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## Black-Box Trading Raises Risk

By Ivy Schmerken

As black-box trading increases, hedge funds are executing orders at a rapid pace by drawing on their credit relationships with prime brokers. But, are prime brokers and clearing firms - which lend money and clear and settle accounts for hedge funds and proprietary trading groups - seeing the true picture of their clients' intraday risk exposure?

Hedge funds borrow money from prime brokers under margining agreements, which require the hedge funds to deposit cash and securities as collateral for trades. But, with prime brokers trading on different electronic platforms and choosing multiple executing brokers - for lower commissions, international expertise and/or more effective algorithms - the back offices of the prime brokers may not be picking up all the trades until the end of the trading day.

Electronic trading poses a challenge to prime brokers because hedge funds are trading anonymously through direct-market-access (DMA) platforms. Unlike the old days - when a buy-side trader or hedge fund called the sell-side trader on the phone to provide verbal instructions, which provided a safety check, - today, buy-side firms and hedge funds rent the broker's pipes or infrastructure to get the best execution across multiple venues.

According to a recent report by The Tabb Group, "Managing Risk in Real-Time Markets," as black-box trading and DMA trading increase, clients may be placing orders faster than their clearing firms and

prime brokers can monitor the risk. If a hedge fund uses multiple executing brokers that supply their own DMA platforms, then the prime broker could be in the dark until the close of trading. The report suggests that prime brokers are incurring more risk because they are not calculating margin deposits in real time. Moreover, these so-called margin engines are not updated until all the hedge funds' positions are flipped to the prime broker at the end of the day.

"If you're executing with one broker and flipping to another prime broker, from the time that trade is taken up and accepted by the prime broker, somebody has to live with the risk," explains Steve Sanders, managing director at Interactive Brokers.

The situation becomes more complex as hedge funds expand their trading across multiple asset classes, such as fixed income, foreign exchange, options and futures. IT silos that exist with large sell-side firms may not share information in real time, and each desk may have a different risk model.

As a result of these gaps, the Tabb Group report calls for a new information architecture for fast markets that can update applications in real time from multiple sources using "push" technology. By tapping multiple sources of data, the technology would create a single "golden copy" of data to feed the risk, margin and accounting applications. This is faster than having several applications "poll" a single source for the same data, according to the report, which

recommends that prime brokers either speed up transaction processing, limit clients' trading activity or assume additional credit or counterparty risk.

But clearing firms are reluctant to slow down their clients. "One of the things that can be a hindrance to black-box trading is latency," points out Harvey Cloyd, vice president at Wedbush Morgan Securities, a Los Angeles-based clearing firm and prime broker. According to Cloyd, who is in charge of the firm's professional trading solutions group and business development of its correspondent services division, Wedbush has grown its business by targeting black-box trading firms and broker-dealers with proprietary trading groups. The challenge for clearing firms is, "How do we allow black boxes to thrive in their world as efficiently as possible and at the same time perform the proper risk management that we need to do as a clearing firm and prime broker?" says Cloyd.

This is not to say that prime brokers aren't trying to track intraday risk. In general, prime brokers monitor risk through two mechanisms: buying power and margin requirement. Buying power is the dollar amount of trading a client is allowed to do based on how much cash is in its account. Margin is how much a firm is allowed to borrow the next day, based on the amount of cash and collateral (securities) that are on deposit with the prime broker or clearing firm. While DMA platforms can be pro-

grammed to monitor buying power intraday, the margin requirement is set overnight for the following day.

The problem with monitoring intra-day risk occurs when a client trades through different executing brokers, which could be a violation of its margin agreements with the prime broker, says Gary LaFever, COO and general counsel for FTEN, a risk management provider. "You have clients using multiple brokers, using different clearing firms, and it's, in essence, almost impossible to track what's going on during the day," he contends.

### Applying Limits to DMA

Meanwhile, market participants say they are using the DMA platforms to control risk. In equities trading, prime brokers rely on DMA technology to manage risk, says Vijay Kedia, president of Great Neck, N.Y.-based FlexTrade Systems. "Our DMA would know that the maximum order cannot exceed this amount," illustrates Kedia. "What we offer is not just DMA, but risk management closely tied to it," he adds.

John James, a principal with The Oak Group, a Chicago-based hedge fund manager that uses the FlexTrader DMA platform, says his former prime broker, Bear Stearns, put limits on the dollar size of each trade and the total for the day. "If that got hit, they'd stop trading and call me. That's for our protection and the broker's protection," says James.

Typically, the clearing firm or sell-side firm offering DMA to a buy-side client would have the tools to set limits, such as maximum exposure for an individual trade, according to Kedia. "Before the order is sent out, it is checked against the limits," he says. Typically, the risk parameters are limits that the compliance department wants enforced, which includes not just order size but factors like not sending an order after a certain time or exchange rules that get programmed as part of the DMA, Kedia explains.

Ron Suber, Bear Stearns' senior managing director and manager of global clearing sales, says that prime brokers may set their own limits for hedge funds by order, by share or by market value through the front-end systems. To prevent a "fat finger" error - in which someone types in an extra zero, for example - a prime broker

may set a maximum of 100,000 shares to prevent an inadvertent trade of 1 million shares, he relates. Prime brokers also are able to monitor electronic copies of the executed trades as they are sent to market. For example, after a client routes an order to an execution venue, the DMA platform immediately receives a so-called "drop copy," or trade message, from the various equity venues.

Bear Stearns provides five different front-end and OMS direct-market-access applications to hedge fund clients, according to Suber. "Almost all of the third-party order-management and trading systems have the capability to send drop copies intraday to the customers and prime broker," says Suber, who adds that his firm recently partnered with FutureTrade to provide its direct-access platform to Bear's global prime brokerage clients.

"If a hedge fund was perceived to have too much risk intraday, a prime broker can communicate that to the hedge fund and the hedge fund may use their trading system to trade to reduce the risk," he continues. "The prime broker may see that intraday position based on the drop copy, which would hopefully reflect a change in position that would reflect less risk," he adds.

### Producing Golden Copy

But are clearing firms able to capture all the transaction data spewing out of the execution venues and analyze it in real time? While the information is provided in Financial Information Exchange (FIX) format, integration is required, and it's up to the prime brokers to process all this transaction information. "It's a question of how they've chosen to deal with drop copies going into the system and do they manage risk in real time," says Jim Kwiatkowski, executive vice president of FutureTrade.

FTEN's LaFever says that clearing firms often try to monitor trading by sitting in front of multiple DMA screens, but the data is streaming by too fast to discern anything.

Wedbush Morgan recently worked with FTEN to develop a solution, known as Intraday RiskXposure, a Web-based system that tracks trade messages or drop copies that are pouring out of the equity execution venues, like Nasdaq, the

New York Stock Exchange, INET and Archipelago. Operating on an application-service-provider basis, FTEN converts the messages - electronic copies of executed trades - into the same language. Then it maps the data to the account level and sends alerts to the clearing firm, based on rules it establishes. The clearing firm also has to permission FTEN to receive the trade messages, since they are confidential.

"We're actually seeing reports come through instantaneously on a post-trade basis," says Wedbush's Cloyd, explaining that the firm is able to set parameters within the FTEN system. For example, if a client has \$1 million of buying power, Wedbush could monitor the client's buying power throughout the day on a post-trade basis and set percentages at which Wedbush would receive an alert. Cloyd says Wedbush might receive an alert when a client reaches 50 percent of its buying power, or 75 percent, for example. Then the firm might examine the client's position more closely.

But this may be too late, suggests Interactive Brokers' Sanders. The prime broker and clearing firm developed a real-time Unix margining system in the mid-90s. "We do a real-time credit check and compute the margin requirements and compare it to the customer's available equity," Sanders says. Then, "We make a decision whether we are going to accept that order." As a result, Interactive Brokers doesn't have to take credit losses so it can keep its commissions low. "We have a prevention system that prevents our customers from getting into more trouble than they might have been in," he asserts.

But real-time margining may be a more complex undertaking than some firms are willing to take on. "It's very difficult to get to real-time margining - if it were easy it would have been done by now," says Murray Finebaum, CEO of FutureTrade. The more important issue is for prime brokers to look at the activity of the DMA platform in real time and judge what's going on in the trading as it affects the collateral they hold, continues Finebaum. "We have that ability," he says, referring to FutureTrade's ability to provide prime brokers with real-time copies of trades. "The real issue is, when do the prime brokers get to the point of using it?"

### Universal Direct Access and Clearing

As hedge funds expand their electronic executions across multiple asset classes, measuring intraday risk becomes more complex for prime brokers. Interactive Brokers, an electronic brokerage and prime broker, has circumvented that problem with its IB Universal Account.

"It lets you trade stocks, options, forex, futures and debt all in one account and we margin it all together," says Steve Sanders, managing director at Interactive Brokers. "At any given moment in time, you can look at your real-time account window and know what you're margin is against all of these products."

This is possible because Interactive Brokers IB provides a Universal Direct Trading platform that is capable of executing trades in 50 markets and more than 14 countries. In addition, it offers a real-time margining system - while the industry standard is to calculate margins overnight based on end-of-day positions. "It's hard to do," says Sanders. "Given that we did it from the beginning and didn't sign on to the traditional way of doing

things, we've done the work."

Sander knows because he spent 15 years at Citigroup, before leaving the firm in 2000. "You had a debt desk, an FX desk, an execution department and a clearing department. If you are operating under that scenario, you have 10 different systems," he says. "Their technology platform was like everybody else's," he continues.

"It was built up over the years and there were a lot of silos." Sander notes that, at that time, that's how the technology was at all the major brokerage firms.

"The reason to write a system that handles all executions of all products and clearing in one place is that you don't need middleware," he adds.

### Why Credit Risk Is Rising

1. Increased use of multiple prime brokers and multiple executing brokers.
2. Growth of direct-market-access trading by hedge funds and buy-side customers.
3. Collapse of T+0 to capture trades in real time and clear them instantaneously.
4. Lack of real-time margining systems - margin is calculated overnight.
5. Expansion of hedge funds into multiple asset classes.
6. IT silos, fiefdoms and disparate systems within prime brokers.
7. Different data formats and lack of standardization between trading desks.
8. Industry solutions (e.g., ACT Risk Management from Nasdaq) track transactions at the correspondent or MPID (market participant ID) level, not at hedge fund or account level.

*Sources: The Tabb Group report, "Managing Risk in Real-Time Markets"; FTEN*