



EXCHANGE REVIEW

APRIL 2019



Abstract

CryptoCompare's Exchange Review aims to capture the key developments within the cryptocurrency exchange market, as well as any changes to the constituent exchanges that make up CryptoCompare's CCCAGG price indices. Our review focuses on analyses that relate to exchange volumes, and includes an analysis of the highest volume producing jurisdictions, as well as market segmentation by exchange fee model.

We also evaluate how spot volumes vs futures volumes have developed historically to date, including both crypto exchange (BitMEX and Bitflyer Lightning) and traditional exchange (CBOE and CME) futures volumes. Finally, we conduct an analysis of bitcoin trading into various fiats and stablecoins, as well as an overview of how exchange web traffic has changed over the previous few months.

We provide an additional overview of top crypto exchange rankings by spot trading volume, as well as a focus on how volumes have developed historically for the top trans-fee mining and decentralised exchanges.

CryptoCompare's Exchange Review is conducted on a monthly basis and caters to both the crypto-enthusiast interested in a broad overview of the crypto exchange market, as well as investors, analysts and regulators interested in more specific analyses.

For questions related to our research or any potential requests, feel free to contact our research department at research@cryptocompare.com

For those interested in accessing CryptoCompare's data for their own purposes, whether it be cryptocurrency trade data, order book data, blockchain data, social data or historical data across thousands of cryptocurrencies and 200+ exchanges, please take a look at CryptoCompare's API here: <https://min-api.cryptocompare.com>

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Executive Summary

Macro Analysis and Market Segmentation

- 1 **Predominant Fee Type** - Exchanges that charge taker fees represented 75.1% of total exchange volume in April, while those that implement trans-fee mining (TFM) represented 24.6%. Fee-charging exchanges traded a total of 352 billion USD in April (up 30%), while those that implement TFM traded 115 billion USD (up 124%). The remaining volume represented trading by exchanges that charge predominantly no trading fees, at 1.04 billion USD.

- 2 **Derivatives Trading** - bitFlyer Lighting (XBTJPY perpetual futures) traded the highest average daily derivatives volume in April at 1.57 billion USD, followed by BitMEX (XBTUSD perpetual futures) at 1.14 billion USD and OKEx Futures at 1.11 billion USD. Huobi Derivatives produced 0.72 billion USD in average daily trading volume, while exchanges CME (0.26 billion USD), Deribit (95.3 million USD) and CryptoFacilities (36.9 million USD), still represent a much smaller proportion of derivatives volume.

Institutional Products - Regulated bitcoin derivatives product volumes are dominated by CME, who saw a 263% increase in average trading volume in April. This is followed by Grayscale's GBTC product, and CBOE's bitcoin futures. CME's bitcoin futures product volumes increased from 70.5 million USD to 256 million USD in April. Meanwhile, Grayscale's bitcoin trust product (GBTC), also increased in terms of average trading volume in April to 29.7 million USD (239%).

- 3 **Fiat Capabilities** - April saw another significant increase in volume from crypto to crypto exchanges. Trading volume from exchanges that offer only crypto pairs increased by 49% (from 267 billion USD to 396 billion USD) since March, while those that offer fiat pairs increase by 25% to 72 billion USD. Following this increase in crypto to crypto exchange trading volume, it represented 84.5% of total spot volume in April.

- 4 **Bitcoin to Fiat Volumes** - In April, 60% of all Bitcoin trading into fiat was made up of the US Dollar, an increase since its proportion in March (46%). BTC to USD volumes increased, from 0.92 million BTC to 1.60 million BTC in April (+74.7%). Meanwhile, BTC trading into JPY continued to decrease steeply, while BTC trading into KRW continued to increase. Bitcoin trading into JPY formed only 10% of Bitcoin to fiat trading in April (down from a proportion of 24% in March), decreasing in volume from 0.48 million BTC to 0.29 million BTC (-40%). Meanwhile, BTC trading into KRW increased by 17.6%, from 0.21 million BTC in March to 0.25 million BTC in April.

- 5 **Bitcoin to Stablecoin Volumes** - In April, BTC trading into USDT represented 78.9% of total volume (traded into fiat or stable coin), totalling 10.3 million BTC. Last month, the BTC to USDT pair represented 81.7%. USDT continues to be the most popular stable coin for trading with BTC, followed by PAX, USDC and TUSD.

Exchange Volumes

1. **Top Crypto to Crypto Exchange Volumes** - The top 15 crypto to crypto exchanges all experienced another increase in monthly volume in April with an average increase of 57%. **FCoin**, in contrast to previous months was the largest exchange by monthly volume at 37.1 billion USD (up 300%), followed by **OKEx** and **ZB** at 35.1 billion (up 12.4%) and 32.4 billion (up 18.8%) USD respectively.
2. **Top Fiat to Crypto Exchange Volumes** - **Bithumb** was the top exchange by total volume in April at 17 billion USD, despite experiencing a 47% drop in volumes. This was followed by **Upbit** and **Bitfinex** at 8.7 billion USD (up 20%) and 6.7 billion USD (up 114%) respectively. Coinbase, Kraken, Bitstamp and Coinsbit all experienced an increase in volumes in April, while exchange Liquid experienced a decrease.
3. **Trans-Fee Mining Exchanges** - All the top 3 TFM exchanges experienced a sharp increase in volumes in April. **FCoin** was the largest TFM exchange, followed by **CoinBene** and **ZBG**. FCoin traded 37.1 billion USD in total volume in April, up 300% since March. CoinBene traded 27.0 billion USD (up 51.5%) and ZBG traded 16.0 billion USD (up 37.2%). FCoin, CoinBene and ZBG represented 81% of volume among the top 8 TFM exchanges.
4. **Decentralised Exchanges** - **Ethermium** was the largest DEX in April, followed by **IDEX** and **WavesDEX** (up 3.5%). Ethermium traded 194 million USD in monthly volume in April, down 42% since March. IDEX volumes increased by 15.9% in March, to 31.4 million USD. WavesDEX saw a 3.5% increase in volume in April, to 32.5 million USD. DEXs represented only a small fraction of global spot exchange volume (0.068%), trading a monthly total of 317 million USD in April.

April Exchange News

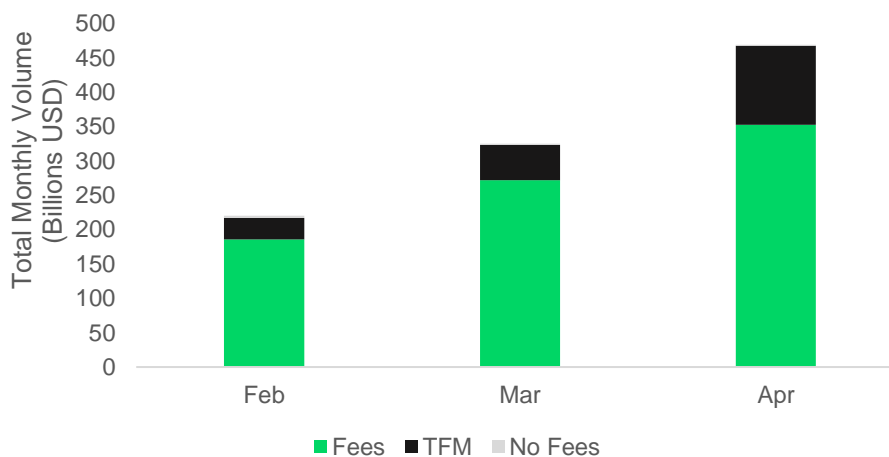
EXCHANGE	STORY	
Binance	Binance partners with Elliptic to combat money laundering	May 2-2019
Coinbase	Coinbase shuts down Chicago trading technology office, eliminating 30 jobs	April 23-2019
Binance	Binance launches decentralised exchange ahead of schedule	April 23-2019
Coinnest	South Korean exchange Coinnest announces closure	April 19-2019
eToro	eToro launches full crypto exchange and 8 custom stablecoins	April 16-2019
Bithumb	Bithumb posts \$180 million loss for 2018	April 11-2019
Binance	Binance partners with CipherTrace in latest compliance push	April 11-2019
Bitsamp	Bitstamp granded New York BitLicense	April 9-2019
Binance	Binance to launch fiat-to-crypto exchange in Singapore	April 4-2019
Liquid	Liquid closes funding round, backed by Bitmain and IDG Capital with over \$1 billion valuation	April 3 -2019
Bithumb	Bithumb hacked for \$13 million in suspected insider job	Mar 30 - 2019

Macro Analysis and Market Segmentation

This section aims to provide a macro view of the global cryptocurrency exchange market, with a focus on analyses that relate to exchange volumes. This will include an analysis of the highest volume producing jurisdictions, as well as market segmentation by exchange fee model. We also evaluate how spot volumes vs futures volumes have developed historically to date, including both crypto exchange (BitMEX and Bitflyer Lighting) and traditional exchange (CBOE and CME) futures volumes. Finally, we conduct an analysis of bitcoin trading into various fiats and stablecoins, as well as an overview of how exchange web traffic has changed over the previous few months.

1 Segmentation by Fee-Type

Figure 1 - Total Monthly Trading Volume by Predominant Fee Type

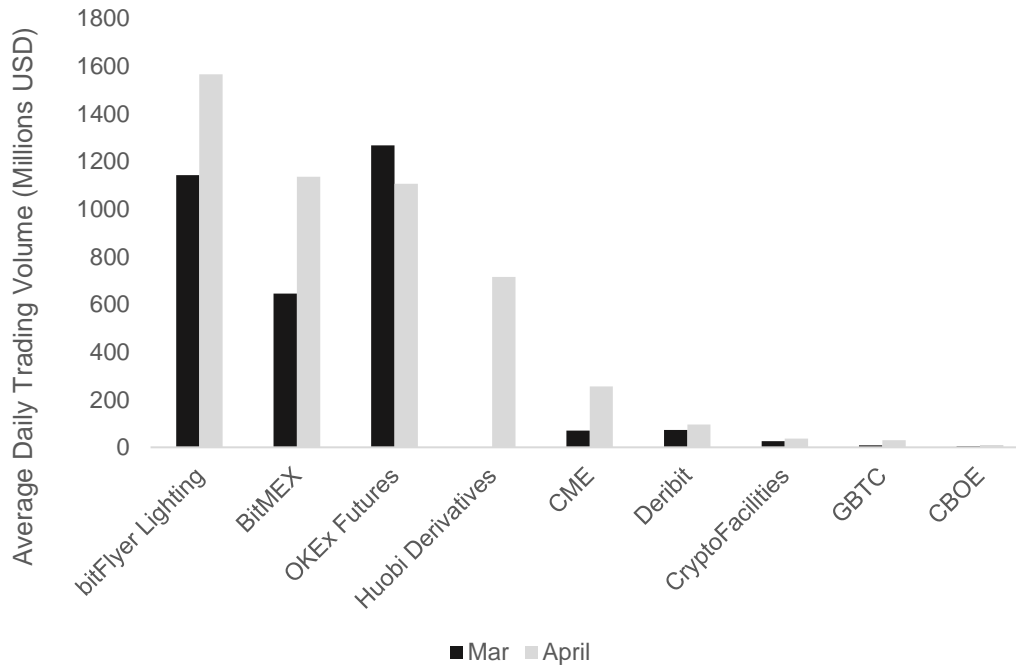


Exchanges that charge taker fees represented 75.1% of total exchange volume in April, while those that implement trans-fee mining (TFM) represented 24.6%.

Fee-charging exchanges traded a total of 352 billion USD in April (up 30%), while those that implement TFM traded 115 billion USD (up 124%). The remaining volume represented trading by exchanges that charge predominantly no trading fees, at 1.04 billion USD.

2 Crypto Derivatives Volumes

Figure 2 - Daily Average Derivatives Volumes – Month on Month

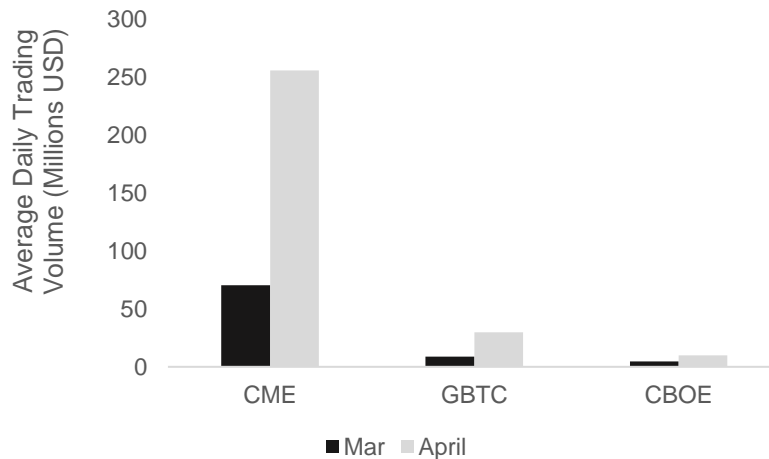


bitFlyer Lighting (XBTJPY perpetual futures) traded the highest average daily derivatives volume in April at 1.57 billion USD, followed by BitMEX (XBTUSD perpetual futures) at 1.14 billion USD and OKEx Futures at 1.11 billion USD (various futures).

Huobi Derivatives produced 0.72 billion USD in average daily trading volume, while exchanges CME (0.26 billion USD), Deribit (95.3 million USD) and CryptoFacilities (36.9 million USD), still represent only a small proportion of derivatives volume.

3 Bitcoin Derivatives Trading: Institutional Products (CME, CBOE, Grayscale BTC Trust)

Figure 3 - Average Daily Bitcoin Derivatives Volumes



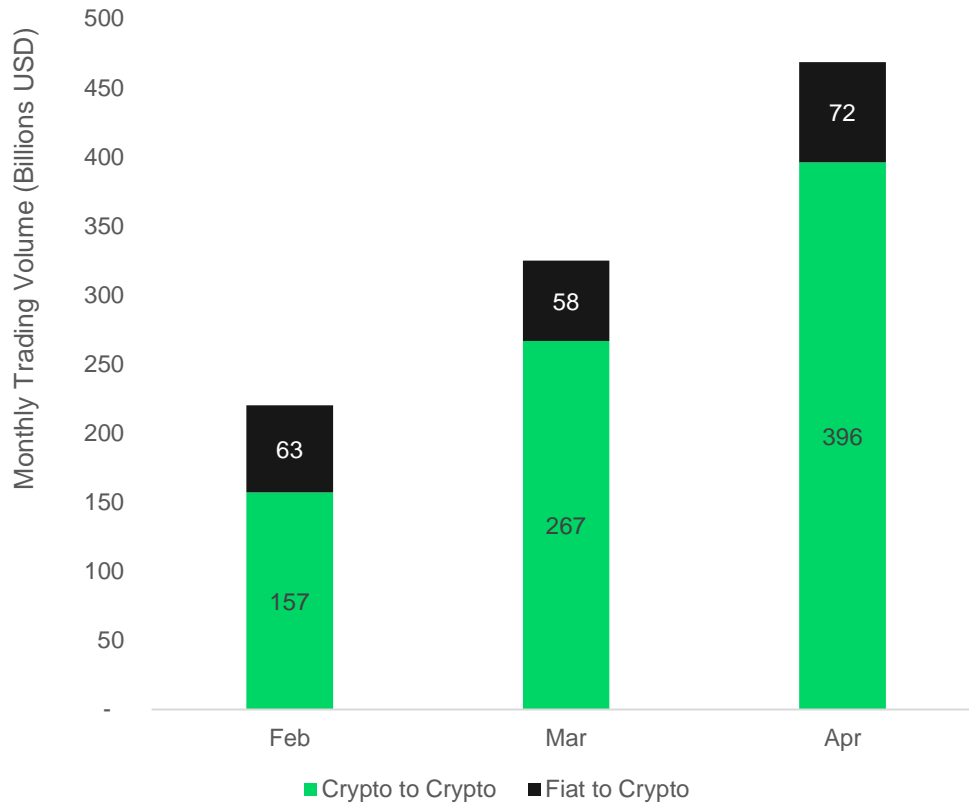
Regulated bitcoin derivatives product volumes are still dominated by CME, who saw a 263% increase in average trading volume in April. This is followed by Grayscale's GBTC product, and CBOE's bitcoin futures.

CME's bitcoin futures product volumes increased from 70.5 million USD to 256 million USD (-263%) in April. Meanwhile, Grayscale's bitcoin trust product (GBTC), also increased in terms of average trading volume in April to 29.7 million USD.

Finally, CBOE's bitcoin futures volume increased from 4.7 million USD to 9.9 million USD (109%) despite having chosen to cease listing additional bitcoin futures products in the near future.

4 Segmentation by Fiat Pair Trading Capability

Figure 4 - Monthly Total Volume: Crypto to Crypto vs Fiat to Crypto Exchanges

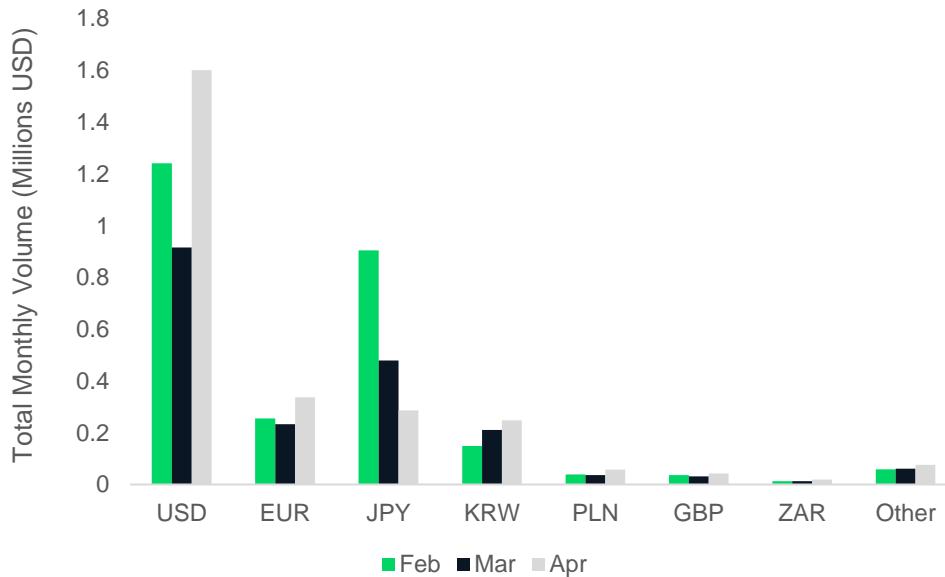


April saw another significant increase in volume from crypto to crypto exchanges. Trading volume from exchanges that offer only crypto pairs increased by 49% (from 267 billion USD to 396 billion USD) since March, while those that offer fiat pairs increase by 25% to 72 billion USD.

Following this increase in crypto to crypto exchange trading volume, it represented 84.5% of total spot volume in April.

5 Bitcoin to Fiat Volumes

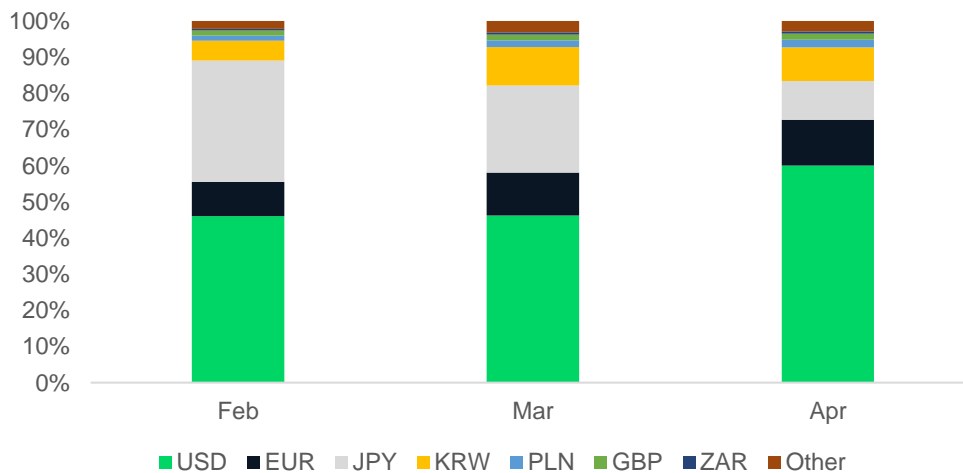
Figure 5 - Historical Monthly Bitcoin Trading Volume into Fiat



In April, 60% of all Bitcoin trading into fiat was made up of the US Dollar, an increase since its proportion in March (46%). BTC to USD volumes increased, from 0.92 million BTC in March to 1.60 million BTC in April (+74.7%). Meanwhile, BTC trading into JPY continued to decrease, while BTC trading into KRW continued to increase.

Bitcoin trading into JPY formed only 10% of Bitcoin to fiat trading in April (down from a proportion of 24% in March), decreasing in volume from 0.48 million BTC to 0.29 million BTC (-40%). Meanwhile, BTC trading into KRW increased by 17.6%, from 0.21 million BTC in March to 0.25 million BTC in April.

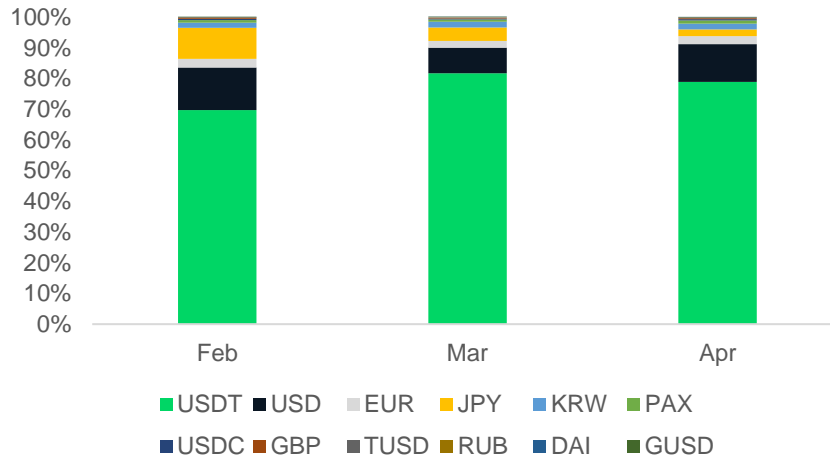
Figure 6 - Monthly Proportion of Total Monthly Bitcoin Trading into Fiat



In April, USD, JPY, EUR and KRW made up 95% of total trading from Bitcoin into fiat.

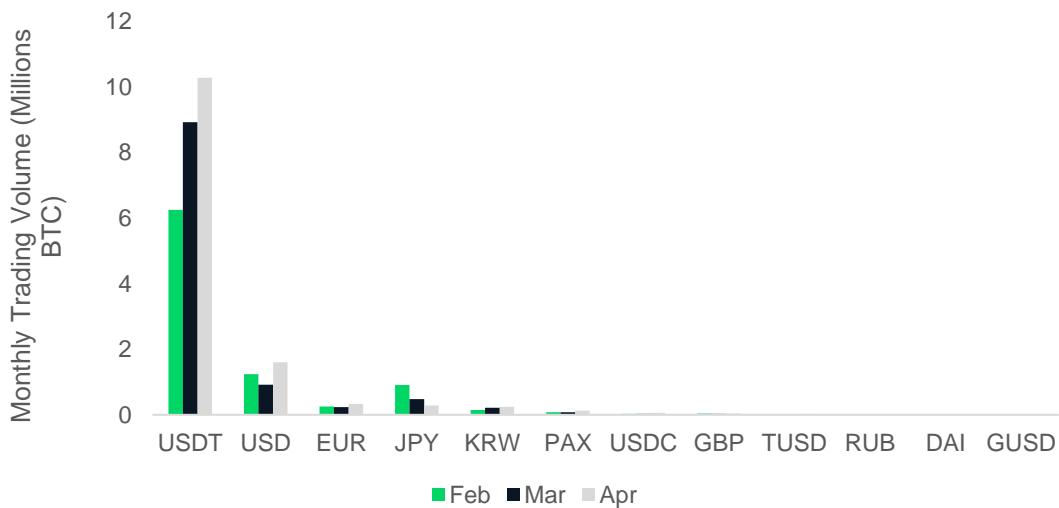
6 Bitcoin to Stable Coin Volumes

Figure 7 - Proportion of Total Monthly Bitcoin trading into Fiat or Stablecoins



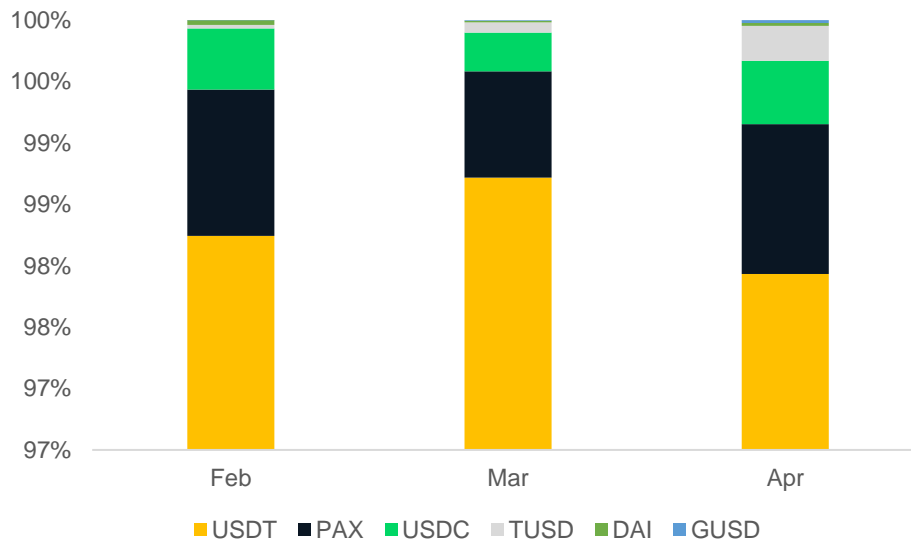
In April, BTC trading into USDT represented 78.9% of total volume (traded into fiat or stable coin), totalling 10.3 million BTC. Last month, the BTC to USDT pair represented 81.7%.

Figure 8 - Historical Monthly Bitcoin Trading into Fiat or Stablecoins



BTC trading into USDT totalled 10.3 million BTC in April, an increase of 15% since the previous month.

Figure 9 - Proportion of BTC Trading into Top Stablecoins



USDT continues to be the most popular stable coin for trading with Bitcoin, followed by PAX, USDC and TUSD

USDT represents 97.9% of the total Bitcoin trading into these four coins.

Exchange Volume Rankings

Table 1 - Top 10 Crypto to Crypto Exchanges by Average Daily Volume in April

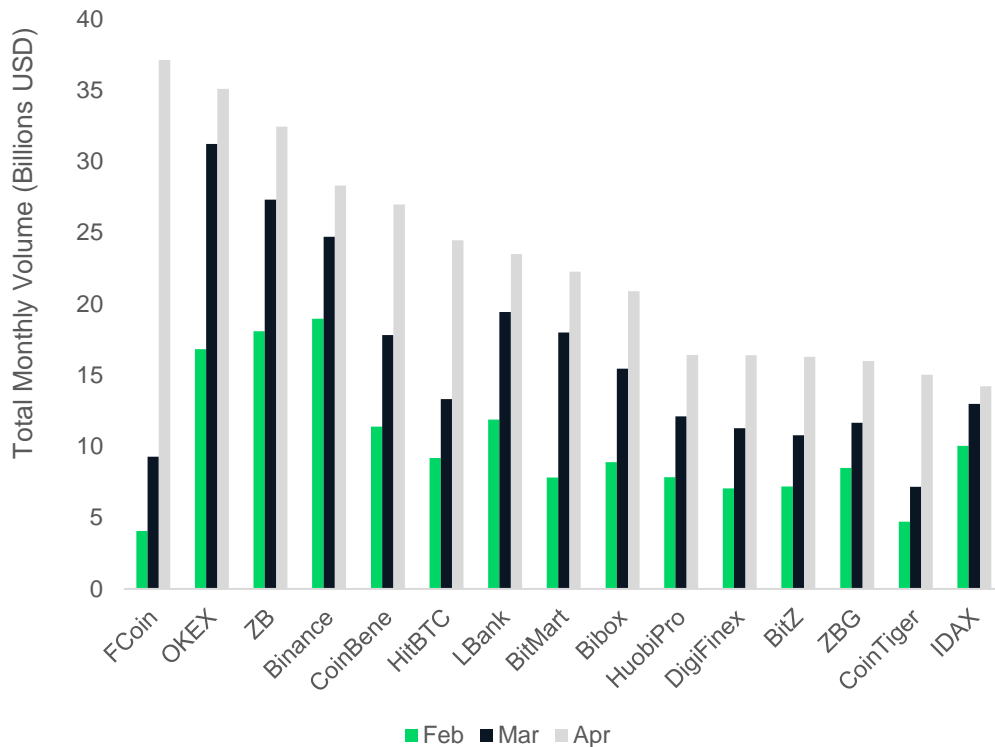
	AVG DAILY VOLUME (USD)	TOTAL MONTHLY VOLUME (USD)	PAIRS	COINS	LEGAL JURISDICTION
FCoin	1,686,644,570	37,106,180,533	117	84	Hong Kong
OKEX	1,595,404,506	35,098,899,139	593	201	Malta
ZB	1,081,598,387	32,447,951,620	174	61	Samoa
Binance	943,727,704	28,311,831,131	518	175	Malta
CoinBene	899,594,721	26,987,841,642	258	215	Vanuatu
HitBTC	815,697,370	24,470,921,102	1043	486	Hong Kong
LBank	782,930,505	23,487,915,143	138	94	Hong Kong
BitMart	741,956,220	22,258,686,589	123	63	Cayman Islands
Bibox	696,118,356	20,883,550,680	235	95	Estonia
HuobiPro	547,507,596	16,425,227,885	346	150	Seychelles

Table 2 - Top 10 Fiat to Crypto Exchanges by Average Daily Volume in April

	AVG DAILY VOLUME (USD)	TOTAL MONTHLY VOLUME (USD)	PAIRS	COINS	DOMINANT FIAT CURRENCY	LEGAL JURISDICTION
Bithumb	566,191,189	16,985,735,666	77	77	KRW	South Korea
Upbit	289,657,806	8,689,734,187	353	191	KRW	South Korea
Bitfinex	223,754,203	6,712,626,076	356	128	USD	BVI
Coinbase	159,924,064	4,797,721,930	50	20	USD	USA
Kraken	128,313,017	3,849,390,499	103	27	USD	USA
Bitstamp	93,027,749	2,790,832,474	18	7	USD	Luxembourg
Coinsbit	87,566,801	2,627,004,020	27	10	USD	Estonia
BitBank	37,812,450	1,134,373,487	8	6	JPY	Japan
STEX	28,335,236	850,057,081	203	132	USD	Estonia
Coinone	27,275,435	818,263,059	29	29	KRW	South Korea

1 Top Exchanges by Total Monthly Volume

Figure 10 - Historical Monthly Volume - Top Crypto to Crypto Exchanges

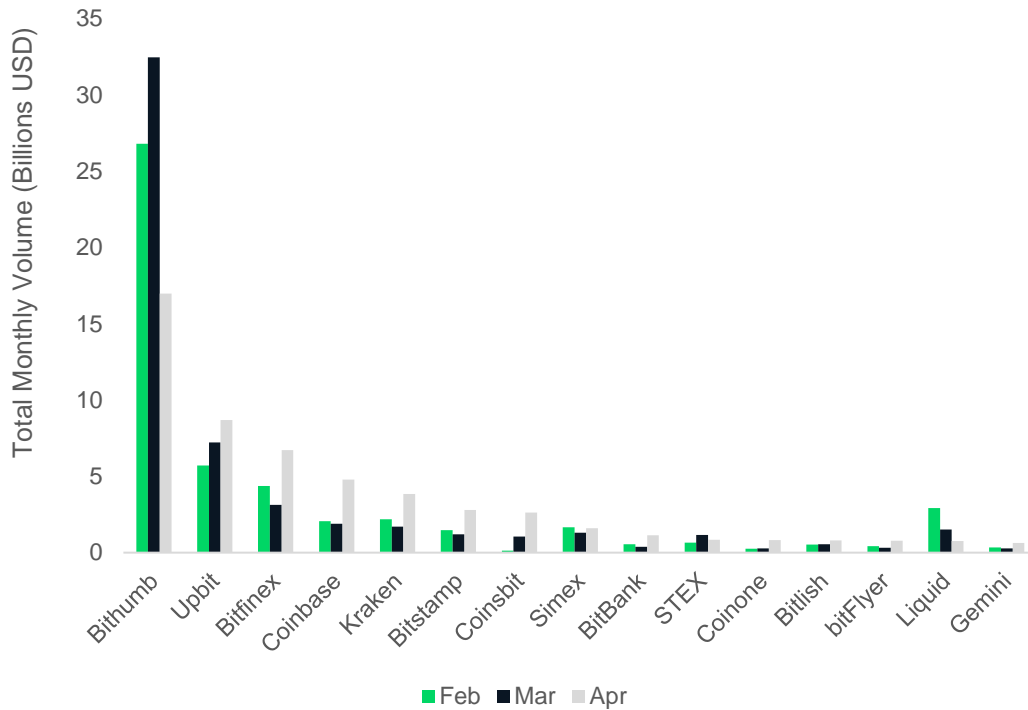


The top 15 crypto to crypto exchanges all experienced another increase in monthly volume in April with an average increase of 57%. FCoin, in contrast to previous months was the largest exchange by monthly volume at 37.1 billion USD (up 300%), followed by OKEX and ZB at 35.1 billion (up 12.4%) and 32.4 billion (up 18.8%) USD respectively.

Other crypto to crypto exchanges that experienced a significant increase in their monthly volumes since the previous month include Gate.io and CoinTiger. Their volumes increased to 2.82 billion USD (up 145%) and 1.5 billion USD (up 109%) respectively.

2 Top Fiat to Crypto Exchanges by Total Monthly Volume

Figure 11 - Historical Monthly Volume - Top Fiat to Crypto Exchanges

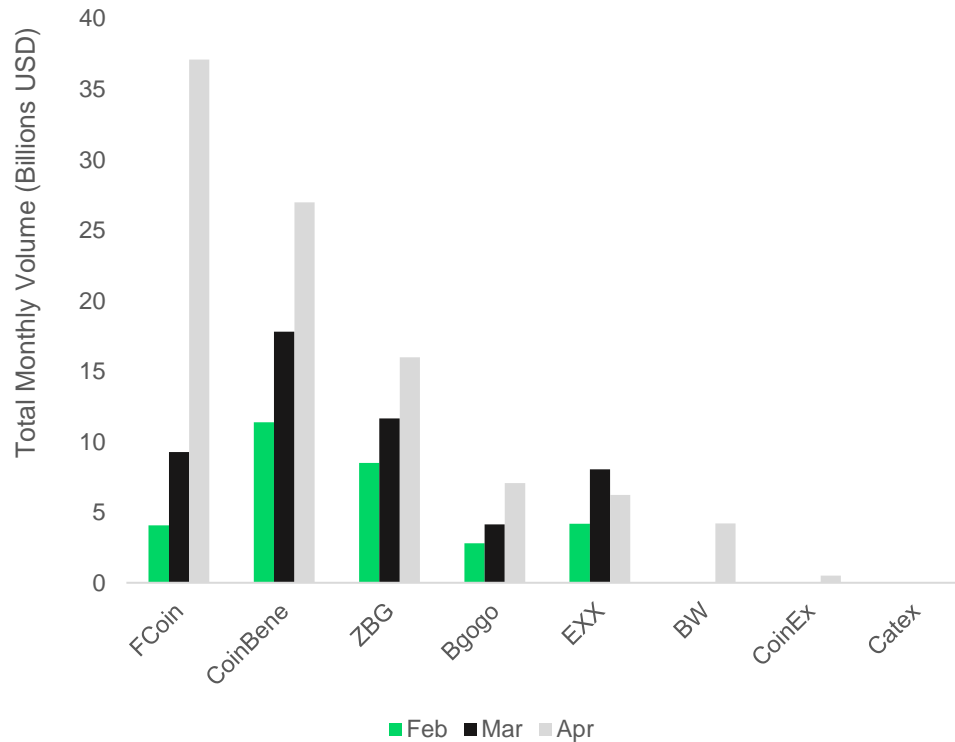


Bitthumb was the top exchange by total volume in April at 17 billion USD, despite experiencing a 47% drop in volumes. This was followed by Upbit and Bitfinex at 8.7 billion USD (up 20%) and 6.7 billion USD (up 114%) respectively.

Coinbase, Kraken, Bitstamp and Coinsbit all experienced an increase in volumes in April, while exchange Liquid experienced a decrease.

3 Transaction Fee Mining Exchange Volume

Figure 12 - Historical Monthly Volume - Top Transaction-Fee Mining Exchanges

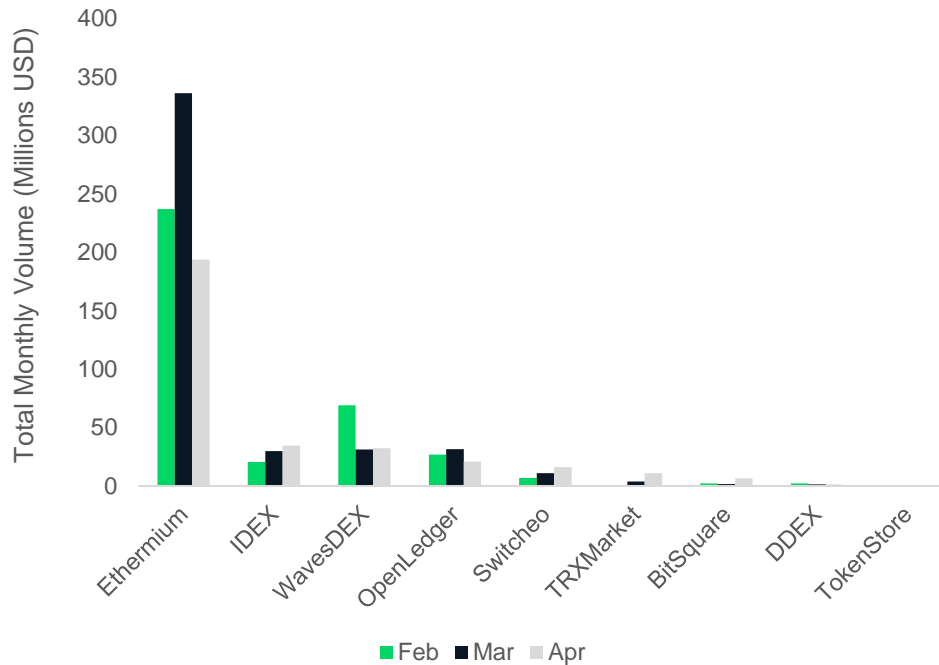


All the top 3 TFM exchanges experienced a sharp increase in volumes in April. FCoin was the largest TFM exchange, followed by CoinBene and ZBG.

FCoin traded 37.1 billion USD in total volume in April, up 300% since March. CoinBene traded 27.0 billion USD (up 51.5%) and ZBG traded 16.0 billion USD (up 37.2%). FCoin, CoinBene and ZBG represented 81% of volume among the top 8 TFM exchanges.

4 Decentralised Exchange Volume

Figure 13 - Historical Monthly Volume - Top Decentralised Exchanges



Ethermium was the largest DEX in April, followed by IDEX and WavesDEX (up 3.5%).

Ethermium traded 194 million USD in monthly volume in April, down 42% since March.

IDEX volumes increased by 15.9% in April, to 31.4 million USD. WavesDEX saw a 3.5% increase in volume in April, to 32.5 million USD.

DEXs represent only a small fraction of global spot exchange volume (0.068%), trading a monthly total of 317 million USD in April.

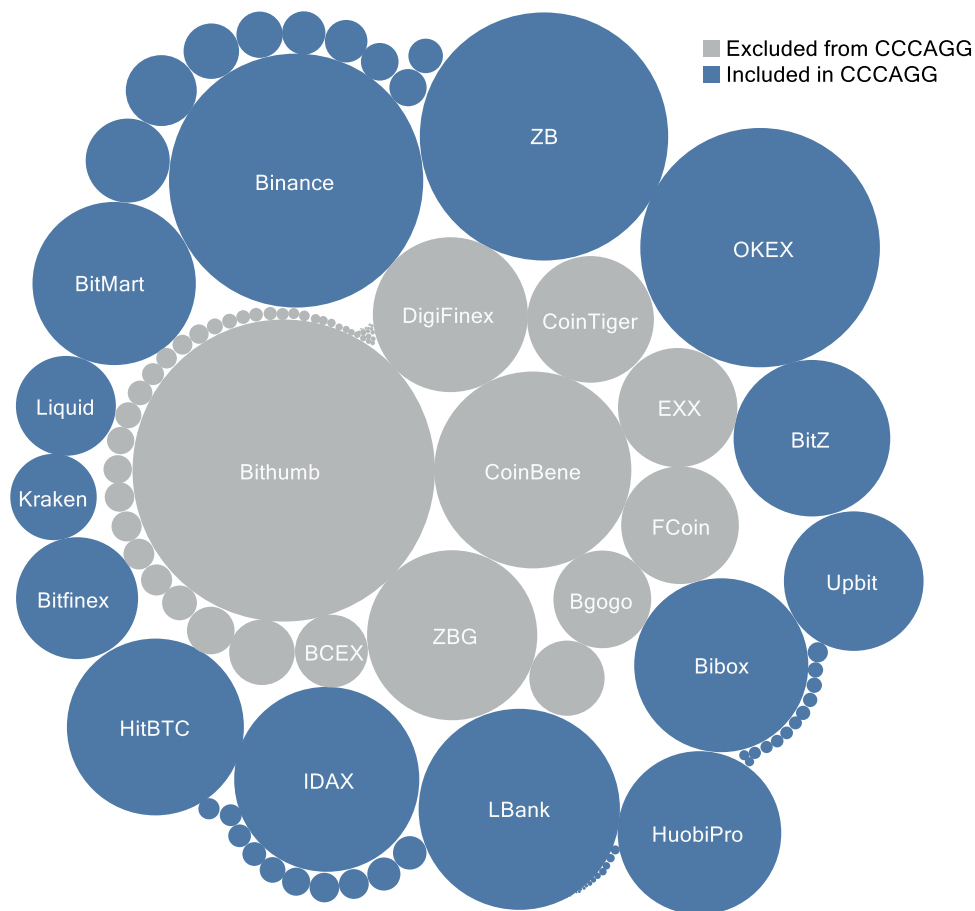
CCCAGG Exchange Review

CryptoCompare’s Aggregate Pricing Index (the CCCAGG) is used to calculate the best price estimation of cryptocurrency pairs traded across exchanges. It aggregates transactional data from more than 70 exchanges using a 24-hour volume weighted average for every cryptocurrency pair.

However, this data might not always be consistent across exchanges due to events such as hackings, broken APIs, low liquidity levels, transaction fees, market manipulation and so on. It is important that the data used to calculate pricings originate from reliable exchange sources.

CryptoCompare’s Monthly Exchange Review serves as a means of evaluating the integrity of exchange data used to calculate CCCAGG pricing across all pairs. Exchanges that have met the minimum data integrity standard will then be added to the pool of CCCAGG exchanges. Constituent CCCAGG exchanges are reviewed and amended each month to ensure that the most representative and reliable market data is used in CCCAGG pair pricing calculations.

Figure 14 - April CCCAGG Constituent Exchanges



1 Assessment of New CryptoCompare Exchanges

This section will evaluate exchanges added to CryptoCompare in March and have since generated data throughout March and April such that they can be assessed for inclusion into the CCCAGG in May.

New exchanges to be assessed: **TRXMarket, AliExchange**

TRXMarket

- CryptoCompare currently maps to 8 pairs on TRXMarket. 7/8 pairs are not part of CCCAGG via any exchange. Therefore, given these pairs represent the majority of the market, they will be added to CCCAGG pricing.
- Insufficient data for TRX/USDT pair has been collected, and more data is required in order to consider inclusion into CCCAGG pricing.

AliExchange

- Relatively low liquidity for its 12 mapped trading pairs, with the most liquid pair (ETH/BTC) trading no more than \$90k per day. This is followed by other BTC pairs (XRP, LTC, BCH) that trade approximately ~\$50k per day.
- Prices are very closely aligned with those of the equivalent CCCAGG pairs. However, trading volumes are unreactive to changes in prices, which suggests markets are predominantly driven by bot trading and inflated.
- No unusual volatilities or instabilities noted.
- AliExchange will not be added to CCCAGG pricing at this time due to the above considerations.

2 Summary of Changes to CCCAGG

What Happened in April?	New exchanges added to CryptoCompare (3):	FatBTC, BitMax, COSS
	Exchanges shut down (ceased trading completely): (0)	None
	Exchanges Removed from CCCAGG (0):	None
	March Exchanges Assessed Following Minimum Monitoring Period (2):	TRXMarket, AliExchange
Result of Current Review:	New exchanges to be Included in CCCAGG (1):	TRXMarket (TRX pairs only)
	Existing exchanges to be included in CCCAGG (0):	None
	Exchanges to be Removed from CCCAGG (0):	None
Implementation Date	No Change	22 April 2019

Appendix A - Methodologies

A1 General CCCAGG Inclusion/Exclusion Methodology

This review is conducted on a monthly basis in order to maintain a minimum exchange standard among constituent CCCAGG exchanges. Given the growing number of cryptocurrency exchanges, as well as those that close due to regulation, bankruptcy and so on, it is necessary to evaluate whether prices and volumes are representative of the market so that investors and fund managers using the CCCAGG indices can be assured that they receive the most accurate information for their purposes.

We are not in the business of policing cryptocurrency exchanges, but aim to set a guideline based on how the majority of cryptocurrency exchanges operate. These majority figures are used as a standard with which to assess whether an exchange is operating in line with most of its industry. Having said this, the industry is constantly evolving and often times one cryptocurrency exchange might not reflect the patterns demonstrated by the majority, for reasons that might relate to innovation, an alternative business model etc. In these cases, CryptoCompare attempts to use its best judgement with preference towards a hands-off approach so that industry developments are accurately reflected. Over time, our guiding standards with which to assess cryptocurrency exchanges will also develop in line with the industry to produce the most representative group of CCCAGG exchanges.

Data Processing Procedure

CryptoCompare currently assesses exchanges on the basis of 24-hour volume and pricing data. Every exchange within the CCC database is assessed in this review, with additional exchanges being added or excluded on a monthly basis for a variety of reasons. The 24-hour volume and price of every live trading pair from every exchange is recorded. Each pair volume is compared to the total market volume for that specific pairing and assigned a market share ranking. Pricing for each pair is compared to that of the CCCAGG pair, and a percentage price difference is calculated. Finally, a volume weighted % price difference per pairing is calculated to produce a figure for how close the overall exchange pricing differences are to that of the CCCAGG.

% Price Difference vs CCCAGG

As a general guideline, CryptoCompare assumes that exchanges with an overall percentage pricing difference of under 10% is within acceptable boundaries. The reasons for pricing differences across exchanges may be related to a number of factors that include exchange fees, jurisdiction, tax considerations among a series of other factors. It is however, the first indicator of acceptability within the CCCAGG exchange list.

Assessment Period

For new exchanges added to the platform, CryptoCompare assigns a period of time in which to gather data on the exchange before adding it directly to the CCCAGG calculations. Up to the next monthly exchange review, as long as there is adequate positive volume and pricing data, the exchange will be assessed in the same way as all the existing exchanges and added to the CCCAGG if guidelines are met.

Dead Exchanges

Frequently, exchanges will stop trading for a variety of reasons that include bankruptcy, hackings, regulatory reasons and so on. Contingent upon sufficient market data being provided (usually one month), if an exchange has minimal to no trading volume, it will be excluded from the CCCAGG and will be assigned an inactive status.

Market Share for Specific Pairs

There are many cases in which significant pricing differences occur relative to the CCCAGG for a number of pairs that only trade on very few exchanges. The reason for this often points to a lack of liquidity for specific pairs or perhaps a decentralized exchange. If this is the case, then there is usually an exception to the 10% pricing guideline vs CCCAGG pricing. Providing that a specific pair on an exchange represents at least 20% of the market volume or ranks at least third for market share, and prices are within a reasonable boundary, this pair would be deemed acceptable. In addition, for certain pairs that are unique to a small number of exchanges, pricing will vary considerably the lower the liquidity of the pair in question. In this case, more flexibility is given to pricing differences on low liquidity pairs.

Current CryptoCompare Policy Towards Zero-Fee and TFM Exchanges

Zero-fee exchanges as well as transaction-fee mining exchanges present a problem when it comes to assessing whether trading volume as well as pricing are legitimate due to the well-known criticisms of exchanges engaged in these practices. When it comes to zero-fee exchanges, traders are able to trade freely without fees regardless of how many trades are made; hence, volumes might become inflated. In a similar fashion, transaction fee mining exchanges rebate 100% of transaction fees in the form of their own exchange tokens. This might give traders an incentive to trade more to receive more tokens which often have valuable features such as voting rights on the platform or a dividend. Both of the above can effectively lead to wash trading. For this reason, transaction-fee mining trading data is excluded from CCCAGG pricing calculations in the current policy. This policy will be reviewed and improved for when more in-depth analysis has been conducted.

Futures Trading

Despite the significant volumes witnessed for bitcoin futures trading on platforms such as Bitflyer Lighting and BitMEX, these volumes represent futures trading volume, and not spot trading volumes. For this reason, they are excluded from CCCAGG calculations.

A2 Web Traffic Analysis Methodology

All web traffic statistics were collected using Alexa's web traffic API endpoint. This served as the best way to obtain the most broad and accurate set of statistics across all the exchanges that CryptoCompare evaluates.

Alexa Methodology

For the purpose of our web traffic analysis, Alexa's historical Traffic Ranks, as well as Pageviews have been used over a one-month period. Alexa computes traffic ranks by analysing the Web usage of millions of Alexa Toolbar users. The information is then manipulated, computed and normalised to correct biases that may occur in their data.

Definitions:

Alexa Traffic Rank: determined on the basis on the combined measure of Unique Visitors (reach) and Pageviews (page views).

Unique Visitors: An estimate of the number of unique Alexa users who visit a site on a given day. Alexa expresses this as a ratio of users per million - that is, if a random sample of one million global internet users were taken, then x % of those users would visit a given site.

Pageviews: Pageviews are the total number of Alexa Toolbar user URL requests for a site on a given day. Multiple requests for the same URL on the same data by the same user are counted as a single Pageview. This is expressed as a ratio of pageviews per million users.

Page Views per User: Represents the average number of unique pages viewed per user per day for a given site.

Important Data Considerations

It should be noted that Alexa's Traffic Ranks are for domains only (www.domain.com), and therefore subdomains (www.subdomain.domain.com) or subpages (www.domain.com/subpage) are counted within the same domain name.

There are limits to the accuracy of Alexa data for sites with relatively low traffic. According to Alexa, for sites with rankings below 100,000, data may not be statistically meaningful due to the lack of data from these sources.

In addition, traffic data is only based on a set of Alexa users, and therefore only a subset of the global internet population.

Exchange Web Traffic Analysis Methodology

For the purpose of our web traffic analysis, Alexa's daily historical Traffic Ranks, Pageview stats and Unique Users have been used over a one-month period.

Methodology

Data was collected via Alexa's Web Traffic API endpoint for a period of one month. Daily Domain Traffic stats for every active exchange on CryptoCompare was collected for a one-month period.

As discussed, Alexa provides proportional measures of Unique Visitors and Page Views in the form of "reach" per million users and "page views" per million users respectively. This was collected via their web API.

In order to obtain an estimate of visitors, an estimate of total web users was obtained from "internetworldstats.com". According to internetworldstats.com, as of June 30th 2018, there were a total of 4,208,571,287¹ global internet users.

This was then multiplied by the associated Alexa metric per million figures to obtain an estimate of Unique users and Total Page views. A figure for unique page visitors was

¹ <https://www.internetworldstats.com/stats.htm>

calculated by dividing Total Page Views by average Page Views per user. Formulas are as follows:

$$\text{Total Page Views} = \text{Page Views per million} * \text{Total Web Users}$$

$$\text{Total Unique Visitors} = \text{Page Views per million} * \text{Total Web Users} / \text{Average Page Views per User}$$

Given the oscillatory nature of web traffic stats, a one-month average of each stat was produced to obtain a more representative traffic value for each exchange. This is then combined with the average 24h volume for each exchange over the given period to initiate our analysis.

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