

HEDGENORDIC

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TECHNOLOGY AND HEDGE FUNDS

TECHNOLOGY SERVICING AND SHAPING ASSET MANAGEMENT





INTRODUCTION

HedgeNordic is the leading media covering the Nordic alternative investment and hedge fund universe. The website brings daily news, research, analysis and background that is relevant to Nordic hedge fund professionals from the sell and buy side from all tiers.

HedgeNordic publishes monthly, quarterly and annual reports on recent developments in her core market as well as special, indepth reports on "hot topics".

HedgeNordic also calculates and publishes the Nordic Hedge Index (NHX) and is host to the Nordic Hedge Award and organizes round tables and seminars.

PUBLICATION PLAN 2020:

October: Private Markets
 October: True Portfolio Diversifiers
 November: Alternative Fixed Income
 November: ESG in Alternative Investments
 Decemberr: Megatrends

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Editor’s Note...

It’s a Kind of Magic

I am old enough that some of my childhood photographs are black and white not because my parents wanted to be artsy. I remember playing Pong in awe at a neighbour’s house before my own journey in computers, mostly for gaming, took me from an Atari 2600 to Sinclair ZX Spectrum, climaxing in a Commodore 64 – later an Amiga 500.

It has been a magnificent period to be around and witness this evolution when home computers evolved from being a mere better calculator to being a sophisticated typewriter, to a crude visualizer. And

now, a little device not larger than your hand can give you access to all the knowledge, all the wisdom, all colours, sound and images known to mankind. Your bank, friends, family, grocery store, interest group is right there in your pocket available on a finger swipe on that tiny screen. Imaging this back in the days I was awed by the graphics of my C64 would have been more than magic. It would border on sorcery!

Technology is, and has always been, shaping every aspect of life – including the hedge fund space. There are the areas that may be obvious and intuitive

such as the times we gave up trading pits for fully automated trading, and so many more aspects around trading and execution, risk management, margin calculations, data, big data, blockchains. Technology though, is also transforming other areas in asset management from the front, mid to back office. Be it human resources, marketing, client relationship management, public relations, accounting, legal and compliance.

And if anything, Covid-19 taught us that in our industry, unlike many others unfortunately, working from home largely works perfectly fine. Markets are functioning, access to data and brokers is given, securities are being settled and cleared, orders are executed, margins calculated and internal and external communication runs smoothly. All largely without major hiccups.

As persons, we learned to cherish things like fast, reliable internet connection, and having appropriate hardware and software at our disposal, wherever we are. Cloud storage space is treasured, some may have (finally) given in and got that Netflix subscription, installed Spotify or their first purchases through Amazon. Kids time-warped collaborating with doing their schoolwork online probably got way too much screen time on the iPads.

It should come as no surprises if the experiences from this unprecedented area of lock-downs and stay-at-home orders broke the resistance of even the most conservative approaches to embracing new technology and spending to have up-to-date applications at hand. Certainly, it was a catalyst for creativity, improvisation, and innovation at times.

In HedgeNordic’s special report on “Hedge Funds and Technology,” we want to investigate some of the areas where (often very recent) technological advances enable our industry to perform tasks quicker, more efficient, more comprehensive, more precise than ever before.

Two hedge fund managers, one being among the largest in the world and the other a much smaller outfit, tell „A technological tale,” we learn how open technology can help in transaction cost analysis, Max Eklund from SS&C Advent explains how „Sharper Technology

“Any sufficiently advanced technology is indistinguishable from magic.”

– Arthur C. Clarke, Profiles of the Future: An Inquiry Into the Limits of the Possible (1962)

Offers Nordic Hedge Funds a Valuable Edge in the Battle for Allocations,” while Northern Trust’s Peter Sanchez shares his view on the “Automation’s Potential in the Alternatives Sector.” Paul Das is showing “Five Ways to Improve Post-COVID-19 Sales and Marketing in the Funds Sector” and we learn “Why Financial Market Data is Moving to the Cloud.” Freshly married Eugeniu Guzun took a deeper look into artificial intelligence and talked to a former hedge fund manager gone academic, Daniel Broby, on his thoughts on why “AI offers the best shot at extracting alpha,” while three Nordic hedge fund managers discuss “The challenges in AI.”

Enjoy the read!

KAMRAN GHALITSCHI
CEO & PUBLISHER HEDGENORDIC



Technology and Hedge Fund Managers Amid Covid-19

By Hamlin Lovell – HedgeNordic



There are hundreds of specialist technology solutions addressing numerous front, middle and back office functions, covering areas including portfolio management, risk management, trading, compliance, regulatory reporting, and client servicing. Some are highly specialized while others will integrate multiple tasks.

Automating and streamlining processes can save time and costs but it can also carry risks if the technology is not completely robust and secure, or if different packages cannot be seamlessly and efficiently integrated. Regulators are well aware of the technology risk environment. The U.S. regulator, the Securities and Exchange Commission’s (SEC) Office of Compliance Inspections and Examinations (OCIE), has issued a risk alert on the COVID-19-related risks, which touches on many technology related issues around information confidentiality, fraud risks, and surveillance.

REMOTE WORKING, COMMUNICATION AND DUE DILIGENCE

The most obvious impacts of Covid 19 include increased use of technology for remote working, meetings, conference calls, webinars, virtual conferences, screen sharing, work-sharing and chat.

Investors’ due diligence may also in many cases need to be done remotely. Travel and quarantine restrictions mean it may not always be possible to conduct site visits for operational due diligence, so video sharing technology, screen sharing and

screenshots, may need to facilitate remote office inspections. Site visits are traditionally used to verify data and documents that are too confidential to be shared electronically, though data rooms with restricted and password protected access are one workaround.

CYBERSECURITY AND DATA SECURITY

Cybersecurity and other security policies and protocols such as those for data security and access rights also need to be adapted to working from home, and remote due diligence, which entail remote access to networks. Safeguards for employees and investors include identify verification, include Dual Factor Authentication, watermarked documents, SMS one-time passcodes, and digital certificates embedded into documents.

More people working from home could mean increased risks of cyber attacks and ransom related attacks. In May 2020, fund administrator, SEI Investments, suffered a ransomware cyberattack that led to disclosure of personal information related to investors in funds run by Angelo Gordon, Centerbridge and Pimco.

Security policies to mitigate these risks could include encryption of data, patching remote access servers, cyber resilience measures to detect potential fraud, and increased surveillance of staff’s personal trading and communications – including personal devices in some cases.

CLOUD COMPUTING

The potential difficulty of maintaining physical servers and data centres means that Covid-19 could accelerate the transition to the cloud across all industries, including alternative investments. Fund managers can choose amongst public, private and hybrid cloud solutions. The cloud can be a more scalable and flexible solution, but some managers are still using physical data centres as well.

AUTOMATION

The increased risk that some colleagues might be incapacitated strengthens the need for automation in general, and redundancy, particularly to avoid one weak link in a chain of systems causing a breakdown or hiatus. Many firms are already substantially automated, particularly where they trade only electronic markets, though OTC (over the counter) markets may still require high touch, human voice execution in many cases, and some of the largest quantitative firms employ teams of human traders to access less well followed markets.

TRADE LIFE CYCLES

The life cycle of a trade can in some cases be completely automated, from execution, to settlement and reconciliation. Some managers have applications integrating these functions while others will stitch together different modules for each stage of the process, using dedicated software for each of execution, settlement and reconciliation. However, it is not always possible to achieve 100% automation as trade breaks, exceptions and errors may require some investigation to be resolved.

OEMS

Specialist technology packages are used for order management systems (OMS) and execution management systems (EMS), which are often combined in an OEMS. These packages are often integrated with regulatory portfolio and risk management systems to ensure trades are compliant. OEMS can also be integrated with other packages such as trading venues, algorithms and TCA packages.

TCA AND BEST EXECUTION

Technology is also being used to try and obtain best execution, which often involves algorithms designed to achieve better pricing for an order. They may split orders into child orders or route them to multiple venues, and try to avoid alerting the market to the total order size through so called "iceberg" techniques. Technology is also used to analyse and report on the quality of execution, using benchmarks such as arrival price, VWAP (volume weighted average price) or TWAP (time weighted average price). Some packages cover all asset classes, and there are also those that specialize in one or more of equities, fixed income, currencies, commodities, future and options.

REGULATORY REPORTING

Once again, many functions are inter-related. Best execution reporting can be a regulatory reporting obligation under MIFID II, and there are also other regulatory reports, including MIFIR, and EMIR reporting, as well as Annex IV under AIFMD. These can often be substantially or wholly automated,

though as always a 90/10 rule may apply: 90% of human time may be spent on the 10% of outputs that cannot be automatically generated.

MARGIN AND COLLATERAL

Managers will use algorithms to minimize and optimize the amount of margin that needs to be posted against trades, through techniques such as trade compression, collateral transformation and margin optimization across venues. These can be complex, multi-dimensional mathematical problems, considering different margin calculation and associated offset formulas applied by various exchanges and brokers, that require computing power to solve.

FUND ADMINISTRATORS

Many fund administrators have merged with technology companies and claim to be offering a "one stop shop" including all sorts of technology solutions, though deeper investigation usually reveals that they are using a significant number of third party technology packages as well. One decision for managers is whether they manage multiple vendor relationships directly, or do so indirectly through a multilined service provider.

ELECTRONIC FUND TRANSACTIONS

Fund managers and administrators may now need to process subscriptions and redemptions entirely electronically, without physical documents. This requires routines including electronic signatures,

identity checks, and KYC (Know Your Customer) anti-money laundering checks, all of which can be facilitated by appropriate technology.

OFFICE ORGANIZATION

As some staff are returning to the office (though perhaps not all at the same time), office technology also needs to be adapted to minimize the risks of transmission. Biometric controls such as fingerprint scanners could be a risk factor for transmission of Covid-19, and could be replaced with technologies such as facial recognition or iris recognition that do not involve physical contact. Some shared doors, draws, cupboards and desks may also need to become automatic to avoid physical contact with them. It is not clear how offices will deal with hygiene in shared kitchen and toilet facilities, but technology could help here too, for instance with automatic toilet disinfection in between uses.

ALPHA GENERATION: BIG DATA AND ALTERNATIVE DATA

Operations can be a big challenge, but hedge managers should not forget their primary goal of generating alpha. Technology is also essential for investment analysis and data crunching. Covid-19 has also highlighted the advantages of alternative and high frequency data. Managers with access to real time data might have had an early warning signal about the growth of Covid-19 in various regions and how economic activity was impacted. Technology is being used to gather data through web scraping, and turn unstructured data including pictures or news into actionable signals.



Andreas Olsson, CEO & Senior Portfolio Manager
OQAM



Martin Andersson, CTO
OQAM



Hinesh Kalian, Director of Data Science
Man Group



Tom Price, CTO, Infrastructure Technology
Man Group

A Technological Tale of Two Quant Hedge Fund Managers in 2020

By Hamlin Lovell – HedgeNordic

Man Group, headquartered in London, with assets of USD 108.3 billion and over 1,400 staff, is one of the world's largest alternative asset managers spanning quantitative and discretionary strategies. OQAM, an emerging "quantamental" manager, which runs SEK 165 million from Malmo in the South of Sweden, across the Oresund bridge from Copenhagen, is one of the smallest. Yet there are many similarities in how the two companies made use of technology before, during and after the Covid crisis.

FLEXIBLE WORKING, REMOTE WORKING AND COLLABORATION

Says Andreas Olsson, OQAM co-founder, CEO and Senior Portfolio Manager: "Microsoft 365 suite (including Teams), Zoom, Slack, remote access via VPN and Git are examples of technology tools that facilitate remote working. During the Covid crisis in 2020, even though Sweden never implemented a lockdown, OQAM chose to do everything except for front office trading by working from home. A maximum

of two of the team of four full time employees and four part time student employees were in the office at any time. One service provider who stood out as being pro-active was Bloomberg. They made sure we had everything we needed from an infrastructure perspective if we had been suddenly forced to carry out all front office functions, including trade execution, remotely. We are an emerging manager and it was great to feel the support of a company like Bloomberg with their resources. All mid office, back office, IR and R&D-functions could already be carried out remotely. OQAM also benefits from the technology capabilities of FCG Fonder, a Swedish "fund hotel" platform, which provides the AIFM. Investor due diligence into OQAM went remote for a while, but physical meetings have now resumed".

Says Tom Price, CTO of Core Technology at Man Group: "Over the last two years, Man Group has been investing in our End User Technology platforms including remote access for desktop PCs, and laptops running a VPN to connect to our data centres; mobile devices; telephone and video conferencing in meeting rooms and all of the infrastructure that sits

“We are an emerging manager and it was great to feel the support of a company like Bloomberg with their resources.”
– Andreas Olsson

behind it. This investment was targeted at improving our support for flexible working in order to be able to attract and retain a diverse workforce, introducing new collaboration tools so we can work efficiently as a global team and ensuring the highest level of support and reliability for our staff”.

“In the weeks before lockdown we brought forward the release of several collaboration tools that our teams had been preparing – most notably Slack and WebEx. Both have played a significant role in allowing teams to continue to work productively from home; but they’ve also allowed our staff to stay in contact in more informal ways. Persistent chat tools like Slack are more casual than email and we’ve seen the creation of many channels that allow people to talk about things other than work. We’ve had hundreds of staff on WebEx calls for results updates from the CEO but also for charity quizzes and other social events. We also expanded the rollout of our electronic signature platform in March as a direct response to the COVID-19 lockdown. It’s played a key role in allowing us to maintain business as usual from home. Document sharing and collaborative creation are our current focus”.

“The speed of adoption of Slack and WebEx was unprecedented with almost 90% of staff using them within 2 weeks! Our plans are to continue to invest in collaboration and mobile tools. While we’re all stuck at home, we’ve really just swapped one fixed desk for another but, as things return to normal we’re excited about the increased capabilities we can offer mobile users whether they’re working at home, the office, or visiting clients and partners”.

“At Man Group we were already seeing a growing number of staff adopting flexible working, though adoption varied significantly across different business units. Some teams would see all staff working from home at least one day a week, while others still came into the office every day. As lockdown starts to ease, we do expect more staff to want to work regularly from home, many of them for more than one day a week. People have worked

out how to be as productive, if not more productive, when working from home; managers have learnt how to adapt their management style for a remote workforce. I’m cautious about over-reacting, and certainly not predicting the demise of the office, but things will definitely be different, and we need to ensure technology systems support that change.”

Olsson agrees that the office will live on: “we would not want staff to be at home permanently, because we still think it is useful to meet in the office as a team to drive forward innovation”.

AUTOMATION

OQAM embraced technology from the very start of the business, for instance automating middle office routines to reduce timeframes from two hours to ten minutes. Olsson, who started his first hedge fund while at Sweden’s Lund university, has first-hand experience of all processes and says: “OQAM has always automated as much as possible, and Covid has not increased the need for automation. For example, service providers have been executing fund subscriptions and redemptions entirely electronically from the start”.

Automation has not yet reached 100%. For instance: “OQAM only trades electronic markets, and trade execution could be completely automated, though we’ve chosen to have some manual element at this stage. Some regulatory reporting is also not yet fully automated but may be in future. For instance, our Capital Reserve Requirement (CRR) reporting is not yet fully automated”.

Automation is also a growing trend at Man Group. Says Price: “At Man Group we have a team dedicated to the adoption of RPA (Robotic Process Automation) across the business. The move to remote working has encouraged our teams to look at processes and controls in different ways and automation provides new solutions. The equipment and working conditions at home may be less conducive for certain

“I’m cautious about over-reacting, and certainly not predicting the demise of the office, but things will definitely be different, and we need to ensure technology systems support that change.”
– Tom Price

manual tasks - for instance copying and pasting large amounts of data or comparing huge spreadsheets side-by-side can be hard on a laptop screen. With many Technology teams busy working on COVID-19 requirements RPA can provide tactical solutions to bridge the gap.”

THE ROLE OF THE CLOUD

The spectacular share price performance of cloud services companies in 2020 is based on impressive growth, but the cloud is far from exclusive.

OQAM uses Digital Ocean for cloud computing. It also hosts its databases of alternative data there. CTO, Martin Andersson says, “Digital Ocean was chosen since it’s a scalable solution as we grow, its attractive for developers (excellent documentation and communities, good set of APIs) and has a set of features/products we were looking for. Predictable and attractive pricing compared to other vendors was also a factor.”

Yet not all of OQAM’s needs are met by cloud applications. One example of this is the dynamic allocation among its suite of 20 investment models, where it uses machine learning to identify different market regimes: “we use a python based proprietary research platform that utilizes popular open source libraries such as pandas, scikit-learn and TensorFlow”, says CIO Thorbjörn Wallentin.”

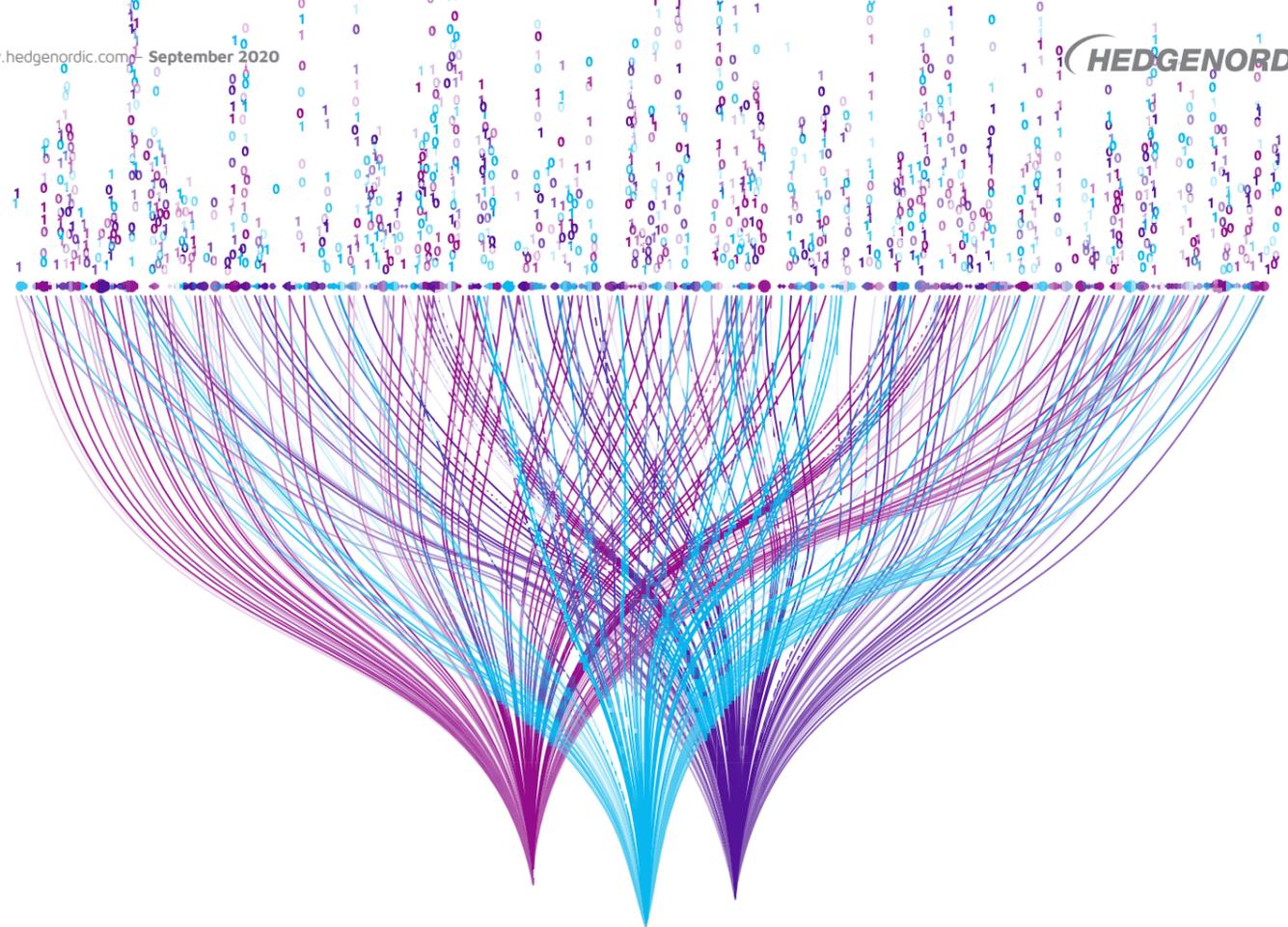
And while Man Group’s cloud usage is growing, it continues to use physical data centres for some purposes. Says Price: “Our Cloud strategy is to focus our internal capabilities on the high-performance research and investment systems that can differentiate us from other asset managers, while using Cloud to source and deliver commodity services. The data that we believe differentiates Man Group – the wide range of research data available to our quant analysts and the rich trading and ops data that drives the business – is still held in our data centres. What has moved to the Cloud is an

increasing amount of our archive and backup data – systems where speed is less important, but volumes are considerable. Similarly, as we adopt newer collaboration tools, we favor cloud-based SaaS products so more of our “new” data is initially being created in the Cloud.”

ALTERNATIVE DATA

Some of OQAM’s models exploit computing power to store large amounts of alternative data and Man Group is also using alternative data. Says Hinesh Kalian, Director of Data Science at Man Group: “It’s important to take a step back and understand why alternative data is useful in the investment process. To put simply, it can provide an information edge over traditional data sources. During the pandemic, we feel it has provided us with a better read on the economy amid widespread global closures and re-openings. It has although become more prevalent that real-time indications of activity, as opposed to the typical reports that usually lag by at least a month is proving to be useful. In the coronavirus era, when the drop-in activity happened so rapidly, the need for more immediate indicators has increased. It’s not just been beneficial in investment management though. You are seeing government agencies and corporates increasingly exploring alternative data sources to obtain timely insights around Covid-19 and its social and economic impact.

“We are not focusing on one particular source but are interested in the collective pieces that make up the puzzle. Having a specialised data science function at Man Group, coupled with a nimble and efficient data platform results in the ability to connect these pieces quickly, to provide early insights into changes in the economic health.”



Open Technology

Next Generation TCA

By Erin Stanton – Virtu Financial

Data does not qualify as information until it can inform. To use data effectively, you must first make sense of it.

As the abundance of data proliferates, so does the challenge of managing it. The initial excitement surrounding new found abilities to extract data from internal and external sources has worn thin, as the amount of time it takes to normalize this data increases. A common adage amongst data scientists is that you spend about 80 percent of your time cleaning data and only about 20 percent of your time extracting its value. This axiom is all too familiar within the Virtu Analytics team, who ingest data from dozens of disparate systems and strive to provide meaningful output in a usable format.



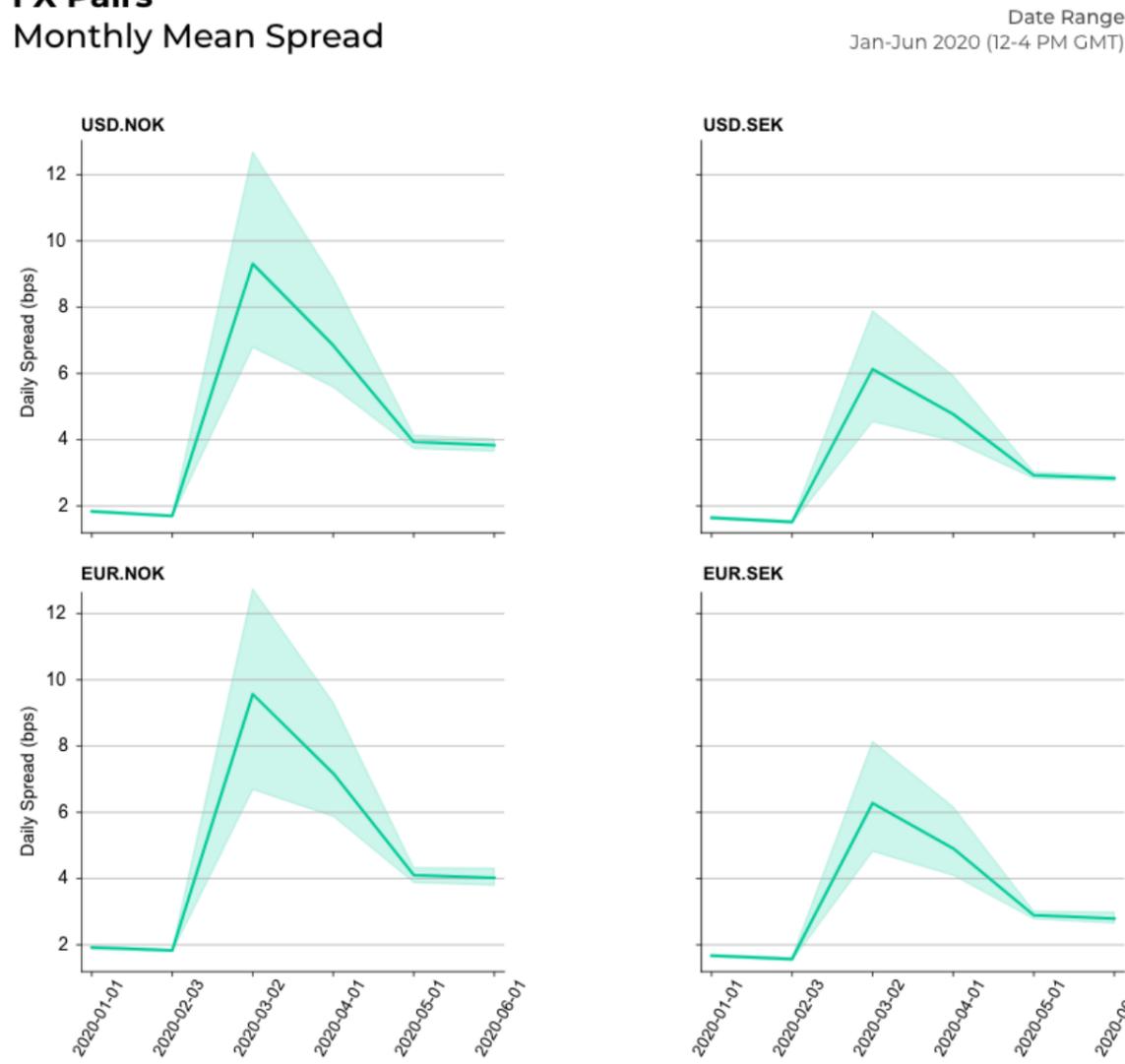
Erin Stanton
Portfolio & Trading Analytics
Virtu Financial

Given our experience, we understand how, when faced with the steady stream of information, in-house analysis teams continue to grow in size and why, in the worst cases, these internal databases become wastelands of good intentions and discontinued projects. In our view, data analysis skills must be augmented with the right tools. Technology can help reduce data-scrubbing time—which can result in more timely data-driven decision-making and more free time to focus on alpha-generating analysis. In response, Virtu's new Open Technology data-as-a-service platform was designed to facilitate API

access and data retrieval from our global models, to provide access to normalized multi-asset datasets and to help our clients analyze their enriched broker-neutral trade data.

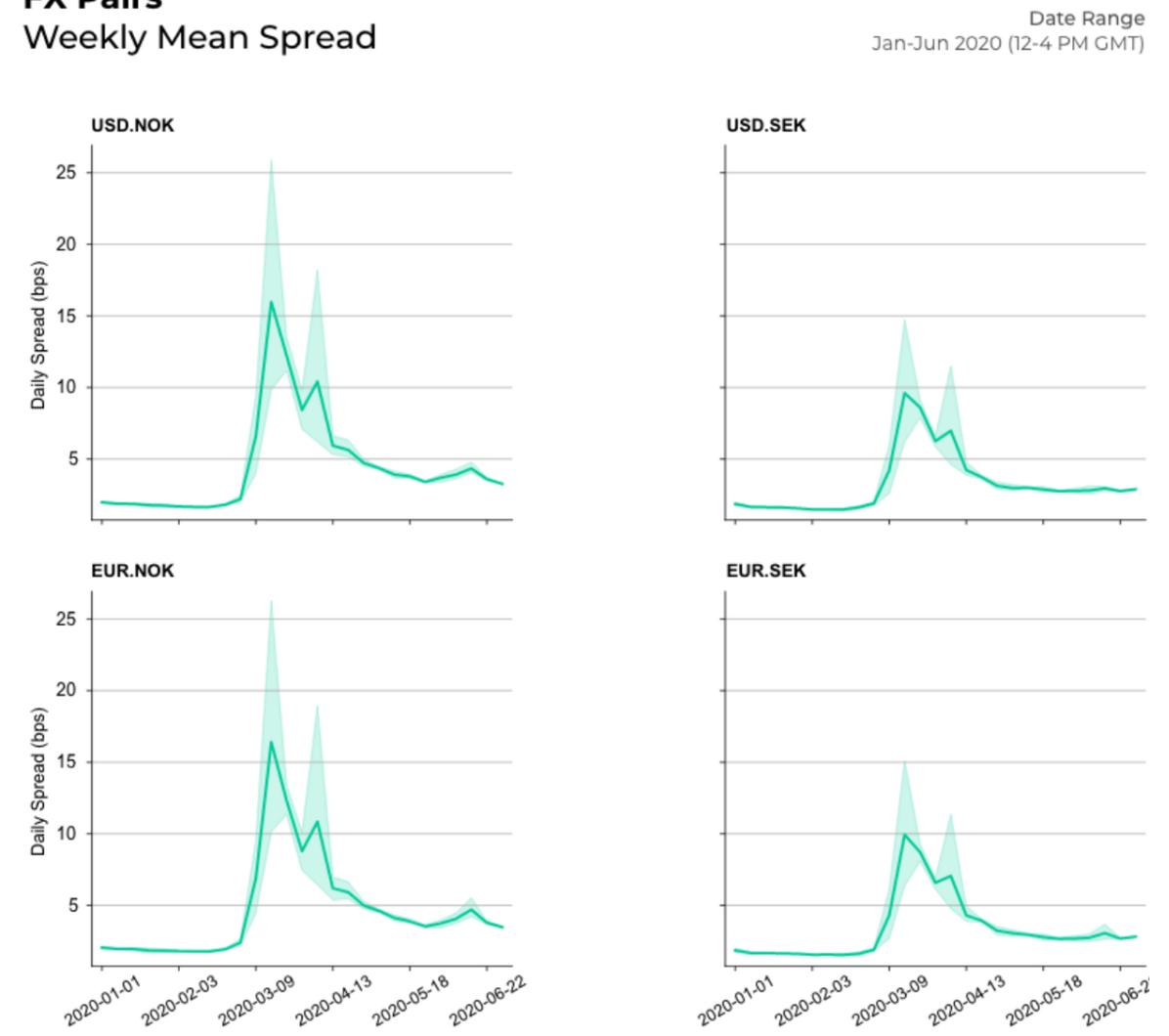
As software and basic programming literacy becomes more ubiquitous—and especially over the course of 2020—we have seen a spike in interest from clients, in non-programming type roles, eager to become fluent in programming and get up-to-speed on data analysis. Virtu's Developer Toolkit makes it easy for programmers and non-programmers to

FX Pairs Monthly Mean Spread



Source: Virtu Financial. Spread and volatility calculations derived from sources that Virtu believes to be reliable but Virtu does not make any claims to its accuracy.

FX Pairs Weekly Mean Spread



Source: Virtu Financial. Spread and volatility calculations derived from sources that Virtu believes to be reliable but Virtu does not make any claims to its accuracy.

get started. Sample code in several programming languages teaches you how to write scripts that can range from simple queries that access benchmark trade data to the analysis of historic transaction cost analysis (TCA) results. Because API data can be combined and analyzed with other data you acquire, the combinative possibilities are endless and make advanced interrogations of in-depth market data across equity, futures, fixed income and FX possible. As new data becomes available, Virtu will update the individual APIs.

Potential use cases:

- Sell side brokers Proprietary transaction cost systems, built by many sell-side brokers to service clients, are starting to age out. Calculating transaction costs correctly requires standardized market data and the ability to combine it with trade data. A reporting framework must be maintained to extract the results—forcing firms to decide whether to continue with client-customization requests or not. Increasingly, brokers are

implementing solutions like Open Technology to save time and re-allocate internal resources towards improving trading strategies and serving clients.

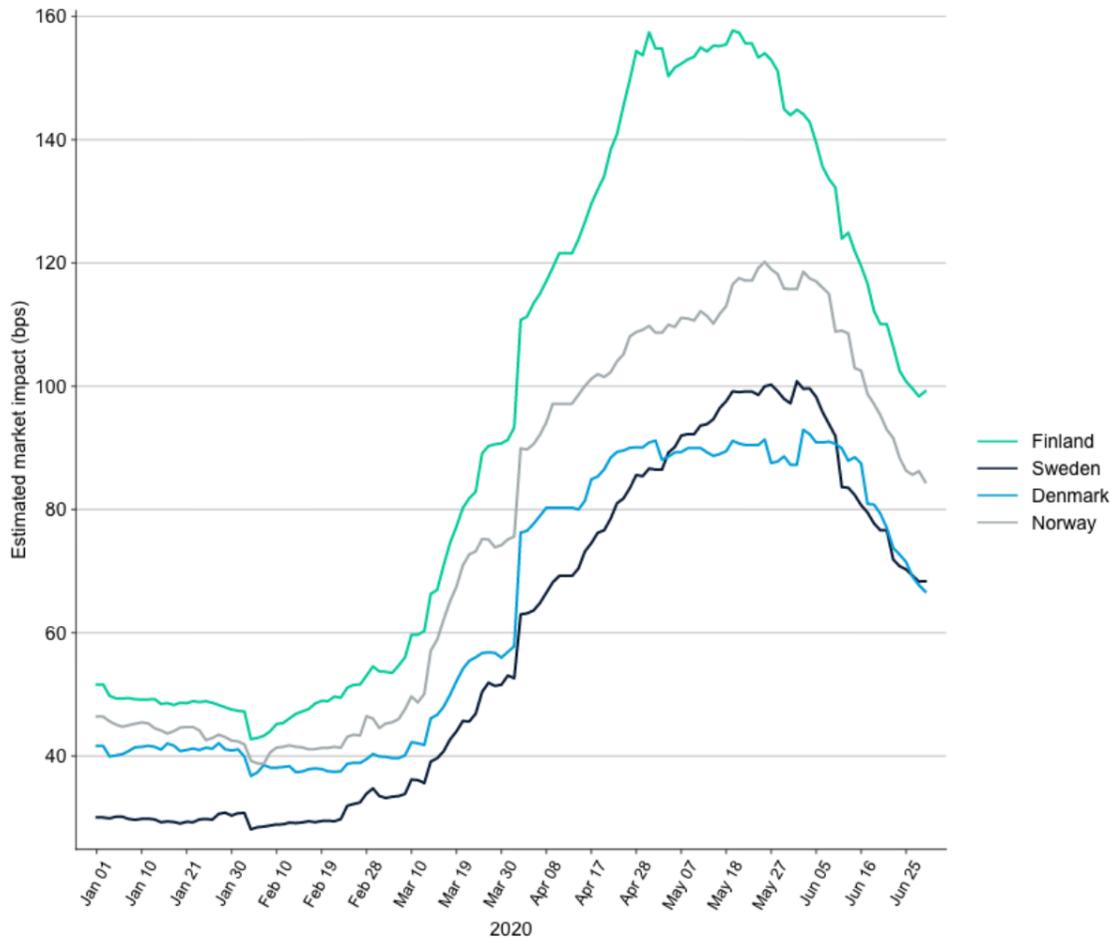
- Replacement for legacy market data systems
Several of our clients have maintained legacy market data systems to enrich in-house data. This requires skilled knowledge of market structure as well as how market data is generated. Open Technology takes care of

the necessary but painstaking work such as condition code filtering, which enables user-driven parameters such as the currency a price is returned in and market-specific settings such as Thailand-foreign shares handling.

- Enhanced modeling
Active management continues to become more competitive and clients are squeezing out alpha wherever possible. Virtu Analytics' proprietary global and multi-asset models help provide more

Daily Market Impact Estimates Finland, Sweden, Denmark and Norway

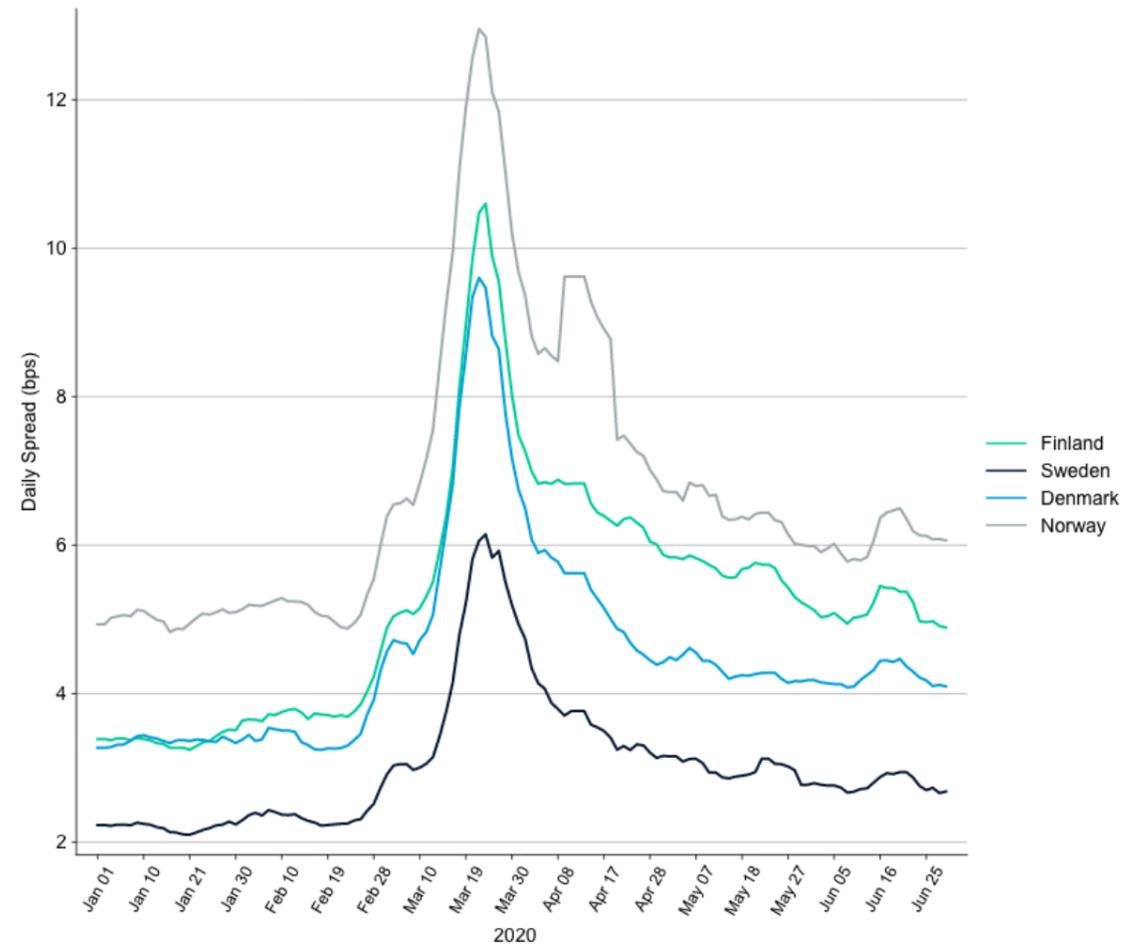
Date Range
1 Jan — 30 Jun 2020



Source: Virtu Financial. Spread and volatility calculations derived from sources that Virtu believes to be reliable but Virtu does not make any claims to its accuracy.

Daily Stock Spreads Finland, Sweden, Denmark and Norway

Date Range
1 Jan — 30 Jun 2020



Source: Virtu Financial. Spread and volatility calculations derived from sources that Virtu believes to be reliable but Virtu does not make any claims to its accuracy.

precise trading cost estimation that can be incorporated into the portfolio optimization processes. Dedicated market-on-open and market-on-close models help traders seek liquidity in a cost-efficient fashion while additional data-driven APIs supplement internal alpha generation models.

many buy side and sell side firms across the globe to help monitor, analyze and improve their quality of execution. Future APIs built on the Open Technology platform will enable access to data and services from other Virtu businesses including Workflow Technology and Execution Services.

Virtu's new Open Technology platform is the result of a multi-year infrastructure rebuild. Our TCA products are built by Virtu's Workflow Technology and Trade Analytics & Data division which is relied upon by



Max Eklund
Regional Sales Manager, Nordics
SS&C Advent

Sharper Technology Offers Nordic Hedge Funds a Valuable Edge in the Battle for Allocations

By Max Eklund – SS&C Advent

Using modelling to accomplish your goals is a well-established practice in human behavioural psychology. Pick someone who has attained the success you want, study how they do it, then create a similar plan of action. And the technique can be just as effective for organisations.

In the Nordic region, as elsewhere, the hedge fund marketplace has become crowded and highly competitive. Fees and margins are under pressure. Outperformance in a central bank dominated environment has been hard to achieve. Regulations

“Relying on spreadsheets or simple front-office technology tools to monitor positions no longer cuts it in today’s complex, fast-paced trading environment.”

have tightened. And institutional investors—the primary source of capital inflows—come with stringent service expectations.

So what can Nordic hedge fund firms do to attract and retain investor allocations, strengthen their profitability and grow? Emulating successful funds is a good starting point. Talent, teamwork and a solid investment strategy are obviously crucial. But just as important is innovative, efficient technology.

WHY IT MATTERS

Keeping up with the global industry leaders has become especially vital given Nordic hedge funds are increasingly competing against them.

The Nordic region is highly attractive to international institutional investors. The markets are resilient, provide wide risk diversification, and boast a wealth of tech leaders and growth companies offering investment opportunities and return potential.

But institutional investors have demanding risk, compliance, business continuity, transparency and reporting expectations, forcing hedge funds from jurisdictions around the world to upgrade their operating set-ups in response. If Nordic funds are to attract that institutional money, they will need similar infrastructures and controls.

STREAMLINED INVESTMENT MANAGEMENT

Sophisticated front-office solutions—a key ingredient in achieving market-beating performance—are an obvious starting point.

Relying on spreadsheets or simple front-office technology tools to monitor positions no longer cuts it in today's complex, fast-paced trading environment. But with a dedicated trade order management platform, hedge funds can streamline trade creation, get real-time views of their trading data and cash positions, and make and execute better trading decisions that adhere to evolving compliance restrictions.

An order management system with true multi-asset class capabilities also enables funds to diversify into different markets and investment strategies. That provides vital flexibility in the hunt for market-beating risk-adjusted returns, and adds a valuable element of future proofing.

OPERATING DIFFERENTIATORS

But firms shouldn't stop there.

Traditionally, Nordic hedge funds have entrusted their back offices and maintenance of their book of record to a local third-party fund administrator. Yet many funds lack automated connectivity and data flow between the front and back office, and rely on manual processes to feed information to the administrator.

That may have served in the past. It won't going forward. With international competition and market

complexity on the rise, industry participants need to adapt their operating models and take advantage of the modern suite of middle- and back-office tools if they are to differentiate their services, attract institutional clients and achieve a competitive edge.

EXPLOITING OPPORTUNITIES AND MITIGATING RISKS

Relying solely on an external administrator to deliver the NAV and daily positions brings multiple weaknesses and risks.

Timeliness is one. Administrators are principally interested in producing a valuation, whereas managers can use the datasets to conduct performance and risk analysis and reporting. Having to wait for the administrator to do their work means the fund may lack accurate real-time exposure and P&L information it needs to trade, monitor and manage its investment risks, and report to investors as quickly and directly as it would like.

Accuracy and independence concerns are another. Maintaining your own book of record provides a failsafe. Without the ability to replicate an administrator's figures, hedge funds can't catch any errors that may occur—such as sending an investor too much money on a redemption (as happens, at sometimes debilitating cost). An internal record offers valuable independence in case the administrator suffers any drop or loss of service, and makes it easier to shop around for alternative providers. And since the fund administrator's back-office system may only be built to support simple strategies, having a robust internal infrastructure able to handle complexity gives funds greater investment flexibility.

An integrated front-to-back infrastructure mitigates operational risk as well—whether it's the computational risk of a spreadsheet, or the business continuity risk of relying on a third party. International institutional investors' operational due diligence processes have become a cornerstone of their allocation decisions. Fund firms have to be on point with all their controls and everything they

“Adding an extra layer of infrastructure and checks may seem like an unnecessary expense to cost conscious hedge funds. But thanks to the new generation of cloud delivered services, the technology is now within reach for even smaller firms.”

send to clients. Implementing the right support infrastructure, including robust governance and comprehensive reporting capabilities, will make the business more investable and can be a big selling point when attracting capital flows.

Mirroring the administrator's book of records also opens up opportunities for fund firms to offer, for example, separately managed accounts to institutional clients. With this ability, firms can appeal to a wider range of investors through a variety of routes, further boosting their reach and growth potential.

HIGH VALUE AT MARGINAL COST

Adding an extra layer of infrastructure and checks may seem like an unnecessary expense to cost conscious hedge funds. But thanks to the new generation of cloud delivered services, the technology is now within reach for even smaller firms. The software itself has become less expensive, and through hosted solutions it is far cheaper to deploy and maintain. Implementation and software update timeframes are much shorter, and firms no longer need costly in-house IT teams to manage the technology.

Commingling the technology with targeted outsourced support services can further ease the operational burden. Using an expert outsourcer to take on key workflows allows hedge funds to benefit from high quality outputs without needing to add in-house operating staff, while freeing the firm to focus on those activities that matter most to its business. And when they want to grow, they will have a technology and support environment that can scale with them to meet their future needs.

An efficient front-to-back operating infrastructure may once have been seen as a needless luxury. Today, it has become an essential value add that will enhance Nordic hedge funds' competitiveness and provide a flexible platform for growth.



Peter Sanchez,
Global Head of
Northern Trust Alternative Fund
and Omnium Business Services

Automation’s Potential in the Alternatives Sector

By Peter Sanchez – Northern Trust

Automation is key for managing alternative funds, particularly when it comes to decreasing data security risk, working with a fund administrator and managing cash and collateral needs.

Alternative asset managers know how to thrive despite the volatility that is inherent in the market – sometimes even leveraging low volatility to generate alpha.¹ Still, any manager would jump at the opportunity to cut down on certain aspects of

“Automation is able to call out concerning changes in typical trade volume over a custom period of time, potentially pointing out fraudulent trading activity.”

operational uncertainty for the sake of decreasing risk and increasing efficiency.

As many alternatives managers have already grasped, automation and other technology have great potential to help them achieve just that – and meet many of their top goals in the process. According to Northern Trust’s Driving Growth in Asset Management report, for which 300 asset managers were surveyed, 64% of asset managers plan to leverage new technology to achieve their priorities in the next two years.

SECURITY RISK

Automation can help alternatives managers tackle security risk on a couple of different fronts. First, consider automation’s role from a data protection perspective. Managers house huge amounts of sensitive data, such as investor banking information,

trading strategies or private equity deal details, making data breach a huge and intimidating risk. Reputation fallout has always been a consequence of data breach, but now as concrete data privacy policies are emerging worldwide (GDPR in Europe, PDPO in Hong Kong, PDPA in Singapore, CCPA in California, etc.), managers have a legal obligation to take steps to protect the data they hold.

Automation helps enable safer data sharing for alternatives managers by ensuring the administrator or manager isn’t sending sensitive information to the wrong recipient or committing an error when manually transcribing a piece of data. A secure platform for report sharing, for example, should utilize automation to require the whitelisting of the recipient’s IP address and employ automatic keyword searches for concerning terms (such as other clients’ names) to avoid report mix-ups, all while encrypting the reports sent within it.

Automation can also help managers mitigate security risk from the perspective of fraudulent trading. Since many managers oversee a large number of funds and a large number of trades/investments occurring within each fund, it can be challenging to notice suspicious trading activity, especially to the naked human eye. This can particularly be the case for high-frequency trading hedge funds. Automation is able to call out concerning changes in typical trade volume over a custom period of time, potentially pointing out fraudulent trading activity.

WORKFLOW BETWEEN FUND ADMINISTRATOR AND ALTERNATIVES MANAGER

Fund administrators handle a high volume of work on managers' behalf, especially in times of increased volatility, and automation is a key technology in creating a productive relationship.

Particularly in the private capital space, automation holds strong potential to help administrators and managers improve the quality of many reports and investor communications – like financial statements, valuation documents, waterfall distributions and investor records – which both parties spend time analyzing regularly. On this front, data APIs will see growing adoption in the manager-administrator relationship for both private capital and hedge funds in the coming months and years. APIs enable automation's full potential for data standardization and automate the flow of data between organizations. They also reduce the manual error rate and potential client losses as they increase the manager's and administrator's ability to focus on data interpretation and other high-value-add tasks versus mechanical work.

Centralized reporting streamlines the sharing of new report versions between an administrator's team and the manager, ensuring better controls and higher quality documents. Adding an automation-powered workflow tool into the mix provides the manager with even better insight, including a view into the administrator's deliverables in real time. This offers more transparency into the administrator's

deliverables status – what's in progress, what is the corresponding exposure, what needs to be done, etc. Building up reporting and workflows with the help of automation empowers the administrator to be the true strategic extension of the client and enhances the resolution of breaks by offering frictionless communication between the administrator teams and the managers.

Ultimately, automation's potential within the fund administrator/alternative manager relationship enhances the client experience on the manager's side and service excellence on the administrator's side. The technology mitigates the need for reworked deliverables and associated delays, making way for a stronger relationship between the two parties.

CASH AND COLLATERAL

Automation plays a necessary role in de-risking alternative funds' treasury operations. Cash management and, in particular, collateral management can have very complex requirements. Large hedge funds often work across many different prime brokers with only one collateral manager running the operation.

Collateral calls are frequent and fluid, and it is extremely important to stay abreast of the information flow. If the window for posting collateral is missed, funds will see their trades close and still be on the hook to make the payment to the broker. Placing cash and collateral needs in an automated system takes the heavy burden of administrative work away from a cash and collateral manager. They can then focus on answering the cash needs and collateral calls without having to worry about manually creating the back-end accounting entries for the comings and goings of a fund's payments.

Automated cash and collateral operations are even more crucial in times of volatility. During the initial market turbulence that accompanied the COVID-19 global outbreak in March 2020, Northern Trust Alternative Fund Services experienced a 86% increase in margin calls for bilateral repurchase agreements and OTC agreements versus just two months prior.²

“During the initial market turbulence that accompanied the COVID-19 global outbreak in March 2020, Northern Trust Alternative Fund Services experienced a 86% increase in margin calls for bilateral repurchase agreements and OTC agreements versus just two months prior.”

When volatility spikes as it did in Q1 2020, automation helps to remove the risk of unfulfilled cash obligations and empowers human teams to act more efficiently through stressed markets.

WHAT'S NEXT FOR AUTOMATION IN ALTERNATIVES?

The benefits of automation closely align with managers' top goals for the next two years as noted in our survey – focusing on risk/compliance (86% of asset managers), enhancing quality and accuracy (74% of asset managers), creating greater efficiency (66% of asset managers). As a result, we'll continue to see adoption of the technology, particularly in the alternatives sector where decreased risk and increased efficiency can be challenging to wrangle thanks to high volatility.

Automation offers many benefits for alternatives managers, and it will continue to evolve. Data management presents the biggest potential for increased use. Automation can help managers and administrators harness funds' unstructured data to provide the manager with a more sharply defined real-time view into the many metrics and data sources of their funds. Simultaneously, newly adopted automation functions will continue moving to the cloud, increasing the ability for real-time metrics.

Ultimately, the data shows that alternatives managers are ready and willing to turn to technology in order to achieve their risk management, accuracy and efficiency goals over the next two years. Automation holds the key to mastering some of the pain points unique to the alternatives world, and the managers who set out to tackle their digital transformation goals fastest will reap the greatest benefits.

¹ Northern Trust Asset Management, Leveraging Volatility to Create Alpha, June 2020.

² Northern Trust and HazelTree, Weathering the 2020 Storm: Market Volatility, Location Disruption, Cyber Threats, and Record Volumes, July 2020.

Five Ways to Improve Post-COVID 19 Sales and Marketing in the Funds Sector

By Paul Das – ProFundCom

Major global events often have repercussions for business. And the COVID 19 crisis is no different. The scale and speed of change across society has been unprecedented. But what exactly will it mean for sales and marketing within the funds sector?

In this article, I outline five ways in which your sales and marketing should change – and can gain – in the wake of the pandemic.

METRICS

Metrics is a major part of sales and marketing. You must measure your digital marketing campaigns to see which are, and aren't, working well. With digital marketing more important than ever – thanks to the rise in homeworking – it's vital to know where to concentrate your firepower.

It's important to know how well content is being received, but also which channels are working best,



Paul Das,
Founder and Managing Director
ProFundCom

which products are most popular, and which areas of the world are most receptive to your marketing.

You can best present all these metrics through digital dashboards, to enable an easy online view of trends – something that's increasingly important with teams now working remotely.

But metrics make little sense when viewed solely through a sales or marketing prism, so both teams must combine to analyse and understand the impact they have.

Metrics are also a useful gauge of performance in relation to competitors. By benchmarking AuM you can see how you are performing in relation to, for example, the wider asset management market.

REPORTING

Useful as dashboards can be, they are also notorious for telling people a lot about very little, as they are only as useful as what they are reporting on.

You must report on factors that can make a real difference to your sales and marketing teams, such as prospect and client engagement. This means, for example, prospects who have suddenly started reading your content, and those who are most actively engaged. This can lead you to people who may be ready to invest with you. You can also identify existing clients who are reading about new products and services – thus presenting a cross-

selling opportunity. Equally, you can report on clients who have stopped reading your content, which could suggest they are ready to leave – and that a well-timed call from sales is needed.

But reporting must be consistent – so you can develop actionable insights based on a specific set of metrics. You should only concentrate on data that can result in raising and retaining AuM, and track this through lead scoring, which can bring you to the perfect point to make contact.

COMMUNICATION

All too often, communication between sales and marketing is neglected. Yet successful collaboration between these two teams is vital. And the ubiquity of collaborative tools like Slack, Trello etc, makes this easier than ever to achieve.

Also, as remote communication is now so much a part of the sales landscape, it's simple for marketers to drop into sales calls and educate themselves on what clients want and need. This in turn enables them to develop more effective campaigns, which resonate with the target audience.

In short, when a marketing team gets on the same side of the table as the marketing team – and vice versa – then you learn much about the challenges they face, which creates better understanding, alignment and performance.

PERSONAS

There is information about your audience out there waiting to be collected – such as the gender split, where they live, where they were educated, the devices they usually use etc. This type of data can be gathered within the remit of GDPR and wider data regulations – and anonymised – so you are not breaking any rules. And this allows you to build a client persona of those who are most likely to invest with you.

This tells you the type of people you need to reach out to – and the type of subjects they will be interested in, which is vital to drive marketing success. This sort of technology will become increasingly prevalent – both in marketing and wider society (such as through track and trace apps) – in the post-COVID world.

There are no dark arts involved here – you are purely using this data to create a prospect-centric persona, which shows you what your ideal client is – and is not - interested in and the best way to reach them. This technique is already widely used by companies like Amazon and Netflix to upsell and cross-sell and is rapidly gaining credence in the financial world.

NURTURING

Marketing activity is most useful if you automate your campaigns, so you can reach a broad range of individuals with targeted content. Basically, you nurture the projects within your database towards

a sale. And, through a process of automatic lead scoring, you can see who has engaged the most with your content and thus is sales-qualified.

And the real power from this material comes when you bring it all together, so sales can see a snapshot, within your CRM, of all sales-ready leads.

This is massive, as one of the hardest things in sales is knowing when a prospect is ready for a conversation. But with this type of nurturing, your sales reps have instant access to all the information they need - so not only are they alerted when a prospect is ready to talk, thanks to automated lead scoring, but they also see what that prospect will want to talk about.



Why Financial Market Data is Moving to the Cloud

By Russell Blinch for OpenMarkets / CME Group

Finding a market price used to mean tilting your head up to a big chalkboard hanging over a trading floor. Perhaps runners developed the first Application Program Interfaces (APIs) back in the 1800s when they donned fur sleeves to prevent any accidental erasure of the precious info.

But market information migrated from carrier pigeons, to blackboards, to newspapers, and then to servers. All because of a need for more and more quality market data to feed investors hungry for intelligence.

As the need for reliable data continues to grow, all types of market participants are looking for ways to make data management more cost-effective and efficient.

To find this nirvana, the industry is increasingly looking heavenward—to the cloud.

A FINANCIAL FORK IN THE ROAD

Cloud technology is hardly a new concept. However, the cloud is a major fork in the road for everyone in the financial sector due to a nexus of factors, not least of which is the adjustment to a work-from-home environment in 2020.

Especially for firms who may not have the need, expertise or the budget for onsite infrastructure, servers or data storage, there is a growing interest in cloud-based market data solutions.

BIG DATA MEETS DYNAMIC DATA

“This is an inflection point,” declared Bill Bierds, President of the software house BCC Group, in a video presentation. “I think you are going to see a lot more

acceleration into the cloud and market data is just one area that is ripe and ready to go.”

The cloud storage market, underpinned by tech giants such as Google, Microsoft and Amazon, is expected to triple in value to over \$100 billion annually by 2024, according to a report by Market Data Forecast.

All kinds of financial data are floating upwards, but market pricing data is expected to be a major growth area for the cloud, according to industry experts.

TERABYTES OF DATA MOUSE CLICKS AWAY

CME Group became the first derivatives exchange to offer a real-time, cloud-based market data product when it announced the launch of CME Smart Stream in 2019. This provided clients access to its real-time data feed—in conjunction with the Google Cloud

Platform. In July 2020, CME Group announced clients could also tap delayed data through the cloud.

They can also now access a mind-boggling 450 terabytes of data with a few clicks of a mouse, accessing hardware and provisioning network equipment in remote data centers.

“Our adoption of cloud technologies was driven by our mission to make our data more accessible to a broader base of customers, without compromising on quality,” said Trey Berre, Global Head of CME Data Services.

“Now, more than ever, we know many market participants are looking for solutions that enable greater flexibility. Our collaboration with Google Cloud has made it easier for our clients to access the data they need from anywhere with an internet connection.”

DEMOCRATIZATION OF DATA

Large institutions aren't the only ones levitating to the cloud. Fintech companies are driving innovation that could mean a levelling of the playing field where small, nimble firms will take advantage of the cloud and win customers. Start-ups leveraging the cloud now, have access to as many resources and information as large financial institutions – infinite computing and storage, unlimited global data movement and access to next-generation technology like quantum computing.

Said Bierds: "A lot of the sell-side firms have tons and tons of resources and places to do all this analytics and algorithmic work. But a lot of the small firms don't have that. The cloud is bringing that—it's democratization of data that's happening here."

A case in point is Skew Ltd, a crypto trading platform based in London, which was founded in 2018 by two former JP Morgan and Citigroup derivatives traders, Emmanuel Goh and Tim Noat. The company raised \$7 million in funding and has received backing from leading investors such as Kleiner Perkins, Digital Currency Group and Octopus Ventures.

Skew announced in April 2020, that it was launching a trade execution platform in conjunction with Kyte Broking and became one of the first companies to leverage CME Smart Stream to power its solution.

Skew offers both trading and analytics and provides an institutional-grade overview of crypto derivatives markets, with over 100 charts on futures and options and historical data.

Skew's client focus is on corporations and institutions where market participants tap Skew's dashboards daily. According to the company, more than 1,000 firms have signed up for the market data analytics service since its launch last year.

"The cloud storage market, underpinned by tech giants such as Google, Microsoft and Amazon, is expected to triple in value to over \$100 billion annually by 2024."

Tim Noat, Skew's COO, said one highlight of working with CME Smart Stream was how cost-effective it proved for a company their size, all resulting in winning that extra step in a competitive field.

SKEW'S ASSET TRADING PLATFORM

"On the business side of things, the main reason is the cost," Noat said in an interview. "And not only is it cheaper to receive the data from the cloud, it is also convenient for us who are in the cryptocurrency industry."

"We were among the first to get in touch with CME, build our relationships with the teams, and get early access to the cloud, which made it possible for us to have a competitive edge."

Noat and Daniel Cullender, Skew's Chief Technology Officer, also highlighted the importance of the cloud for speedy execution and the ability to quickly deliver

their services to customers. Startups need to move fast to build viable services for customers, an ability cloud services allow. From their first conversation with CME Group, Skew was onboarded and using Smart Stream within just six weeks.

Cullender extolled the relative ease of aligning with CME Group's offering and praised the ready tech support from Google. Other benefits include advanced monitoring and setup of alerts with no agonizing over co-locating data in expensive installations.

"And that means the costs are kept very, very low," he said.

Noat said while virtually everyone in the crypto space is in the cloud, the movement to embrace the technology in the rest of industry is underway. But it will not happen overnight. "So I think it's going to come, but it's going to take time," he said.

The world's major stock and derivative exchanges are moving into the cloud, likely to meet client demand. According to research by Greenwich Associates, some 93% of market data professionals say they are planning to use the cloud to help manage their data.

CLOUD IN THE TIME OF VIRUS

Other experts agree the march to the cloud is a process. But it's being kickstarted by the shift to remote work during the current pandemic.

"I think this a very strange time, and this very sad time in our history is forcing leaders to rethink the cloud, and to rethink where their workload is running and who is running their workload," said Bierds of BCC.

For Skew, Noat said the company has been helped by the fact their operation was on the cloud from day one.

"Covid has opened our eyes on the ability of our employees and everyone to keep focused on the goal. Productivity has actually been very good."

Stephane Dubois, CEO of Xignite, told the Finextra financial portal that in the old data paradigm companies were spending 90% of their budgets of maintaining their data infrastructure. Only the remaining 10% went toward innovation.

"Now, we can access this data very easily and you can really build new user experiences, new analytics, even new AI systems and models with the data," he said.

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Genesis of Bitcoin and Cryptocurrencies

By Michael Zbinden – Crypto Fund AG



Michael Zbinden, CIO
Crypto Fund AG

In 2009 bitcoin came into existence with Satoshi Nakamoto (or someone calling himself that) mining the so-called genesis block of bitcoin, laying the groundwork for cryptocurrencies based on blockchain technology, and later projects with similar technology. Moving ahead to 2017, traditional big players began entering the market, including the CME, the world's largest futures exchange, as it announced its own cash-settled bitcoin futures contracts. In anticipation of institutional money flowing into the crypto market, bitcoin traded higher and higher and culminated at the level of around 20,000 USD. Many crypto projects profited from the hype, generating massive amounts of money by creating new cryptocurrencies and selling the virtual coins in so-called initial coin offerings (ICOs). Some projects are still in development and are now delivering first results; other projects have completely lost traction. From there, prices for bitcoin varied greatly. At the end of 2018, bitcoin traded slightly above 3,000 USD, in mid-2019 it

traded slightly below 14,000 USD again, one year later it touched 4,000 USD, and the bitcoin price has recovered to 10,500 USD since then. In other words, the volatility of bitcoin – and crypto assets in general – is very high. Looking at the statistics, bitcoin's long-term correlation with traditional asset classes is low – with periods of high positive correlation and periods of high negative correlations.

BASIC UNDERSTANDING OF A BLOCKCHAIN

In its basic setup, a blockchain can be equated to a distributed database that is continuously shared across a network of computers. The internet, as a base carrier for blockchains, has enabled this technology: for public blockchains, there is no restriction of access and everyone can join or leave the network independently.

“As an investment case, bitcoin is very early stage and offers big potential, as its long-term correlation is low compared to traditional asset classes.”

A blockchain's basic operational mechanisms include:

- Participating computers must be in sync with all other computers of the same network to make sure that no malicious records are added to the database and the current state can be verified at all times by the participants.
- Records that the network accepts are collected and aggregated in a data block.
- Each block is appended to the blockchain. The network of computers validates the blocks: computers participating in the network compete against each other and the fastest computer to validate it can append a block.

- The computer that appends the next block receives the so-called block reward, a well-defined amount of newly “minted” coins. To find the next block, the target steering parameter is the time (resulting in a constant generation of blocks, e.g. every 10 minutes).
- The size of the computing network is a function of the price (higher prices increase profitability and the incentive to participate) and not a function of the number or total value of transactions. In other words, the infrastructure providers, the bitcoin miners that validate the blocks, are incentivised by economical elements. This guarantees a continuous operability.

6 blocks per hour). The number of bitcoins generated per block is set to decrease geometrically, with a 50% reduction every 210,000 blocks, or approximately every four years.

With current block rewards, bitcoin’s inflation rate is 1.8% (and will stay at or below this value until all bitcoins are mined and reach the final number of 21 million). Bitcoin’s purchasing power will continue to grow over time if demand continues to increase. This commodity-like feature offers investors the opportunity to diversify both systemic risk that is connected to government-controlled fiat currencies and inflation risk linked to expansive monetary policy. Bitcoin also provides access to an alternative source of performance that is not connected to pure economic output.

The rationale for bitcoin and crypto assets as a hedge against inflation truly strikes at the root of inflationary problems: these are both assets and a store of value outside of any national monetary system. Wealth is dissociated from the core: government or centralised governance actions are not simply symptoms, rather the tip of the inflationary iceberg. In our current phase, political leadership is more centralised and may destabilise as an economic crisis intensifies, bitcoin and crypto assets can act as the ultimate hedge. This destabilisation could include currency

debasement, rampant price inflation, central bank and fiscal policies gone wrong, and actions leading to nations or governments seizing, freezing, or grossly taxing citizens’ fiat currency wealth.

BUSINESS CASE FOR CRYPTO ASSETS

But what about the sheer number of different crypto assets? Are they really needed? The answer might be yes or no. It is a new technology that allows new business models, especially where different participants work together that do not know each other or have minimal trust for each other. It can increase efficiency in transaction speed, lower fees, increase transparency, and it can eliminate many intermediaries that are needed in the traditional world. It goes beyond the features of a currency and transfer of wealth: in so-called smart contracts, it allows payments to be linked directly to events and instantly settled. It allows a machine economy where each robot pays its peers for delivered services.

As an investment case, bitcoin is very early stage and offers big potential, as its long-term correlation is low compared to traditional asset classes. Its supply is fixed and demand is variable, with different, independent, active players with various motivations to participating in crypto trading and investing. These include:

- Long-term investors, who do not really care about correlation and volatility
- Short-term active traders, who are taking long or short positions
- Tech nerds, who are buying or selling crypto assets based on technological expectations
- Investors, who have lost faith in governments
- Investors, who are looking for alternatives to diversify systemic risks

- Market participants, who are looking for long-term inflation protection after years of quantitative easing and recent additional cash injections to fight recession in the real economy
- People who prefer to be their own bank in times of general uncertainty

OPPORTUNITY FOR HEDGE FUNDS

The absence of valuation models for bitcoin – and consequently the absence of a defined fair value – attracts quantitative, systematic investment approaches. The young and inefficient crypto market is still dominated by retail traders that are monitoring pure price action. In combination with the activity of the various market players, this increases the strength of trends, and this situation improves the profitability of trend following long / short approaches and delivers attractive risk / return profiles.

BITCOIN – CURRENCY OR COMMODITY?

The parameters described above vary somewhat for each crypto asset. As an example, the bitcoin blockchain parameters are defined as follows: a limit of 21 million coins that can be produced was defined. This fixed final supply is a characteristic that other crypto assets may not have. The rate of bitcoin block creation is adjusted every 2016 blocks to aim for a constant two-week adjustment period (equivalent to



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AI: The Best Shot at Extracting Alpha

By Eugeniu Guzun – HedgeNordic

Artificial intelligence and machine learning technologies have been developing at a fast pace over the past few years, with possibilities soaring in tandem with the ever-increasing volume of data, advancements in computing capability and data storage solutions. Asset managers may need the genuine adoption of artificial intelligence and machine learning to stay ahead of their game.

“The complexity of financial markets is such that no one individual or team at a hedge fund or elsewhere can absorb all the information and extract all the alpha you can get unless you use technology,” asserts Daniel Broby, Director of the Centre for Financial Regulation and Innovation in the United Kingdom.

“The advantage of artificial intelligence is that you are not just using the technology to process and classify available data, you are using it to make predictions and come to assessments faster than the rest of the market.”

The applications and benefits of artificial intelligence, however, can vary greatly from one asset manager to another. “What AI can bring to the table very much depends on the strategy and what you decide you want your AI to actually deliver for you,” explains Broby, who has produced a number of papers on the use of artificial intelligence in banking and fund management. “The specific strategy of a hedge fund manager is very relevant to how you program



Daniel Broby,
Director, Centre for
Financial Regulation and Innovation,
Strathclyde Business School

“The complexity of financial markets is such that no one individual or team at a hedge fund or elsewhere can absorb all the information and extract all the alpha you can get unless you use technology.”

artificial intelligence and what you want to get out of it. Whoever has the best processing power, the best understanding of the data and the best ability to translate that into a model has the best shot at extracting alpha right now.”

APPLICATIONS OF AI FOR HEDGE FUNDS

Artificial intelligence has grown its presence across the asset management industry, having the ability to transform many facets of the industry. Different forms of artificial intelligence such as machine learning and natural language processing are being used and can be used across the industry to improve portfolio management, trading, and risk management practices, among many other things. “You can identify how artificial intelligence can benefit things and gain a competitive advantage,” points out Broby, who enjoyed a successful career in the Danish asset management industry prior to joining academia. “Over time, the advantage will disappear because everyone will be employing artificial intelligence, but right now, there is a gap and that gap is there to be exploited.”

Broby recently co-wrote a paper on how AI applications in satellite imagery and data can improve sustainable finance outcomes, with these applications having the potential to create new sources of alpha for hedge fund managers as well. “Satellites now have large amounts of data that can either be used to oversee or identify trends,” Broby discusses his paper. “Using satellites, you can get better monitoring than you can from a self-reported regime, which is where we are right now,” he points out. “If you want to look at manufacturing output or want to measure CO2 emissions from factories, AI can do that very precisely right down to individual factory level,” he provides one application of AI using data from satellite imagery.

“The insights you can get from all this information, if processed with big data, allow you to have an

informational advantage over the market,” reckons Broby. “But bear in mind that this is an immense amount of data, you can’t put it into a spreadsheet in excel,” he cautions. “You have to put it in a flat file and use a programming language to work out the insights.” The sub-set of alternative data stemming from satellite imagery “can give a hedge fund an edge,” reckons Broby. “Using a mosaic approach, you are processing information better than anyone else, thereby giving you the potential to achieve alpha.”

“Hedge funds can also benefit by using natural language processing,” asserts Broby. “It is far quicker to look at sentiment now on things like social media such Twitter or stock exchange feeds by identifying textual words using what we call a “corpus” and looking for trends in those,” he elaborates. As a subset of alternative data sets, NLP can be used to conduct sentiment analysis, determine information relevance, among other things. “The technology to do it is there,” says Broby.

OTHER APPLICATIONS OF AI

Machine learning algorithms, as a subset of artificial intelligence, are used in a wide variety of applications both inside the asset management industry and beyond. Broby, for instance, relied on machine learning to develop a patented tool for valuing private companies in real-time. The tool combines publicly available data on private companies from Companies House in the United Kingdom to create a sample of ratios, which are then processed to estimate “efficiently-priced” valuations for private firms using stock market data. “Whether or not fund managers agree that the stock market efficiently prices companies, there is evidence that in aggregate is actually the case,” asserts Broby.

“Taking our sample of ratios from private markets that we have processed using programming techniques, we then use machine learning to assign a more accurate valuation to those based on current market prices,” he explains. The valuations assigned by the

“Using technology, markets will move closer and closer together in the future, and that will create more opportunities for new innovative strategies.”

patented valuation technology “reflect the sentiment that is going on in the market,” says Broby. “The valuations of private companies are not dynamic and are not priced in real-time. Obviously, the valuations we are creating are.”

“The other area which is ripe for development and improvement due to artificial intelligence is also the interaction between markets,” reckons Broby. “There are 14 odd different stock markets in the United States, various commodity markets in the world, the futures and options markets,” he highlights. “Using technology, markets will move closer and closer together in the future, and that will create more opportunities for new innovative strategies.”

AI CAN KILL ALPHA TOO

Most discussions about artificial intelligence revolve around the advantages its applications can bring to the asset management industry. But can AI stop some hedge fund strategies from generating alpha? Broby certainly thinks so. He co-wrote a paper on position timing and distributed ledger technology, which has the potential to wipe off the profits enjoyed by high-frequency traders in the hedge fund space. “Markets are going to move to the internet and you don’t have a central marketplace on the internet, you have distributed market places,” explains Broby.

“As investors send messages between these distributed ledgers, as you send blockchain transaction orders, these have to be cleared effectively to meet buys and sells,” he elaborates. “As you send them in nanoseconds rather than having a central market place aggregate in seconds, these orders effectively don’t match up, so you need to bundle the orders together.” In collaboration with the National Physical Laboratory, Broby “worked out the effective bundling time to minimize the effect of frontrunning.” By reducing the ability of high-frequency traders to front-run other investors, the group could lose billions of U.S. dollars in profits. “The age of getting ahead of an order may go,” reckons Broby. “It is not just

“Senior managers at asset managers are a generation away from what is going on.”

who is going to win, but also who is going to be put out of business because of information advantage disappearing.”

NORDICS AND GENERATIONAL LEAPS

According to Broby, the Nordic asset management industry may be better positioned to benefit from the increasing adaptation of artificial intelligence relative to other regions. “The graduates who enter the finance industry in the Nordic region have more experience and knowledge of how to program than do graduates in other markets, and therefore, have an information processing advantage,” reckons Broby, who launched Denmark’s first regulated and listed daily pricing hedge fund. “Likewise, in my experience, there is a greater focus on wanting to experiment and implement the outcome of those experiments in the Nordics,” he continues. “The desire to innovate, plus the skillset to implement, is an advantage.”

Whereas the new generation of tech-savvy investors and asset managers are increasingly deploying artificial intelligence, senior executives at larger asset managers may lack a foundational understanding of artificial intelligence. “Senior managers at asset managers are a generation away from what is going on,” asserts Broby. “What I learned when I was at business school and what is currently being taught is totally different, the theory of finance has now been added with programming, data analytics, distributed ledgers and so forth. It is a generational leap,” he continues. “Senior managers of asset management Companies – not hedge funds because hedge funds are a bit more cutting edge – really need to either listen more or adapt their processes.”

About the Interviewee:

Daniel Broby is a leading member of faculty at Strathclyde University, Department of Accounting and Finance; and a Non-Executive Director, serving on the TY Danjuma Family Office’s Audit Committee. He worked in the fund-management industry for 30 years across a number of C-level positions – from Chief Executive Officer and Chief Investment Officer, to Chief Portfolio Manager – at leading fund managers. He has held a number of directorships at asset managers, a pension administrator and some not for profit organizations.

The Department of Accounting and Finance at Strathclyde was the top Accounting and Finance department in the UK in the Complete University Guide Subject League Table for 2019. Daniel was a visiting professor at the department for a number of years before joining the faculty on a full-time basis to spend more time on his research interests (financial technology, investment benchmarks and index construction). He used to be a member of the London Stock Exchange, is a Chartered Fellow of the Chartered Institute for Securities and Investment and is a Fellow of CFA UK. He has a strong academic background that includes an MPhil in Economics from Brunel University and an MSc in Investment Analysis from Stirling University.



Martin Estlander, Founder
Estlander & Partners

AI Challenges

By Eugeniu Guzun – HedgeNordic

Artificial Intelligence may have found its way in almost all industries, asset management being no exception. While many are talking about the possible applications of AI in asset management and the advantages these applications bring, the challenges faced by those working with AI-assisted investment processes and strategies are a less chartered terrain. HedgeNordic sheds some light on this topic by talking with Nordic managers about some of the challenges they faced when designing, running and, equally important, marketing their AI-assisted investment strategies.

“For Volt, machine learning and artificial intelligence is a tool. It does not eliminate any of the normal challenges of investing, but it makes our process more precise and more robust,” Patrik Säfvenblad, chief investment officer at Volt Capital Management, tells HedgeNordic. “Once you have understood the characteristics of your machine learning algorithm, it is not inherently more complex than any other investment process,” says Säfvenblad, who oversees a systematic macro fund that uses machine learning and fundamental data to capture price moves across markets. However, the process of designing and understanding a machine learning algorithm may face its own unique set of challenges.

“The proof is in the pudding. Once there are enough examples of AI strategies consistently outperforming their non-AI counterparts, I think people will slowly come to accept them. Until then, there is bound to be a certain amount of skepticism.”
– Martin Estlander

“The biggest challenge is to find talent,” reckons Ville Rantanen of Mandatum Life, who oversees artificial intelligence-assisted systematic Mandatum Managed Futures Fund. “Value is created where experience and expertise are combined. One truly does need the exceptional talent that understands investing and AI to make this work,” argues Rantanen, a portfolio manager at Finnish insurer Mandatum Life. “We would expect that large asset managers and niche players dedicated to AI will have AI capabilities. However, for the vast majority of asset managers, the key roadblock is the lack of talent,” continues Rantanen. To tackle this challenge, Mandatum Life has partnered with Gradient Systems, the “AI for Finance” spin-off of Cambridge-based PROWLER.io to launch its managed futures fund.

Martin Estlander, the founder of a pioneering firm in the systematic investment, asserts that the low signal-to-noise ratio in financial markets is a key challenge in running an AI-assisted quantitative strategy. “We have worked a lot with different AI-related methodologies over the years,” Estlander tells HedgeNordic. “The biggest challenge is the fact that the signal-to-noise ratio in financial markets is low, which makes the problem complex and increases the risk of finding relationships which are irrelevant in the future,” he points out. “The other fundamental issue is that once you trade on an observed relationship, you actually affect it with your own presence in the market, making it even more unstable.”

The challenges associated with implementing and running an AI-assisted process, however, do not undermine its benefits. “Although we find the use of AI to come up with trading signals challenging, we have found value in using AI to identify environments when a strategy will deliver and when it will not,” emphasizes Estlander. “AI has also been useful in providing input for our research process, in coming up with alternative ways of looking at problems.”



Ville Rantanen, Portfolio Manager
Mandatum Life

OPENING THE BLACK BOX

The ability to interpret and explain artificial intelligence-assisted models is turning out to be a defining factor for the acceptance of these models, both among fund managers and their investors. The key barrier preventing AI from going mainstream in the asset management industry is the “black box” problem of artificial intelligence. Even large, educated institutional investors have singled out the “black box” worry as a key hurdle to accepting AI for investment solutions.

“Investors are often concerned that AI means investing in a “black box” and worry that it might “go rogue” or its starts trading alone insanely,” points out Ville Rantanen. He sees three main types of investor perceptions of artificial intelligence. “First, there are investors who see that AI is a way

“We would expect that large asset managers and niche players dedicated to AI will have AI capabilities. However, for the vast majority of asset managers, the key roadblock is the lack of talent.”
– Ville Rantanen



Patrik Säfvenblad, CIO
Volt Capital Management

“Once you have understood the characteristics of your machine learning algorithm, it is not inherently more complex than any other investment process.”
– Patrik Säfvenblad

forward for the industry; then there are investors who are skeptical towards the value-add of AI in an investment fund; and investors who consider AI only as a marketing buzzword and, hence, ignore it.” According to Rantanen, the second type of investors “can be convinced by explaining design principles, architecture, and risk limits in-built into the AI systems.”

Martin Estlander of Estlander & Partners shares Rantanen’s views. “AI is a typically deemed a black box, which is hard to explain. Some investors are keen on the topic being quite hot, others are very skeptical,” Estlander tells HedgeNordic. “The lack of understanding due to the opaque nature of the strategies, and the lack of trust in machines over humans” can make investors less comfortable investing in AI-assisted investment funds. The ‘explainability’ problem of AI does not only represent

a challenge for prospective investors but also for the architects of the AI-assisted strategy, reckons Estlander. “If an AI-based strategy is complex to understand, will the manager have the guts to stick with it when he should or understand to cut it if it stops working?” asks Estlander.

One approach to stave off investor worries about AI’s “black box” problem and sometimes lack of interpretability is increased transparency about the broader strategy and risk management tools. “We need to convince investors that AI is doing optimal things and win investor trust,” argues Rantanen. Patrik Säfvenblad of Volt Capital Management points out that “the only way we have found to convince investors is to be transparent.” Säfvenblad goes on to say that “we protect our intellectual property, but try to be as transparent as possible.”

Effective risk management also plays a pivotal role in AI acceptance by the investor community. “We employ a ‘Glass Box’ approach that allows us to trace back the factors behind every trade and every position,” explains Säfvenblad. “This makes it easier to explain why our strategy should work, and it also makes it straightforward to show how risk management kicks in and reduces losing positions,” he continues. “Looking back at our own experience in sales, our clear risk management philosophy has been key in convincing investors to commit,” Säfvenblad tells HedgeNordic.

To dissuade worries about AI’s ‘explainability’ problem, Rantanen reckons that “a systematic strategy or any quantitative modelling should be pictured more like an engine with individual components that are aligned with each other to maximize the overall performance.” Rantanen goes on to say that “each AI component has its inputs and outputs as well as a “reward” function measuring its independent performance.” The role of a portfolio

manager overseeing an AI-assisted vehicle is “than analogous to a portfolio manager with a team of human analysts: define their individual roles, define what good and bad looks like and which rewards can be obtained, as well as give them constraints and limits to what they do,” explains Rantanen.

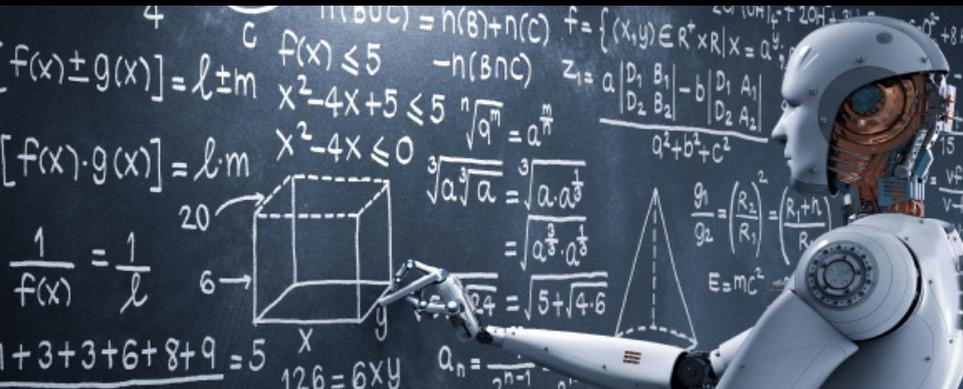
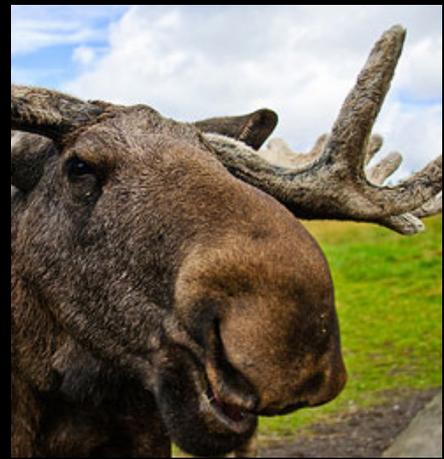
PERFORMANCE IS KEY

“The vast majority of client feedback we received was positive or neutral towards the idea of using AI in an investment fund,” says Rantanen about how Mandatum Life clients perceived the firm’s AI-assisted systematic strategy. “In the end, performance in terms of returns and achievement of the targeted risk/reward profile is what matters most,” he emphasizes. “But as good performance on AI-assisted fund continues, more money starts flowing in, and this ultimately brings more market share for these types of strategies.”

Estlander agrees, saying that “lack of proven success is probably the biggest issue” that explains why some investors are not embracing AI-assisted strategies. “Lot of talk over the years, but little proof,” he asserts. “The proof is in the pudding. Once there are enough examples of AI strategies consistently outperforming their non-AI counterparts, I think people will slowly come to accept them. Until then, there is bound to be a certain amount of skepticism.”



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