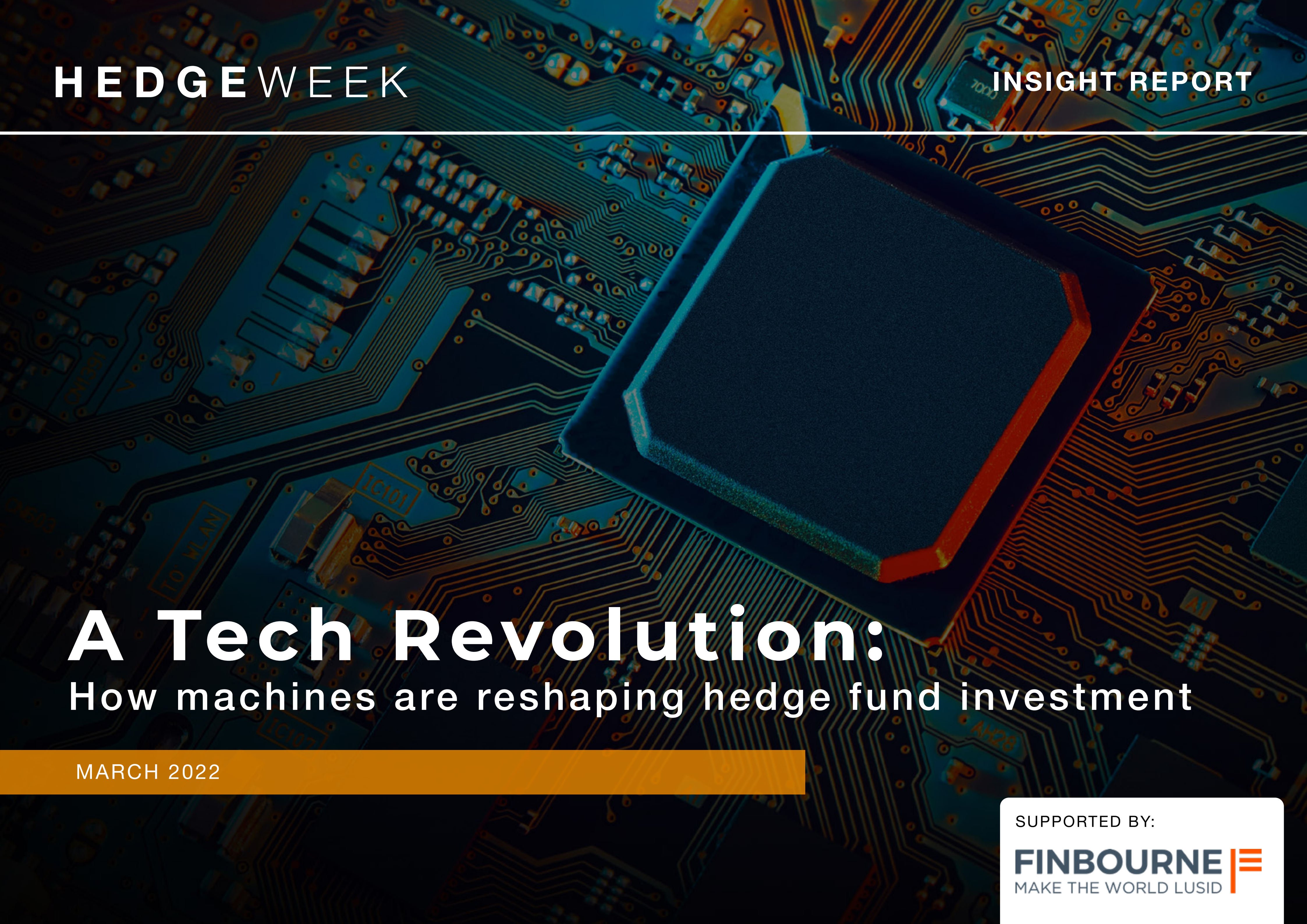

HEDGEWEEK

INSIGHT REPORT

A Tech Revolution:

How machines are reshaping hedge fund investment

MARCH 2022

SUPPORTED BY:

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MAKE THE WORLD LUSID

KEY FINDINGS

Rise of the machines highlights opportunities – and risks
Major advances in data, infrastructure and computing power offer hedge funds – both quantitative as well as discretionary - the potential to enhance investment ideas and boost returns. But market shocks and flash crashes remain a live risk amid the digitisation of markets

Alternative data increasingly important in hedge funds' tech arsenal
As hedge funds look to ramp up their use of alternative data in their investment process, the ability to better source, test and process data is now critical

Outsourcing trends accelerate amid Covid, cybersecurity, and regulatory challenges
Hedge funds' tech outsourcing has been hastened by Covid-19. An increase in cloud providers and data solutions, coupled with a sharper focus on regulation and cybersecurity, is further accelerating these shifts

Quant strategies power up as investor interest piques
After systematic funds outflanked discretionary strategies last year, allocator interest in quant is growing. But tech-focused strategies have endured a bumpy start to 2022 amid economic volatility

Market mechanisation is reshaping recruitment
With hedge funds looking to bring more tech talent onboard in the next 12 months, managers face a fierce battle to recruit the best data scientists, coders and engineers

CONTENTS

THE ONWARD MARCH OF THE MACHINES

A revolution in technology is transforming the way hedge funds operate, offering managers advantages – as well as challenges – in tumultuous times

The hedge fund sector has undergone a “technological revolution” during the past decade, which has disrupted and reshaped an assortment of areas and business functions, according to market participants, with the pace of change continuing to accelerate.

Recent years have been underpinned by “huge leaps forward” in the volume and range of data used by hedge funds and the availability and flexibility of technology infrastructure within firms, says Alex Nixon, chief technology officer at Maniyar Capital, the London-based macro-focused firm established by ex-Brevan Howard Asset Management and Tudor Investment Corporation manager Dharmesh Maniyar.

“In the past, successful asset managers, and hedge funds managers in particular, needed to invest in significant resources across the firm to acquire data and operate large middle and back-office teams,” says Nixon. “Over the last 5 – 10 years high-end computing power has become significantly cheaper and more accessible. Additionally, with the growth in quality of third-party cloud-based services, managers can now outsource many functions and run leaner and more agile teams. This incredible industry transition has levelled the investment field and the advantages enjoyed by the super large hedge funds can now be enjoyed by even mid-sized firms.”

At the same time, this tech revolution has also heralded a rapid expansion in the number, availability and flexibility of different techniques for signal processing, machine learning and AI that help fuel quantitative hedge fund strategies’ investment processes.

“Computer-based strategies benefit from the strength computers can bring - they can compute predefined indicators on a large amount of data, optimise some criteria and do all this systematically, with no errors,” observes Nicolas Guassel, CEO and co-CIO of Paris-based Metori Capital Management.

Potential

However, he concedes that systematic hedge funds suffer from “the intrinsic limits of computers.”

“No computer has ever created something new. The conception of an algorithm remains something which requires a lot of practical experience and creativity - a typical human quality,” he tells Hedgeweek. “Practically, on liquid markets, where data is available and public, computer-based strategies might have an edge. On the opposite, it remains very difficult to ‘automatise’ strategies based on less quantified indicators, such as concentrated stock picking or private debt investing.”

That potential advantage is reflected in recent industry performance stats, which indicate that hedge funds which use a machine-based investment approach have outflanked those firms with more traditional discretionary trading styles in the past year, reversing performance trends of recent years.

According to Barclays’ 2022 Global Hedge Fund Industry Outlook, quantitative equity managers, for instance, advanced 11 per cent on average in 2021, while computer-based CTAs rose 9 per cent last year. By comparison, traditional discretionary long/short equity hedge funds gained 10 per cent last year, while discretionary macro funds were up just 1 per cent.

Delving deeper into the numbers, quant managers are also outflanking their discretionary counterparts when it comes to generating alpha – a core barometer of success for the hedge fund industry. Annualised alpha among quant equity funds topped 9.1 per cent in 2021, with a Sharpe ratio of 2.2 thanks to lower volatility, compared to discretionary equity managers’ -0.3 per cent annualised alpha and 1.0 Sharpe ratio the same year.

> "The good thing about being systematic and automated is that you remove a lot of the emotion from the process"

Reflecting on the relative merits of a computer-based investment approach, Laurent Laloux, chief product officer at CFM, explains how quantitative investment managers have the ability to amass and aggregate a large quantity of different sources of data and alpha, which in turn potentially gives them the edge against competitors.

"The good thing about being systematic and automated is that you remove a lot of the emotion from the process," Laloux tells Hedgeweek. "From there, you can then really focus on assessing the quality of data, and risk-controlling what you are doing."

He continues: "It's not because you crunch a lot of data and you use a computer that you're necessarily any better at predicting alpha. It's an investment style like any other, so you should be reasonable about it and not have your hopes up to the sky.

"But instead of having just one, or a few handfuls of bets like a human being, you can have thousands and thousands of tiny bets which on their own may be barely statistically relevant, but by the sheer force of statistical aggregation, you get something which is robust and works. This is really the job we are doing - we are, if you want, a vacuum cleaner of tiny alpha remaining everywhere. But because of the scale of what we do, we get something which is really relevant in the end."

Quant advocates readily admit that for all the state-of-the-art technology underpinning their investment processes, the traditional reliance on historic trading patterns means that rapid changes in market regimes and investor sentiment can - and do - send systematic strategies into a tailspin. It's a question that has come into ever-sharper focus given the current backdrop of geopolitical turmoil, soaring commodities prices, shifting inflationary patterns and investment uncertainty.

Risks

To counter such potential risks, managers such as Aspect Capital, the London-based quantitative hedge fund pioneer which runs a range of systematic funds across the managed futures and global macro spectrum, utilise combinations of models that trade with and counter to the prevailing trends within certain asset classes.

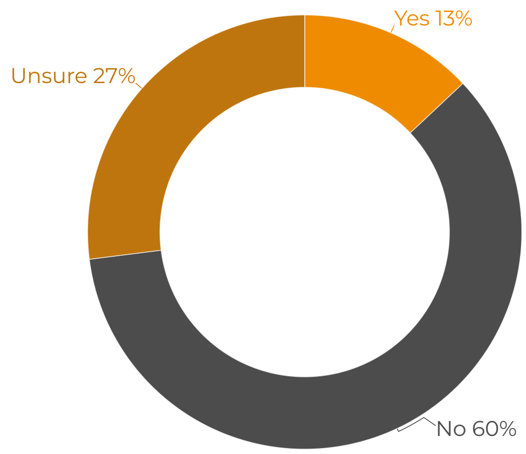
"Often, in the broad scheme of things over the order of months, when everyone gets too bullish it can be a very strong sell signal; when everyone gets too panicky, it's usually a good time to buy," says Razvan Remsing, Aspect's director of investment solutions, adding that despite the rise of alternative data in recent years, there is still considerable merit in long-established systematic models utilising traditional datasets that have stood the test of time.

"Last year, for example, some alternative datasets actually had very little traction in being able to navigate the way the Fed was trying to message that inflation is transitory. Every few weeks sentiment would swing from one side to the other – it's not always the case that more frequent sentiment information gives you a better quality of information. You have to combine that with models that look at what's actually priced in, via traditional sets."

He adds: "Traditional data forms the backbone of our strategies, and it is quite likely still the mainstay of most significant managers out there. The reason is that it's the most reliable, and accurate, and irrefutable data."

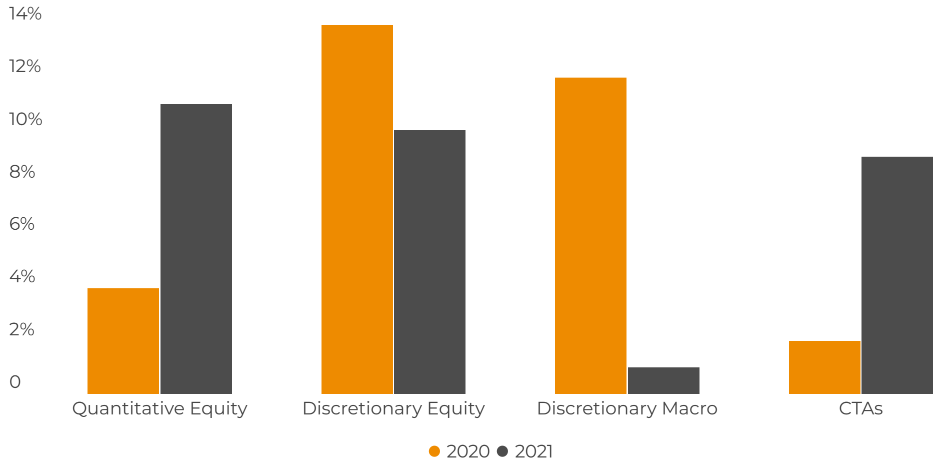
Laloux says: "We know that when there is a big regime change - it could be the Trump election, or Covid, or

Do you believe that hedge funds have fully captured the potential opportunity provided by new technology, including software solutions, machine learning and AI?



Source: Hedgeweek readers' survey, March 2022

Hedge Fund Performance: Quantitative vs Discretionary Equity



Source: Barclays Prime Services Capital Solutions, 2022 Global Hedge Fund Industry Outlook

unfortunately a war in Europe - there's always a risk that you have taken on the wrong side of things. But that's also the case for human beings.

"As a quant, you know that your system will take a little bit of time to adapt to the new environment, and recover potential losses you may have suffered. Discretionary managers might be faster to react in a regime shift, and are able to assess, based on hypothesis, what should be the right way forward."

According to an industry survey carried out by Hedgeweek for this report, just 13 per cent of respondents believe hedge funds have fully captured the potential opportunity provided by new technology, including software, compared with some 60 per cent who said they have not, with close to 27 per cent still unsure.

One sector rapidly opening up to new opportunities in systematic trading is emerging markets, says Paulo Remião, partner and portfolio manager at London-based Broad Reach Investment Management. Launched by former Spinnaker Capital manager Bradley Wickens in 2016, emerging markets-focused Broad Reach is "at the frontier" of applying a fully systematic process to emerging markets, explains Remião.

"20 years ago, emerging markets had some credit trading, some FX trading, and a relatively limited number of countries. Now, emerging markets have increased massively in breadth, in terms of the number of countries that can be accessed, and the number of instruments available across countries. You can also trade credit, FX, rates, equities, commodities," he notes.

Processes

"One way that we figured out how we can monitor all the opportunities that exist across all these countries and all these asset classes is to have a much more systematic approach to the way we deal with data and the investment process."

As artificial intelligence and machine learning functions continue to spread into all corners of financial markets and various points of the investment process, fund managers acknowledge the increased risk of events similar to the 2015 'flash crash', as well as other assorted code blips, which in turn could risk renewed episodic and unpredictable bouts of volatility.

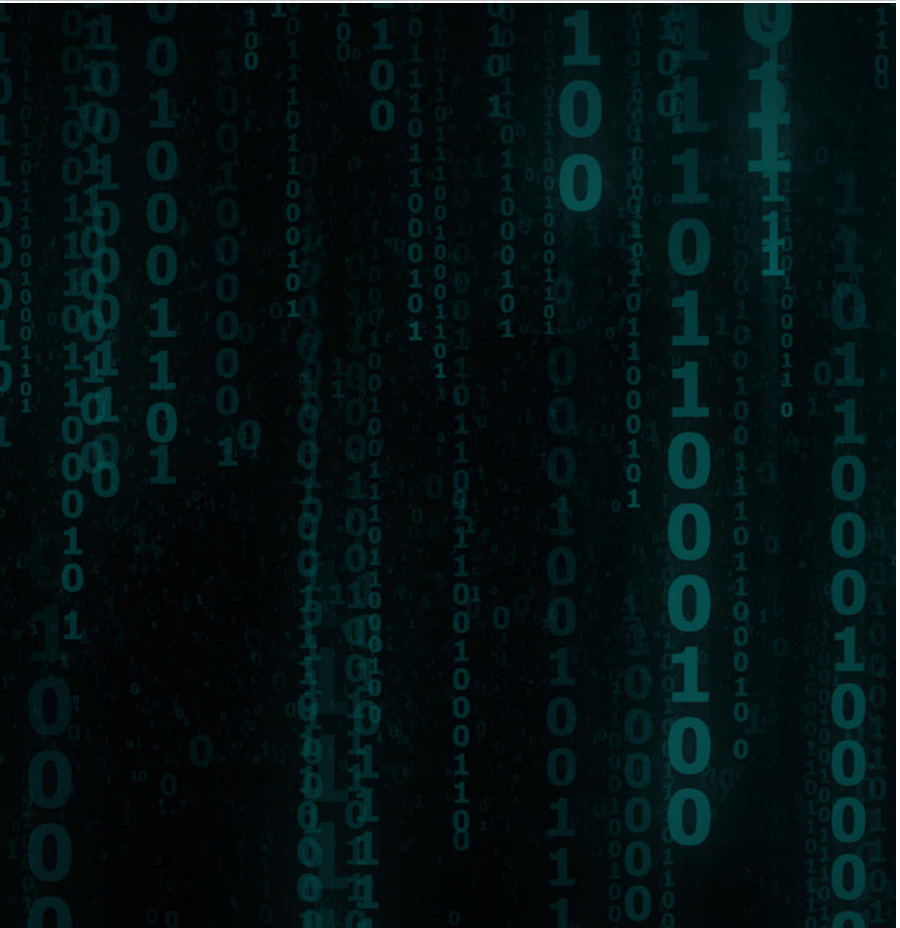
"Behind the machines, humans are coding, and people are likely to think in the same way," Julien Messias, co-founder and head of R&D at Paris-based Quantology Capital Management tells Hedgeweek. To address this, Messias, whose firm manages several systematic equity strategies, urges quant-based managers to carve out a unique approach and, ultimately, "think by yourself".

"We are convinced by the advantage of systematic, ruled-based strategies over discretionary 'human' approach. This difference occurs mainly during fast markets, in which humans see their rationality overcome by their feelings - anger, fear, greed. This is when they commit errors – and big ones," Messias says.

"Try not to copy off your neighbour - AI and machine learning being more prevalent means people using the same techniques which means more crowded trades. Try to build in as autonomous a way as you can your processes, and your strategies, from A to Z."

NAVIGATING THE ALT-DATA AVALANCHE

As hedge funds continue to tap into alternative datasets to help manage risk and boost performance, the need for managers to strengthen their expertise in sourcing, testing and processing information is now critical



In the past, hedge fund strategies using computer-based investment models historically leaned on rear-view structural and market data – such as GDP growth or current account data – for their inputs. But as the pace of markets has quickened, so technology has rapidly advanced, with systems moving with the momentum.

As a result, quant strategies now look to an ever-expanding set of alternative data – from shipping and flight patterns to geolocation data and weather mapping, as well as natural language processing – to get an edge on the competition. According to a poll of some 30 hedge fund firms conducted by Hedgeweek, more managers are planning to increase their usage of alt-data in the coming 12 months.

Reflecting the expansive volume of alternative data on the market, different hedge fund strategies – equity, macro, CTAs and so on – are utilising different forms of alternative data in an assortment of ways in their day-to-day processes.

Thomas McHugh, co-founder and CEO of Finbourne Technology, is keen to draw a distinction between the data available to managers and the usefulness of the information it can generate.

"What you tend to have are many platforms that will give you access to vast quantities of data, but very few of them that have the in-built sophistication to turn that data into valuable information," McHugh explains.

Established in 2016 with the aim of reducing the cost of investing and strengthening transparency, Finbourne Technology has grown from seven founders to more than 140 people in under five years. Specifically, it combines a cloud-native, SaaS foundation with digital data management capabilities and PMS functionality, which Finbourne sees as key to achieving efficiency, scale and diversification across hedge fund workflows.

Sentiment

Underlining the value-add of Finbourne's offering, McHugh says: "You need a platform accessible via APIs, that works alongside machine learning frameworks and all of the other the toolkits out there, but in a way where it knows what a trade is, what a portfolio is, what an instrument is, what a cost-basis is. That's where we are trying to operate.

"We know hedge funds are primarily focused on generating alpha and reducing costs. As a result they no longer want to host and be responsible for maintaining tech environments. Our aim is to take that pain away and help derive value out of the data they hold today, and convert it into meaningful portfolio positions."

A 2020 survey by the Alternative Investment Management Association and SS&C found that traditional long/equity hedge funds typically crunch sentiment data, online reviews and payment information as part of their research and investment approach. Certain quant hedge funds – like equity market neutral and systematic macro – will often tap into weather patterns, satellite data and logistics metrics, along with certain web-crawled data. CTAs and trend-following strategies, meanwhile, use logistics data and consumer spending and lifestyle information, according to the survey findings.

"We use a lot of sentiment-based data now – we believe that there is a lot of information from the wisdom of crowds," says Razvan Remsing, director of investment solutions at Aspect Capital. "For example, option market volatility surface data can provide information about the way participants are positioned or where the risks are perceived, without needing to trade the options themselves.

"We infer sentiment from option market data, or we infer sentiment outright from using, for instance, natural language processing to scrub blogs and websites to give us a far more frequent update on the broad sentiment around, say, US stock markets or G10 currencies."

Remsing observes how this approach proved particularly successful in navigating the coronavirus-driven market meltdown of March 2020.

"The models that did well were those driven by these alt datasets which looked at sentiment, rather than fundamental data, which was often quite backward-looking. It was obvious that a lot of economic activity had stopped - but the traditional data hadn't caught up with that; some of those data updates were on a weekly, or even monthly basis."

In contrast, many of the systematic macro programmes utilise alt-data and were correctly positioned for the sizable market swings, he explains. "In a very dislocated environment, they worked very well. Once sentiment and equity markets came back, and when there was more confidence in the rally, these alt datasets were able to confirm that sooner than traditional models and traditional data."

But as the types of data available continue to widen, dramatically recasting how hedge funds look to develop trading themes and manage portfolios, a key emerging challenge for hedge funds is how to determine the quality and relevance of datasets.

Bin Ren, founder and CEO, SigTech, a quant-focused information evaluation and analysis platform spun out from Brevan Howard Asset Management in 2019, believes the market for alternative data remains very fragmented, making it tough for hedge funds to access, evaluate and onboard new data sets. "Hedge funds are in an arms race to unlock the true value of financial data," he observes.

Against that backdrop, managers running quantitative strategies now acknowledge that firms need to develop new expertise in this field, specifically around data sourcing and data testing. This, says Laurent Laloux, chief product officer at CFM, will help managers narrow down the pool of potential data providers and, critically, ensure that datasets can provide relevant insights into economies and financial markets.

"The first step is really knowing the ecosystem of providers - who the big players and the niche players are; which ones are doing a great job at creating the data and not introducing any statistical bias. The next step is looking at the data, and assessing that it does what it should," he explains.

Dangers

Julien Messias, co-founder and head of R&D at Quantology, explains how his firm collects, stores and manages data, both traditional and alternative, itself internally.

"The point is to avoid getting flooded by data, as too much data kills the data itself," Messias tells Hedgeweek. "Keep in mind that relevant data is quite rare, and this tends to be very expensive. Data is the fuel, the algorithm is the engine. Which out of the two is worth more?"

Comparing the process with finding a needle in a haystack, Laloux says establishing data quality has added a degree of complexity to the quant asset management process.

"When you do your research, there are a lot of statistical issues about assessing, first, whether the data is of good quality and whether you have a sufficiently representative cohort without any future information bias," he says, pointing to the risks that stem from systems leveraging sub-quality data and mistakenly identifying alpha where there is none.

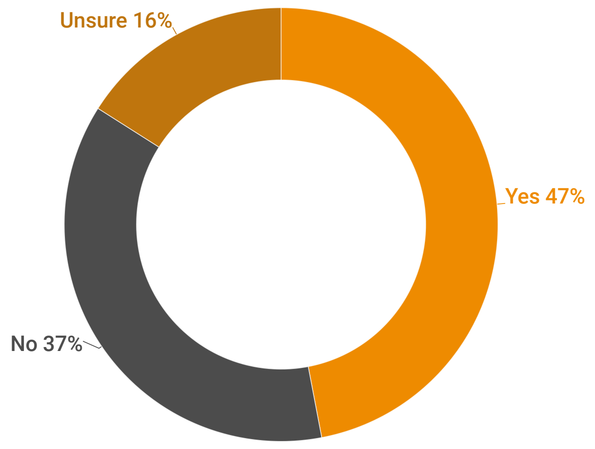
"That's the key point – many of the alternative data providers are not necessarily attuned to the issues of modeling prediction, because of the look-ahead bias. For us, being experienced in the field, we realise the dangers and risks that come from even tiny look-ahead biases.

"But that's also what makes it interesting and challenging - if you don't know the dangers of finding a spurious correlation in data, you will just take the data, do your blind machine learning, have something which works on paper but ends up going in the opposite direction once you go live and trade the market. So you have to be extremely careful."

This need for a cautious approach towards data has been further highlighted as managers look to capitalise on investors' search for yield.

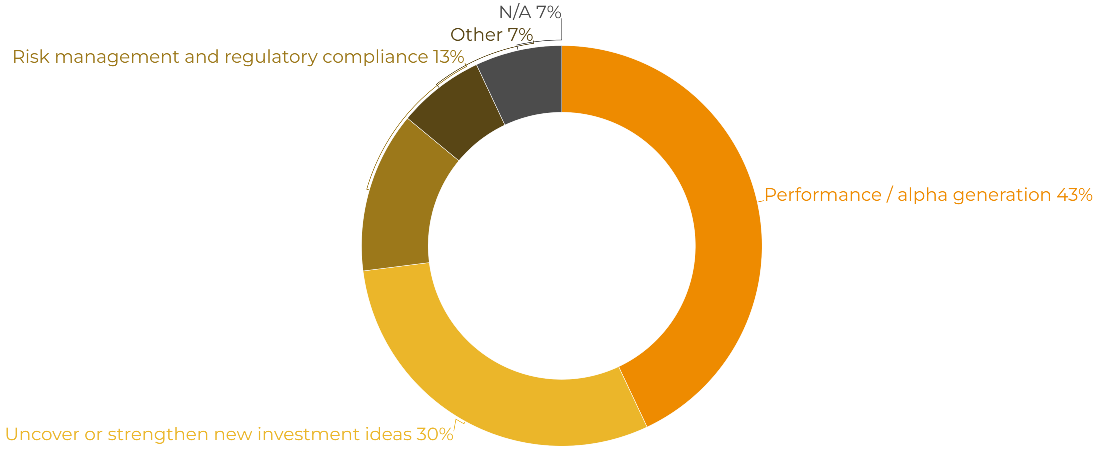
"The underlying hope is that the alternative data is not already priced in by markets and might bring some information that no investor already

Do you intend to increase your usage of alternative data in the next 12 months?



Source: Hedgeweek readers' survey, March 2022

What is the main purpose of alternative data within your firm?



Source: Hedgeweek readers' survey, March 2022

knew about by other means," says Nicolas Gaussel, founding partner and CEO of Metori Capital Management. He says his firm looks to better quantify the degrees to which press articles or other informed sources of information can impact market moves, and better understand what is shaped by fundamentals and what is related to endogenous mechanisms. "A better understanding of those issues would shed new light on market mechanisms and improve the allocation of R&D resource," he adds.

Gaussel warns that the maturity and efficiency of developed markets makes the hope of efficiently predicting financial markets via alternative datasets a "very ambitious endeavour." "Investors have to be prepared to be disappointed. Costs might be higher than gains," he adds.

Hedgeweek's poll found that some 43 per cent of managers use alternative data for performance and alpha generation; 30 per cent use it to uncover or strengthen new investments, while 13 per cent use it for risk management and regulatory compliance.

But McHugh sees each element ultimately as part of the same challenge for asset managers.

"I don't really see those things as separate, they all interplay," he remarks. "When looking at a new company to invest in, you need to ensure performance and strengthening of a new investment idea is aligned to your mandate. You also need make sure that you are investing in companies that are aligned to your strategies, for instance, on ESG."

Finbourne's offering uses an API first approach, making it easier to take data in and out of the system through integrations, while its platform provides support across mission critical workflows, supporting CFOs with a more accurate, real-time picture of NAVs. At the same time, its secure cloud infrastructure can also be permissioned safely into the extended ecosystem, such as to investors.

"If you are going to look at data for fund performance and alpha generation, you still have your compliance to think about, as you do that. Having the tools to manage data and these mission-critical workflows in one platform is critical," McHugh adds.

> "Hedge funds are in an arms race to unlock the true value of financial data"

COST AND SECURITY PUSHING HEDGE FUNDS TO OUTSOURCE MORE TECH SERVICES

Over the past two years, three trends have emerged across all-sized hedge funds regarding outsourcing. The first: outsourcing more services than before Covid-19 for cost-effectiveness; the second: an increase in use of cloud providers and data solutions; and finally: closer attention to cybersecurity risks

Hedge funds of all sizes are looking to streamline their reliance on their internal systems, a trend which has become more apparent within the past 18 months.

There's little doubt that Covid-19 and the new work-from-home model has accelerated this growth, leading hedge funds to realise that they can operate just as well – or even better – in a virtual environment. Meanwhile, industry participants say the unfolding situation between Russia and Ukraine, which is heightening cybersecurity risks and concerns, is likely to further drive outsourcing trends.

Outsourcing has gone through several phases throughout the past few years, starting with valuations before moving into tech and operations. According to KPMG and AIMA's annual Global Hedge Fund Survey in 2020, some 71 per cent of hedge funds polled thought that they could achieve better cost efficiency if they outsourced certain operations.

"We work with a number of larger managers and, as with certain smaller hedge funds, they're also looking to have us do as much as we can and outsource work to us," says Jeff Boyd, Northern Trust's head of hedge fund services.

Many tech-related functions are being outsourced by hedge funds, whether that be with regards to data solutions or even to team members.

"A lot of roles, including the chief technology officer, chief information security officer, and chief information officer roles are being outsourced because hedge funds don't have the bandwidth to understand where regulation matches technology, so it makes more sense to outsource," explains George Ralph, global managing director, RFA.

Turbulence

KPMG's research shows that 38 per cent of US hedge funds and 41 per cent of European hedge funds outsourced technology functions during 2020.

The report also showed that 13 per cent of hedge funds with an AuM over USD1 billion were likely to outsource their CTO, while 17 per cent of hedge funds below USD1 billion were likely to do so.

Larger multi-manager firms typically have much more complex workflows with regards to how capital is moved between portfolio managers and also the speed at which things change strategy-wise, so their outsourcing needs are a little different, according to Clear Street COO Andy Volz.
A big part of the reason for increased outsourcing also stems from the turbulence and change experienced globally in the past 24 months, but also partly as a result of tech advances.

The new mode of work resulting from the pandemic has brought the importance of cloud systems, cybersecurity and remote technologies into sharper focus. As a result of Covid-19, 46 per cent of North American hedge funds and 51 per cent of European hedge funds have re-evaluated their firm's cloud strategy.

Thomas McHugh, CEO and co-founder of Finbourne Technology, believes the perception of managers having their systems and functions in the cloud has shifted from being seen as an objection to being viewed now as a strength. He adds that financial markets and the investment management industry are now in a "post-perimeter" environment as a result of the Covid-19 pandemic.

"The focus used to be on keeping everything in the building, harden the perimeter, and make sure that nothing gets through the firewall. People now realise that does not work. Company staff are not in the building anymore

– they are now in multiple locations, including their homes, given the move to a hybrid working model," McHugh explains of the new environment. "As a result, that has entirely changed people's view of SaaS and cloud solutions, from being something that they once perceived as a risk to something now absolutely necessary for security."

Industry observers note that the growth of internal systems will often struggle to match and scale up to the evolution going on in the wider industry, which is why service providers are becoming increasingly important.

Ralph says the product most in demand currently is data management, "because people understand the value of data."

Boyd adds: "There are more and more cloud providers who are taking really large datasets on a daily basis and maintaining this data on behalf of hedge funds in a cost-effective way."

"As we build out our platform, we're using more modern tools like Snowflake, Kubernetes, and others so that our clients can access better data and better reporting – ultimately we want to give them the resources and tools they need to make better market decisions," says Volz.

"Hedge funds who are USD5 billion or smaller in size are looking to outsource or partially outsource almost everything they do. They have everything in the cloud, with all of the LMS providers... who are all hosted; it's dramatically less expensive to have somebody host the software for you."

Volz adds: "Private cloud companies are better equipped to secure a network than an in-house IT team; I think that's widely accepted. So everything from total cost, to level of security and ease of implementation are all reasons to outsource."

Cyber risks

Cybersecurity is also becoming an increasing concern for firms over the past two years, with the KPMG/ AIMA survey showing 74 per cent of firms being concerned about larger threats of cyber-attacks such as phishing emails, when staff are working from home; the new style of work which has developed as a consequence of the pandemic leads to greater vulnerability.

Consequently, almost 20 per cent of hedge funds surveyed by KPMG and AIMA have outsourced their cyber, confidential information and data.

"Phishing attacks use event-driven tactics, such as the Ukraine crisis, to target firms to click on links. The raised emotional state of the world, coupled with working from home and an increase in volume of emails hasn't helped with this problem," observes Ralph.

He adds that, at the beginning of the pandemic crisis, Google reported an average of 350 per cent increase in phishing websites.

The response to this? Other than outsourcing cybersecurity efforts, Ralph recommends more regular cyber training and investment in specific areas such as vulnerability scanning, endpoint security, multifactor authentication and data protection software.

As hedge funds increasingly rely on external providers and services, the importance of having strong governance functions at the heart of the business to monitor the performance of those outsourced functions is also increasing.

"If you go back as recently as a decade ago, there really was a dearth of high-quality, reliable providers that you could lean on to deliver data and analytics tools, and a lot of people did reinvent the wheel, and necessarily so. But things have changed," says Patrick Trew, chief risk and compliance officer at Maniyar Capital.

"We are very thoughtful in where we choose to partner with third parties,

> Every month, every year that goes by, you see an enormous change in the array of potential vendors

but the quality is here now and, in fact, it's mushrooming. Every month, every year that goes by, you see an enormous change in the array of potential vendors."

As investment managers and hedge funds face greater regulatory burdens, coupled with ever-rising quantities of data and a potential spike in cyber-attacks as a result of the Ukraine crisis, firms are set to see the cost of operating their businesses rise in the coming years.

McHugh explains how tech outsourcing – in the form of artificial intelligence and machine learning – as well as regulatory and treasury outsourcing, can serve managers better. But he stresses that "it's not just technology for technology's sake."

"We try to bring efficiency. We'd like hedge funds to stay profitable and not be weighed down by the cost of maintaining what is an ever-increasing burden of regulation," he notes.

"There is also the spectre of increasing demand from investors around operational due diligence. How funds tackle this, for example by building a scalable technology foundation to support their AUM growth, will be critical."

Finbourne's product platform has been designed to be usable both by emerging and start-up hedge fund firms just as easily as large, global asset managers and asset servicers, he says.

"You often find that there is almost a price of success – a hedge fund can start off in Excel and then as soon as they actually need to launch, they need to find a system. After they become successful, they need to change that system for another to achieve scale," McHugh adds.

"As everyone moves from being Excel jockeys to being Python experts and data scientists, we aim to make that a one-step process where the fund stays in control of their investment data. This is where our solutions deliver both scale and value in a faster time to market, speeding up the process of onboarding, while meeting investor due diligence and regulatory checks with ease."

MIND + MACHINE

HOW MARKET MECHANISATION IS BLURRING THE DISCRETIONARY-QUANTITATIVE BOUNDARY

As financial markets have rapidly digitised over the past decade, and the availability and pace of the information exchange has accelerated, the traditional barriers between human- and machine-based strategies are steadily being eroded

Traditional discretionary hedge funds that utilise the portfolio-building skills and investment instincts of star traders and portfolio managers have often stood in sharp contrast to the tech-heavy, computer-based quant strategies built around algorithms, data and machine learning applications.

Now, though, a cursory glance across today's industry landscape suggests more and more discretionary 'human-first' hedge funds are employing technology and data to both streamline and strengthen their front- and back-office functions.

"There is still a very valuable process of portfolio managers looking into the whites of the eyes of company operators and management," says Finbourne co-founder and CEO Thomas McHugh. "But there is also a lot of data that now goes into that process."

Scratch the surface of many discretionary hedge funds and long-only investment strategies today, notes McHugh, and you'll quickly find managers using an assortment of P&L ratios, balance sheet numbers, ESG classifications, and "a whole raft of other ancillary data" to filter their respective investment universes down from tens of thousands of companies to a few dozen.

"That sounds an awful lot like a quantitative approach to narrow down that universe," McHugh tells Hedgeweek. "What you tend to find is that the selection process for a lot of these funds is much more quantitative than people would lead you to believe. With data evolving so quickly, the question all funds need to ask themselves is - 'is your technology set up in a way to quickly take advantage of new opportunities?'."

Utilising technology to better handle the vast amounts of information strengthens managers' credibility in the eyes of investors, market participants say. Specifically, discretionary managers are increasingly integrating systematic analyses into parts of their investment process to test trading ideas, more quickly, to better monitor real-time changes in trading signals, improve portfolio construction, and to run various risk, attribution and factor exposure analyses.

"Data is growing at an exponential rate. This explosion in the type, sources and quantity of data, when combined with increasingly sophisticated data science filters and techniques, and AI or machine learning processes, allows experienced managers to capture new alpha streams," observes Dharmesh Maniyar, founder, CEO and CIO of Maniyar Capital, whose firm applies advanced quantitative and Bayesian inference techniques to global macro investing.

Maniyar, a trained machine learning

> A human overlay in the right parts of the process is an important mitigator

scientist, was previously a senior portfolio manager and partner at Tudor from 2013, having previously spent five years as a macro portfolio manager at Brevan Howard. He describes the emergence of unstructured data as "one of the biggest advances of the 21st century".

He explains: "We have seen this development in a number of industries and we are starting to see it increasingly in the investment world where computer science is being combined with the domain of macro-economics. We believe that our 'mind + machine' approach combines the best of macroeconomic analysis with computer science to generate attractive risk-adjusted returns for our investors."

"Many of the large, successful global macro managers now have large divisions using quant models to assess risk and to create forecasts," says Razvan Remsing, director of investment solutions at Aspect Capital.

"They might not be fully systematic in the sense that the ultimate construct of the portfolio choice is still a portfolio manager's discretionary decision as to where they allocate. But they have big data budgets, and big data science teams - that tells you how important this is."

However, it's not entirely one-way-traffic. On the other side of the fence, some quantitative investment processes are increasingly pivoting towards aspects of human input, industry participants say.

Laurent Laloux, chief product officer at CFM, identifies certain spheres of the investment process where systematic strategies look to leverage some human expertise.

"You have certain sector specialists, and you want to find out how they value a company and then you look to try to systematise that," he notes, adding that discretionary and quantitative managers are "coming from two extreme ends of the spectrum" and converging "in a kind of middle ground."

"All of us are coming from different parts of the spectrum. But I think in a way we are somehow meeting in the middle. It is definitely something that's very interesting happening in the industry," he says of this ongoing cross-fertilisation of processes.

Alex Nixon, chief technology officer at Maniyar Capital, comments: "Having a human overlay and a human involvement in the right parts of the process is an important mitigator. I think any process, any automated pipeline, needs checks and balances of some kind."

Oversight

Paulo Remião, partner and portfolio manager at emerging markets-focused asset manager Broad Reach in London, says the interplay between humans and technology is a key component of his firm's approach.

"Emerging markets were previously too illiquid, too idiosyncratic, too hard to access – but now you have an immense breadth of countries, asset classes and instruments, and that lends itself to a systematic process," Remião tells Hedgeweek. "But in order to access and trade those markets, and be comfortable with the risks that exist in these markets, it still requires a level of understanding and oversight which, in a way, is completely foreign to the processes most systematic-only houses would be comfortable with. This is where the discretionary element helps the systematic process."

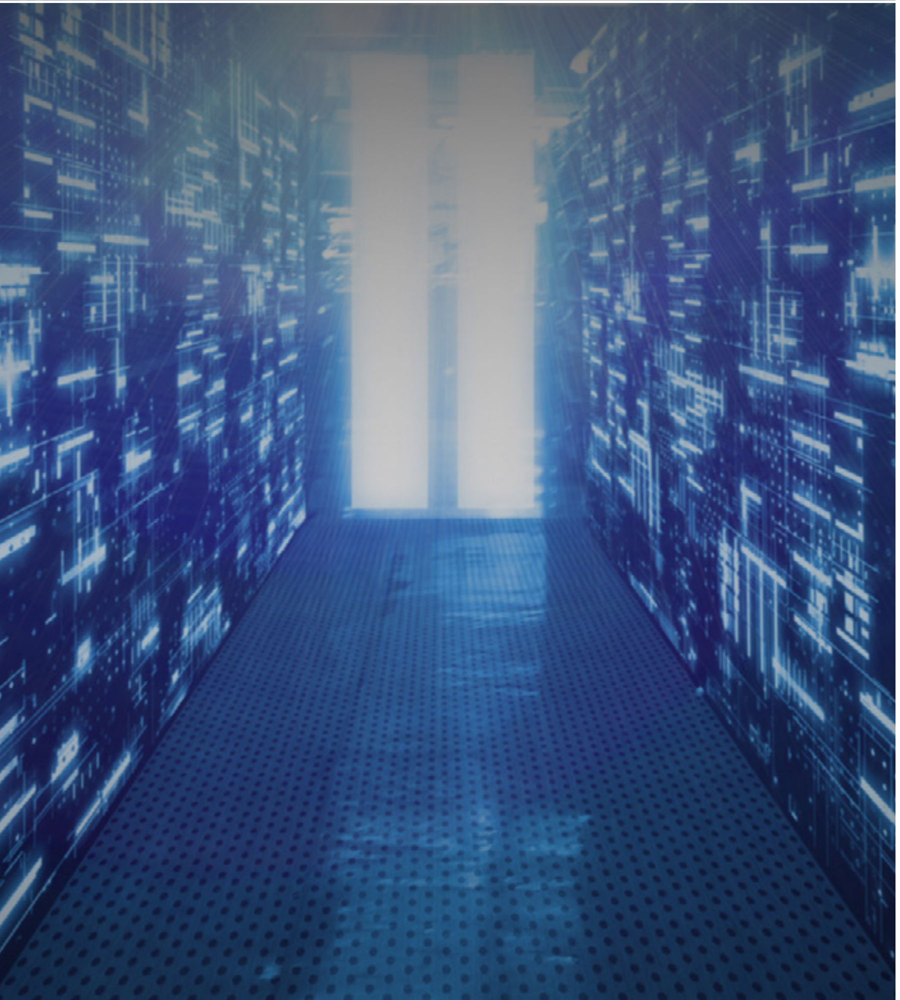
Building on this point, he continues: "There's a level of risk management which goes way beyond the traditional returns-based or data-based issues. Unlike in a typical systematic, mainstream, liquid environment, with emerging markets you can't count on the liquidity, the transaction costs, or the market access to remain stable through time. In EM, there are capital control risks, political risks; the market structure can change completely from one day to the next; some instruments can become unsuitable for specific strategies."

He adds: "While someone who trades US treasuries and the S&P 500 can count on the exchanges being open the next day to take profits, if you are trading emerging markets and frontier countries, some of which may occasionally become vulnerable to fundamental trading impact effects such as capital controls and sanctions - the most recent example being Russia - and there is significant risk of not being able to monetise those positions regardless of how profitable they may have been.

"This is where the discretionary oversight becomes essential, albeit in very occasional and exceptional circumstances, in order for you to be able to systematically deploy capital in emerging markets, and avoid the traps that a purely agnostic, fully systematic trading model may face."

HOW INDUSTRY ELECTRONIFICATION IS RESHAPING HEDGE FUND RECRUITMENT

Attracting and retaining the top tech talent is now tougher than ever for hedge fund managers, as competition for data engineers, coders and computer scientists intensifies



Hedge fund firms of all stripes and strategies are preparing to ramp up their tech expertise over the next 12 months, according to a Hedgeweek survey conducted for this report. A poll of some 30 hedge funds on both sides of the Atlantic probed firms on how technology, data and systems are reshaping their business models, and how managers are adapting to this shifting environment.

Quizzed about their plans to add more specialist staff – such as coders, data engineers, and programmers – within their firms, some 47 per cent of respondents said they intend to hire more expertise in this area over the next 12 months. In contrast, some 33 per cent said they had no plans to hire any additional technology-focused personnel, while a further 20 per cent were unsure.

Specifically, survey respondents pinpointed programming, machine learning, data science, and research as areas they were looking to strengthen, as well as adding algorithmic trading coders and software developers.

Laurent Laloux, chief product officer at CFM, says that the newly-emerging tech stacks, alternative data and cloud capability is influencing hedge funds' hiring process, adding that the emergence of data science is bringing a newer and younger profile of recruit, "people already well-trained in managing data and extracting features from data."

"We are definitely hiring a lot of data scientists - these people are bridging the gap between data seen from a purely technological perspective, in terms of volume acquisition and distribution, and data seen from the quant research perspective, in terms of assessing the value of a company," Laloux says of the importance of data scientists within the overall investment process.

"Between the two, you need this expertise which helps compress the massive amounts of data into features which makes sense for researchers and provides alpha in a meaningful way."

This rush to bolster technological firepower is driven by a series of overlapping trends, according to industry participants on the frontline. These include an ongoing "electronification" of financial markets which, in turn, is offering more analytics tools and computing capabilities which potentially may offer systematic funds a competitive advantage. As a result, allocator interest in systematic strategies is piquing, particularly as quant-based hedge funds continue to make inroads into certain markets and asset classes – such as corporate bonds and less liquid emerging markets that traditionally did not fit well with electronic trading.

Laloux notes how CFM's culture was built with deep academic roots,

> You really have to fight for talent

with a focus on PhD, hard science and physics and mathematics, adding that these elements have formed the core focus of its hiring approach since day one. Today, the firm's hiring focus includes data scientists and he concedes that recruitment in this space is currently "very tense". "You really have to fight for talent - the big tech firms, the fintechs, the banks and the asset managers, everybody is fishing for data scientists," he explains.

"Pretty much everyone in our team - from me as portfolio manager, from the execution traders, all the way through to the people in the back office - is a proficient coder," says Paulo Remião, partner and portfolio manager at Broad Reach.

"One of the key questions for anyone we are hiring now is, 'can you code?'," he says. "We really want to ensure that people can be familiar and converse on the technology side.

"Everyone needs to understand well how the databases are structured; the execution trader understands what data needs to be collected when they are executing, how that data should be structured in the database, and later processed by the system in order to generate the signals and refine, for instance, the transaction cost-modelling. It really requires a level of understanding customisation, which goes beyond a lot of the more off-the-shelf systems."

Competition

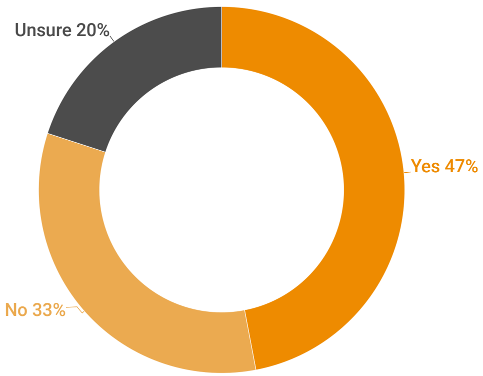
Expanding further on the evolving challenges that underpin the hiring process, Bin Ren, founder & CEO at SigTech, notes that the demand for tech talent is "significantly higher" than the current supply.

"Congruent with what is going on in most other industries, we see a general trend for "quantification" in the hedge fund industry," he adds.

"Another reason why it can be difficult for hedge funds to hire tech talent is that many hedge funds are not technology-driven companies, whereas many engineers prefer working for firms that are 100 per cent driven by a technology strategy."

Acknowledging how digitisation is spreading across all industries beyond financial services and asset management, Razvan Remsing, director of investment solutions at Aspect Capital observes: "I don't think the profile of the candidate we look for has changed much. But our competition for that talent pool has changed. We're no longer competing just with the other hedge funds; we're competing with fintechs and technology companies as well. I think we look for the same type of characteristics – people who love a challenge and are naturally inquisitive, with a background in a numerically complex field."

Do you intend to hire more technology specialists (eg coders, data engineers, programmers) within your firm in the next 12 months?



Source: Hedgeweek readers' survey, March 2022

QUANT HEDGE FUNDS INCREASINGLY POPULAR WITH INVESTORS

Research from SigTech's 2021 annual Hedge Fund Research Report saw 80 per cent of hedge fund managers expecting institutional investors to increase their allocation to quant strategies over the following year, and 86 per cent expecting quant hedge fund strategies to increase allocations over the following five years

Industry data indicates one in five hedge funds now apply quant investment processes. The latest research from SigTech shows that 22 per cent of the world's hedge funds use purely quantitative investment processes, with roughly 2 per cent saying that they also use AI.

Mercer principal John Jackson believes the "opportunity is ripe" for hedge funds, including quants, observing how quant hedge funds typically perform well in "higher levels of sustained volatility" and when markets are trending or consistent.

The Russia-Ukraine war leaves quant hedge funds primed for strong performance in the coming months.

"Broadly, clients are looking for more diversification in their portfolio, which will probably lead them to hedge funds and within hedge funds, systematic approaches. So, some clients will be in the quant space because of increased diversification," says Jackson.

But research shows that diversification isn't the only reason for increased allocation to quant strategies.

SigTech's data also shows that 48 per cent of managers expected investors to increase their allocation slightly, and 18 per cent expected this increase to be "dramatic".

Motivations behind this include increased transparency, as well as good returns.

Quant hedge funds hit a bump at the turn of 2020 when the pandemic struck, but have since recovered and grown steadily in popularity.

"Initially, I think quant hedge funds were caught on the wrong side of Covid-19. They were positioned in a certain way, for certain trends, and then the pandemic threw a wrench into those environments.

"When markets shift dramatically, volatility spikes almost instantaneously – quant funds do less well in whipsaw markets," says Jackson.

"In periods of prolonged market stress, as we have now, is where quant strategies really prove their mettle. They were also already well-positioned in due to an overweight in commodities where we've seen a tailwind which has followed from the Russia-Ukraine crisis," he adds.

Cyclical

Recent research from Bloomberg found that the momentum quant trade is having its best year in almost 20 years for this exact reason. But while quant hedge funds are currently proving popular and successful, Meketa research consultants err on the side of caution.

"It's a very cyclical business. Regarding trend-following strategies, the latest is that performance in this space has been consistently good for the past three years or so; however, that is only one type of systematic strategy, which in and of itself can be implemented in many ways – never mind the dispersion across various types of systematic strategies. All quant is not created equal, of course," warns Meketa SVP Jason Josephiac.

"I think investors should be open and nimble to what their environment can hold in the future," he adds.

However, that's not to say that there aren't other possibilities for quant funds.

"We tend not to have any bias where possible. We look for quantitative or systematic strategies which are still rooted in some sort of fundamental or economic rationale. There are ways for discretionary strategies to implement parts of their processes in a systematic manner to gain efficiencies and guard against behavioural biases," says Josephiac.

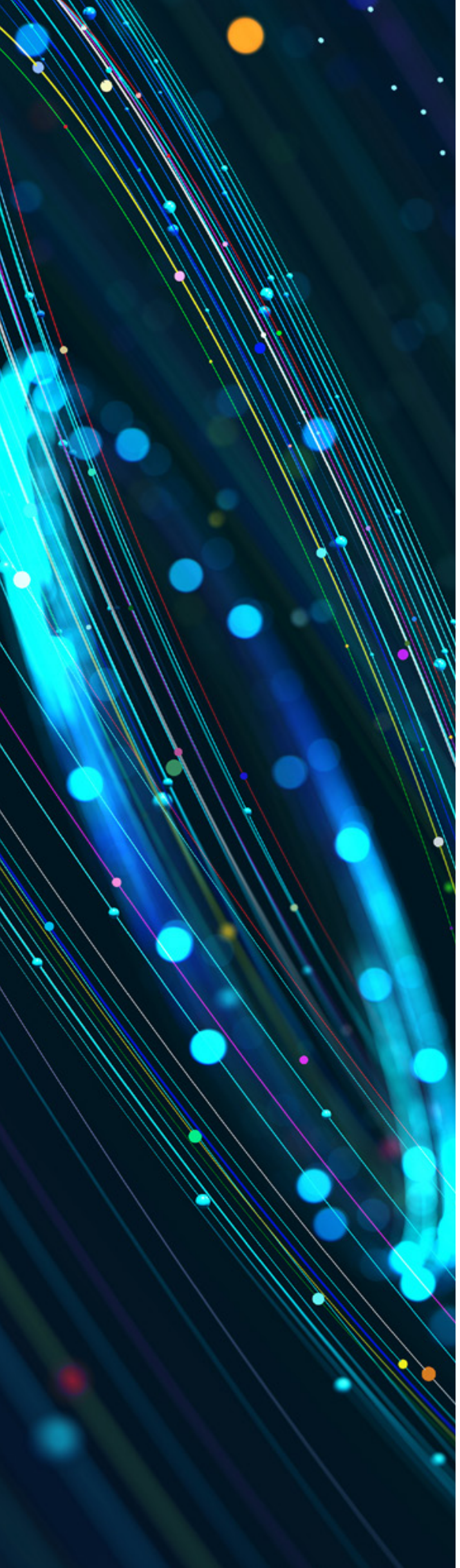
In terms of machine learning and AI, Jackson believes that we're not quite there yet.

"There's been a lot of evolution, and there's no doubt that we're finding more machine learning and AI approaches within that universe, but I think the foundations of pure trend following still exist, and frankly that's what is delivering the best returns in this current environment," he says.

So there's still a long way before quant strategies become the best investment option.

"The perception of quantitative investment has always been twofold – 'Einstein vs Frankenstein' so to say. On the one hand, some see science as able to unveil some kind of "magic" hidden relationships which might provide a definitive edge for investing," says Metori Capital Management CEO and co-CIO Nicolas Guassel.

"On the other hand, scientific people might also be perceived as stubborn individuals lacking common sense and not able to adapt to paradigm shifts. This duality is not recent, and the enthusiasm of investors seems to wax and wane with yearly performances."



TECH TRADING IN TURBULENT TIMES

'Untouchable' technology stocks dented as broader macro environment turns

Hedge funds trading technology companies endured a bumpy start to 2022, with bets on a slew of blue-chip stocks souring as investors took flight amid fears of rising inflation and interest rates coupled with concerns over US economic growth.

Technology-focused equity hedge funds, which invest long and short in a wide array of software, tech, information and telecoms names, earlier had finished last year up around 5 per cent – lagging the broader hedge fund industry, which averaged an annual double-digit return of more than 10 per cent in 2021, according to Hedge Fund Research data.

Tech stocks had soared during in the initial stages of the Covid-19 pandemic, helping push tech-focused hedge funds to bumper gains of almost 30 per cent in 2020. But as the likes of Microsoft, Peloton, Meta and Zoom – which had all thrived as a result of lockdowns and home-working – continue to trend downwards, technology hedge funds have started 2022 in negative territory, HFR's analysis shows.

Elsewhere in the tech field, hedge fund managers of all shapes and sizes continue to keep close tabs on the alpha-generating potential of the rapidly-expanding, but perennially volatile, constellation of cryptocurrencies, blockchains, and other assorted digital assets.

Quantology Capital Management, which runs a systematic long/short market neutral equity strategy trading tech-heavy Nasdaq and NYSE-listed stocks, was among the positive movers earlier this year, its February gains comfortably outflanking the Nasdaq, traditionally seen as a barometer for the US technology sector.

The Paris-based quant firm – whose strategies use market-agnostic, algorithm-based processes to generate returns from behavioural finance indicators, share price trends, and other stock signals within companies' quarterly earnings data – continues to expand its focus, tapping into the burgeoning opportunities in other tech spheres, such as digital assets and the metaverse.

"At Quantology Capital, we do think that the best answer is to think out of the box, and to explore new topics, new themes and new techniques; focusing not on the market itself, but on the market practitioners," says Julien Messias, Quantology's co-founder and head of R&D, of the evolving tech investment landscape.

"Our aim is not to build new tools to better understand the markets, but to build new tools that will enable us to better understand what the other practitioners think they think about the markets."

Traps

He adds: "As the investment markets become more and more complex, its speed and money velocity follow the same path, meaning that there is no substantial edge versus a traditional efficient market. The latter adapts very quickly to innovation, and it would be false to imagine that only technology is able to improve the results of the hedge funds industry."

Meanwhile, for other computer-based strategy types – such as systematic macro and managed futures – technology companies are just one element of the increasingly fractured investment landscape that looks particularly fraught with difficulty.

"Inflation, rising yields, soaring commodity markets, and negative sentiment on seemingly untouchable tech stocks – you need to look back 20, 30, or in some cases even 40 years to find conditions that are similar," says Razvan Remsing, director of investment solutions at Aspect Capital.

"There are many traps that people may fall into if they design models that are too short-termist in nature, or that utilise datasets that are too new. What we are observing at the moment is that some of our longest-standing and battle-hardened systems are the ones that are able to handle this current environment without skipping a beat."

Remsing adds: "It's not the sudden stop that we saw for Covid. The response to Covid was completely unseen before in terms of everyone in the world stopping what they were doing and going home. That was a first. What we are experiencing now is more 'old-school' geopolitical risk, return of inflation, risk of stagflation and a refactoring of stock-bond market correlations," he says of the looming investment backdrop.

"It's going to be interesting to see how this period plays out, and what we will learn about where the alt-data sets actually deliver value in a big macro shock environment like this."

HEDGEWEEK

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