

SUBMISSION COVER SHEET

IMPORTANT: Check box if Confidential Treatment is requested

Registered Entity Identifier Code (optional): 21-477

Organization: Chicago Mercantile Exchange Inc. ("CME")

Filing as a: DCM SEF DCO SDR

Please note - only ONE choice allowed.

Filing Date (mm/dd/yy): 11/17/21 Filing Description: Initial Listing of the Micro Ether Futures Contract

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: Micro Ether Futures.

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:

November 17, 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 Micro Ether Futures Contract. CME Submission No. 21-477

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 Micro Ether Futures contract (the "Contract"), for trading on the CME Globex electronic trading platform ("CME Globex") and for submission for clearing via CME ClearPort effective on Sunday, December 5, 2021, for trade date Monday, December 6, 2021, as set forth below.

Contract Title	Commodity Code	BTIC Code	Rulebook Chapter
Micro Ether Futures	MET	MRB	CME 349

This Contract is a product extension of the current CME Ether Futures contract (ETH), which the Exchange first listed for trading in February 2021. The Contract's multiplier is 0.10 ether whereas the multiplier for the standard Ether Futures contract is 50 ether. Similar to ETH, this lower notional Contract is a plain vanilla USD cash-settled and margined futures contract.

The underlying reference for the Contract will be the CME CF Ether-Dollar Reference Rate ("ETHUSD_RR"), which mirrors the underlying index that the Exchange utilizes to settle its standard Ether Futures contract. 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 Title	Micro Ether Futures
Rulebook Chapter	CME 347
Commodity Code	CME Globex/CME ClearPort: MET BTIC: MRB
Contract Size	0.10 ether
Trading Unit	The unit of trading shall be 0.10 ether, as defined by the CME CF Ether Dollar Reference Rate (ETHUSD_RR).
Trading and Clearing Hours	CME Globex Sunday - Friday 5:00 p.m. - 4:00 p.m. Central Time (CT) (6:00 p.m. - 5:00 p.m. Eastern Time (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. – 5:00 p.m. CT (5:45 p.m. – 6:00 p.m. ET) CME ClearPort Sunday 5:00 p.m. - Friday 5:45 p.m. CT (6:00 p.m. – 6:45 p.m. ET) with no reporting Monday - Thursday 5:45 p.m. – 6:00 p.m. CT (6:45 p.m. – 7:00 p.m. ET) BTIC CME Globex Sunday - Friday 5:00 p.m. CT (6:00 p.m. (ET) - 4:00 p.m. London time (10:00 a.m./11:00 a.m. CT or 11:00 a.m./12:00 p.m. ET). Monday - Thursday 4:30 p.m. London time (10:30 a.m./11:30 a.m. CT or 11:30 a.m./12:30 p.m. ET) – 4:00 p.m. CT (5:00 p.m. ET). Friday 4:30 p.m. London time (10:30 a.m./11:30 a.m. CT or 11:30 a.m./12:30 p.m. ET) – 4:00 p.m. CT (5:00 p.m. ET) for Monday's Reference Rate Monday - Thursday 4:00 p.m. - 5:00 p.m. CT (5:00 p.m. - 6:00 p.m. ET) daily maintenance period.
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	December 2021, January 2022, February 2022, March 2022, April 2022, May 2022 and December 2022. December 2021 shall expire on Friday, December 31, 2021 at which time June 2022 and December 2023 shall be listed.
Price Basis	Prices are quoted and traded in U.S. Dollar
Minimum Price Fluctuation	Outright: 0.50 index points = \$0.05 per contract Calendar spread: 0.10 index points = \$0.01 per calendar month spread contract BTIC: 0.10 index points = \$0.01 per BTIC
BTIC Trading	For a BTIC or BTIC block trade executed on a given Trading Day at or before 4:00 p.m. London time, the corresponding futures price shall be made by reference to the closing Index value for the current Trading Day. For a BTIC or BTIC block trade executed on a given Trading Day after 4:00 p.m. London time, the corresponding futures price shall be made by reference to the closing Index value for the next Trading Day.
Termination of Trading	Trading terminates at 4:00 p.m. London time on the last Friday of the contract month if that day is a business day in either the U.K. or the U.S. If that day is not a business day in both the U.K. and the U.S, trading shall terminate on the preceding day that is a business day in either the U.K. or the U.S BTIC For an expiring futures contract, BTIC trading shall terminate at 4:00pm London time on the business day immediately preceding the day of Final Settlement Price determination for such futures contract. For clarity, BTIC transactions in expiring futures contracts may not be initiated on the Last Trade Date in such expiring futures.
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.
Position Limits and Reportable Levels	Spot Position Limits are aggregated with Ether Futures (ETH) and set at 8,000 ETH contracts. A position accountability level of 20,000 ETH contracts shall be applied to positions in single months outside the spot month and in all months combined. The reportable level shall be 1 Micro Ether futures (MET) contract.
Block Trade Minimum Threshold	100 contracts Reportable window: RTH 5 minutes; ETH/ATH 15 minutes

Section 2 – Index Administration, Governance, and Methodology

Ether Market Overview

Vitalik Buterin founded Ethereum as a concept in a [White Paper](#)¹ 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 is a decentralized open source blockchain featuring smart contract functionality. 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 organisation.

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).

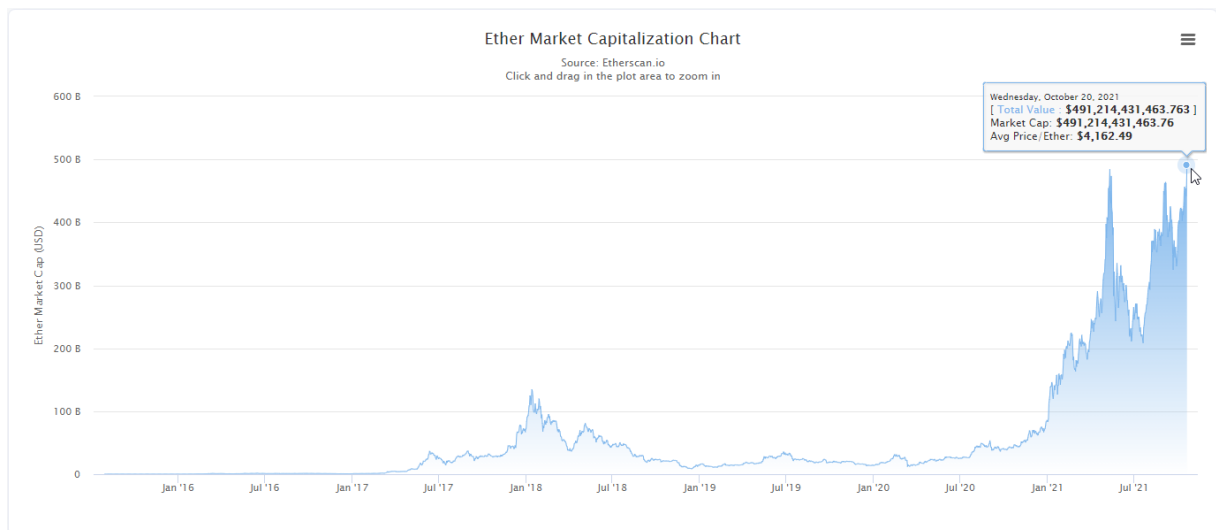
Ether's current value is around \$4,200 as of October 21, 2021.

According to Coinmarketcap.com (<https://coinmarketcap.com/currencies/ethereum/markets/>), the market cap for all digital assets is over \$2.5 tn.

Ether's market capitalization is estimated to be \$505bn² as of October 21, 2021. It is the second-largest cryptocurrency by market capitalization, behind bitcoin.

Figure 1 displays the price history and market cap for ether.

Figure 1: Ethereum's Price History



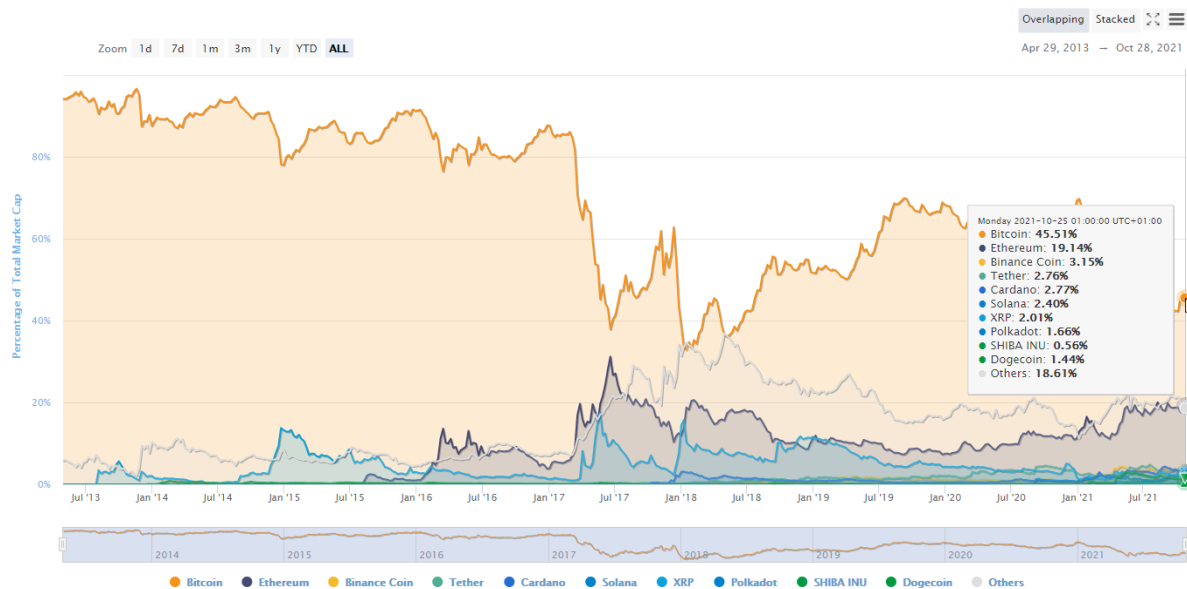
Source: etherscan.io

¹ White paper can be accessed at: <https://ethereum.org/en/whitepaper/>

² Source: <https://coinmarketcap.com/currencies/ethereum/>

In terms of market dominance, ether is consistently in the number 2 spot, behind bitcoin, as demonstrated in Figure 2.

Figure 2: Ethereum’s Percentage of Total Market Capitalization (Dominance)



Source: CoinMarketCap.com

The 24 hour trading volume in ether is \$23 BN compared to \$41 BN in bitcoin as at October 21, 2021³. 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. It is the same underlying index the Exchange utilizes to settle its standard Ether Futures contract. 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

³ Data source: <https://coinmarketcap.com/>

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.⁴

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 exchanges is also available on the CF Benchmarks website.⁵

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 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.⁶

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 website⁷.

Quality of Data Inputs

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

⁴ CME-CF Constituent Exchanges Eligibility Criteria: <https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Constituent+Exchanges+Criteria.pdf>

⁵ CME-CF Constituent Exchanges List: <https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Constituent+Exchanges.pdf>

⁶ CME-CF Reference Rate Methodology: <https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Reference+Rates+Methodology.pdf>

⁷ CME-CF Hard Fork Policy: <https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Hard+Fork+Policy.pdf>

- 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.⁸

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.

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.

⁸ CME-CF Reference Rate Methodology: <https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Reference+Rates+Methodology.pdf>

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.com⁹ 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 Benchmark Statement, which provides additional details on the regulatory compliance, is available on the CF Benchmarks website.¹⁰

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](#).¹¹

Section 3 – Volatility

Ether prices can be highly volatile, annualized realized volatility in ether rose to over 180% in April 2021, it has averaged about 80% the past three years. After sliding to about 35% in July 2020, ether volatility almost is around 60% at the end of September 2021, as shown in Figure 4.

⁹ Data Source: <https://www.coingecko.com/en/coins/ethereum#markets>

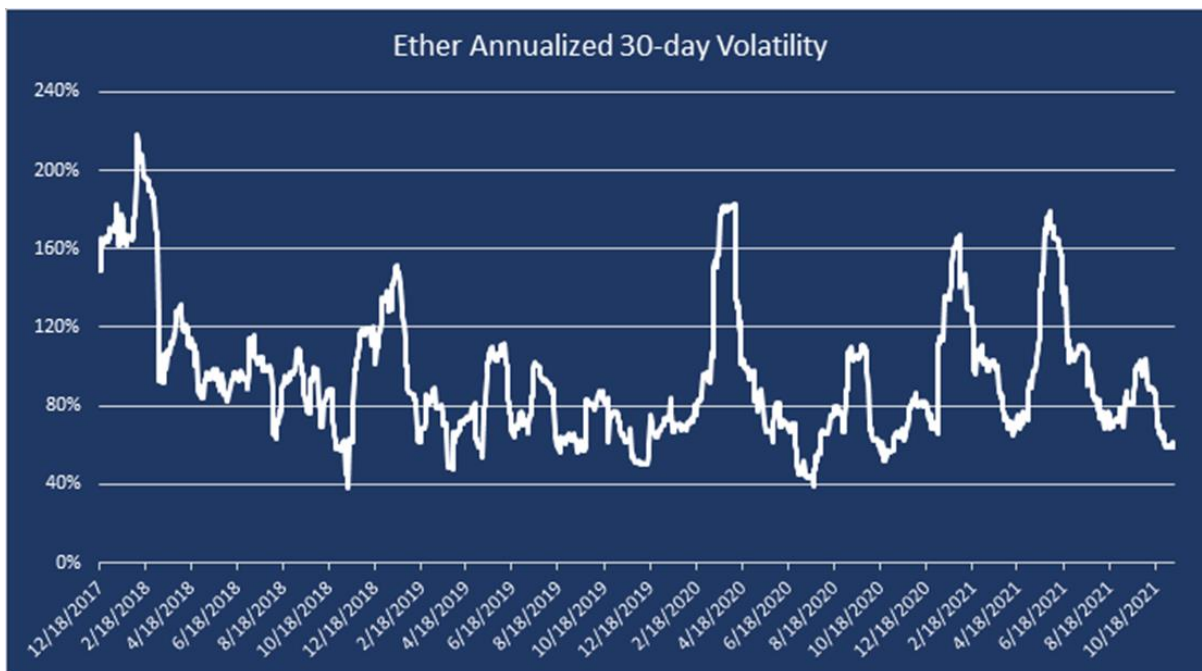
¹⁰ CME-CF Benchmark Statement: <https://docs-cfbenchmarks.s3.amazonaws.com/CME+CF+Benchmark+Statement.pdf>

¹¹ 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>

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.

Section 4 – Customer Feedback

Demand for the Contract has been strong, and the Exchange has fielded inquiries since the announcement of the Ether Futures contract (February 2021) and the Micro Bitcoin futures contract (in May 2021).

Ether spot price has risen gradually and is currently around \$4,000. Clients have indicated the current 50 Ether Futures Contract may be too large.

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 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 a micro 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 Contract. Clearing members generally did not express concern regarding the launch of the Contract from an operational or risk perspective. The Contract 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

Positions will be aggregated with the Exchange's Ether Futures contract (ETH) at the applicable ratio given the differing notional values. Uniform position limits will be applied to the Contract and the standard Ether Futures contract (ETH). The spot month position limits will be aggregated with Ether Futures (ETH) and set at 8,000 ETH contracts. A position accountability level of 20,000 ETH contracts shall be applied to positions in single months outside the spot month and in all months combined.

The reportable level shall be 1 Micro Ether futures (MET) contract. The position limits for the Contract 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 347
	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 347 Micro Ether Futures

34700. SCOPE OF CHAPTER

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

34701. CONTRACT SPECIFICATIONS

Each futures contract shall be valued at 0.10 ether as defined by the CME CF Ether-Dollar Reference Rate ("ETHUSD_RR").

34702. TRADING SPECIFICATIONS

34702.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.

34702.B. Trading Unit

The unit of trading shall be 0.10 ether.

34702.C. Price Increments

The minimum price increment shall be 0.50 index points, equal to \$0.05 per contract, except for intermonth spreads executed pursuant to Rule 542.A., for which the minimum price increment shall be 0.10 index points, equal to \$0.01 per intermonth spread.

34702.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.

34702.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.

34702.F. Termination of Trading

Trading in expiring futures shall terminate at 4:00 p.m. London time on the last Friday of the contract month if that day is a business day in either the UK or the US. 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 in either the UK or the US.

34703. SETTLEMENT PROCEDURES

Delivery shall be by cash settlement.

34703.A. Final Settlement Price

For a futures contract for a given delivery month, the Final Settlement Price shall be the ETHUSD_RR published at 4:00 p.m. London time on the Last Trade Date (Rule 34702.F.). Revision to the published ETHUSD_RR shall be received prior to 23:59:59

London Time on the Last Trade Date. Thereafter, the final settlement futures price shall be deemed final.

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

34703.B. Final Settlement

Clearing members holding open positions in an expiring futures contract at its termination of trading (Rule 34702.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 34703.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.

34704. RESERVED

34705. RESERVED

34706. BASIS TRADE AT INDEX CLOSE (“BTIC”) TRANSACTIONS

All BTIC transactions must be executed in accordance with the requirements of Rule 524.B. For the purpose of this section and Rule 524.B., the closing level of such futures contract's underlying cash Index shall mean the CME CF Ether Dollar Reference Rate (“ETHUSD_RR”).

34706.A. Block Trade Requirements

BTIC block trades must be executed in accordance with the requirements of Rule 526. For a BTIC or BTIC block trade executed on a given Trading Day at or before 4:00 p.m. London time, the corresponding futures price shall be made by reference to the closing Index value for the current Trading Day.

For a BTIC or BTIC block trade executed on a given Trading Day after 4:00 p.m. London time, the corresponding futures price shall be made by reference to the closing Index value for the next Trading Day.

34706.B. Price Assignment Procedures

The price assignment procedure for BTIC transactions shall follow Rule 524.B.3.

34706.C. Minimum Price Increments

The valid basis or price increment applied to the closing Index value to establish the BTIC futures price shall be an integer multiple of the contract minimum price increment, \$0.10 per ether, equal to \$0.01 per contract.

34706.D. Market Disruption Events

In the event of disruption in the underlying market that precludes a valid Index value calculation, all pending and executed BTIC transactions in the corresponding futures contract shall be cancelled by the Exchange. Such disruption shall be declared by the Exchange in its sole discretion.

(End of Chapter 347)

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
<u>Micro Ether Futures</u>	<u>MET</u>	<u>3%</u>	<u>Variable</u>	<u>Variable</u>	<u>Each leg evaluated as an outright</u>	
<u>BTIC on Micro Ether Futures</u>	<u>MRB</u>	<u>50% of Underlying NRR</u>	<u>Variable</u>	<u>Variable</u>	<u>N/A</u>	<u>N/A</u>

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	Dynamically Calculated Variant
<u>Micro Ether Futures</u>	<u>347</u>	<u>MET</u>	<u>Associated</u>	<u>ETH</u>	<u>10% of Dynamically Calculated Reference Price Daily Price Limit Table</u>
<u>BTIC on Micro Ether Futures</u>	<u>347</u>	<u>MRB</u>	<u>Associated</u>	<u>ETH</u>	<u>10% of Dynamically Calculated Reference Price Daily Price Limit Table</u>

Appendix E
Applicable CME 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	\$0.10
	EFP	\$0.16
	EFR	\$0.16
	Block	\$0.16
	BTIC	\$0.16
	Delivery	\$0.05
	Exe Asn Future From	\$0.05
Rule 106.D Lessees Rule 106.F Employees	CME Globex	\$0.16
	EFP	\$0.26
	EFR	\$0.26
	Block	\$0.26
	BTIC	\$0.26
	Delivery	\$0.08
	Exe Asn Future From	\$0.08
Rule 106.R Electronic Corporate Members (For other than CME Globex - Non-Member rates apply)	CME Globex	\$0.17
	Globex – BTIC	\$0.24
Rule 106.H and 106.N Firms	CME Globex	\$0.18
	EFP	\$0.29
	EFR	\$0.29
	Block	\$0.29
	BTIC	\$0.29
	Delivery	\$0.09
	Exe Asn Future From	\$0.09
International Incentive Program (IIP) and International Volume Incentive Program (IVIP) Participants (Open Outcry at same rate as Globex for Interest Rate products only)	CME Globex	\$0.20
	CME Globex - BTIC	\$0.32
Central Bank Incentive Program (CBIP), Latin American Fund Manager Incentive Program (FMIP), Participants (For other than CME Globex - Non-Member rates apply)	CME Globex	\$0.20
	CME Globex - BTIC	\$0.32
Members Trading Outside of Division (For other than Globex During ETH - Non-Member rates apply)	CME Globex During ETH Only	\$0.18
Non-Members	CME Globex	\$0.20
	EFP	\$0.32
	EFR	\$0.32
	Block	\$0.32
	BTIC	\$0.32
	Delivery	\$0.10
	Exe Asn Future From	\$0.10

Processing Fees	Fee
Position Adjustment/Position Transfer	\$0.10
Give-Up Surcharge	\$0.05
Facilitation Fee	\$0.40

Appendix F

Deliverable Supply Analysis: Micro Ether Futures

Cash Market Overview

Ethereum is a decentralized open source blockchain featuring smart contract functionality. Ether (ETH) is the native cryptocurrency token of the Ethereum platform.

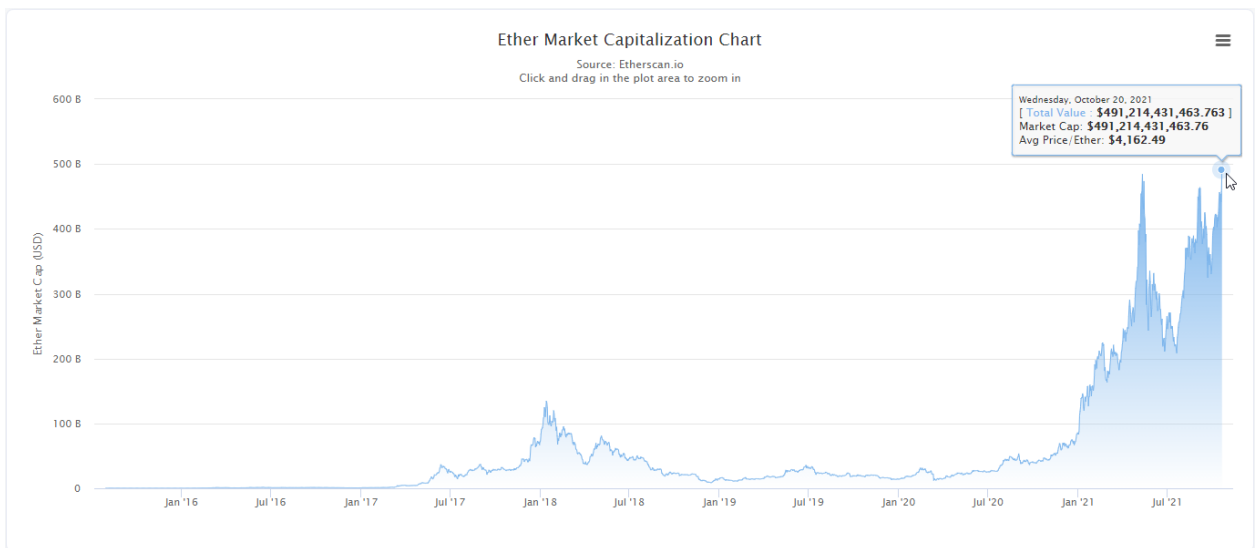
Ether's current value is around \$4,200 as of October 21, 2021. It can be traded for other cryptocurrencies or other sovereign currencies, just like bitcoin (BTC).

According to Coinmarketcap.com

(<https://coinmarketcap.com/currencies/ethereum/markets/>), the market cap for all digital assets is over \$2.5 TN.

Ether's market capitalization is estimated to be \$505bn¹² as of October 21, 2021. It is the second-largest cryptocurrency by market capitalization, behind bitcoin. The analysis that follows is around ether as the deliverable for a cash settled CME Micro Ether futures contract.

Figure 1: Ethereum's Price History



Source: etherscan.io

The 24 hour trading volume in ether is \$23 BN compared to \$41 BN in bitcoin. Many alt-coins are based on the Ethereum network, which brings more liquidity into this cryptocurrency. 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 the USD.

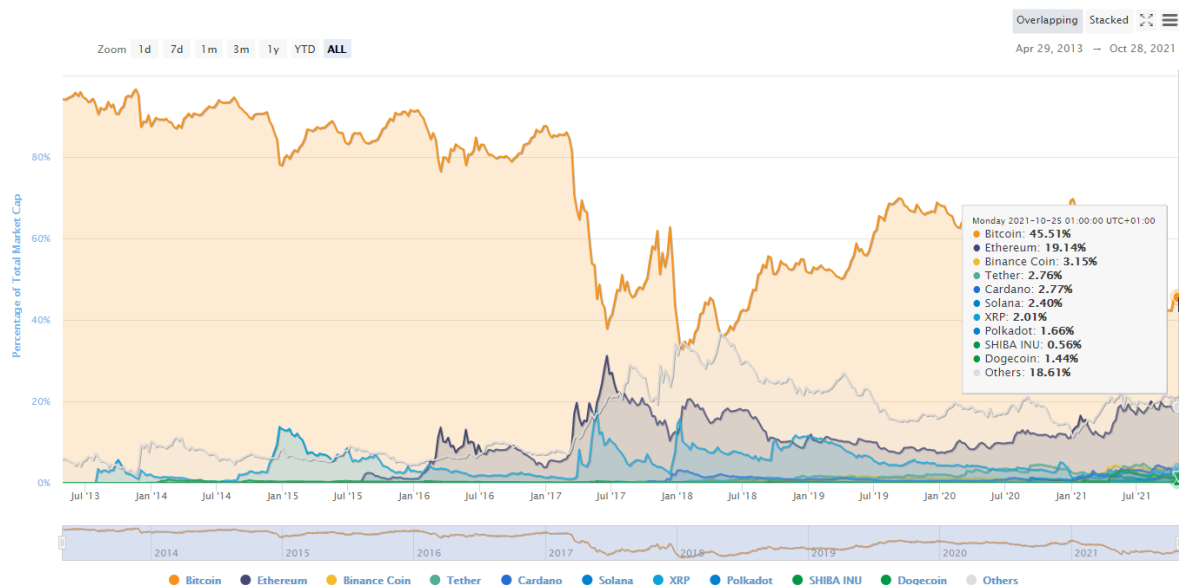
Ether is actively traded across approximately 400 spot exchanges and several unregulated platforms that offer participants leveraged exposure.

¹² Source: <https://coinmarketcap.com/currencies/ethereum/>

Skew., a leading crypto derivatives data provider shows current open interest in ether futures is hovering around \$9BN, across the various unregulated platforms.

In terms of market dominance, ether is consistently in the number 2 spot, behind bitcoin, as demonstrated in Figure 2.

Figure 2: Ethereum's Percentage of Total Market Capitalization (Dominance)



Source: CoinMarketCap.com

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

Ethereum

Vitalik Buterin founded Ethereum as a concept in a White Paper¹³ 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 30 July 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 organisation.

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 token generation

New units of ether are created through mining. Mining is the process of confirming transactions, combining them into blocks and adding them to the blockchain. As a reward,

13 White paper can be accessed at: <https://github.com/ethereum/wiki/wiki/White-Paper>

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.

Ether in Circulation

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

Pre-mine + Block rewards + Uncle rewards + Uncle referencing rewards + Eth2 staking rewards

Pre-mine

Around 72 million ETH were issued for the genesis block – the first ever block of the Ethereum blockchain. 60 million ETH 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. For bitcoin, generation halves approximately every 4 years to reach a maximum circulating supply of 21 million coins.

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. This is to say that 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.

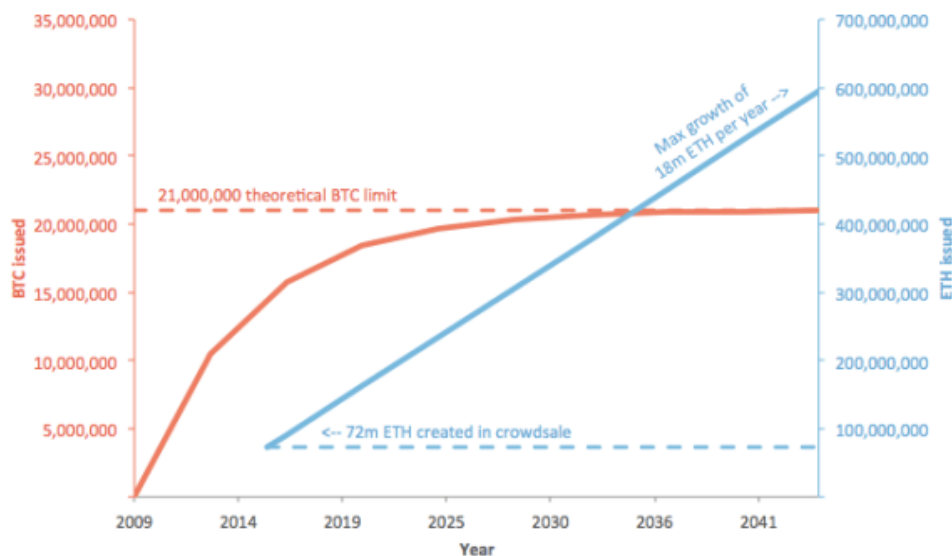
In Ethereum the time between blocks is around 14 seconds, compared with bitcoin's ~10 minutes. This means that on average if you made a bitcoin transaction and an Ethereum transaction, the Ethereum transaction would be recorded into Ethereum's blockchain faster than the bitcoin transaction getting into 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, a miner receives 2 ETH as a reward.

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 will not ever tail off. A constant amount of ETH will be mined forever. Figure 3 shows the bitcoin and Ethereum generation models.

Additionally, an equilibrium will eventually be reached when the rate of ETH lost due to carelessness, destruction, and other causes equals the rate of new ETH mined.

Figure 3: 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. 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 do not 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.

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 is known as a Gas limit per block, and the maximum can vary slightly from block to block.

Future Developments

Ethereum currently has Proof-of-Work (PoW) mining. Ethereum is moving to a consensus mechanism called proof-of-stake (PoS), this change has been on Ethereum’s roadmap, as a plan to move from the electricity-expensive PoW mining to a more energy-efficient PoS protocol as part of the Eth2 upgrades. Eth2 refers to a set of interconnected upgrades that

will make Ethereum more scalable, more secure, and more sustainable. These upgrades are being built by multiple teams from across the Ethereum ecosystem.

Proof-of-stake is the underlying mechanism that activates validators upon receipt of enough stake. For Ethereum, users will need to stake 32 ETH to become a validator. Validators are chosen at random to create blocks and are responsible for checking and confirming blocks which they do not create.

Unlike proof-of-work, validators do not need to use significant amounts of computational power because they are selected at random and are not competing. Validators do not need to mine blocks; they just need to create blocks when chosen and validate or attest proposed blocks when they are not. Validators get rewards for proposing new blocks and for attesting to ones they have seen.

A user's stake is also used as a way to incentivise good validator behavior. For example, a user can lose a portion of their stake for things like going offline (failing to validate) or their entire stake for deliberate collusion.

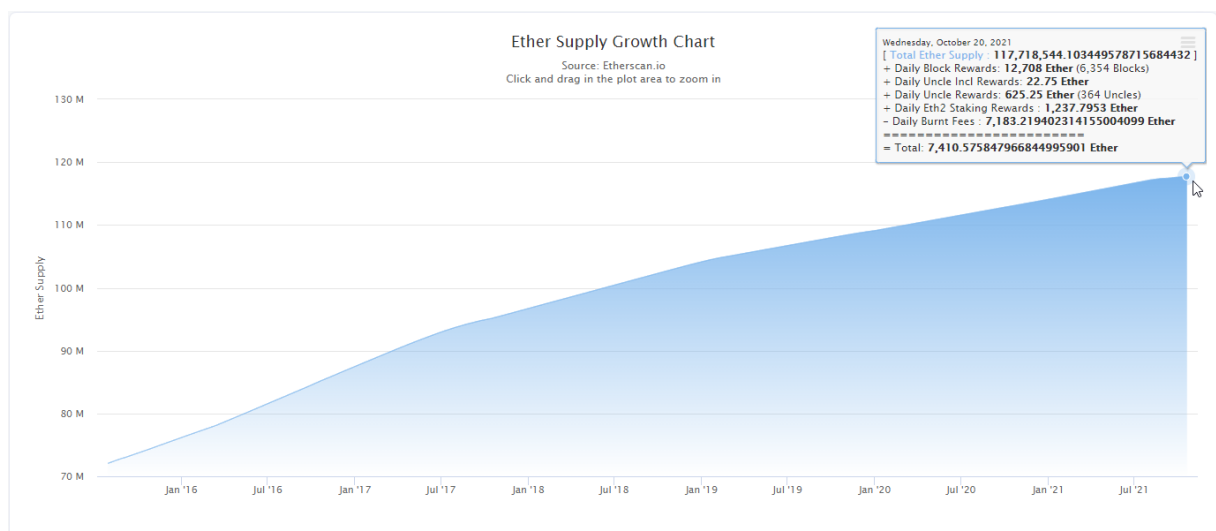
With any changes to Ethereum, such as the transition to PoS, the generation rate is guaranteed to not increase. However, the generation rate may decrease.

Current Ether Circulation

Currently there are 117.7 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.

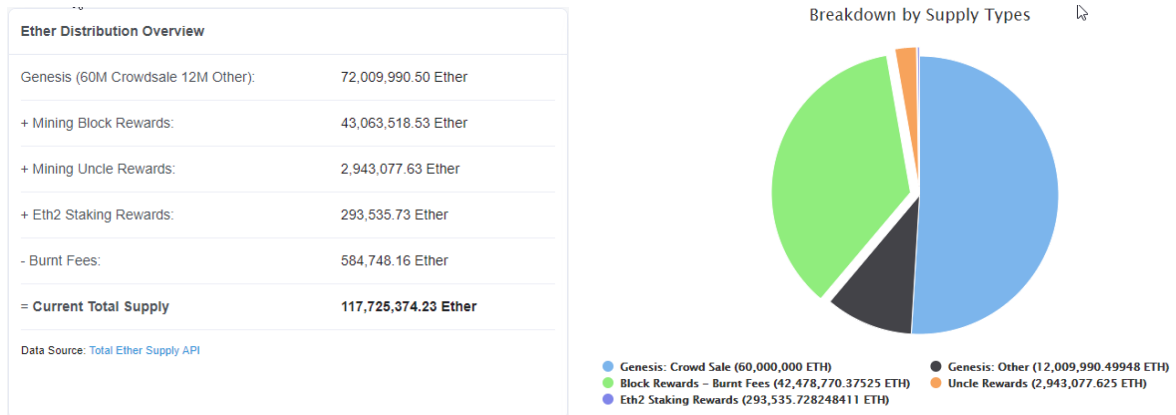
Figure 4 shows the ether Supply Growth Chart – a breakdown of daily block reward, uncle inclusion reward, uncle reward and Eth2 staking to arrive at the total daily Ether supply.

Figure 4: Ether Supply Growth Chart



Source: etherscan.io

Figure 5: Ether Supply Distribution



Source: etherscan.io

The table and pie chart in Figure 5 shows the distribution of ether from reward of both block and uncle block mining to arrive at the current total ether supply of 117.7million.

Since inception in 2015, Figure 6 shows the actual number of ether tokens that were generated and therefore in circulation on an annual basis since inception.

Figure 6: Annual ether generated (2015 – 2021)

Year	Total ether tokens generated	Total increase YOY
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
7/30/2021	117,104,348	5,126,184

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 117. 7 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 94.2 million ether as circulating supply.

Deliverable Supply

CME launched Ether futures in February 2021, with a contract size of 50 ether. The CME Micro Ether Futures contract size shall be 0.10 ether.

The Ether Futures and Micro Ether Futures contracts will cash settle to the CME CF Ether Dollar Reference Rate (ETHUSD_RR) published on the futures contract’s last day of trading.

The position limit will be applicable in aggregate to Ether Futures (ETH) and Micro Ether Futures (MET). For the discussion of position limits that follows, contract size is for the existing Ether Futures contract, with a 50 ether multiplier, as the micro contract will be share an aggregated position limit. The ratio for spot month will be 500 MET:1 ETH.

In theory, all 94.2 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 months ending September 30, 2021, around 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 65.94 million ether (equal to 94.2 million x 0.70) as the 'money stock' notionally eligible for delivery in fulfillment of expiring Contracts. 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 16.49 million ether, or 329,700 contracts ((equal to 65.94 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 13,188 contracts ((equal to (65.94 million ether x 0.01) / (50 ether per contract)) or less.

Recommendation

In its initial certification of CME ETH futures product rules to the CFTC in February 2021, the Exchange recommended a spot-month position limit of 8,000 contracts.

Viewed in the context of the preceding cash market overview and to align with the Ether Futures contract, the Exchange proposes an aggregated 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% analysis of deliverable supply test.

The Micro Ether Futures contract shall share the current Accountability Level with the Ether Futures Contract.

Accountability Level is set at 2.5 times the position limit. The Single Month Accountability Level and All Month Accountability Level proposed is 20,000 contracts.

The spot month limit for Micro Ether Futures will take effect at the start of trading on the first day of the expiring contract month as it does with the Ether Futures contract.

Additionally, to allow for increased transparency and more effective market surveillance, a reportable position level of one (1) Micro Ether Futures contract is proposed.