
Ex-Citadel Quants are Gunning for the $3.8 Trillion Muni Market.

- **Headlands responds to 13,000 municipal bond auctions a day**
- **Greater adoption of electronic trading in munis boosts quants**

The quants are coming for the $3.8 trillion municipal market.

Headlands Tech Global Markets LLC, a firm founded by former senior executives at Citadel LLC, is using complex mathematical formulas and powerful computers to buy and sell state and local government securities, seizing on the sometimes divergent prices in a market where the vast majority of bonds only rarely change hands.

Headlands' five-man band of algorithm-driven traders have become a major, if little known, force in the industry, bidding each day on about 13,000 municipal securities that are put up for sale on electronic trading platforms. That's placed it among a group of companies that are bringing technology that has swept through other corners of Wall Street to state and local-government debt trading, challenging a long-held view that a market that finances everything from factories to state governments requires detailed research to gauge prices.

"This idea that every bond is a unique snowflake and a story — they say 'balderdash'," Paul Daley, a managing director at BondWave LLC, a financial technology company, said of Headlands' approach. "All these bonds are mathematical equations, and if we can model it, we can price it."

The emergence of Headlands comes as quantitative trading firms are stepping into a gap left by securities dealers, who are holding less debt in inventory and concentrating instead on fulfilling orders for customers. The shift by dealers was spurred in part by regulatory requirements ushered in after the 2008 financial crisis that increased their cost of capital, prodding them to cut their holdings of state and local-government debt by about 60 percent since 2006, according to Federal Reserve Board statistics.

Generating Bids

"The algorithms and technology are bringing more liquidity into the market, which is a good thing," said Brad Winges, chief executive officer at Hilltop Securities in Dallas. "It's giving more transparency to the individual retail investor."

Matt Andresen, a former co-chief executive at Citadel Securities, the New York Stock Exchange's largest designated market maker, founded Headlands in 2010 with Jason Lehman, who ran Citadel's global options business, and Neil Fitzpatrick, former chief operating officer of Citadel Execution Services.

They were joined in 2013 by Martin Mannion, who had succeeded Fitzpatrick at Citadel. Headlands started trading municipal bonds in 2014 and focuses its computer-driven approach on lots of $100,000 or less, which represent about 80 percent of daily trade volume, though it also trades large blocks as well.

The Chicago-based firm executes more than 1,000 trades a day and had an inventory of $400 million, Andresen, Headlands' chief executive officer, told a fixed-income market structure panel in April 2018. He said the firm's technology can generate prices on more than 700,000 bonds.

"We felt like given our experience providing liquidity to retail-sized orders in other asset classes, even though munis were very different, that we could potentially add value as a liquidity provider," Mannion said in a phone interview. He declined to disclose Headlands profitability.

Ripe Market

Even with such approaches, the municipal market is unlikely to ever be as uniform as the stock market. The over-the-counter municipal bond market has more than 900,000 separate securities issued by tens of thousands of municipalities, with a big chunk of them held by buy-and-hold individual investors.

In 2011, about 99 percent of the market's bonds didn't trade on any given day, according to a report from the U.S. Securities and Exchange Commission. Last year, daily trades averaged 40,400, about half of which had a value of $25,000 or less, according to the Municipal Securities Rulemaking Board.

Yet, several factors have made the the market ripe for the type of quantitative trading that's already got a major hold on the stock market.

The release of same-day trading prices since 2005 has given firms like Headlands more than a decade of data that can now be used to build pricing models, while electronic trading platforms have increasingly displaced the old-fashioned practice of executing trades over the phone. Regulations enacted in 2016 that require brokers to seek the best prices available has also led them to expose bonds to a large number of bidders on such trading platforms.

Win or lose, through the auction process Headlands gets feedback that allows it to refine its pricing models. Automation allows the firm to respond, in periods of volatility, to a spike in the number of auctions, which would be difficult for an individual trader to do manually.

What makes Headlands different from banks such as Citigroup Inc. and Royal Bank of Canada, underwriters that also use such techniques, is that the company doesn't handle new securities offerings and focuses mostly on small lots of bonds. Quantitative tools have allowed the big banks to free up traders to focus on block trades of more than $1 million, where relationships with counterparties are important.

Winges, a former senior executive at Piper Jaffray Cos. who took over as Hilltop's CEO last month, said the firm is spending more money on data aggregation and trading capability for clients. But he said computers won't replace humans on the trading floor.

"If you want to compete, the perfect combination is technology with historical knowledge," Winges said. "You can have the greatest quant model and still lose money and you can have the smartest trader — but not have a lot of technology — and he or she is going to lose money, too."

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