

Bats ETF Implied Liquidity Feed

A view of ETFs versus their underlying securities



U.S. Equities & ETFs

Bats ETF Implied Liquidity Feed

The Bats ETF Implied Liquidity Feed provides investors with a much-needed view of Exchange-Traded Funds (ETFs) versus their underlying securities, and is designed to improve transparency and visibility into the 'Implied Liquidity' of individual ETFs.

Unique View into ETF Liquidity

The Bats ETF Implied Liquidity Feed measures the implied liquidity of a fund using select data points, which includes information regarding the ETF's underlying securities. The feed includes a proprietary calculation of the fund's implied liquidity and the aggregate best bid and offer of all displayed orders across the four Bats equity exchanges.

The ETF Implied Liquidity feed provides actionable information regarding ETF liquidity that is distinct from other common metrics currently utilized, such as average daily volume (ADV), or indicative Net Asset Value (iNAV).

Additionally, highlights of the ETF Implied Liquidity Feed include the following:

- Delivers real-time, one-second snapshots of an ETF's Implied Liquidity intraday based on the quotes and size in its underlying securities.
- Calculates an indicative bid and offer with available size that could be transacted by an Authorized Participant (AP) to create or redeem shares in an ETF.
- Provides a more timely representation of the true value of an ETF intraday (i.e., over last-sale based and less frequently disseminated indications).
- Includes the ETF BBO (Best Bid or Offer) and size sourced from the Bats Exchanges as supplemental data to provide the ability to compare against the Implied BBO and size, all within a single feed.

Actionable information to be used throughout the trading lifecycle for ETFs

| Pre-Trade | Trading | Post-trade |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Understand the true liquidity picture when selecting ETFs as investments• Better estimate your trading costs before placing the order | <ul style="list-style-type: none">• Know the best spots to place your limits to increase probability of getting a fill• Evaluate block trade proposals in real time with enhanced insight on where the ETF can trade in size | <ul style="list-style-type: none">• Measure your trades against historical implied quotes and size• Analyze past patterns to optimize the best times of day to trade |

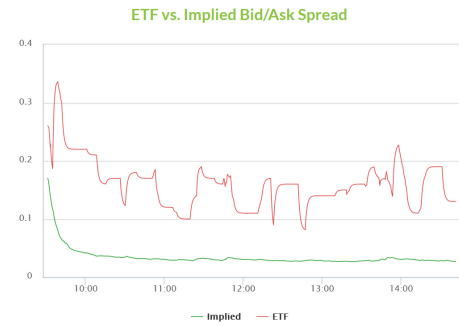
Objectives

- Improve ETF transparency and liquidity for all market participants.
- Increase interest in less active/niche ETFs by showing the true liquidity picture.
- Encourage asset growth in more funds for issuers.
- Create more trading opportunities for APs to facilitate trades in thinly traded products.
- Deliver a more accurate representation of the true value of an ETF intraday (i.e., over iNAV / last-sale based indication).

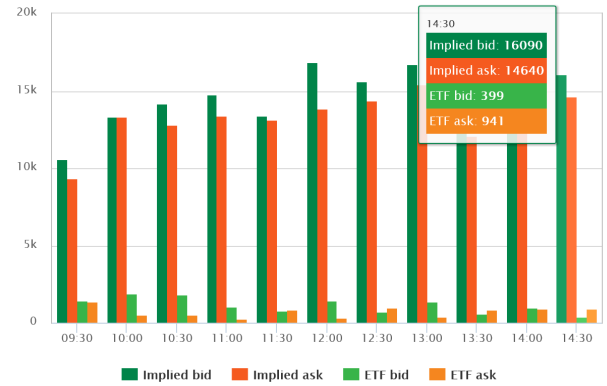
Example: Thinly Traded ETF vs. Implied Quote and Size

> The charts to the right show a thinly traded ETF with extremely liquid underlying securities. The AP can provide additional liquidity in the ETF based on their view of the underlying and ability to trade-in/-out of the basket.

| Symbol | 30-Day ADV | ETF Shares | | | Implied Shares | | |
|--------|------------|------------|---------------|-------|----------------|---------------|--------|
| | | BidSz | Bid - Ask | AskSz | BidSz | Bid - Ask | AskSz |
| DTD | 17,692 | 400 | 84.86 - 84.99 | 1,100 | 13,477 | 84.89 - 84.92 | 16,891 |



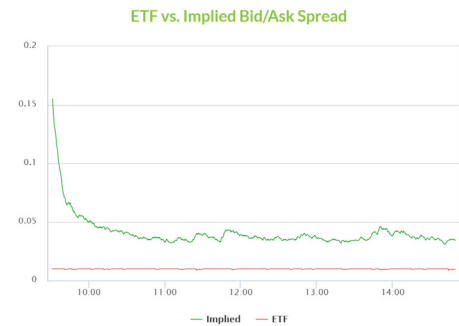
ETF vs. Implied Liquidity Size



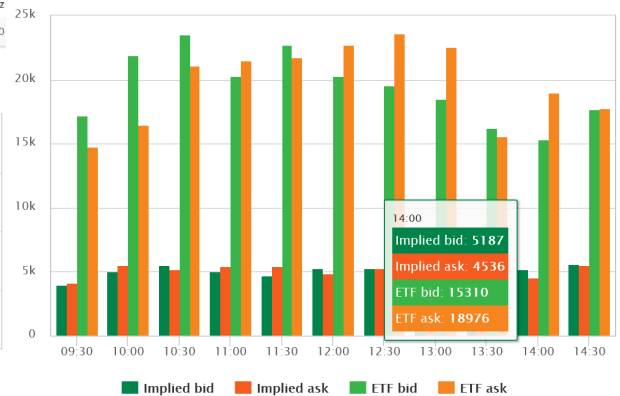
Example: Liquid ETF vs Implied Quote and Size

> The charts to the right show a highly liquid ETF where the ETF is more liquid than the underlying basket of securities with regards to bid/ask spread and size.

| Symbol | 30-Day ADV | ETF Shares | | | Implied Shares | | |
|--------|------------|------------|-----------------|--------|----------------|-----------------|-------|
| | | BidSz | Bid - Ask | AskSz | BidSz | Bid - Ask | AskSz |
| QQQ | 19,865,345 | 13,700 | 135.15 - 135.16 | 25,600 | 2,011 | 135.13 - 135.17 | 6,090 |



ETF vs. Implied Liquidity Size



Accessibility

The Bats ETF Implied Liquidity Feed will be available in Bats' primary datacenter (Equinix's NY5). Recipients will have the ability to subscribe to the feed directly via TCP/IP.

Pricing

Below are monthly fees relating to the Bats ETF Implied Liquidity Feed:

| Service | Internal Distribution | External Distribution | Pro User Fee | Non-Pro User Fee |
|---------------------------------|-----------------------|-----------------------|--------------|------------------|
| Bats ETF Implied Liquidity Feed | \$5,000 | \$5,000 | \$25.00 | \$1.00 |

- External Distributors of the Bats One Summary Feed or the Bats One Premium Feed may also receive, upon request and at no additional External Distribution Fee, access to the ETF Implied Liquidity Feed for External Distribution.
- Data Consolidation Fee of \$500/month will apply for External Distribution.

Resources

To subscribe to the Bats ETF Implied Liquidity Feed, please submit a [Bats Data Feed Order Form and System Description](#) to Bats Market Data Services at marketdata@bats.com selecting the applicable service.

Questions about the Bats ETF Implied Liquidity Feed? Contact your [Director of Sales](#) or the CBOE Bats Trade Desk at tradedesk@bats.com, 913.815.7001.

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