



RapidEye: A Commodities View From 60,000 Feet

By Jacob Bunge, Financial Correspondent | Thursday, July 26, 2007

There's a lot to be said for a macro view on a market, but often the most intriguing opportunities become clear only at the micro level. RapidEye AG is looking to deliver both to hedge funds and commodities trading advisers—literally. Established in 1998, RapidEye bills itself as a provider of geospatial products and services, as well as consulting solutions. In other words, the company will use five satellites to continually photograph the Earth, focusing on farmers' fields and forests, selling imagery and reports to money managers and others who need to know just how bad the Kansas cornfields were hit by last night's hailstorm, or whether the chemical makeup of Chinese rice paddies is conducive to a tasty harvest.

The satellites will get off the ground in November 2007 via a Ukrainian-built rocket, set to launch in Baikonur, Kazakhstan. Once the satellites are in orbit, RapidEye will be able to deliver images of four million square kilometers per day with five-meter resolution—an area half the size of the continental United States, with enough detail to spot the exhaust pipe on a truck. The satellites can move to cover any place on the planet within 24 hours, or they can be programmed to observe a particular area every day.

The key is speed and accuracy, and in the volatile futures and commodities markets, knowing more and knowing it before others gives hedge funds and CTAs a major edge, according to Mark Friend, director of sales and marketing for RapidEye.

"If a hailstorm hits and there's a 50% devastation of crops, it's going to take the market and reporting agencies weeks or maybe months, depending on the part of the world, to determine the level of damage, and in the meantime the market will trade on the best estimate," says Mr. Friend. "But if we can bring our satellites over the area, we can tell with a very high level of accuracy as to what level of damage is done."

Mr. Friend is well acquainted with the imaging sphere. Based in Connecticut, he's spent years working in remote sensing and location-based services for companies like wireless location finder Go2 and online business mapper Vicinity Corp. He says he was intrigued by RapidEye's business model—advances in technology have made it much easier to build and launch satellites, he says, and right now no other company has a similar offering. "Being able to harvest that much data every day opens amazing business opportunities," he says.

Each of RapidEye's satellites costs \$6 million to \$7 million to build; they're designed by McDonnell Douglas Aerospace Corp. in Canada and built by Surrey Satellite Technology Ltd. just outside of London. The average lifespan is seven years, and they're powered by solar cells. So far three of the five satellites have been delivered to RapidEye headquarters in Brandenburg, Germany, having undergone shaking and stress tests. Mr. Friend describes them as resembling a small refrigerator.

They're not spy satellites. The military generally prefers sub-one-meter resolution, capable of capturing license plate numbers and fine details on troop uniforms, but such high detail takes up a lot of storage

space, and for RapidEye's purposes, what's needed is as much spatial coverage as possible. RapidEye's images also are taken in five spectral bands, including infrared, which can reveal quite a bit about a crop—how much nitrogen is in a field of corn, how much protein is in a rice paddy, or whether a plant is healthy.

Mr. Friend says that soft commodities will be the satellites' primary focus—so far corn, soybeans, sugarcane and citrus have raised the most interest among prospective clients—and orbits will regularly cover crop growing areas in Canada, the Midwestern and Western United States, Brazil, China, Japan and the Ukraine, among other regions. If a commodities manager calls up RapidEye and wants information on the Colombian coffee crop, the company could have a satellite over the area within 24 hours, download the image and have the data back to the manager in another one to three days. Average turnaround time for data, according to Mr. Friend, is 72 hours.

The images are the centerpiece of RapidEye's offering, but they're not the whole story—the company bills itself as a customized solution provider, and once the images are beamed down from the satellite, RapidEye can interpret, refine and package the data in a custom-tailored package for each client, according to Mr. Friend. Or not; RapidEye is in talks with one oil company that wants only the images, which will be analyzed by its in-house engineers for purposes unknown. Information security is a big concern for many of RapidEye's prospective clients, and Mr. Friend notes that from the time the photo is taken by the satellite to the moment the images are opened on the client's desktop, the information never leaves the company's control.

Control of the satellites themselves is another issue. Mr. Friend says that the satellites are wholly owned by RapidEye AG, and the company is backed by bank financing, not government money. This means that the clients' interest is always foremost: "We're not married to a government or a corporation or military application that's going to take up a lot of our bandwidth," Mr. Friend says.

The photos and the service aren't cheap, however: Hedge funds and commodities traders will negotiate their own custom agreements with RapidEye, and depending on how much data and how frequently they need it, Mr. Friend estimates the cost will come in around six or seven figures. However, he adds, for the big players that actively trade and invest in futures and commodities, such a price is a drop in the bucket for good, real-time data.

There are risks, too. The possibility of space junk colliding with one of the satellites is fairly low, Mr. Friend says, but communications issues are not unheard of; to this end, RapidEye decided to launch five satellites, though four could cover nearly the same ground. Another factor is the weather. Cloud coverage will of course hamper satellite photography, and the options are either to position the satellite to photograph from an angle, or simply wait for the cloud to pass.

Not all crops can be accurately imaged at RapidEye's five-meter resolution—grapes, strawberries and peanuts are all too small to be shown in any detail in the satellites' photographs, Mr. Friend says. However, the company can examine the health of such crops via the various spectral bands, and also can study the health of the vegetation surrounding the crop for an indication of growing conditions.

Besides commodities and futures managers, RapidEye will target other potential client bases in the forestry, mapping and navigation industries, as well as governments. The oil industry is another potential customer, which Mr. Friend says has been interested in using satellite imaging for infrastructure monitoring—keeping tabs on encroachment by vegetation and settlement, along with security issues. The oil companies also find themselves in far-flung corners of the world in the hunt for resources, in places for which up-to-date maps may be scarce, and RapidEye can help here as well. Insurance providers have expressed interest in using the photos to quickly assess cities or crop areas that have sustained a catastrophe—New Orleans in the aftermath of Hurricane Katrina would be a recent example.

RapidEye is not the only company offering spatial imaging services, but Mr. Friend says the company

has no direct competition. Longmont, Colo.-based DigitalGlobe Inc. provides imaging, but on a much more detailed scale, with photographs taken via airplanes; to cover an area equal to RapidEye's four million square kilometers would cost an "astronomical" sum, according to Mr. Friend. Closer to RapidEye are Spot Image Corp., based in Chantilly, Va., and the Landsat Program, which is jointly managed by the National Aeronautics and Space Administration and the U.S. Geological Survey. But Mr. Friend says that neither provides the level of resolution that RapidEye does, and turnaround time on images is longer, generally two or three weeks.

By the end of the year, Mr. Friend says RapidEye expects to have 140 employees staffing its Brandenburg headquarters, up from 70 currently; these will be split evenly between marketing, product development and operations. He forecasts 400 customers by the first quarter of 2008.