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Aspect Capital, Man AHL and Winton are doubling down on machine learning and other quant efforts, but don't expect the three U.K. hedge fund rivals to short human brain power. **By Bailey McCann**

WHEN PANIC STRUCK THE CHI-nese stock market last August, Man AHL wasn't caught flat-footed. The London-based systematic trading firm avoided losses during the sell-off thanks to a machine learning algorithm that analyzed its positions and reacted faster than traders could to the spike in volatility. "Machine learning helps us to spot patterns that humans can't easily spot or couldn't spot at all in the sheer amount of data being created today," says Sandy Rattray, CEO of $19 billion Man AHL.

The firm began its life in 1987 as commodity trading adviser AHL, the quantitative investing pioneer founded by Michael Adam, David Harding and Martin Lueck that spawned Aspect Capital and Winton Capital Group. Almost 30 years later, the three rival hedge fund players are investing heavily in machine learning and data science as they seek to capitalize on renewed investor interest in quant strategies.

Last month Man AHL announced that it would be expanding the scope of its Oxford-Man Institute (OMI), a quantitative finance joint venture founded in 2007 with the University of Oxford. OMI, which aims to create a machine learning and data analytics hub at Oxford, will also join the university's Department of Engineering Science in August.

The OMI expansion is part of a broader push by Man AHL, a unit of U.K. alternative-investment giant Man Group, to develop machine learning that enables better financial algorithms. The firm trades four main strategies: classical long-term trend following, proprietary trend following, multistrategy and long-only. Under Rattray's leadership, Man AHL has been developing

machine learning–driven algorithms for half a decade. The results of that work have been filtering into select client products over the past three years, in some cases driving significant gains.

"We have spent a lot of time on machine learning; it is the single biggest area of research spending for the firm," says Rattray, who joined Man AHL in 2007 from Goldman Sachs Group, where he was a managing director specializing in quantitative trading. "We are looking at people, data, hardware — it's not just one aspect that is going to bring this all together." Of Man AHL's 1,000-plus staff, 130 focus on trading strategy; many of them do machine learning research that supplements OMI's work.

Machine learning–based trading algorithms operate much differently than their rules-based counterparts. Historically, a portfolio manager would have created an algorithm based on a financial model or data set and fashioned rules for how it would behave when trading.

With machine learning, a computer sifts through billions of data points, picking up patterns. Armed with this knowledge, it learns trading behaviors such as buying dips or selling high over time, based on what it has gleaned about the market from past and present data. Man AHL's algorithms work off vast data sets that include 1.5 trillion price ticks as well as options information and index feeds. Billions of new price ticks can be added to the system in a single day.

The firm has invested in high-powered hardware to process this information. But traders and scientists must know how the algorithms work and how to avoid overfitting data to a trading hypothesis, warns Anthony Ledford, chief scientist at OMI. "The important thing to realize with machine learning is that you have to understand both the problem and the data, and fit them together carefully," Ledford explains. "You always run the risk of overfitting."

Man AHL's research effort comes after a few challenging years for the firm,
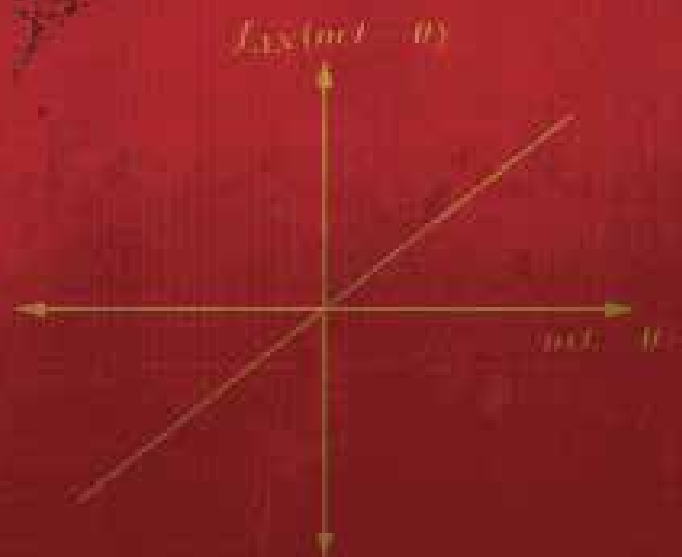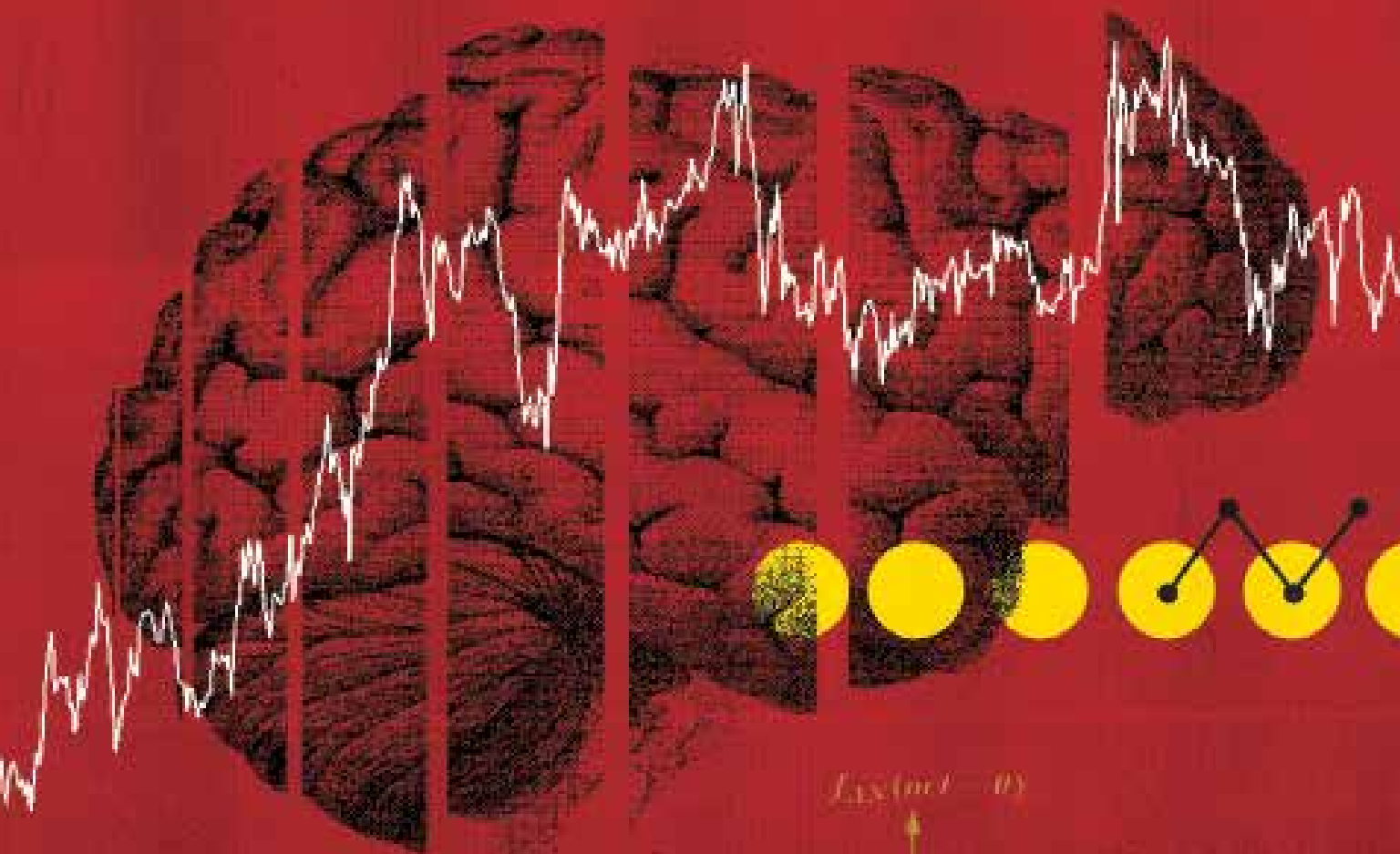
whose assets still haven't recovered to their peak of $24 billion before the 2008–'09 financial crisis. Year-to-date through April, the $4.6 billion Man AHL Diversified Programme was down 0.34 percent, according to Atlanta-based data provider eVestment. But systematic trend follower Aspect's flagship, $4.7 billion Diversified Fund fell 4.8 percent in the same period. At CTA Winton, the $18.5 billion Winton Diversified Fund (Luxembourg) and the $13.3 billion Winton Futures Fund lost 2.85 percent and 2.2 percent, respectively.

Aspect co-founder and CEO Anthony Todd started his London-based firm in 1997 with research director and fellow Oxford physics graduate Lueck after they left AHL, which Man had acquired in stages from 1989 to 1994. "Investors are coming back into strategies like ours because there's no yield in fixed income and they want a diversifier alongside equities," Todd says. "We were well positioned for the sell-off that started at the end of last year. Our programs reacted dynamically."

Aspect's trading program is seven in one, operating at a range of frequencies by capturing trends of between two weeks and six months. Those different frequencies matter in choppy conditions like the first quarter of 2016. After markets stabilized in late February, the Aspect strategies with the shortest-lived positions fended off potential losses by allowing the firm to move quickly, Todd says: "We actually built up a small short position in the dollar and went long Brent crude," he recalls. Still, the Aspect Diversified Fund was down 4.69 percent in March, eVestment reports.

When it comes to quantitative finance, Aspect occupies a middle ground, blending human intuition and rigorous research to create trading programs that aren't just autonomous algorithms. The medium-term trend follower keeps refining its models through research and opportunistic acquisitions, Todd says.

In March Aspect acquired $1.4 billion, Jersey, U.K.–based rival Auriel Capital Management. Besides boosting

total assets to $6.3 billion, this takeover gave Aspect access to a unique currency overlay for its trading programs.

Todd, who is on the lookout for other small firms to acquire, seeks intellectual property that Aspect can use to refine its funds with road-tested ideas. The firm is also delving into areas like deep learning — training neural network–based algorithms for trading purposes — examining new ways of sifting through big data and beefing up its cloud infrastructure to add storage capacity and processing power.

But Aspect is hardly going all in on artificial intelligence. "Our research approach has always been hypothesis-driven," Todd says. "Of course we're

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SANDY RATTRAY
Man AHL

developing these areas, but we are more incremental. One of the draws of medium-term trend following is that it's intuitive, so we want to maintain that balance between intuition and algorithms."

David Harding founded London-headquartered Winton a year after departing AHL in 1996. Like Lueck he was always more interested in research and trading than being part of a large institution. Today Winton is also expanding its research capability; to that end, the $34.5 billion firm has opened a San Francisco data science center to tap Silicon Valley talent.

Founder and CEO Harding, who holds a physics degree from the University of Cambridge, sees a future in building proprietary data sets. Winton wants top-shelf scientists to help, he told *Institutional Investor* at May's Milken

Institute Global Conference in Beverly Hills, California.

Harding is taking a little from column A and from column B, matching up computing and intellect to find a new way forward. With plans to grow Winton's San Francisco team from six scientists to as many as 40, he's open to ideas when it comes to building investment hypotheses and gathering data. The Bay Area outpost will also house the North American arm of Winton Ventures, a new venture capital unit that is hunting for data-driven start-ups. "We're interested in companies where really understanding what can be inferred from the data — drawing valid conclusions from the data — is essential to the success of the business," Harding says.

For John Moody, a computational finance expert who runs his own CTA firm in Portland, Oregon, the resurgent popularity of quantitative trading strategies is part of a broader trend. "People have difficulty thinking statistically; they let cognitive bias get in the way," says the founder of $152 million JE Moody & Co. "The research suggests that because of this, it can be less risky to let formulas do the work when it comes to making investment decisions."

An invention like Google's autonomous car, which learns as it drives, has made people more comfortable with that idea, Moody notes. As society becomes more reliant on machine learning algorithms for a wide range of decisions, Moody expects their use in finance to keep growing — a potential boon for quant shops.

Like Aspect's Todd and Man AHL's Rattray, Harding is philosophical about how far computers can take his firm. "The development of machine learning can be traced from the 1950s all the way through to today," he says. "People talk about it like algorithms are going to run everything, but these are really incremental advances that we've achieved. We will have to keep up the work in order to stay ahead, and talented people will always be at the helm of that work." •

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Number of data scientists that London-based Winton plans to employ at its San Francisco office