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FOCUS TOPIC - **HIGH-FREQUENCY TRADING**

Who's afraid of high-frequency trading?

* Fast traders change landscape as old broker regime dies
* Competition cuts trading profits to fractions of a penny
* Critics charge integrity of U.S. equity markets at stake
* Regulators investigate as fast trading spreads worldwide

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By Jonathan Spicer and Herbert Lash

Inside the offices of Tradeworx, an emerging player in the secretive and controversial world of high-frequency trading, it's dead quiet as staffers pore over the "tape," financial industry speak for the record of the day's transactions.

Many of the firm's 30 employees are not yet 25. They were hired straight from college to ensure their thinking and work habits are untainted. Now they're making Wall Street's latest fortune, a fraction of a penny at a time.

The only clue that Tradeworx, a six-year-old hedge fund based in Red Bank, New Jersey, is a financial outfit at all are two giant screens that break up the monotony of white walls and grayish carpets. The physics and computer science graduates are crafting complex computer codes to exploit trading patterns revealed by the tape.

Tradeworx and other firms like it use such algorithms in the lightning-quick trading approach that is altering the landscape of U.S. markets, driving broker-dealers out of business and changing how money managers invest.

High-frequency trading now accounts for 60 percent of total U.S. equity volume, and is spreading overseas and into other markets. These traders stand ready to buy and sell shares at all times, providing the liquidity that keeps markets moving. As a result, trading is now cheaper and easier than ever.

Yet critics worry fast trading may undermine the integrity of the U.S. equity market, a bastion of capitalism and corporate America, and could even spark another financial crisis.

They also complain about the money high-frequency firms are making — and how they are making it. During last year's plunge, when volatility rose, many high-frequency traders earned 10 times their usual profits, executives at several of the proprietary firms told Reuters.

For their part, the fast traders don't see what all the fuss is about.

"We live in a capitalist society," said Tradeworx Chief Executive Manoj Narang, 40, wearing jeans, runners and a Yankees baseball cap.

"People should expect and be willing to pay a price for the liquidity that they get. No one should expect that a provider of liquidity is just going to stand there while you bulldoze them into submission," Narang said.

Tradeworx started high-frequency trading in January and now accounts for about 3 percent of overall volume in the exchange-traded fund SPDR Trust <SPY>, which tracks the Standard & Poor's 500 Index and is one of the most heavily traded securities.

High-frequency traders point to last year's steep sell-off as proof of their value in helping the market run smoothly. While over-the-counter and other markets seized up, exacerbating the worst financial crisis since the Great Depression, fast traders continued to buy and sell shares.

Proponents also laud computerized trading for eliminating the shady transactions that often occurred in the past when people were directly involved in trading.

TAPE HOLDS ANSWERS TO DEBATE

Trading today seems less intimate, less human, married as it is to computer code. The revolution has caught some people off guard, and has led to deep concerns.

Many institutional money managers are uneasy about how the fast traders anticipate their transactions, and worry that there might be information leakage about their trading intentions — a critical issue for asset managers.

"High-frequency trading, fundamentally, when you look at what their algorithms are finding, they're almost a structured way of trying to front-run," said Jim McCaughan, chief executive of the asset management arm of Principal Financial Group, where he oversees about $215 billion in assets.

"That just seems to me ultimately as doing it at the expense of other investors," he said.

McCaughan said he had no proof of wrongdoing, yet he suspected it is quite likely the leaking of information may have happened. "If it has, it would at best be unfair to other investors and perhaps criminal," he said.

A furor over the extent of computerized trading erupted this summer when news of the enormous profits being garnered rankled a public already apprehensive about a crisis rooted in Wall Street — whose bailout the taxpayer is footing.

Critics fear an errant computer code, similar to the program trading behind the Black Monday crash of 1987, could engender another deep market plunge.

The U.S. Securities and Exchange Commission is taking months to investigate all this. With high-frequency trading spreading quickly from its U.S. equity base, the regulator's response will be crucial for capital markets around the world.

Key to any discussion of high-frequency trading is the tape, which records the price, time, size and order of trades. It's the day's financial narrative, and its availability is held up as a major reason why the U.S. equity markets are trusted for their transparency and fairness.

The tape is also highly prized by traders, who base their computer instructions, called algorithms, on this data. The Nasdaq Stock Market produces about 50 gigabytes of information every day, which is measured in nanoseconds — or a billionth of a second.

Lotus Capital Management LP of New York earlier this year realized that a competitor was beating it to a trade it had programmed by exactly 3 microseconds, day after day. The loss meant Lotus was forfeiting about $1,000 in daily revenue on that particular trading strategy.

Lotus, a quantitative trading firm that uses high-frequency strategies, invested and tinkered, eventually shaving five microseconds from the router and two microseconds from the execution server.

"By just reading the tape you can see a lot of what the other guys are doing. You can see who is successful. So eventually everyone is operating more or less the same strategy," said Louis Liu, the 37-year-old founder of Lotus.

BROKER-DEALER MODEL UNDER FIRE

Operators like Lotus have changed the nature of the business. Small start-ups can launch with less than $1 million, and are creating enormous cost pressures on established broker-dealers and others that can't keep up, Liu said.

"That's where a lot of the complaints are coming from. We're driving the spreads down and squeezing the profit margins," he said. Legacy operators know what needs to be done, "but they're not willing to cannibalize their existing business," he added.

Being nimble is key to success. Narang said he and his partners at Tradeworx realized a couple years ago that high-frequency traders were "eating the lunch" of its hedge fund business. In response, Narang moved into fast trading and incorporated those techniques in the hedge fund.

The firm began targeting math whizzes very selectively. Last year, just six of 1,500 resumes led to jobs at Tradeworx, one of several firms setting up shop in up-and-coming Red Bank, a former manufacturing hub.

Others agree with Liu that the recent cries of foul play and other criticisms of electronic trading are coming from those who have been displaced in the lucrative brokerage business.

“The broker-dealer business model is dying, and you have massive over-capacity,” said Harold Bradley, chief investment officer at the Ewing Marion Kauffman Foundation in Kansas City, where he oversees $1.7 billion in assets.”You don’t need a dealer to put you and me together through three other brokers in a Nasdaq stock. There should be fewer people in the business.”

Several incidents this summer underscored the secrecy and money to be made from high-frequency trading. The FBI in July arrested a former Goldman Sachs Group Inc <GS.N> computer programmer for allegedly stealing trade secrets. The bank later reported blowout second-quarter earnings, bolstered by $10.78 billion in trading income.

When TABB Group estimated $21.8 billion was earned annually in high-frequency trading, the media pounced on the issue. Yet few critics asked how the size of profit compared to the past. Rosenblatt Securities pointed out that as far back as 1997, overall trading on the Nasdaq alone may have generated $20 billion in annual brokerage revenue, suggesting that profits were already substantial more than a decade ago.

REGULATOR’S REPORT LOOMS

Proprietary trading powerhouses Getco and Tradebot, hedge fund Citadel Investment Group and trading desks at Goldman Sachs and Citigroup Inc <C.N> are some of the industry’s prominent names.

Tradebot and Getco, seen as trailblazers in rapid trading, regularly account for a combined 20 percent of the overall U.S. stock market. Market sources suggest the firms each trade more than 1 billion shares a day. Tradeworx trades some 80 million shares per day.

With worries over systemic risk growing, the SEC has jumped into the fray. It has proposed a ban on so-called flash orders and wants to crack down on the scores of anonymous trading venues known as dark pools.

The regulator plans to issue a report early next year that officials said would focus on whether markets reliant on high-frequency trading are more or less efficient for long-term investors, including those trading small- and mid-cap stocks.

Most fears of a blow-up surround what is known as naked sponsored access, in which brokers allow traders use of their identification to directly trade on exchanges, saving the traders valuable time.

Critics also say the fast traders are less willing to take the other side of trades outside of large-cap stocks, reducing the amount of liquidity in smaller companies.

Politicians also are stirring the pot. Senator Ted Kaufman has warned high-frequency trading could lead to market chaos and systemic risk.

In October, SEC Chairman Mary Schapiro told Reuters the regulator “will not hesitate to propose regulatory approaches” if concerns are “significant.”

The SEC recently hired Richard Bookstaber, a well-known former risk manager at Morgan Stanley <MS.N>, Salomon Brothers and hedge fund Moore Capital Management, to work in a newly created division designed to identify risks in financial markets.

Bookstaber indicated on his blog in August that he is not particularly worried that high-frequency trading or the use of algorithms will lead to a blow-up. “I don’t think the risk is as big as many are making it out to be,” he wrote.

Institutional investors mostly complain about alleged unfair advantages and that their trades are being “gamed.”

A high cancellation rate for orders has sparked suggestions that the algorithms are deployed to glean information from pending order flows, and then based on that knowledge, race ahead to scoop up trades.

More than 90 percent of orders submitted to the New York Stock Exchange by high-frequency firms are canceled, according to an NYSE Euronext <NYX.N> official. Overall, the average daily trade volume of NYSE-listed stocks has more than tripled in five years as of 2008.

The head trader of a European money manager with more than $100 billion in assets said high-frequency traders profit through pattern recognition software to anticipate a trade.

“It’s a certain knowledge of what’s coming. It’s not like they’re guessing what’s going to happen, they’re not speculating,” said the trader, who spoke on the condition of anonymity. And he added emphatically: “They know.”

Detractors also question the amount of money the high-speed traders make, especially after holding a stock for only a few seconds. They wonder what purpose such quick turnover serves.

The market “is not trading on fundamentals anymore. It makes no sense, it’s very frustrating for traders,” said Alan Valdes, director of floor trading at NYSE member Kabrik Trading. “It’s all programs.”

‘NO BARRIER TO ENTRY’

The criticism has frustrated high-frequency traders, who are increasingly going public to defend their business. Several said they expect little impact from any new regulation, and expressed confidence that their role in the marketplace would be preserved.

Fast traders are proud they make their money through a battle of wits, believe in the work ethic and do not rely on chummy business ties. There is talk of forming an association, presumably to quell complaints and educate the public about their business.

"If you were on Wall Street in the 1990s … you would need to take guys out to dinner and build relationships, otherwise you couldn't get at the order flow. And now, if you're good … there's no barrier to entry," said Cameron Smith, general counsel at Houston-based technology and trading firm Quantlab Financial LLC, which does high-frequency trading.

"That is a really incredible improvement to the Wall Street environment," he said. "That's how we want markets to work."

A sign of the critical role the fast traders have assumed came to the fore last year after the SEC briefly banned the short-selling of financial securities. Spreads widened and trading volume declined as high-frequency traders cut back on their presence to adjust algorithms.

After the ban was lifted, the high-frequency players came back. Spreads started collapsing and volume picked up, said Todd Mackedanz, head trader at Fisher Investments, the firm founded by billionaire investor Ken Fisher based in Woodside, California.

"With that said, they do in a sense play a fairly important role in the marketplace," Mackedanz said.

Fisher Investments, like other institutional investors, has set tight price limits and is careful about whom it trades with to try to ensure it gets the best execution possible.

Many investors fear that high-frequency trading may fall prey to bad habits. In 1994, for instance, an academic study found that a large number of Nasdaq stocks were traded with spreads that were double the minimum, raising the question of whether dealers colluded to maintain wide spreads.

Jean-Marie Eveillard, a legendary investor on Wall Street, said that high-frequency trading strikes him as suspect. But Eveillard said in an e-mail message that he had no particular insight other than this: "If in a good mood, I say Wall Street is nothing but a vast promotion machine. If not, it's a den of thieves. So there is always the possibility of front running, insider trading, market manipulation."

HIGH FREQUENCY TRADING STRATEGIES

Any big market move creates ripples on which high-frequency traders feast.

Correlation strategies — like selling the S&P 500 index exchange traded fund when a blue-chip company misses earnings expectations — are left to high-frequency players with the most horsepower. Others are relegated to more complicated techniques, poring over historic trading records in various regions and asset classes.

Market making is the dominant technique, with the top-tier “ultra high-frequency” firms — those trading more than 1 billion shares per day and holding positions for seconds — relying heavily on gathering the rebates exchanges pay them for posting orders.

If a trader’s bid of $15.80 for Bank of America <BAC.N> shares is matched, that person might immediately post an offer for the same price, hoping to capture two rebates while breaking even on the spread.

The result, according to several independent proprietary firms, is a flooding of the 50 some U.S. trading venues with orders, and near-immediate execution for investors — even if the high-frequency trader on the other side of the trade walks away with one-tenth of a penny per share, on average.

A misunderstood dynamic of high-frequency trading is that it thrives off volatility, thereby reducing it. The clear winners in the revolution are small investors, who have seen their trading costs fall remarkably and markets price shares far more efficiently.

“Most of our clients really don’t spend a lot of energy worrying about the last penny on a trade, or the last two pennies,” Charles Schwab, founder of Charles Schwab Corp <SCHW.O>, the largest U.S. discount brokerage, said last month during a Web cast business update.

“We think the liquidity components are perfectly satisfactory.”

SECRECY AND SUCCESS

The 2000 decision to price quotes in decimals of a dollar was probably the most important in a series of U.S. rule changes in the last dozen years that sowed the seeds of high-frequency trading.

A spread of 25 cents for a Nasdaq stock was not uncommon 15 years ago, when market makers and floor specialists had fixed commissions and wooed clients to win business.

The late 1990s introduction of alternative trading venues was another regulatory turning point, as well as a 2005 “trade-through” rule that ensured investors get the best U.S. bid or offer, no matter where it was.

Transactions are dramatically faster, and the duration of time long-term investors own securities has been shortened. Eighteen months is now considered very long, compared with two or three years about half a decade ago.

Another complaint that haunts high-frequency trading is secrecy — not just around their firms' strategies but even who they are. A number of firms declined to be interviewed by Reuters.

"People think that high-frequency trading firms … are secretive because they're doing something untoward," Narang said. "Really the reason they're secretive is because as soon as they spill the beans other people can compete with what they're doing."

All Wall Street firms want to stay under the radar screen, said Robert Olman, president of Alpha Search Advisory Partners, an executive search firm for hedge funds and prop shops.

"Once you're successful, once you have a system that's making money, you become very secretive because it's very easy for one of your guys to leave and replicate it," he said. That's the reason behind Coca-Cola Co's closely guarded formula for making Coke, he said.

"What are the exact ingredients and proportions of Coca-Cola? Is there something wrong going on at Coca-Cola?" he said. "That's the point. It's replication, ease of replication. The barriers to entry, to competing, are not too high."