



VIRTU FIXED INCOME LIQUIDITY

EXECUTION PROTOCOLS

Virtu Americas LLC (“VAL”) operates Virtu Fixed Income Liquidity (“VFI”), an electronically-enabled offering for trading On-the-Run US Treasuries, US Treasury Curve Spreads and US Treasury Basis Spreads. VFI clients have the option to immediately execute on available liquidity or rest an order on the book. Available liquidity is comprised of a continuous stream of principal bids/offers submitted by proprietary algorithmic trading models specific to the VFI offering.

The following is a general description of VFI’s business model:¹

THE BASICS

- On-the-Run US Treasuries, US Treasury Curve Spreads and US Treasury Basis Spreads
- VAL is the counterparty to all client trades
- All VFI orders are executed in a principal capacity
- VFI price increment is 1/8 across maturities
- Trades are cleared FICC or Fedwire

Order Types

- Time in Force: Immediate or Cancel Orders (IOC) and Day Orders
- Aggressive and Passive Orders (Limit)
- Outright On-the-Run US Treasuries trade in a tick size of ¼ of a 32nd (2Y, 3Y, 5Y) and ½ of a 32nd (7Y, 10Y, 30Y) and round lots (minimum of 1mm)
- US Treasury Curve Spreads are quoted in basis points with a tick size of 0.01 and a minimum quantity of 1mm on the long maturity.
- US Treasury and Treasury Futures Basis spreads are quoted in an Index Format with a tick size of 0.000 000 001 and minimum quantity of 1 future contract

Hours of Operation

- We follow the SIFMA schedule for holiday recommendations and are open during US, London and Asia trading hours.
- During Daylight Savings time
 - Connection available at 7:30 p.m. EDT
 - Liquidity available at 8:00 p.m. EDT
- During Standard time
 - Connection available at 7: 00 p.m. EST
 - Liquidity available at 7: 00 p.m. EST
- We close at 5:30 p.m. ET throughout the year

¹ The VFI offering is highly customizable and execution protocols described herein may be modified based on individual client agreements or instructions.



Liquidity Source

VAL is the counterparty to all trades executed in VFI. All trades are executed in a principal capacity. Customers may leave resting limit orders in the VFI matching facility. Customer resting orders are not permitted to cross against other customer resting orders.

Connectivity

- VFI's data center is located in the Equinix NY4 Data Center.
- VFI supports FIX v.4.2 and v4.4.
- Users can also connect via independent software vendors such as ION Trading, Broadway Technologies; CQG, Stellar Trading, Bloomberg, Trading Technologies and Quantitative Brokers.

FREQUENTLY ASKED QUESTIONS

1. How are my orders handled?

VAL places proprietary limit orders into the VFI matching facility. VFI clients may access VAL's quotes by sending in a limit order. All trades in VFI are executed by VAL in a principal capacity.

2. Is there any "Last-Look" functionality? Do you hold my order before deciding whether to trade on it?

There is no last-look functionality embedded in the matching logic. There is also no hold time. The liquidity available in VFI consists of actionable limit orders - not Indications of Interest (IOIs). VFI is not a "request-based" protocol.

3. Are you showing another market's prices?

The quotes in VFI represent VAL's proprietary interest. VAL's models utilize a variety of market data to generate proprietary valuations and quotes. VAL also operates algorithmic trading models that stream bids/offers and trades proprietarily on multiple electronic interdealer platforms such as Dealerweb, Brokertec and eSpeed, as examples. VAL's market making on these platforms is independent of VAL's market making in VFI.

4. Who can see my incoming order information?

Our policies provide that access to real-time order and execution information is limited to only those employees who require access to this information to perform their job function. Trading, technology and operations personnel share responsibility for operating and supporting the models for both the VFI client offering and VAL's proprietary trading in US Treasuries. These individuals have access to client order and transaction information, resting orders and corresponding position information relevant to both platforms in real-time. However, VAL's proprietary trading models do not utilize customer order information to generate quotes on other trading platforms.



VFI historic client order and transaction activity is kept secure and requires permission to access. Database access is generally limited to personnel that are involved in and support the VFI business. Access to the VFI database requires approval from a senior VFI employee and a member of the Compliance Department.

5. Does VFI route orders to other exchanges?

No. All orders are either executed by VFI or cancelled.

6. Can a client rest orders in VFI?

Yes. Clients may rest limit orders in VFI. However, client resting orders are not permitted to cross against other client resting orders.

7. Do we advertise our volume or client list?

No. Our offering is based on one-on-one relationships with our clients. We do not publish execution information and prefer to keep our client list private.

8. What is VFI's erroneous trade policy?

VAL reserves the right, in its sole discretion, and without prior notice to you to adjust, correct, cancel or break any trade sent to VFI, if VAL deems a transaction to be erroneous in nature in accordance with VFI's clearly erroneous policy.

Under VFI's clearly erroneous policy, VFI defines executions which are eligible for review as executions that occur at a price that equaled or exceeded the mid-market price by the below parameters at the time of execution. The VFI Service Desk will use reasonable efforts to determine the prevailing Mid-Mkt Px for the given instrument at the time of the execution(s).

<u>Benchmark Maturity</u>	<u>Threshold from Mid-Mkt Px (32nds)</u>
2y	1.5
3y	2.0
5y	3.0
7y	4.0
10y	5.0
30y	8.0

VAL, at its own discretion, may review trades that do not meet the above numerical guidelines if it determines that the execution was erroneous.



Generally, VAL will use commercially reasonable efforts to review trades for price adjustments within 15 minutes of execution. However, there might be circumstances where trades outside of the 15 minute window are reviewed and adjusted.

Please feel free to reach out to us with any questions.

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