



LIQUIMETRIC BID-ASK Methodology

Version 1.0

BLOCKSIZE provides the LIQUIMETRIC BID-ASK Data Feed as part of its product BLOCKSIZE CONNECT, a comprehensive offering of crypto market information. All data points are converted and delivered in U.S. Dollars, Euros, and various other currencies for an expanding set of cryptocurrencies and other digital asset classes. The offering also includes volume-weighted average prices (VWAPs) with different cut-off-times to provide services for users in different time zones.

The LIQUIMETRIC BID-ASK Data Feed is designed to serve as a transparent and independent market quality indicator that promotes the functioning of efficient markets, reduces information asymmetries among participants, facilitates trading, and accelerates the adoption of cryptocurrencies as an asset class with the highest standards.

The LIQUIMETRIC BID-ASK Data is an essential tool for financial market participants. They are used for a variety of purposes, including pricing securities, executing trades, managing risk, and conducting research.

- **Determining prices in less liquid crypto or digital assets:** In markets with low liquidity, there may be few or no recent trades to establish a clear market price. In these cases, bid-ask data can be used to approximate the market price. The bid price represents the highest price that a buyer is willing to pay, while the ask price represents the lowest price that a seller is willing to accept. By averaging the bid and ask prices, traders can get a rough estimate of the fair market value of the asset.
- **Assessing liquidity and volatility:** The width of the bid-ask spread is an indicator of the liquidity of a crypto or digital asset. A narrow spread suggests that there is a lot of interest in trading the asset, while a wide spread suggests that there is less interest. The spread can also fluctuate over time, reflecting changes in market volatility.
- **Implied trading costs:** The bid-ask spread represents the implicit cost of trading a crypto or digital asset. The difference between the bid and ask prices represents the amount of money that a trader will have to pay to buy or sell the asset. This cost can be significant for illiquid assets or assets that are experiencing high volatility.

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The LIQUIMETRIC BID-ASK Data Feed is calculated using a transparent and robust methodology with a clear framework of policies and procedures adhering to international best practices.

This methodology is governed by the BLOCKSIZE Data Committee and is part of the BLOCKSIZE CONNECT Manifest (see Appendix A.1) that aims to ensure that the LIQUIMETRIC BID-ASK Data Feeds serve as an accurate source of transparent and reliable data.

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1 Calculation of Volume-Weighted Average Bid/Ask

The calculation algorithm of the LIQUIMETRIC BID-ASK Data Feed is as follows:

1. Calculate the volume-weighted sum of bid (superscript b) prices $\sum_j p_j^b \times v_j^b$ and, respectively, ask (superscript a) prices $\sum_j p_j^a \times v_j^a$ denominated in units of the underlying asset from observable order book updates that occurred for each of the accepted markets (subscripts j)
2. Calculate the aggregate volume for each of the accepted markets by adding the bid and ask size of events across all accepted exchange markets, respectively, $\sum_j v_j^b$ and $\sum_j v_j^a$. The resulting figure is referred to as the bid or ask volume weight.
3. Divide the volume-weighted sum of prices, $\sum_j p_j^x \times v_j^x$, by the total volume weight, $\sum_j v_j^x$, for bids ($x \equiv b$) and asks ($x \equiv a$) to obtain aggregated LIQUIMETRIC BID-ASK π^x :

$$\pi^x = \frac{\sum_j p_j^x \times v_j^x}{\sum_j v_j^x}$$

2 Data Contingency Rules

The following contingency rules are followed to address situations where data is delayed, missing, or unavailable due to periods of low liquidity such as extraordinary market circumstances or outside factors beyond the control of BLOCKSIZE.

1. If observable order book updates from an accepted market are unable to be collected due to technical problems specific to the accepted market's exchange during the calculation of the LIQUIMETRIC BID-ASK Data Feed (such as malformed data), the observable order book updates are excluded from the calculation of the specific instance of the given Data Feed.
2. If no observable order book updates from an accepted market exist during the current timeframe, the value of the LIQUIMETRIC BID-ASK Data Feed will rely on the on various other accepted markets for its calculation.
3. If none of the accepted exchanges in Appendix A.3 report observable order book updates, the LIQUIMETRIC BID-ASK Data Feed will not report a calculated price. In the highly unlikely event that a user establishes a connection to a LIQUIMETRIC BID-ASK Data Feed in a timeframe where none of the accepted exchanges (Appendix A.3) is reporting observable order book updates, the price will be computed from the last observed order book updates.

3 LIQUIMETRIC BID-ASK Data Quality Assurance

Observed order book updates and markets are evaluated by the Data Committee. If potential errors or anomalies in the data are detected, it will be removed from the calculation of the LIQUIMETRIC BID-ASK Data Feed.

The Data Committee may decide to include the order book data from new sources that are vetted for data integrity and quality. Alternatively, the Data Committee may decide to exclude previously accepted markets that started to deliver erroneous or anomalous data. Any change in data sources needs to be approved by the members of the Data Committee and is communicated to the users, where relevant.

Appendix: Current Documents

The LIQUIMETRIC BID-ASK Methodology described in here is part of the BLOCKSIZE CONNECT Manifest, which is describing how BLOCKSIZE is dealing with aspects of its BLOCKSIZE CONNECT suite of data offerings.

A.1 Current version of the BLOCKSIZE CONNECT Manifest:

<https://www.blocksize.info/blocksize-connect/manifest/>

A.2 Current list of supported instruments:

<https://www.blocksize.info/blocksize-connect/instruments-realtime/>

A.3 Current list of supported markets:

<https://www.blocksize.info/blocksize-connect/markets-overview/>

A.4 Current version of the LIQUIMETRIC BID-ASK Methodology:

<https://www.blocksize.info/blocksize-connect/manifest/bid-ask-methodology/>

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