

FTX Monthly Digest

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1 FTX in July

July has been a busy month for FTX and an exciting month for crypto. We've rolled out an assortment of products, upgrades, and new feature requests. We continue to work on feedback provided by the community and are constantly looking for innovative new ways to serve our customer base.

DeFi DeFi continues to be hot as flame blasted coals, fitting to cook tendies over, and as such in July we have listed [MKR](#), [RUNE](#), [AMPL](#), [MTA](#), [YFI](#) and [DMG](#). We've also listed [DOT](#), [XRP spot markets](#), [SXP](#) and an addition to our prediction markets - [TRUMPWIN](#) and [TRUMPLOSE](#) spot tokens which are respectively redeemable to 1 USD if Trump wins or loses.

Serum [Project Serum](#) is the world's first completely decentralized derivatives exchange with trustless cross-chain trading brought to you by Project Serum, in collaboration with a consortium of crypto trading and DeFi experts. While we built the Serum protocol, it is permissionless – we do not hold special power anymore. It is up to you, the crypto community, to use it as you will. Stay tuned for next months edition which will be a deep dive into Serum.

FTX Pro App We're taking UI/UX suggestions to heart and implementing them continuously. An overview of implemented features during July include: in-line order form, shareable PnL, custom logins, max button for withdrawals, break-even price on chart, pie chart on wallet page, orders and all-markets-wide history, percentage position size buttons, PnL history, highlighted orders in the book and a new easier to use captcha.

New Collateral You can now use SOL, XRP, BVOL and iBVOL as collateral for all leveraged trading. For a full list of non-usd collateral [here](#).

The FTX Blog The blog has been translated into several languages and now contains [Market recaps](#) which are a look over the market dynamics of the last week. [Videos](#) a feed of all the latest FTX videos and podcast episodes, as well as our monthly updated [change log](#).

2 Preface

Warnings dear reader that the thesis of this digest is not intertwined from beginning to end. The theme for this issue continues to be one of platform over editorial, in the sense that if we speak with someone who is working on a topic they are excited with, is quality work and resonates with us, we will host them. The aim is to foment creativity, research and open access to publication. Although this creates three separate subjects it is the preference for the authors to write about something from the heart rather than assign them a topic. As such, we recommend enjoying these following deeply insightful pieces as separate glimpses into the mind of fellow characters of this groovy cryptocurrency playing field. This format also allows us to not become binded by convention or style and express creativity as we see fit. Is that not every authors dream?

3 You Need More Risk

This section is written by : [Christian Arita - Product Lead at StakeDao](#)

3.1 Exploring the case for Alts

Bitcoin is dead. Just kidding, Bitcoin vol is dead. The opportunities in DeFi, but also in Proof of Stake have made it apparent why investors should look at assets outside of Bitcoin when investing in the crypto space. Let's briefly revisit the dullness of Bitcoin: Realized volatility has fallen near lows last seen in March 2019. This may seem bullish for some speculators as last time this led to a 3x bull run, but Ethereum also participated in this rally. What is important to note after the bull run is a 6-month period where Bitcoin vol was in a band around its 2-year average. So while Bitcoin vol is at lows, it can move in a compressed range. It can also remain in this range for longer than Ethereum vol as seen earlier this year when Ethereum took off a few months before Bitcoin.

Outside of realized vol, even implied vol looks grim. If you're confidently bullish or bearish, you can speculate on the really low realized vol + the lack of confidence in future vol as an opportunity.

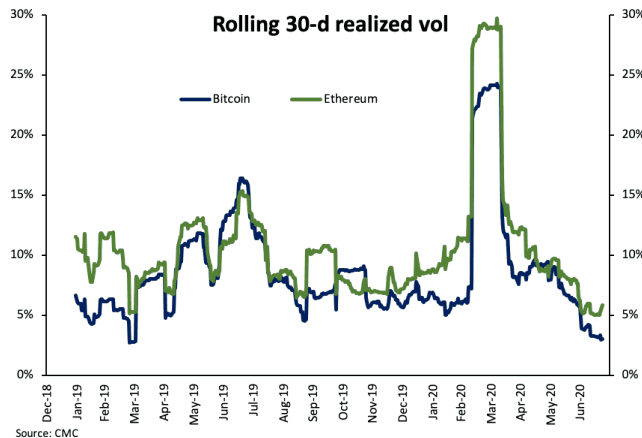
If you're interested in assets outside of Bitcoin, then the following is a case for rotating into 'alts'. Alts can more lucrative in this market because of their beta. Beta can be defined as the magnitude of moves of a particular token relative to a benchmark, in this case Bitcoin.

3.2 Risk-on and selecting assets

For simplicity, Ethereum is the comparison asset, but calling it an alt may not be appropriate. This analysis can go beyond Ethereum, but is not within the scope of this piece due to brevity, a lack of extensive price history for DeFi



Figure 1: Rolling 30-day realized vol



tokens, and an inability to distinguish between beta and the bullish sentiment found within liquidity mining today. Assets like Tezos, Cardano, Cosmos, and Algorand within PoS may fit the bill for deeper analysis.

A crude and high overview solution for considering Ethereum over Bitcoin is price performance. Ethereum has generally outperformed Bitcoin, but by a slight margin over the last 4.5 years. Investing at the beginning of 2018 or 2019 would have led an investor to underperform.

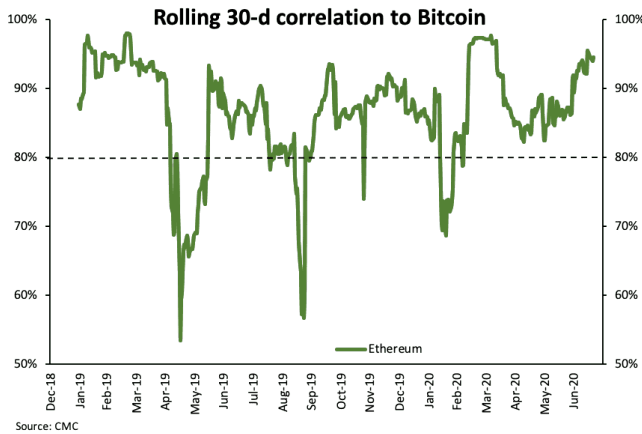
Instead, a good/easy method to assess additional risk (beta) to a portfolio may require an examination of highly correlated (+75%) assets. This would then be followed by studying beta. Beta above 1 will see an asset move more than Bitcoin. These two steps determine how much the asset actually moves in line with Bitcoin and by what magnitude. Below we see that lately Ethereum is highly correlated (+94%) and its beta is 1.5.

Overall, an investor should do their own research on alts related to market

Date	Bitcoin Implied Vol...		
	...3wks out	...4m out	...7m out
1/1/19	90	81	80
2/1/19	59.9	58	59
3/1/19	55.9	55.6	56.3
4/1/19	58.3	57	56
5/1/19	54.5	59.5	61.5
6/1/19	86	83	83.5
7/1/19	104.5	100.5	97.5
8/1/19	93.7	96.2	95
9/1/19	80.6	80	82
10/1/19	83.6	87.8	88
11/1/19	66.9	71	73
12/1/19	63	69.4	73
1/1/20	55.7	71	75
2/1/20	55.6	63.5	68
3/1/20	57.4	65	65.2
4/1/20	91.8	97	93
5/1/20	74	78	80
6/1/20	75.5	71.7	75
7/1/20	46	61.9	71.5
7/22/20	52.6	64	70

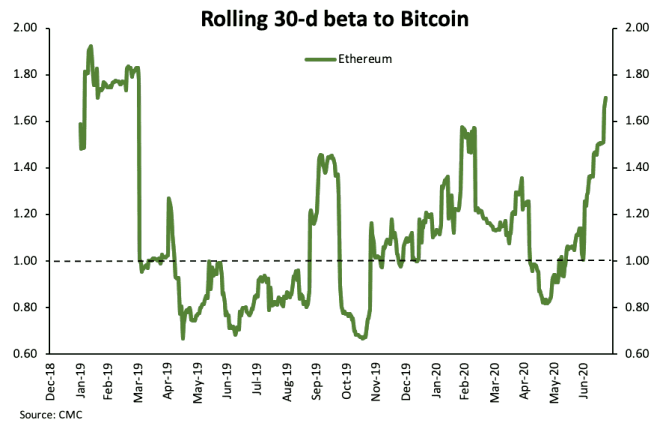
Source: Genesis Volatility (heavy estimates)

	2016	2017	2018	2019	2020 (YTD)
Bitcoin	126%	1244%	-73%	90%	30%
Ethereum	787%	8899%	-82%	-1%	89%



opportunity, product, and team, and then look at correlation and beta. One key topic which was not discussed was yield farming. This increases the complexity of the trades as well as the risk (financial and technical) for a portfolio, but it could be lucrative.

Lastly, crypto investors tend to be in this space for the upside, but willing to die with the downside so just in case Bitcoin rallies without alts, a portfolio



could consider something like end of the year, OTM Bitcoin calls in addition to an alt spot position.

4 An Investigation into Technical Indicators

This section is written by : Tom Rae - Data Scientist

4.1 Introduction

Technical Analysis. A Google search of technical indicators shows a total of 298,000,000m results

"I never use valuation to time the market. I use liquidity considerations and technical analysis for timing. Valuation only tells me how far the market can go once a catalyst enters the picture to change the market direction. The catalyst is liquidity, and hopefully my technical analysis will pick it up."

Stanley Druckenmiller

Legendary investor and hedge fund manager of Duquesne Capital

A search of the academic journal results in 42,444 individual results for papers discussing the application of new and exotic indicators, while legendary investors such as Warren Buffet and David Abrams, follow an entirely different school of thought based on an analysis of the underlying fundamentals of the asset.

With fortunes on the table, it is easy to see why traders seek any edge available. Personally, I like to see the numbers. As traders, we all know the feeling of entering a position at a non-optimal time, or of missing the exit price forecast by our system. So with that in mind, in this mini series, we will explore what technical indicators are effective, how they can be used in the simulation of an environment to train a Raspberry Pi and how to deploy this as an application trading cold hard Bitcoin on FTX (On a raspberry pi).

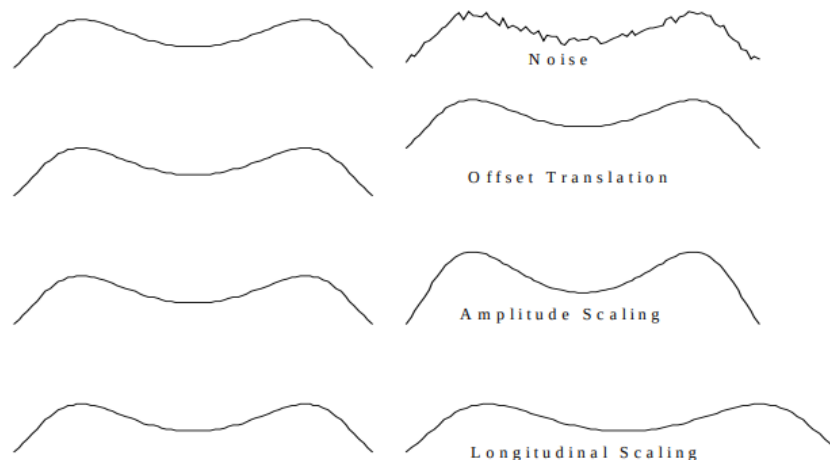
4.2 Indication Analysis

Technical indicators are effectively a transformation of timeseries data in order to derive further insight from patterns uncovered by abstraction. Any trader will be aware that there are countless examples of transforming timeseries, and with the further democratisation of financial markets heralded by the rise of blockchain it is clear that increased financial independence will lead to greater individual participation in individual financial markets, so as more retail traders enter the markets, it is import that correct information is available to them.

Time series data presents a number of difficulties in classifying for a number of reasons.

- **Offset Translation** This is a problem particularly when trying to apply the result on a non-stationary model. What this means in real terms is that many models are biased due to being trained on data with a trend of upwards returns.

- **Amplitude Scaling** While the volatility of higher highs and lower lows are an option traders best friend, when trying to perform pattern-matching it leads to difficulties due to these outliers. Many models are based on the assumptions of normalcy, which are violated by the non-normal distributions of an unpredictable time series.
- **Longitudinal Scaling** As more algorithmic agents enter the market, the time taken for the market to react to news significantly decreases.
- **Noise** is a feature inherent in data trading datasets and will be particularly pronounced for illiquid markets



The author would argue that the application of these methods is simply a means for us, as visually and pattern-oriented agents, to process these complex patterns and help to reduce the impact of these issues in a manner which helps to highlight patterns within multi-dimensional data.

4.3 Experiment

- Using the currently running Defi competition, we were able to gather data for 71 markets available. I have provided a helper class and some sub-classing of the FTX client to enable easier gathering of OHLC data for these markets. (this wrapper is NOT approved from FTX cough cough note to editors, if someone wanted to review my code, I would love the feedback ;))
- Once we have gathered the data for these markets, we will then calculate all the technical indicators included within the library ta (see reference). This gives us a total of 78 indicators. We can then create a forward looking target variable from our dataset.

- Using XGBoost as a ml model we will measure its effectiveness for our markets and we were then able to dissect the influence of each of the technical indicators, to give an indication of how much of a weighting our model assigns to that technical indicator.
- This will then provide us with a selection of indications to use for the generation of our reinforcement learning based trading agents.

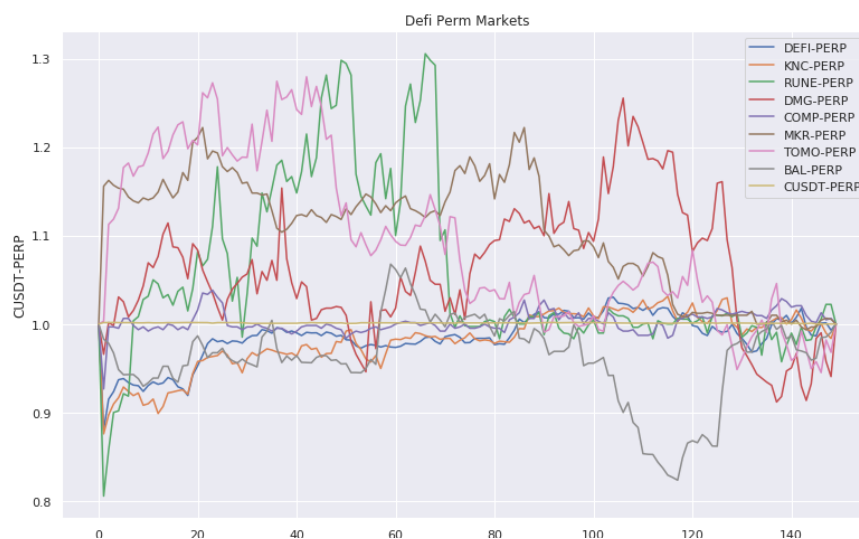
4.4 Data Ingestion/Gathering

Our sample data will consist of 1m ohlc for all of the markets within the competition. I have included a helpful script to gather this data for the reader.

4.5 Process

We will first perform a quick examination of our data, we can see that over the 71 markets which we have collected, we have a number of bull bear markets. We will be focusing on perpetual futures leaving us with a remaining 9 markets, **DEFI-PERP**, **KNC-PERP**, **RUNE-PERP**, **DMG-PERP**, **COMP-PERP**, **MKR-PERP**, **TOMO-PERP**, **BAL-PERP**, **cUSDT-PERP**.

Plotting a market gives us;



Now we have taken care of our data collection and ingestion, we will begin our analysis.

4.6 Benchmark

We train a simple XGBOOSTmodel with no technical indicators. We are using a forward shifted difference for the closing prices as a target variable. This

allows us to perform a standardised test across all our markets.

4.7 Analysis

We now extract our technical indicators for all of our data. We have a total of 72 available technical indicators. These include the common and well-known indicators such as exponential moving average, Bollinger Bands and MACD.

One approach for determining the importance of a variable is to use a train and machine learning model and then determine how important the model finds each feature. Another is an approach known as principal component analysis. Principal component analysis effectively plots a relationship between a target variable and a dependent variable.

We will use an XGBoost model as it has proven effective at predicting time series data.

Market	RMSE Without indicators	RMSE With indicators
DEFI-PERP	14.950568	13.415008
KNC-PERP	0.007628	0.006836
RUNE-PERP	0.003248	0.002419
DMG-PERP	0.004093	0.004073
COMP-PERP	1.238425	1.116247
MKR-PERP	3.89631	3.855443
TOM-PERP	0.003202	0.003171
CUSDT-PERP	0.004226	0.004226
BAL-PERP	0.091891	0.079668

We can see that the inclusion of the technical indicators improves the RMSE accuracy of our model. We can plainly see that when we include the indicators into our model, we get a lower RMSE, and therefore our prediction error for the next step is much lower than when we do not include in the technical indicators.

We can therefore see how much each indicator impacts our model and so our next step is to use these models to give us an idea of how much importance our models assign to each indicator to make its predictions.

Then we can rank our technical indicators;

To get an idea of what indicators are most valuable across all of our markets, we will create an average for each indicator for each market. We can then rank this. Across all of our market to give us the top ten most import indicators for our markets as so;

4.8 Conclusion

Perhaps surprisingly, our algorithm was able to draw the most information from the Open price, and this is by a considerable margin. It is reassuring to spot Bollinger Bands lower, and Middle. As due to the renowned nature of the author. (and his uncannily accurate predictions). The other indicators which our algorithm used to score better than default were; trend_cii, trend_ichimoku_conv, trend_sma_fast, volume ADI, volume NVI, and volume VWAP. Many of the indicators gave our model no additional power to predict the next step. However this does not mean that the indicators are not valid over longer time frames. This quite a limited small sample of data. Some indicators did give our model a better chance of predicting the best step.

Further documentation on the libraries used and referenced can be found here: <https://github.com/bukosabino/ta>

4.9 Next Steps

Though machine learning has actually been around for decades, it is only in recent times that computational power has caught up to the point that that we are able to implement the algorithms with ease. The prevalence and spread of technology helps this of course.

Reinforcement Learning is an area of machine learning concerned with how software agents ought to take actions in an environment in order to maximize the notion of cumulative reward. Reinforcement learning differs from our approach so far in that we do not need to label our data with a forward looking step. The focus is on finding a balance between exploration of new strategies and exploitation of known strategies.

”The whole secret to winning and losing in the stock market is to lose the least amount possible when you’re not right.” - William J. O’Neil, author of several books including How to Make Money in Stocks, inventor of CANSLIM and founder of the national financial newspaper Investor’s Business Daily, which competes with The Wall Street Journal.

In the next edition, we will be using the features selected from the above process to create environments to be used for reinforcement modelling. Stay tuned!

5 What Decentralization Means to Ethereum

This section is written by : [Ivan Martinez](#) an [ETH2.0 Developer](#) at [Prismatic Labs](#)

5.1 What Decentralization Means to Ethereum

Explaining the standard process for making changes to Ethereum and how it defines Ethereum’s decentralized development. Including the steps that Ethereum 2.0 gets right off the bat, sacrificing the development time of Eth2.0 for long-term benefits to the network.

One of the most paramount qualities of a cryptocurrency is to be decentralized and operate with as minimal trust and authority as possible. However, implementing protocol upgrades like [BIPS/EIPs](#) are processes that naturally require human intervention. With this in mind, I will be going over the approach the Ethereum community takes to making decisions that affect the network, whether it is an Ethereum Improvement Proposal (EIP) for a new contract standard or a protocol change of any significance. The community and ecosystem are what make Ethereum, and this process is where that really shines.

5.2 The Ethereum Process

Any change made to Ethereum typically goes through what I’d like to call “the Ethereum process”. This is usually a standard procedure:

- An idea for a protocol change or established standard (such as [ERC20](#), [ERC721](#), or [EIP-1559](#)) is thought of...
- A quick discussion may be held on its legitimacy on public forums like [ethresear.ch](#) and [ethereum-magicians](#).
- Assuming it survives criticisms, an [EIP](#) is created (by anyone) on the EIP GitHub.
- After its creation, the EIP’s page is worked on to ensure every detail of the change is communicated. At this point it is labeled as a “Draft”.
- Once the EIP is fully detailed, and is viewed in general as a good idea, it reaches the point of “Last Call” and given 2 weeks to be formally recognized and discussed upon.
- If the change is not one of importance to the core developers (such as standards like [ERC20](#) or [ERC721](#)), its road ends here and it is labeled as “Final”. The standard is now ready for usage!

The EIP for [ERC20](#).

EIP 20: ERC-20 Token Standard ↔

Simple Summary

A standard interface for tokens.

Abstract

The following standard allows for the implementation of a standard API for tokens within smart contracts. This standard provides basic functionality to transfer tokens, as well as allow tokens to be approved so they can be spent by another on-chain third party.

Motivation

A standard interface allows any tokens on Ethereum to be re-used by other applications: from wallets to decentralized exchanges.

This process is similar to Bitcoin's BIP process, but the Ethereum community tends to gather more frequently, and have more EIPs in general to vote in. Since its launch 5 years ago, the Ethereum community has improved this process to become extremely streamlined and capable handling more EIPs at a faster rate, as EIPs for concepts like smart contract interfaces (ERC20, etc.) don't really happen on BTC and usually don't require interaction from the core team of Ethereum.

5.3 The Process for Core Changes

Now the above process is great for changes that don't need help from the core dev teams for Ethereum. However, for EIPs that do require protocol level changes, an actual implementation, testing, and research is needed. Changing the core protocol could be a very dangerous action and has to be carefully thought out and looked over.

The difference in the process here is, the changes are usually discussed over several [All Core Devs calls](#) to ensure they aren't harmful or possibly dangerous. All possible downsides are brought up, and if possible, addressed. Most favorable protocol improvements go through quite a handful of changes until their final draft, due to several criticisms they face on the way to being accepted. There are the forums mentioned earlier for [high quality discussion](#) on topics.

Eth Research forum post for EIP-1559.

This helps ensure that only feasible and favorable changes are made, and that anything that could possibly have a risk, be it socially or technologically, like [ProgPOW](#) or [ConstantiNOPE](#) is avoided. [Anyone can watch and participate in](#) these calls and some EIPs (like EIP-1559) even have their [own focused calls](#), so they get the direct attention needed. Having multiple people understand the changes, and provide feedback on them helps ensure all issues are addressed

EIP-1559: Fee market change for ETH 1.0 chain

EIPs gas, eip-1559



econoar

5 Mar '19

Hi Everyone! 🙌

I really think we should start discussion around this EIP. The current first auction fee market works but is extremely inefficient and a large UX barrier for adoption. This proposal introduces a fixed fee concept through the use of a MINFEE. Users can pay a premium over this if they want but in general it greatly simplifies the UX.

One great benefit of this EIP is because the MINFEE is burned and must be paid in Eth, we are making sure economic abstraction does not occur on the protocol level which is extremely important for long term Eth value.

One note I'll make is while the current EIP mentions Eth 1.0, we should also consider it in the Eth 2.0 implementations.

I'd like for this to be considered for the Istanbul fork. What are general thoughts and concerns around this?

Links

[EIP-1559](#) 276

[Ethresear.ch Post w/ Vitalik's Paper](#) 200

16 ❤️ 🔗

created	last reply	90	13.6k	37	112	41	
Mar '19	6d	replies	views	users	likes	links	↑

before the change is implemented. Very thorough testing or research is also done if deemed required.

While some people who speak poorly of Ethereum may say it's too "centralized on the decisions of a few", I actually view it as Ethereum attempting to involve as many people as possible into its process. Instead of limiting things socially, it embraces the natural social aspects of cryptocurrencies, allowing people of many trades and suits to chime in on issues. Passionate people in open efforts find ways to organize!

While everyone may not be a senior engineer or master economist, there are several parts to cryptocurrencies that no one person can really understand entirely, so allowing as many people to participate allows for some great coverage on topics. For example, EIP-1559 has relations to cryptoeconomics, engineering, game theory, user experience, and more. Allowing anyone to chime in helps recognize possible problems and makes sure they're recognized.

5.4 How Ethereum 2.0 Is Made

Now, since Ethereum 2.0 is essentially a fresh slate for Ethereum, the implementation and research teams are making very careful decisions that are [painful now](#), but will payback very well in the long run. The Ethereum 2.0 effort has

decided to have multiple teams involved, with several concurrent research efforts and rather rapid iterations in design.

By having multiple implementations ready from the start, we can avoid issues that have occurred from having 1 major client, such as the [Shanghai DOS attacks](#) which nearly brought the network down if there wasn't another implementation besides go-ethereum. Having multiple clients also adds more friction to protocol changes as more people inherently become involved, even if it means the changes take a little longer. Increasing the amount of people involved is very beneficial for decentralization!

Sure, several teams ([8 currently](#)) working on purely implementation is a lot, but thanks to [Danny Ryan](#) being a fantastic team organizer, things have gone extremely well! It definitely took a while to streamline the process for the amount of people involved, but having multiple teams with different backgrounds helps provide multiple different perspectives and insights to the project!

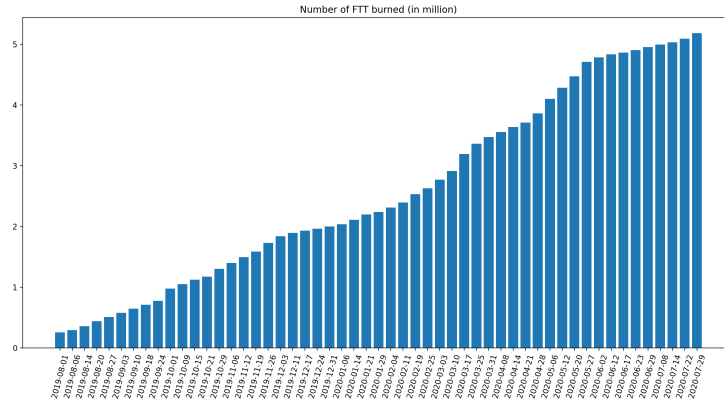


Vitalik praising the awesome work of Danny Ryan organizing the Eth2.0 effort.

Every team provides different strong suits and by having professionals from several backgrounds working on an implementation, the feedback they've provided has been priceless! Countless improvements have been made to the design thanks to the implementation teams. It may be difficult to organize such a large group of people at moments, but when everyone is passionate, driven, (and funded) a lot of work can get done.

The work on Ethereum 2.0 Phase 0 has indeed taken longer than everyone has expected. But rest assured, there is always great progress, especially with the [Official Medalla Testnet](#) launching soon! Eth2.0 has gone through a [lot](#) of changes since the start, but they've always been for the best.

6 FTT



FTX has burned over 4.95% of the circulating supply of FTT and the insurance fund holds 5.25 million FTT, almost 5% of the circulating supply. Removing 9.95% of the circulating supply of FTT from the ecosystem has been achieved in a year and a month. When looking at the graph below, comparing fees between exchanges, it is a noteworthy accomplishment. Another exciting occurrence for all FTT holders is that they will receive SRM airdrops for holding them on FTX. Find the details [here](#).

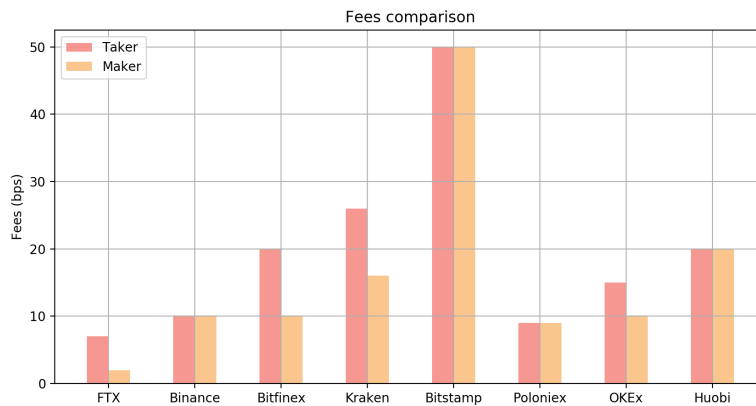


Figure 2: Fee comparison between exchanges

7 Readers' Questions

e-mail : research@ftx.com with questions you would like answered about the cryptocurrency and blockchain ecosystem. We shall select certain questions and dedicate a section to them in next months digest.