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**News OCR Text:** Its superfast, supersecret oil trading software was called the Hammer.

And if the Commodity Futures Trading Commission is right, the name fit well with an intricate scheme that allowed commodity traders in Chicago working for Optiver, a little-known company based in Amsterdam, to put their orders first in line and subtly manipulate the price of oil to the company's advantage.

Transcripts and taped conversations of actions that took place in 2007, included in the commission's case, reveal the secretive workings of high-frequency trading, a fast-growing Wall Street business that is suddenly drawing scrutiny in Washington. Critics say this high-speed form of computerized trading, which is used in a wide range of financial markets, enables its practitioners to profit at other investors' expense.

Traders in the Chicago office of Optiver openly talked among themselves of “whacking” and “bullying up” the price of oil. But when called to account by officials of the New York Mercantile Exchange, they described their actions as just “providing liquidity.”

In July 2008, the commission charged Optiver with manipulating the price of oil; negotiations over a settlement continue.

In the cutthroat world of high-frequency trading, success is a function of speed, secrecy and often a bit of intrigue. Few have been more adroit at these arts than Optiver.

Optiver describes itself as one of the world's leading liquidity providers, a trading firm that uses its own capital to make markets. It seeks to profit on razor-thin price differences — which can be as small as half a penny — by buying and selling stocks, bonds, futures, options and derivatives. (Derivatives represent about 65 percent of its business, equities 25 percent, and commodities and others make up the remaining 10 percent.)

But the extent to which market making (providing liquidity to markets that need it) and proprietary trading (the pursuit of pure profit with a firm's own money) can properly coexist has become a thorny question for regulators. They are grappling with an exploding business that makes up as much as

half the overall trading in the United States and a growing share in Europe as well.

Tanno Massar, a public relations executive working for the company, said that Optiver had no comment on the case. As for Optiver's trading conduct, Mr. Massar said that the company was committed to transparent markets and that there was no inherent conflict between pursuing profits and making markets — a view that top Optiver officials had long been trying to convey to regulators when their oil trades were being investigated.

But their pleadings fell on deaf ears. During a tense conference call in 2007, Thomas Lasala, the chief regulator for Nymex, made his doubts clear about Optiver's trading strategies.

“The market seems to move in reaction to your orders,” he said, according to a transcript of the conversation. “And I don't think that is a market-making strategy.”

It could well be that Optiver's cowboy trading tactics are unique to the company. But as concern grows over the effect that high-octane computerized trading is having on markets worldwide, Optiver's conduct in the oil futures market raises questions as to whether the relentless competition of this business is forcing companies to engage in similar practices.

“These are proprietary trading shops that are masquerading as market makers,” said Tim Quast of Modern IR, a consulting firm that advises corporations on market structure issues.

The Securities and Exchange Commission has opened up an investigation into high-speed-trading practices, in particular the ability of some of the most powerful computers to jump to the head of the trading queue and — in a fraction of a millisecond — capture the evanescent trading spread before the rest of the market does.

The spread of high-frequency trading in Europe has lagged behind the United States. But it is now experiencing rapid growth, spurred by arbitrage opportunities that have attracted large American firms like Getco and Madison Tyler.

Amsterdam, as much as if not more than London, has been the breeding ground for local firms seeking the same advantages. Companies like Optiver, All Options, Tibra and others have assumed influential positions in Europe, moving from their original expertise in trading options to the full gamut of stocks, bonds and derivatives as well.

Called low-latency trading, this blend of speed and opportunism is the essence of Optiver's business model.

It deploys a sophisticated software system called F1 that can process information and make a trade in 0.5 milliseconds — using complex algorithms that let its computers think like a trader. And the company is so careful about preserving its secrets that when some traders and engineers left for a rival operation recently, Optiver hired private investigators and subsequently sued the former employees on charges of making off with intellectual property.

Founded in 1986 by an options trader named Johann Kaemingk, Optiver has grown far beyond its roots in Amsterdam to trade on exchanges all over the world. It employs 600 people and, judging from the many positions advertised on its Web site, it is still in a hiring mode.

Given the vicious competition that exists in the industry, Optiver and other companies have become creative in attracting the smartest people in finance. The dress code is aggressively casual. The company provides free breakfasts, lunches and Friday afternoon drinks, as well as chair massages.

And in one recruiting Web video (no longer online), an Optiver trader sitting before four giant trading screens is seen ogling two skimpily clad women as they sit on his thighs.

To enjoy these professional fruits, applicants need to subject themselves to three math-based tests to test facility with numbers and the ability to think clearly under pressure. For one of the tests, 80 questions must be answered in under 8 minutes. Sample questions include  $0.034 \times 0.2$ , or, if you have a cube made of 10 by 10 smaller cubes, how many are facing the outside?

Few of the applicants even get an interview: 80 to 90 percent of people who take the test fail it. People who have worked at Optiver say the average age is young — under 30 — as the company has a policy of not hiring traders from rival institutions, preferring recent university graduates who can more

easily embrace the firm's culture.

According to the Commodity Futures Trading Commission, which would not comment on the case, Optiver made about \$1 million on its oil trading gambit.

While \$1 million may not seem like a lot, recorded conversations reveal the extent to which the firm's trading practices broadly have enriched its employees.

In one exchange, Christopher Dowson, head of trading in Optiver's Chicago office and the mastermind behind the oil strategy, bragged to another employee about how he had bought a new speed boat with his share of the returns.

“With these profits, might have to get a bigger one,” he said.

And in another, Mr. Dowson acknowledges that Optiver was so aggressive in conducting its proprietary trades in some smaller stocks that their activities “were as big as the volume traded on the day.”

It is precisely this — high-powered computers and the swagger of those who operate them — that is causing worries over high-frequency trading's increasing sway.

“The markets used to be about capital formation,” said Mr. Quast, the consultant. “Now 80 percent of trading is driven by some form of statistical arbitrage. We are buying into a statistical house of cards that could unravel very quickly.”