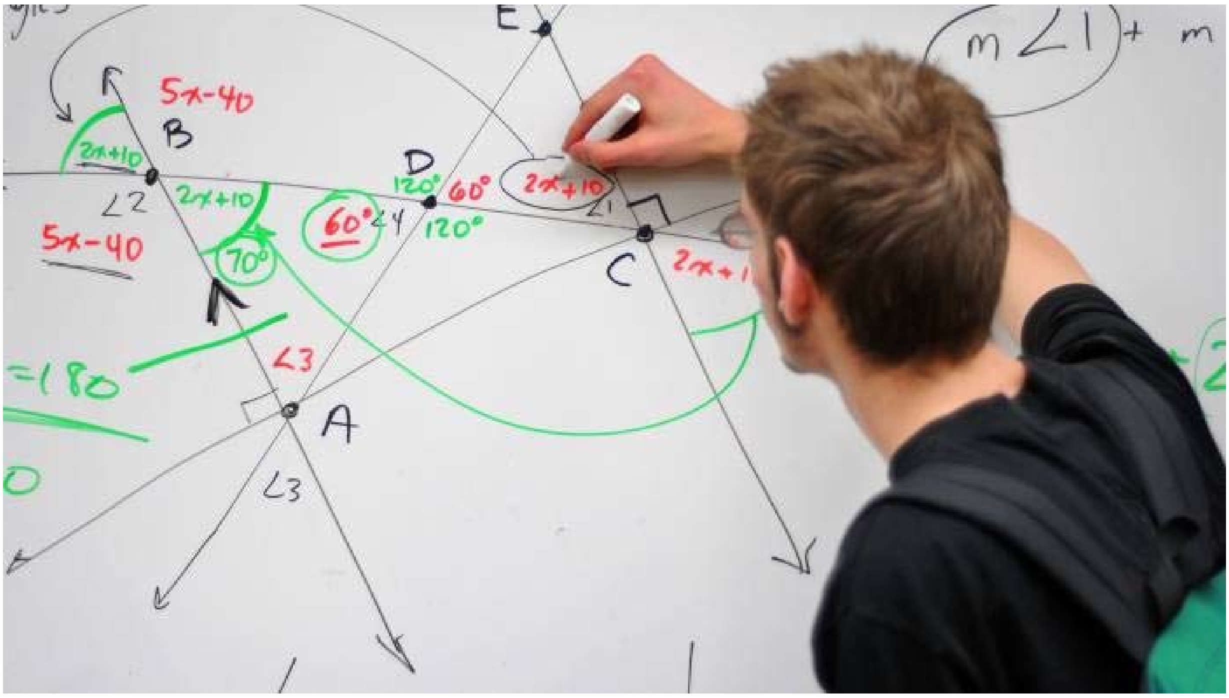
FTfm **Quant investing**

The quant factories producing the fund managers of tomorrow

The campuses of elite universities are favoured hunting grounds for many investment groups



The world's sharpest mathematicians and data scientists underpin the machines and algorithms employed by quantitative traders © Vlue/Dreamstime

Jennifer Thompson in London JUNE 2, 2018

The wealth of nations and individuals is ever more likely to be influenced by computer algorithms as investors look to computer-powered quantitative trading strategies to generate returns.

But underpinning those machines and algorithms are real people, namely the world's sharpest mathematicians and data scientists.

Though not hard to identify, virtually every industry — and especially Big Tech — is competing with the financial world for their skills.

Two Sigma, the quantitative hedge fund, made headlines in April when it emerged that it had recruited data scientist Mike Schuster from Google to expand artificial intelligence.

"There's a real war for data scientists right now," says Alexander Friedman, chief executive at GAM, the Swiss asset manager. "A number of investment firms have developed special relationships with universities to help source talent."

Competition for talent means the campuses of elite universities have become a favoured hunting ground for many groups, and that the very best students and early career academics can command staggering starting salaries should they join the investment world.

A top masters student with a strong quantitative background joining a US hedge fund typically commands $90,000-120,000 in their first job, while the basic pay package for those with a PhD under their belt could hit $200,000 according to Robert Frey, director and co-founder of the quantitative finance programme at Stony Brook University.

The links asset managers foster with universities vary. In the UK, Oxford and Cambridge are home to dedicated institutes established and funded by investment managers. Although these were set up with a genuine desire to foster research in the field, with a nod to philanthropy, they are also proving to be an effective way to spotting future talent.

Connections between hedge funds and investment managers are less formalised on US campuses but are treated with no less importance.

Personal relationships are important, says Mr Frey, who has worked at Renaissance Technologies and is now chief executive and chief investment officer at another hedge fund, FQS Capital Partners.

Stony Brook has trimmed the theoretical elements in its quantitative programme to free up space for students to apply that knowledge to real-world problems. "It's clear there's not enough qualified people to fill the jobs out there," he says.

Oxford university and Man Group

A light-filled modern block in north Oxford houses quants working for two institutions: employees of Man AHL on one floor, and academics and doctoral students at the university spread across two others.

$90-120k

The world's largest listed hedge fund group set up the Oxford-Man Institute of Quantitative Finance in 2007 to conduct research into

Starting salary for a top masters student with a quantitative background at a US hedge fund

financial markets and develop new quantitative methods.

Though the institute was not set up as a recruiting tool, this has been a valuable byproduct. Matthew Sargaison, co-chief executive of Man AHL, Man's computer-driven trading unit, says the institute has been the springboard for "a good number of hires".

More than 70 PhD students have been supported by the Oxford-Man Institute over the past decade and a number of them now work at Man Group.

"Competition [for talent] is seriously fierce. It's much more Big Tech than other financial institutions," Mr Sargaison says. Man does not own the research done by academics and students but it does benefit from getting early sight of it due to their proximity, he adds.

Oxford was chosen for being a high-profile research university close to London.

The Oxford-Man institute works as "a virtuous circle" according to Chris Sier, a professor of financial technology at Leeds University.

"The best quants in the world go there for their PhDs," he says. "Researchers want to go there [and] Man Group gets top class researchers."

Erasmus University Rotterdam and Dutch pension fund APG

Erasmus University Rotterdam began offering a one-year masters degree in Quantitative Finance more than a decade ago.

It boasts that students can "solve complex financial problems through quantitative and empirical research using the latest techniques and sheer computing power".

The course has become popular with the numbers of students enrolled growing fourfold since 2007 to about 100 now. Up to a quarter of these are usually international students, with half of that number coming from other EU countries.

"They [the students] see good job prospects," says Dick van Dijk, the programme's director, though he adds that they were proactive at chasing opportunities.

A key attraction of the course is a 10-week research project where students work on problems set by Dutch investment groups. Recent problems have been set by APG, the Dutch pension fund manager, and Robeco, a €161bn quantitative investing specialist headquartered in Rotterdam.

“Every year they provide a case [and] they hire a lot of our students,” Mr van Dijk says.

AQR, London Business School and University of Chicago

AQR Capital Management, a $225bn Connecticut-headquartered hedge fund, prides itself on its ties to academia both in the UK and US.

It established the AQR Asset Management Institute at London Business School three years ago, providing funding for PhDs and academics.

$200k

Possible basic pay package for those with a doctorate and starting at a US hedge fund

Links to US colleges are less formal but no less important. Earlier this month [May], 120 clients attended an event hosted by the University of Chicago at which AQR’s researchers presented their research.

“It’s how we like to spend our time,” says David Kabiller, co-founder and head of business development at AQR, of time spent on campus. “We’re just being who we are.”

Mr Kabiller’s two fellow co-founders have PhDs from Chicago and more than 70 AQR employees out of 914 staff hold doctorates.

But he stresses that AQR’s activities on campus were not regarded as recruiting tools, but were there to promote exchange of ideas.

The hedge fund also sponsors a $100,000 prize for investment research, the AQR Insight Award.

AQR recruits from more than 20 top universities, including Chicago. “They’re clearly a very important one [but] we don’t limit ourselves.”

GAM and Cambridge university

The Cantab Capital Institute for the Mathematics of Information was set up with a £5m donation to Cambridge university in 2016 by Cantab, a Cambridge-based investment company acquired by Swiss asset manager GAM the same year and renamed GAM Systematic Cantab. Professor Stephen Hawking attended its launch.

The institute focuses on developing new methodologies for working with big data and is currently supporting the work of 11 doctoral students as well as academics.

“It was completely philanthropic [with] no strings attached,” says Matthew Killeya, co-chief investment officer of GAM Systematic Cantab. “We don’t want to constrain them.”

Though it was early days he acknowledged the unit could be a route to potential employment. “It’s pretty likely it will lead to recruits,” he says. “We’re open to that idea.”

However he emphasises that softer skills such as the ability to communicate are also crucial, so part of its worth lies in getting to know students as individuals as well.

GAM Systematic Cantab has already invited some students to share their perspective on mathematical problems the business is grappling with. One recent visitor shared his knowledge of language processing applications.

“We hire many of our people straight from Cambridge,” says Mr Killeya. “We’re a bunch of ex-PhDs ourselves, it’s always nice to go back to university.”

WorldQuant University: the independent route

One option is to bypass the traditional university campus entirely and establish your own course, available online, akin to the distance learning Open University model.

This is the approach favoured by WorldQuant, a hedge fund headquartered in Connecticut, whose founder Igor Tulchinsky set up WorldQuant University in 2015.

The online portal offers students a two-year part-time MSc programme in financial engineering with modules covering topics such as econometrics and statistics.

“We’re tying to build pathways for students to learn,” says Daphne Kis, WorldQuant University chief executive. “Five years from now, if you want to be a CFO a degree in financial engineering is better than an MBA.”

Around 60 graduates have earned the qualification but those hoping for a springboard to WorldQuant will be disappointed: students are ineligible for employment there for a year after graduating in an effort to maintain a strict division between business and philanthropy.

But Ms Kis says the project would help “lift the whole boat” globally when it comes to developing better quant skills and widening opportunities in the field. Over 1,500 students are enrolled in the programme, over half of them from sub-Saharan Africa.

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