



## Advances in the technology of derivatives trading and clearing

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### TRADING IN 3D

#### Flextrade Unveils Augmented Reality Headset

Traders have always thought in terms of tides, waves and cliffs. Soon they will be able to actually see them in the markets.

FlexTrade, a provider of trading tools for financial markets, has introduced an "augmented reality trading headset" that allows traders to interact with data in a whole new way. The system includes an interactive order blotter, trade ticket and charting, all presented in a three-dimensional virtual space.

The headset comes from Microsoft and relies on augmented reality, a technology that fuses computer-generated images with a user's view of the real world. Unlike virtual reality, which immerses the user in a computer-generated environment, augmented reality overlays new information on top of what users see in the physical world around them. AR technology is beginning to come into mainstream use, with the most notable example being Pokémon Go.

"We initially experimented with virtual reality trading, but the feedback was that the fully immersive headsets were too overwhelming, shutting off real-world events," Andy Mahoney, FlexTrade's business

development director, said in an announcement about the new trading device. "With the advent of the Microsoft HoloLens augmented reality headset, we found a good middle ground, bringing virtual trading into the real world."

### FINTECH INVESTING

#### Nasdaq Is Looking for a Few Good Ventures

Nasdaq has formed a venture capital unit to invest in financial technology startups. The new business unit, called Nasdaq Ventures, is focusing on startups that could help one of its five key business lines: listings, data & index, market infrastructure technology, corporate solutions technology, and capital markets operation.

The new fund is led by Gary Offner, a former managing director and head of strategic investments at Morgan Stanley. Companies already in its portfolio include Chain, a blockchain infrastructure provider, Digital Reasoning, a machine intelligence company, and Hanweck, a real-time risk analytics firm.

Nasdaq said the unit intends to invest between \$1 million and \$10 million per company. It is looking in particular for companies trying to do something clever in areas such as machine learning and artificial intelligence, digital transfer/payment/transaction processing, and data and analytics.

### KNOW YOUR TICKER

#### ICE Centralizes Reference Data for Futures

In April, ICE Data Services, the rapidly growing data services arm of Intercontinental Exchange, announced the launch of a new reference data solution for clients that use ICE's futures exchanges.

The new service aggregates reference data for futures and options traded on five futures exchanges operated by ICE: ICE Futures US, ICE Futures Europe, ICE Futures Canada, ICE Singapore and ICE Endex. The service includes all of the reference data now available through the exchanges, but normalizes that information into one feed and makes it available through APEX, the platform that ICE Data Services uses for pricing, analytics and reference data.

ICE Data Services said its reference data now covers more than 10 million financial instruments across all major asset classes, including equities and fixed income as well as futures and options. The announcement is the latest example of the market operator's effort to integrate the data and technology services offered by its various subsidiaries, including NYSE and Super-Derivatives, as well as recent acquisitions such as Interactive Data. ICE has now organized these services into four groups: pricing and analytics, exchange data, desk-top and trading tools, and connectivity and data feed services.

### TESTING BLOCKCHAIN

#### Euroclear and Paxos Complete Second Pilot in Gold Market

Euroclear, one of the world's leading settlement houses, is pressing ahead with plans to introduce blockchain-backed gold products, with the goal of delivering reduced counterparty risk, lower capital requirements and increased operational efficiencies.

Euroclear began working with Paxos, a New York-based firm formerly known as itBit, in June 2016 to explore ways of using blockchain to modernize the trading of gold. They have developed a network for clearing, trading and settling bullion trades and performed an initial test last December with 600 trades.

On April 10, the two companies announced that they have processed 100,000 gold settlements using blockchain technology, a significant step up in the amount of processing activity. Sixteen companies participated in the pilot, including Citi, ED&F Man, INTL FCStone, NEX and Société Générale.

"We started with gold for a few reasons," explained Angus Scott, director of product strategy and innovation at Euroclear. "Gold offers a very strong foundation on which to build a new market approach. In particular, the infrastructure of vaults and the quality control around gold bars held within them is exactly what we need in our new model."

Scott, who joined Euroclear in 2012 from HSBC, added that the company believes the gold market is ready to change. "Currently, intermediation in the gold market is balance sheet-intensive for both users

and intermediaries, and with the introduction of Basel 3 and other provisions, [it] will become increasingly expensive."

Seth Phillips, an executive at Paxos, added that the tests have proven that the technology "can deliver lower costs and lower risk for the London gold market."

Euroclear isn't alone in seeing the advantages of matching gold with blockchain technology. CME Group and the U.K.'s Royal Mint are also eyeing this market. They have created Royal Mint Gold, a digital token that represents one gram of gold stored in the Royal Mint's vault. On April 11, CME announced that it is testing a blockchain-based platform for trading these tokens with several "major financial institutions" and plans to launch trading later this year.

"This is the first digital gold product that is institutionally targeted, and the first to work with a government entity, to be currently in a live testing state," said Sandra Ro, head of digitization at CME Group. "An RMG is a digital representation of real gold sitting in the Royal Mint vaults."

## ASIA PARTNERSHIP

### Deutsche Börse Adds Taifex to Data Services

Deutsche Börse has added market data from the Taiwan Futures Exchange to its offering, making it possible for its customers to incorporate Taifex data into their systems.

The agreement builds on an existing trading link between Taifex and the German market operator's subsidiary Eurex. Eurex lists daily futures on Taifex's flagship equity index products, and DB executives say almost as many contracts trade on Eurex as they do on the home exchange.

Taifex said the partnership is helping to make the Taiwanese market more attractive for international investors. For Deutsche Börse, the deal is another example of its strategy to build stronger connections in Asia. The company also has partnerships with exchanges in India, Korea and China.

## BITS TO BARRELS

### Trafigura Tests Blockchain for Crude Oil Trading

Trafigura, the global commodity trading house, is experimenting with a distributed ledger system for processing trades in crude oil. In March it announced that it is working with Natixis, a French bank, and

IBM to develop a platform that will digitize crude oil trades, and said the new system will offer "improved transparency, enhanced security and optimized efficiency. The system is hosted on IBM's cloud platform, Bluemix, and is built on an open source network called Hyperledger Fabric.

"The new trading platform allows trade documents, shipment updates, delivery and payment status to be shared across a single shared ledger, helping to reduce transaction time, duplication of documents and authentication processes among all trading partners," the three companies said. "Traditionally these transactions require complex workflows and paper-based processes in which documentation is shared through courier, fax and email exchange."

## BUILD YOUR OWN ALGO

### QuantConnect and Quantopian Add Futures to Algo Design Platforms

Two fintech startups, QuantConnect and Quantopian, have extended their trading solutions into the futures markets, providing users with easy-to-access tools to build their own automated futures trading strategies.

On April 27, QuantConnect announced that its open-source algorithmic trading platform now supports futures and options. Users can now backtest, research and live trade these products on the company's cloud-based platform. In addition, the addition of futures and options means that users can design trading strategies that use multiple asset classes. For example, users can combine their existing equities strategies with the new options support to hedge their positions and model the historical performance.

The QuantConnect platform supports C#, Python and F# programming, allowing users to build and share algorithms in several programming languages. QuantConnect customers can take advantage of Co-Pilot, an automated predictive coding tool that helps users write strategies by providing intelligent and relevant suggestions, saving time and reducing programming errors. QuantConnect also provides access to a library of historical data so that users can back-test their trading strategies. For example, the data for futures includes tick and quote data from January 2009 to the present for every contract traded on CME. The data is provided by AlgoSeek and is updated weekly.

"Historically, these types of tools have been limited to the world's biggest hedge funds with the budget and engineering firepower to build and maintain such platforms," said QuantConnect CEO Jared Broad. "But with QuantConnect's powerful open-source initiative, nearly every quant and engineer can now design and instantly deploy strategies in a brokerage account."

QuantConnect was founded in 2013 and currently has more than 30,000 users, including programmers at banks and hedge funds as well as individual traders. Trades are executed through several brokers that have partnered with QuantConnect, including Interactive Brokers, FXCM and OANDA. QuantConnect charges monthly subscriptions and makes money by introducing its customers to its brokerage partners.

Quantopian, an investment firm that has built a platform for crowd-sourced quantitative investing, is moving down the same path, adding futures data to its platform and providing its users with the ability to research trading strategies and build algorithms to trade those strategies. The company initially focused on U.S. equity markets, but last fall it began exploring the idea of adding futures in response to requests from its users.

At the end of April the company launched futures in its backtesting platform, covering 72 contracts listed on CME, CBOT, Nymex, Comex, ICE Futures US, and the CBOE Futures Exchange. The company has not yet rolled out live trading for any futures algorithms developed on its platform, but expects to do at a later stage. Quantopian also is developing educational resources, including tutorials and lectures, to help its users understand the intricacies of trading futures, such as term structures and rolls.

Quantopian was founded in 2013 and provides data, a research environment and a development platform for quantitative traders. Quantopian also provides capital to back any algorithms that fit its investment strategy. Users are not charged for developing their algorithmic trading strategies. Instead, Quantopian offers to license algorithms that look promising and provide them with funding, with the algorithm developer getting a share of the profits. Quantopian says it has more than 100,000 users, including finance professionals, scientists, developers and students from more than 180 countries.