

INDEX OVERSIGHT COMMITTEE

Q2 MEETING MINUTES

Date	22-Jul-2020
Time	4:05pm - 6:13pm

Agenda:

Standing Agenda Items

1. Conflicts Register, Complaints and Expert Judgement Register Review
2. In-Process Consultations
3. Index Issue Review
4. Indexes in Production Review
5. Products Approval Requests

Unique Agenda Items

6. Proposed Changes to the CMBI Single Asset Index constituent markets
7. Reference Rates Methodology Discussion
8. Proposed Changes to Reference Rates Coverage Universe
9. Reference Rates Expert Judgment Discussion

Attendees:

Name	Role	Attendance
Tim Rice	Chair	Dial-in
Kerry Yndestad	Member	Dial-in
Jacob Franek	Member	Dial-in
Benjamin Celermajer	Contributor	Dial-in
Kevin Lu	Contributor	Dial-in

Quorum was met and it was noted that there was not external membership presence

Conflicts Register, Complaints and Expert Judgement Register Review

No conflicts identified during the meeting

No complaints received in Q2

No expert judgment was applied for the determination or calculation of any CMBI Index in Q2

Expert Judgment was applied to the determination of Free Float Supply to be used for the construction and ongoing maintenance of the CMBI 10 in Q2.

- In the determination of Free Float for CMBI 10 calculations, expert judgment has been used where obtaining complete supply data that Coin Metrics can independently verify is currently impractical, prohibitively difficult or impossible.
 - **Tron:** The Index Function has elected to use a 40%-50% supply banding for the entirety of the Tron ERC-20 era. At the time of chain swap, the Tron Foundation [controlled 49.5B tokens](#), representing a restricted supply of 49.5%. To be conservative, the 40%-50% band has been assigned (i.e. an Adjusted Free Float Supply Factor of 50%).
 - **EOS:** Due to the current difficulty of running and maintaining an EOS full archive node, the Index Function has relied on third party explorers to recreate historical tagged address balances. Along with Network Data Supply figures, this allows us to create an Adjusted Free Float Supply for EOS. Coin Metrics continues to work to maintain a full archive node, which once fully operational will provide CMBI with all supply data.
 - **Binance:** As Binance Chain is not open sourced, no external party has the required information to understand all the required data to reconstruct and audit it. As such, the Index Function has relied on the Binance Explorer to recreate historical tagged address balances.
 - **Mid 2017 asset exclusion - Bytecoin, Bitconnect, Stratus and Bitshares:** Upon spot checking potential constituents against third party data sources, it was identified that the above assets may have been eligible for inclusion in the CMBI10. However, due to the application of banding and selection utilizing the '10 Year Expected Future Supply', these assets may not have been selected. Without running node infrastructure, it is difficult to definitively conclude. Given their brief potential appearances and the additional requirements of running node infrastructure to convincingly confirm their status, it has been determined to exclude them entirely from the CMBI10.

Jacob inquired about CMBI Market Cap Weighted Indexes node hosting eligibility criteria. Whilst not fully finalized, Benjamin mentioned that it is drafted and as it becomes finalized, it will be shared with the Oversight Committee during Q3.

In-Process Consultations

No consultations in process

Index Issue Review

Technical issues

No QC of Supply Data

Coin Metrics has recently conducted a recalculation of all network data metrics in the environment that the Supply Data QC is conducted in. As such, during July there has been limited reporting of tagged address balance supply movements. Reporting does still report the delta in supply of asset holder categories. Thus far, address movements have been minor, and instances of large wallet shuffles have been manually identified.

Kerry inquired as to any threshold for investigating wallet movements. Benjamin commented that the automated implementation captures any amount, but the manual process in place now only seeks to find significant movements that result in >0.5% changes to an asset holder category. This will retroactively be resolved once the network data metrics are recalculated.

Operational issues

CMBI daily export file gaps

It was discovered that some of the automated files being generated for reporting purposes included gaps. It was determined that the issue resulted from varying calculation times for hourly reference rates. Rates are calculated at 5 minutes after the hour and 98% are calculated within 10 seconds.

What can be done going forward?

- The time of reporting has been delayed to include outlier calculation times and a daily file check to identify gaps has been implemented for future QC.

Indexes in Production Review

Publicly announced / available:

- CMBI Bitcoin Index
- CMBI Ethereum Index
- CMBI Bitcoin Hash Rate Index
- CMBI Bitcoin Observed Work Index

Privately in production:



Are all indexes still efficiently and effectively achieving their desired outcomes and purpose?

- The Oversight Committee believes that the indexes still serve the purpose they are defined to serve.
- Both price indexes represent the aggregate market price of the underlying assets evidenced by their levels in comparison to the market.
- Both mining indexes provide an accurate representation of the effort that Bitcoin miners are contributing to the Network.
- The Oversight Committee discussed the frequency of real time index levels, debating if the 15 second interval was market appropriate or if a shorter interval should be explored. Given the CMBI Indexes are currently only used as reference prices for Index Funds and Asset Managers, the Oversight Committee determined that the 15 second interval was sufficient.

Any other commentary / observations on existing index products?

- Benjamin reported that several of the concerns that were raised at the previous OC have been addressed now, with the introduction of:
 - Ideation of new CMBI index web pages to be released in through Q3
 - Availability of index data in Bloomberg and Morningstar with several other data distribution deals being discussed
 - New client collateral that clearly demonstrates the capabilities of the index function

Products Approval Requests

Free Float Supply

- Pre-product launch announcement distributed to the CM community via Medium and CM Blog post
- Product launch announced and distributed through SOTN and on Coin Desk
- Values for 26 cryptoassets are launched and live on CM website
- Plans to broaden coverage are in place
- First quarterly supply transparency report is drafted and ready for distribution (planned for next week, wc 03-August).

Hashrate index / chainwork futures contracts

- Pre-product launch announcement distributed to the CM community via SOTN
- Weekly index close cards distributed on twitter
- June Monthly Factsheet published
- Official launch announcement drafted and ready for distribution (planned for early August).

Are there any proposed changes to existing products that require OC sign-off?

- No current proposed changes to any existing CMBI index

What products are production ready and require OC signoff for launch?

- CMBI10 Index is in development and the methodology will be ready for review by the Oversight Committee during Q3

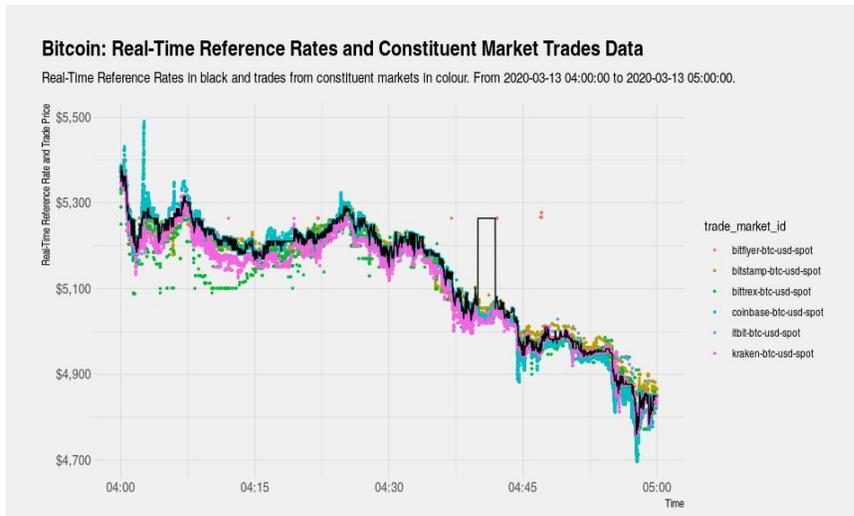
The Oversight Committee has pre-approved the launch of the CMBI 10 in Q3, pending a final review of the methodology, evidence of the necessary data quality QC checks and completion of the index release checklist.

Proposed Changes to the CMBI Single Asset Index Constituent Markets

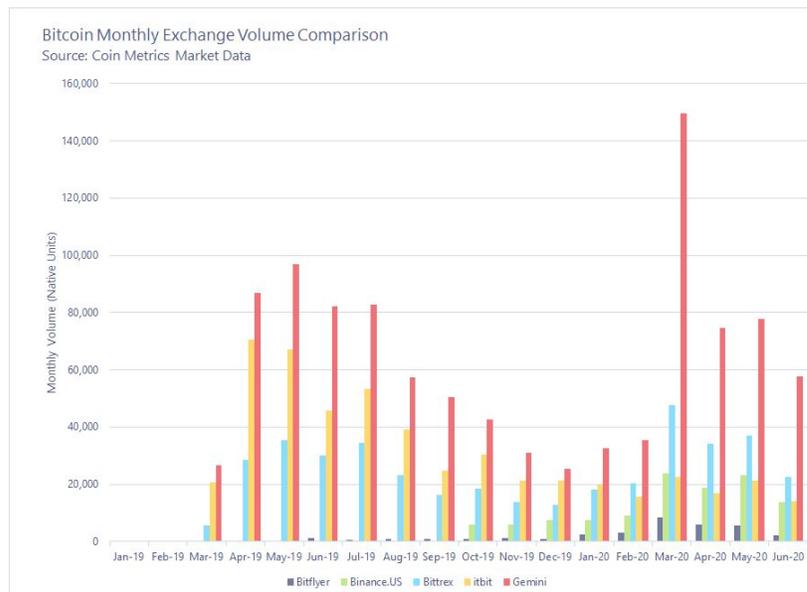
Bitcoin

The proposed changes include removing bitFlyer's market and replacing it with **Binance.US's** market.

This is mostly in response to a series of anomalies discovered in the CM Bitcoin real-time reference rate. It was identified that under rare circumstances, the real-time reference rate can deviate from the majority of market pricing. This occurs when undue weight is placed on a low volume market that happens to have low price variance.



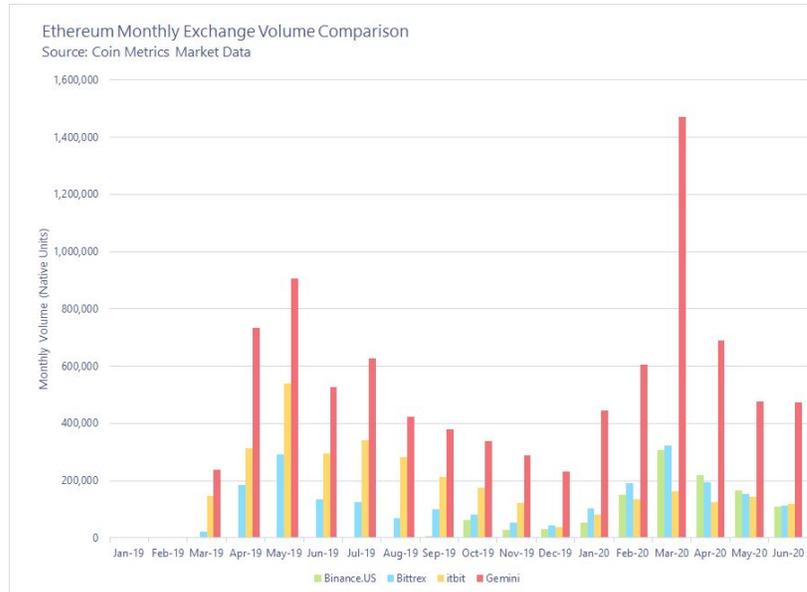
Investigation reveals that bitFlyer often is a source of these anomalies due to its low volume and irregular trading. Removing bitFlyer from the whitelist will lower the probability of these anomalies occurring.



Ethereum

The proposed changes include adding Binance.US's market.

This proposed change is the result of new eligibility under the current market selection framework.



The Oversight Committee agreed Binance.US met the required exchange selection criteria and approved the proposal to add Binance.US BTC/USD and ETH/USD as constituent markets to the CMBI Single Asset Indexes.

The Oversight Committee approved the proposal to remove the relatively low volume bitFlyer BTC/USD market as a constituent market of the CMBI Bitcoin Index.

Reference Rates Methodology Discussion

The Oversight Committee reviewed the quality of the reference rates and discussed the following topics surrounding the reference rates methodology:

- Incidents where the Real-Time Reference Rates methodology is susceptible to stale prices in certain edge cases where one constituent market is given too much weight due to low price variance. Investigation has revealed that this affects approximately 0.2 percent of all observations for Bitcoin. For many of these observations, the price is still close to most markets but for a subset of observations, the price can differ materially from most global markets.
- Incidents where the Real-Time Reference Rates are susceptible to instances where major markets differ. More research is needed to propose an improvement to the Real-Time Reference Rates which increases the quality of the prices against all types of edge cases. Discussion of a mean versus median indicated that while a mean would perform better in this instance, a median performs better in other times of market stress. The Oversight Committee noted that any proposed improvement in the Real-Time Reference Rates would have to be tested against many different edge cases to see if there is a net improvement.
- Discussion around Tether and stablecoin quoted markets. Kevin noted that stablecoins are still gaining volume market share, and our reference rates will be improved if we would allow these markets to serve as constituent markets for certain assets in the long-tail and especially assets that have very low prices in U.S. dollars. Analysis by Kevin indicates that there is still enough volume in USD, BTC, or ETH-quoted markets for the moment.
- Recalculation policy regarding timing of implementing recalculations due to the number of issues that can occur. A recalculation policy will be drafted by Kevin and reviewed by the Oversight Committee.

Proposed Changes to Reference Rates Coverage Universe

The Oversight Committee discussed additions and terminations to the coverage universe as part of the quarterly review.

- The following 28 assets are added to the coverage universe.

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["wrx", "band", "ksm", "usdk", "snx", "stx", "fxc", "kcs", "hive",  
"nrg", "cel", "ubt", "chsb", "crpt", "bht", "cvt", "data", "eurs",  
"xns", "gt", "dgtx", "kava", "tt", "sxp", "mx", "ocean", "erd",  
"lpt"]
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- The following 2 assets are removed from the coverage universe. storm was removed due to being delisted from major exchanges because of a token swap. gto was removed due to consistent spreads between major markets.

The Oversight Committee approved the changes to the coverage universe, including the termination of the two assets.

Reference Rates Expert Judgment Discussion

The Oversight Committee discussed the application of expert judgment surrounding the Upbit recalculation. The recalculation and its impact were already discussed in ad-hoc meetings prior to this meeting and approved by the Oversight Committee.

- During the most recent quarterly review for the Coin Metrics Reference Rates, an issue was discovered that affected the quality of our reference rates for a wide set of assets. On November 27, 2019, Upbit disclosed a hack in which 342,000 Ether was stolen. In response to this incident, Upbit shut down deposits and withdrawals for a period of approximately three months causing nearly all of their markets to trade with large spreads against other major markets.
- While the majority of the assets in our coverage universe that use Upbit's markets as a constituent market were robust to this incident, a handful of assets were negatively affected by this incident. Due to the systemic nature of this problem and the number of price anomalies it has caused, Upbit's markets were removed from our whitelist for 71 assets in our coverage universe after 2019-05-23. A recalculation of reference rates from 2019-05-23 to present was conducted.
- Of the 71 affected assets, 24 received material changes, where a material change is defined as greater than 1 percent of observations receiving a change in excess of 1 percent. The most affected period is from November 2019 to March 2020. The remainder of the assets did not receive material changes.

The Oversight Committee reviewed and approved the application of expert judgment surrounding the Upbit recalculation.