



A State Street Company

Sourcing Global Liquidity from Tradeweb in Charles River IMS

Investment managers can now source liquidity from Tradeweb across asset classes, including rates, credit, money markets and equities from the Charles River Order and Execution Management System (Charles River OEMS) and Inventory Hub. Charles River clients also benefit from Tradeweb's enriched pre-trade inventory, portfolio trading, the recently launched direct-to-Freddie Mac Exchange path, and integration to support trading of Chinese bonds through the Tradeweb Bond Connect platform. The collaboration also offers clients access to Tradeweb's cross product Automated Intelligent Execution (AiEX) tool, allowing increased speed-to-market and reduction of both cost and operational risk.

Tradeweb Asset Class Coverage

Asset Class	Product	Instruments
Rates	Cash	U.S. Government Bonds
		European Government Bonds
		Mortgage-Backed Securities
	U.S. Agencies	
	Derivatives	Swaps/Swaptions
Credit	Cash	U.S. Investment Grade
		U.S. High Yield
		European Credit
		Municipal Bonds
	Chinese Bonds	
	Derivatives	Swaps
Money Markets	Cash	Repurchase Agreements
		Commercial Paper
		Agency Discount Notes
		Certificate of Deposits
Equities	Cash	U.S. ETFs
		European ETFs
	Derivatives	Convertibles/ Options

Charles River Order and Execution Management

Charles River IMS provides an Order and Execution Management System (OEMS) seamlessly integrated with data, FIX connectivity, and trade analytics. Trade decision support capabilities help traders find liquidity, execute trades across asset classes and currencies, and ensure trades are compliant.

The Charles River Inventory Hub processes and aggregates inventory across a number of the largest dealers and venues. Clients can view this inventory in the OEMS, receive updated indications of interest (IOIs) and quotes from dealers, and place orders for a full range of products and asset classes.

Sourcing Global Liquidity From Tradeweb

Charles River clients gain direct access to Tradeweb's deep liquidity, pre-trade price intelligence, flexible protocols and post-trade analysis.

Tradeweb provides real-time pre-trade pricing from over 50 leading global liquidity providers and a number of trading protocols tailored for each marketplace, including Request-for-Quote, All-to-All, Bilateral Streaming, and Agency Execution.

Portfolio Trading

Tradeweb supports portfolio trading, which can improve execution efficiency by allowing institutions to package multiple bonds into a single basket, negotiate a portfolio level price with liquidity providers including banks and principal trading firms, and execute in a single transaction. Portfolio trading via Tradeweb offers a number of benefits to Charles River clients:



Efficiency and Timeliness – Trading individual ISIN's requires considerable time to find the right counterparty for each security and then execute each trade.



Price Impact – Large trades can be market-moving, so while utilizing a list RFQ protocol to trade many bonds at once may be efficient, prices could be impacted.



Designated Portfolio Trader – Trading with an individual portfolio trader at a bank can minimize information leakage.



Aggregate Pricing – The ability to view aggregate basket portfolio-level statistics and pricing for the trade in its entirety (vs. pricing every ISIN) can be used for demonstrating best execution and Transaction Cost Analysis (TCA).



Illiquid Securities – For bonds that are so illiquid that unless structured as a package trade where risk can be mitigated across more liquid bonds, there is no way a bank can price the illiquid bonds.

Tradeweb Portfolio Trading Capabilities

Portfolio Trading on Tradeweb	
Supported securities:	European, US Investment Grade, US High Yield and Emerging Markets
Direction:	Multi-directional trades supported, i.e.- both buys and sells in one list
Competitive pricing	Up to three dealers can be included for competitive pricing and demonstrating best execution
Trading	Trade all portfolio items in a single trade, or any portion of the portfolio
Analytics	Total proceeds, weighted average price and yield, composite difference, DV01

Automated Intelligent Execution Tool (AiEX)

Tradeweb AiEX enables Charles River clients to streamline and automate workflows for low-touch orders. AiEX provides full control over orders with pre-programmed execution rules tailored to a firm's trading strategies. This can help reduce compliance breaches and operational risk. Firms can quantify transaction costs using Tradeweb's proprietary transaction-cost analysis tool, providing traders with the ability to view, iterate and refine execution rules that align with best execution policies.

About Tradeweb Markets

Tradeweb Markets Inc. (Nasdaq: TW) is a leading, global operator of electronic marketplaces for rates, credit, equities and money markets. Founded in 1996, Tradeweb provides access to markets, data and analytics, electronic trading, straight-through-processing and reporting for more than 40 products to clients in the institutional, wholesale and retail markets. Advanced technologies developed by Tradeweb enhance price discovery, order execution and trade workflows while allowing for greater scale and helping to reduce risks in client trading operations. Tradeweb serves approximately 2,500 clients in more than 65 countries. On average, Tradeweb facilitated more than \$830 billion in notional value traded per day over the past four quarters. For more information, please go to www.tradeweb.com.

About Charles River Development, A State Street Company

Investment firms, asset owners, wealth managers, hedge funds and insurers in more than 30 countries rely on Charles River's front and middle office investment management platform to manage more than US\$30 Trillion in assets. Together with State Street's middle and back office capabilities, Charles River's cloud-deployed software technology forms the foundation of State Street AlphaSM. The Charles River Investment Management Solution (Charles River IMS) is designed to automate and simplify the institutional investment process across asset classes, from portfolio management and risk analytics through trading and post-trade settlement, with integrated compliance and managed data throughout. Charles River's growing partner ecosystem enables clients to seamlessly access external data and analytics, applications and liquidity venues that support the demands of their product and asset class mix. Headquartered in Burlington, Massachusetts, we serve clients globally with more than 1,000 employees in 11 regional offices. (Statistics as of February 2021)

For more information, visit www.crd.com.

About State Street Corporation

State Street Corporation (NYSE: STT) is one of the world's leading providers of financial services to institutional investors including investment servicing, investment management and investment research and trading. With \$38.8 trillion in assets under custody and/or administration and \$3.5 trillion* in assets under management as of December 31, 2020, State Street operates globally in more than 100 geographic markets and employs approximately 39,000 worldwide. For more information, visit State Street's website at www.statestreet.com.

*Assets under management as of December 31, 2020 includes approximately \$75 billion of assets with respect to SPDR[®] products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

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