight staff.

Core Principle 5 – Position Limits or Accountability
The speculative position limits for the Contract (8,000 spot month and 20,000 single and all month) are consistent with the Commission's guidance.

Core Principle 7 – Availability of General Information
The Exchange shall disseminate a Special Executive Report ("SER") that sets forth information in regard to specifications, terms, and conditions of the Contract. The SER will also be published on the Exchange's website

Core Principle 8 – Daily Publication of Trading Information
The Exchange shall publish trading volumes, open interest levels, and price information daily of the Contract on the CME Group website and through quote vendors.

Core Principle 9 – Execution of Transactions
The Contract will be listed for trading on the CME Globex electronic trading and for clearing through CME ClearPort. The CME Globex electronic trading venue provides for competitive and open execution of transactions. CME Globex affords the benefits of reliability and global connectivity.

Core Principle 10 – Trade Information
All requisite trade information shall be included in the audit trail and will suffice for the Market Regulation Department to monitor for market abuse.

Core Principle 11 – Financial Integrity of Transactions

The Contract shall be cleared by CME Clearing, which is registered with the Commission as a derivative clearing organization, and which is subject to all CFTC regulations related thereto.

Core Principle 12 – Protection of Markets and Market Participants
Chapters 4 and 5 in the CME Rulebook set forth multiple strictures that preclude intermediaries from disadvantaging their customers. These Rules apply to trading in the Exchange's competitive trading venues and will apply to transactions in the Contract.

Core Principle 13 – Disciplinary Procedures
Chapter 4 of the CME Rulebook provide for the Exchange to discipline, suspend, or expel members or market participants who violate the rules of the Exchange. Trading in the Contract shall be subject to these provisions. The Exchange's Market Regulation Department has the authority to exercise its powers of enforcement, in the event that rule violations in the Contract are identified.

Core Principle 14 – Dispute Resolution
Disputes in respect of the Contract shall be subject to the arbitration provisions set forth in Chapter 6 of both the CME Rulebook, which allow all nonmembers to submit to arbitration claims for financial loss resulting from transactions on the Exchange. Pursuant to these provisions, any member named as a respondent in any such claim submitted by a nonmember is required to participate in arbitration proceedings. Additionally, the Exchange requires members to resolve via arbitration all disputes concerning transactions on the Exchange.

Pursuant to Section 5c(c) of the Act and CFTC Regulation 40.2(a), the Exchange certifies that listing the Contract complies with the Act including all regulations thereunder. There were no substantive opposing views to this proposal.

The Exchange certifies that this submission has been concurrently posted on the Exchange's website at http://www.cmegroup.com/market-regulation/rule-filings.html.

Should you have any questions concerning the above, please contact the undersigned at (212) 299-2200 or via e-mail at CMEGSubmissionInquiry@cmegroup.com.

Sincerely,

/s/ Christopher Bowen
Managing Director and Chief Regulatory Counsel

Attachments:	Appendix A	CME Rulebook Chapter 349
	Appendix B	Position Limit, Position Accountability, and Reportable Level Table in Chapter 5 of the CME Rulebook (attached under separate cover)
	Appendix C	CME Rule 588.H. – ("Globex Non-Reviewable Trading Ranges") Table
	Appendix D	CME Rule 589. – Special Price Fluctuation Limits and Daily Price Limits Table
	Appendix E	Exchange Fees
	Appendix F	Deliverable Supply Analysis
	Appendix G	Ether-Dollar Reference Rate Analysis – (CONFIDENTIAL TREATMENT REQUESTED)

Appendix A

CME Rulebook
Chapter 349
Ether Futures

34900.   **SCOPE OF CHAPTER**

This chapter is limited in application to Ether Futures. In addition to this chapter, futures shall be subject to the general rules and regulations of the Exchange as applicable.

34901.   **CONTRACT SPECIFICATIONS**

Each futures contract shall be valued at 50 ether as defined by the CME CF Ether Reference Rate ("ETHUSD_RR").

34902.   **TRADING SPECIFICATIONS**

34902.A.   **Trading Schedule**

Futures contracts shall be scheduled for trading during such hours and for delivery in such months as may be determined by the Exchange.

34902.B.   **Trading Unit**

The unit of trading shall be 50 ether.

34902.C.   **Price Increments**

The minimum price increment shall be 0.25 index points, equal to $12.50 per contract, except for intermonth spreads executed pursuant to Rule 542.A., for which the minimum price increment shall be 0.05 index points, equal to $2.50 per intermonth spread.

34902.D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5.

A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion.

Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

34902.E. Price Limits and Trading Halts

At the commencement of each Trading Day, the contract shall be subject to special price fluctuation limits and daily price limits as set forth in Rule 589 and in the Special Price Fluctuation Limits and Daily Price Limits Table in the Interpretations & Special Notices Section of Chapter 5.

34902.F. Termination of Trading

Trading in expiring futures shall terminate at 4 p.m. London time on the last Friday of the contract month. If that day is not a business day in both the UK and the US, trading shall terminate on the preceding day that is a business day for both the UK and the US. Trading shall terminate at 4 p.m. London time on the Last Trade Date.

34903.   **SETTLEMENT PROCEDURES**

Delivery shall be by cash settlement.

34903.A.   **Final Settlement Price**

For a futures contract for a given delivery month, the Final Settlement Price shall be the ETHUSD_RR published at 4 p.m. London time on the Last Trade Date (Rule 34902.F.).

In the event that the ETHUSD_RR is not publishable or published on the CME Ether Futures Termination of Trading day, and therefore, CME cannot determine the CME Ether Final Settlement Price, then final settlement of the CME Ether futures contract is at the discretion of the Exchange and may be deferred or postponed for up to 14 consecutive calendar days.

34903.B. Final Settlement

Clearing members holding open positions in an expiring futures contract at its termination of trading (Rule 34902.F.) shall make payment to or receive payment from the Clearing House in accordance with normal variation margin procedures based on such expiring contract's Final Settlement Price (Rule 34903.A.).

In the event of a hard fork, Ether futures shall continue to settle to the ETHUSD_RR corresponding to the original token pair (ETH:USD). The Exchange may, in its sole discretion, take alternative action with respect to hard forks in consultation with market participants as may be appropriate.

(End of Chapter 349)

Appendix B

**CME Rulebook
Chapter 5
("Trading Qualifications and Practices")
Position Limit, Position Accountability, and Reportable Level Table**

(attached under separate cover)

Appendix C

**CME Rulebook
Chapter 5
("Trading Qualifications and Practices")
Rule 588.H. – ("Globex Non-Reviewable Trading Ranges") Table**

(additions underlined)

Instrument	Globex Symbol	Outrights			Spreads	
		Globex Non-Reviewable Ranges (NRR)	NRR: Globex Format	NRR: Minimum Ticks	NRR: Globex Format	NRR: Minimum Ticks
Ether Futures	ETH	3%	Variable	Variable	Each leg evaluated as an outright	

Appendix D

**CME Rulebook
Chapter 5
("Trading Qualifications and Practices")
Rule 589. – Special Price Fluctuation Limits and Daily Price Limits Table**

(additions underlined)

Product	Rulebook Chapter	Commodity Code	Primary/ Associated	Associated With	Daily Price Limit
Ether Futures	349	ETH	Primary	Primary	10% of Dynamically Calculated Reference Price Daily Price Limit Table

Appendix E

Exchange Fees

Membership Type	Venue/Transaction Type	Exchange Fee
Individual Members Clearing Members Rule 106.J Equity Member Firms & Rule 106.J Qualified Subsidiaries Rule 106.I Members & Rule 106.I Qualified Affiliates Rule 106.S Member Approved Funds	CME Globex	$1.50
	EFP	$2.75
	EFR	$2.75
	Block	$2.75
	Delivery	$0.75
	Exe|Asn|Future From	$0.80
Rule 106.D Lessees Rule 106.F Employees	CME Globex	$2.40
	EFP	$3.65
	EFR	$3.65
	Block	$3.65
	Delivery	$1.20
	Exe|Asn|Future From	$1.25
Rule 106.R Electronic Corporate Members (For other than CME Globex - Non-Member rates apply)	CME Globex	$2.46
Rule 106.H and 106.N Firms	CME Globex	$2.64
	EFP	$3.89
	EFR	$3.89
	Block	$3.89
	Delivery	$1.32
	Exe|Asn|Future From	$1.37
International Incentive Program (IIP) and International Volume Incentive Program (IVIP) Participants	CME Globex	$3.00
Central Bank Incentive Program (CBIP), Emerging Markets Bank Incentive Program (EMBIP), Latin American Fund Manager Incentive Program (FMIP), Participants (For other than CME Globex - Non-Member rates apply)	CME Globex	$3.00
Members Trading Outside of Division (For other than CME Globex During ETH - Non-Member rates apply)	CME Globex During ETH Only	$2.85
Non-Members	CME Globex	$3.00
	EFP	$5.50
	EFR	$5.50
	Block	$5.50
	Delivery	$1.50
	Exe|Asn|Future From	$1.55

Processing Fees	Fee
106.D Lessee/106.H Brokerage	$0.13
106.F Employee Brokerage	$0.13
Floor / "New" Brokerage	$0.04
Position Adjustment/Position Transfer	$0.10
Give-Up Surcharge	$0.05
Facilitation Fee	$0.40

Appendix F

Deliverable Supply Analysis

Ethereum is a decentralized open source blockchain featuring smart contract functionality. Ether is the native cryptocurrency token of the Ethereum platform. It is the second-largest cryptocurrency by market capitalization, behind bitcoin. The analysis that follows is around ether as the deliverable for a CME Ether futures contract.

Ethereum

Vitalik Buterin founded Ethereum as a concept in a White Paper[13] in late 2013. Since then, the development of Ethereum has been managed by a community of developers. A crowd sale to fund development took place in July 2014, and the blockchain went live on July 30, 2015.

The main Ethereum network is public and permissionless. Anyone can download or write software to connect to the network and start creating transactions and smart contracts without needing to log in or sign up with any organization.

Ethereum has its own blockchain, which contains blocks of data pertaining to transactions on the Ethereum network. A block contains details of all the transactions and smart contracts that have been transacted within a given timeframe. Blocks form a chain by referring to the hash (or fingerprint) of the previous block.

Ether

Ethereum's inbuilt native token is called ether (ETH). This is a cryptocurrency that can be traded for other cryptocurrencies or other sovereign currencies, just like bitcoin (BTC). Its current value is approximately USD 1,100 per ETH token (January 12, 2021).

Ether token generation

New units of ether are created through mining. Ethereum currently has Proof-of-Work (PoW) mining. Proof-of-work is done by miners, who compete to create new blocks full of processed transactions. Mining is the process of confirming transactions, combining them into blocks and adding them to the blockchain. As a reward, and to keep miners incentivized, every time a block is completed, the miner responsible for creating that block receives a reward in the form of new ether. Miners compete with each other to earn newly-issued tokens known as the block reward. The race is won by whoever's computer can solve a math puzzle fastest – this produces the cryptographic link between the current block and the block that went before. Solving this puzzle is the work in "proof of work".

Ethereum is moving to a consensus mechanism called proof-of-stake (PoS). This was always part of the road map in the strategy to scale Ethereum. This Deliverable Supply analysis is focused on current supply.

Ether in Circulation

The total number of ETH in existence can be calculated as:

Pre-mine + Block rewards + Uncle rewards + Uncle referencing rewards

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[13] White paper can be accessed at: https://ethereum.org/en/whitepaper/

Pre-mine
Ethereum's original token distribution event created 72 million ether for the genesis block – the first ever block of the Ethereum blockchain. 60 million ether (80% of the 72 million ETH supply) were allocated to the initial contributors in the 2014 crowd sale that funded the project, and 20%, 12 million ETH were given to the development fund and the Ethereum Foundation.

Block reward
The biggest difference between ether and bitcoin are the rules around token generation. ETH is not capped at a maximum supply. It does have a monetary policy that follows the objective of minimum issuance to secure the network. As such the monetary policy tries to reduce issuance to minimum amounts without sacrificing security. For bitcoin generation halves approximately every 4 years to reach a maximum circulating supply of 21 million coins.

In order to release ether that is not currently in circulation, the coins need to be mined. Mining is a process by which an individual or group of individuals gather a series of blockchain transactions, validate that they are valid and legitimate and publish them in a block by solving a hashing algorithm. When a block is published, the miner of that block unlocks new ether into circulation and is given ownership of new ether.

According to the protocol, future ETH generation will be capped at 25% of the pre-mine, per year. Therefore, ether generation continues to a maximum of 25% of the pre-mine, per year. There is a maximum growth rate of 18 million ether which can be mined per year. There is no upper cap or limit. Theoretically the maximum is infinite.

In Ethereum the time between blocks is around 14 seconds, compared with bitcoin's approximate10 minutes. This means that on average if you made a bitcoin transaction and an Ethereum transaction, the Ethereum transaction would be recorded into Ethereum's blockchain faster than the bitcoin transaction entering bitcoin's blockchain.

The original block reward in 2015 was 5 ETH per block, which later went down to 3 ETH in late 2017. As of 2019, when a block is successfully mined on the Ethereum blockchain, the miner receives 2 ETH as a reward, plus an additional uncle block, as described below.

As Ethereum is a decentralized network, the monetary policy cannot be modified unless there is a majority consensus from all the stakeholders (this includes developers, miners, community members, ecosystem projects, and network participants). Since inception, there have been 3 changes to ether issuance policy. Initially, from block 0 to block 4,3699,999, five ETH were issued per mined block; from block 4,370,000 to block 7,280,000, three ETH were issued per mined block; and from block 7,280,000 to the present block two ETH are issued per mined block

Over time, as more and more ETH are mined, the constant amount mined becomes a smaller and smaller portion of the total amount of existing ETH. The percentage mined of the total existing amount tends to 0% over time, asymptotically, never actually reaching 0%. Therefore, mining won't tail off, ever. A constant amount of ETH will be mined forever. Figure 1 shows the bitcoin and Ethereum generation models. It shows the ether circulation supply has increased since inception with the original 72 million ETH, to the current circulating supply of over 114 million ETH.

Additionally, an equilibrium will eventually be reached when the rate of ETH lost due to carelessness, deaths, etc. equals the rate of new ETH mined.

Figure 1: BTC vs ETH generation model

Source: https://bitsonblocks.net/2016/10/02/gentle-introduction-ethereum/
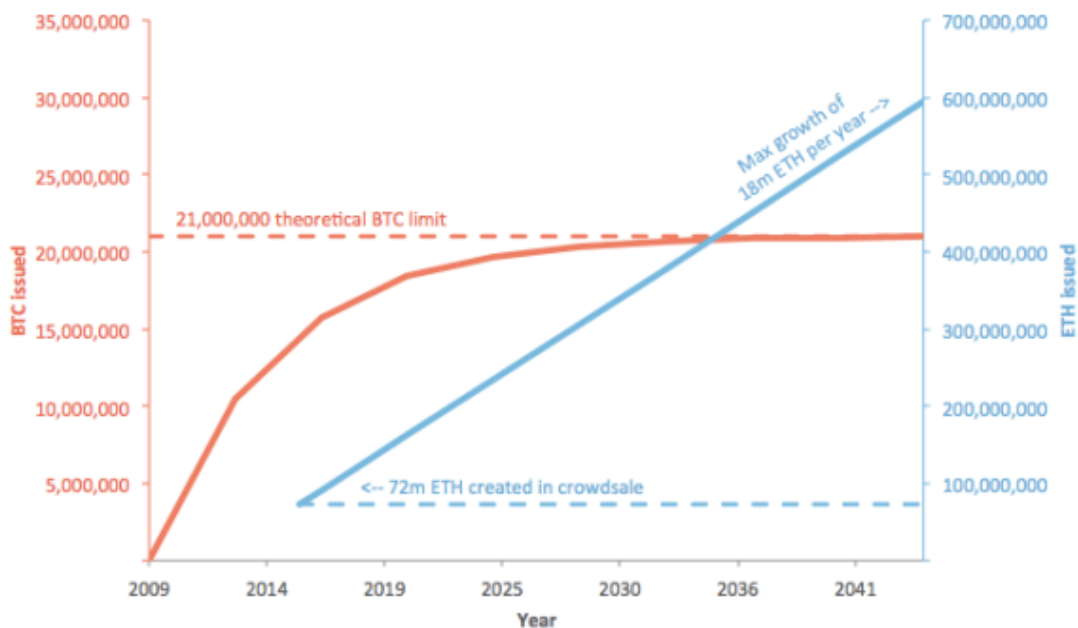
Uncle reward

Ethereum's rate of block generation is much higher than bitcoin's rate. When more blocks get created more quickly, the rate of "block clashes" increases – i.e., multiple valid blocks can get created at almost the same time, but only one of them can make it into the main chain.

In bitcoin these blocks, that are mined a little late and don't form part of the main blockchain are called 'orphans' and are entirely discarded, but in Ethereum they are called 'uncles' and can be referenced by later blocks. This is called the uncle reward. The current uncle reward is 1.75 ETH per uncle block.

Uncle referencing reward

A miner who references an uncle also gets a fraction of ETH per uncle.

Gas Reward

The blocks are created or mined by some participants and distributed to other participants who validate them.

When a user sends ether or uses an Ethereum application, a small fee in ETH is charged to use the Ethereum network. In addition to block rewards for mining new ether tokens, the miner also receives a fee as an incentive to process and verify what the user doing. Miners are like the record-keepers of Ethereum – they check and assure the validity of the transaction and keep the Ethereum network secure and free of centralized control.

In bitcoin, the maximum block size is specified in bytes whereas Ethereum's block size is based on complexity of contracts being run – it's known as a Gas limit per block. The maximum can vary slightly from block to block.

Future Developments

Ethereum currently has Proof-of-Work (PoW) mining. Ethereum is moving from the electricity-expensive PoW mining to a more energy-efficient Proof-of-Stake (PoS) protocol. This was always part of the road map in the strategy to scale Ethereum via the "Eth2" upgrades.

Eth2 refers to a set of interconnected upgrades improve the scalability, security, and sustainability of Ethereum. These upgrades are being built by multiple teams from across the Ethereum ecosystem. Although each is being worked on in parallel, they have certain dependencies that determine when they will be deployed. Eth2 is not a single migration, rather a set of upgrades.
- The Beacon Chain went live on December 1, 2020.
- The introduction of shard chains, the second upgrade, it is expected in 2021.
- The docking is when mainnet turns into a shard. This will come after a successful implementation of shard chains.

In PoS, instead of miners, transaction validators, called validators will lock up or stake their ether as collateral for the right to verify transactions (staking). Validators are responsible for the same thing as miners in proof-of-work: ordering transactions, creating new blocks so that all nodes can agree on the state of the network, and sharing in the block rewards. With any changes to Ethereum, such as the transition to PoS, the generation rate is guaranteed not to increase, although it may decrease.

Current Ether Circulation

Currently there are 114 million ether in circulation, 72 million of which were issued in the genesis block. The remaining amount has been generated in the form of block rewards to the miners on the Ethereum network.
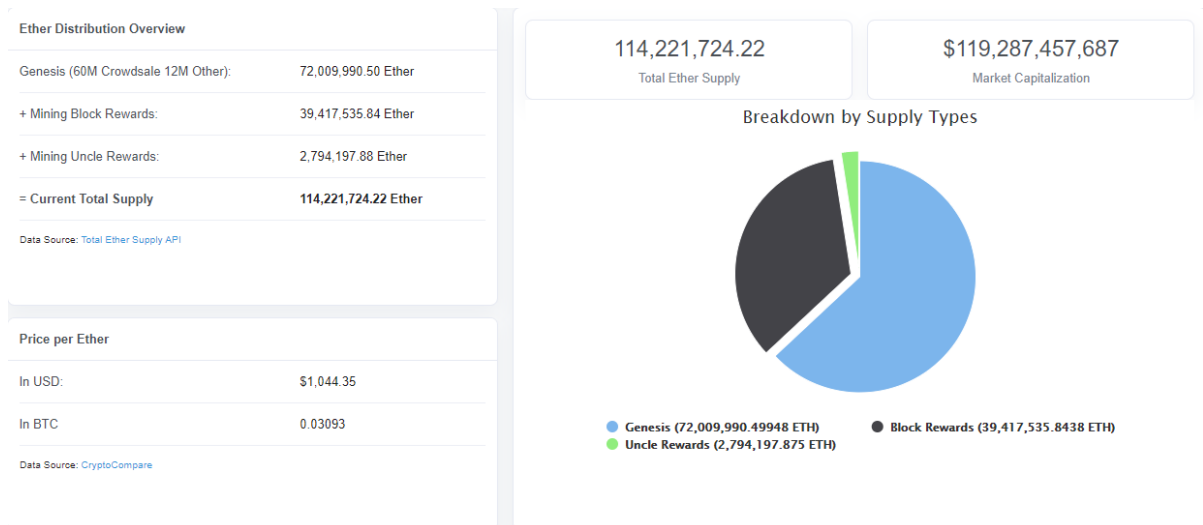
Figure 2 shows the ether Supply Growth Chart – a breakdown of daily block reward, daily uncle inclusion reward and uncle reward to arrive at the total current ether supply.

Figure 2: Ether Supply Growth Chart
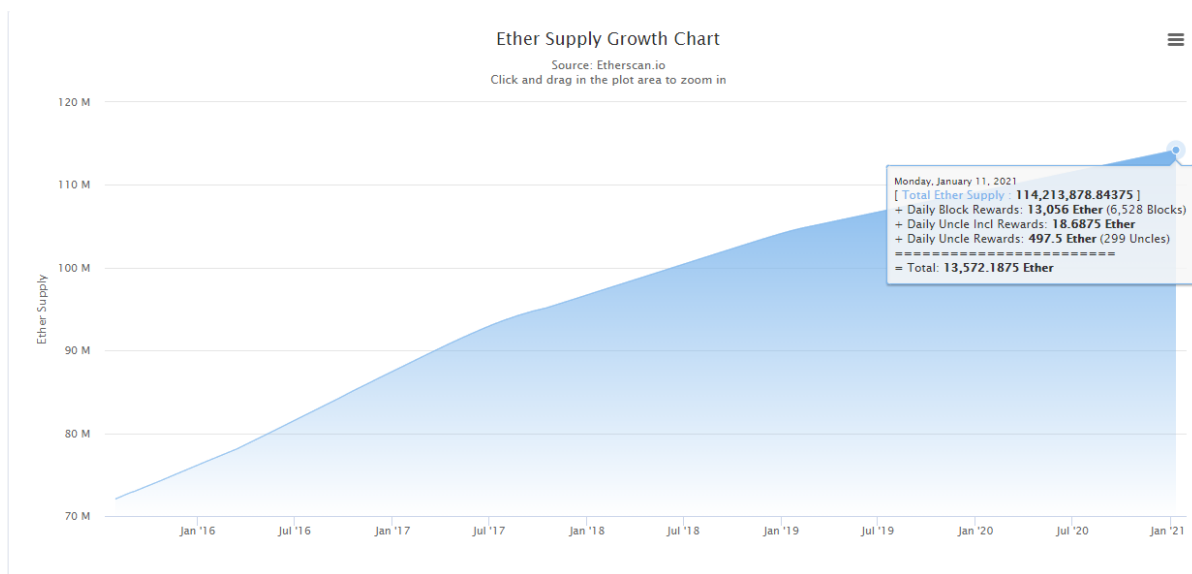
Source: etherscan.io

Figure 3: Ether Supply Distribution

Source: etherscan.io

The table and pie chart in Figure 3 shows the distribution of ether from reward of both block and uncle block mining to arrive at the current total ether supply of 114 million.

Since inception in 2015, Figure 4 shows the actual number of ether tokens that were generated and therefore in circulation on an annual basis since inception. We can calculate the current generation rate based on block size and block time. Given 2 ETH are generated every 14 seconds, the annual issuance rate is currently approximately 4,500,000. The increase in ETH supply has decreased over the years as part of the ETH inflation control mechanisms inherent to this blockchain.

Figure 4: Annual Ether Generated (July 2015 – July 2020)

Year	Total ether tokens generated	Total increase Year-Over-Year
7/30/2015	72,049,307	-
7/30/2016	82,502,668	10,453,362
7/30/2017	93,675,455	11,172,787
7/30/2018	101,022,010	7,346,555
7/30/2019	107,119,264	6,097,254
7/30/2020	111,978,164	4,858,900

The total circulating supply of ETH, is not the total spendable supply. The total spendable supply is lower than the total circulating supply, due to accidental loss, willful destruction, and technical peculiarities.

From the total circulating supply of 114 million ether, one must discount for unrecoverable ether that are burned; permanently withdrawn from circulation or lost. There is no consensus on the number to be deducted, but best estimates indicate there to be about a 20% total loss. This would produce an estimate of 91.2 million ether as circulating supply.

Deliverable Supply

The Ether Futures contract which will cash settle to the ETHUSD_RR is published on the futures contract's last day of trading. The Contract size is fifty (50) ether.

In theory, all 91.2 million units extant may be considered as notional deliverable supply of contract-grade commodity. A prudentially conservative estimate, however, would acknowledge that ether is traded in multiple currency denominations, of which USD is one.

For illustration, consider that during the nine (9) months ending October 31, 2020, approximately 70% of fiat ether transaction volume was in the ETH:USD currency pair. Were this used as a proxy for the share of outstanding ether that stands as notional contract-grade supply for ETH futures, it would produce an estimate of 63.84 million ether (equal to 91.2 million x 0.70) as the 'money stock' notionally eligible for delivery in fulfilment of expiring contract months. The following analysis uses this estimate.

By the standards applicable to agricultural or other commodity futures for physical delivery (i.e., 17 CFR 150.5(b)(1)), the position limit would be set at or below 25 percent of estimated spot month deliverable supply. Under current ether market conditions, the resultant maximum position limit would be 15.96 million ether, or 319,200 contracts ((equal to 63.28 million ether x 0.25) / (50 ether per Contract)).

An alternative based on the standard that the Exchange has typically applied to foreign exchange futures products, according to which the position limit is set at or below one percent of the money stock in the contract-grade currency denomination. Applied to the estimated ether 'money stock', the result would be a position limit of 12,768 contracts ((equal to (63.84 million ether x 0.01) / (50 ether per Contract)) or less.

Further, the 24-hour volume of ether trading for the nine months ending October 31, 2020 was on average 61 million[14] ether. On an hourly basis, 2.5 million ether tokens are traded. Assuming, 70%[15] of fiat ether transaction volume was in the ETH:USD currency pair, 1.78 million ether are traded per hour in the ETH:USD pair; the equivalent of 35,600 contracts (1 Ether Futures contract, is equal to 50 ether). As such, it would take less than 1 hour to accumulate the ether quantity delivery needed to hedge expiring contract months.

Viewed in the context of the preceding cash market overview, the Exchange has set the position limit of 8,000 contracts as a conservative level in accordance with the 'money stock' analysis. The proposed quantity is sufficiently stringent that it would be highly unlikely to motivate attempted manipulation of the benchmark in connection with Contract final settlement and is significantly below the standard 25% of deliverable supply test.

The Accountability Level shall be set at 2.5 times the position limit, as is the case with the Bitcoin Futures Contract. The Single Month Accountability Level and All Month Accountability Level shall be set to 20,000 contracts.

The spot month limit Ether Futures will take effect at the start of trading on the first day of the expiring contract month. Additionally, to allow for increased transparency and more effective market surveillance, the Exchange shall set a reportable position level of one (1) contract.

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[14] Average 24 hour trading volume from Coinmarketcap.com for the period Jan 1 – Oct 31, 2020.
[15] Analysis from Coinmarketcap.com

Appendix G

Ether-Dollar Reference Rate Analysis

(attached under separate cover)

(CONFIDENTIAL TREATMENT REQUESTED)