



SYSTEMATIC STRATEGIES WHEN NUMBERS ARE THE KEY

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.

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SPECIAL REPORT SYSTEMATIC STRATEGIES

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Editor's Note...

Black Box Enlightenment

A systematic approach to investing and trading on financial markets may be the opposite to a hedge fund in the public's perception. Hollywood paints the picture of big egos with flamboyant lifestyles buying and selling stocks on gut feeling or some information overheard in the bathroom or elevator, and then putting money to work in big, loud and crowded trading rooms.

Systematic traders, in contrast, are typically rather sober, take a scientific approach to markets and are on an endless quest researching, gathering data and seemingly stuck behind a screen the best part of their day.

In my days, the natural path for a career in trading was to study finance, business administration or the likes. The backgrounds and education of traders these days

are very different. Very often, a scientific background in maths, statistics, even such things as physics, biochemistry, astronomy, geology, to name a few, and a strong interest in financial markets.

In some hedge fund strategies, two simple character traits can make all the difference between fame and glory and utter disaster: skill and experience. For systematic managers, I might say those traits are patience and discipline. And there is one more trait I come across when talking to systematic managers again and again: Passion!

Just the other day I listened to an episode on the (very recommended!) podcast "TopTradersUnplugged," where Niels Kaastrup-Larsen and Katy Kaminski interviewed Transtrend's Harold de Boer, who was telling the story of how growing up on a Dutch dairy farm awakened his interest in mathematics via the genetics detour of the cows' colours.

I fondly recall an interview with Martin Estlander of Estlander & Partners where we set out to discuss the science behind developing trading models. In every other sentence he would use words like "love for the numbers," "passion," "desire," etc. The resulting article consequently was titled "The Passion Palette of a CTA Pioneer," and I will just pick one of Martin's quotes to make my case: "What we really like and enjoy, what I love about the job is staying on top of the very exciting problem to solve of how to keep on being efficient on capital markets."

I also find curious how great minds, sometimes starting at very different points in their evaluation, end up at very similar approaches. This is true, for instance, for two of the Nordic's great CTAs.

In one of HedgeNordic's very first manager interviews back in 2011, Hans-Olov Bornemann of SEB's Asset Selection Fund told us how his fund was born on a train ride with the team for a skiing weekend. They had set off with two rather trivial questions: "What is important when investing money?" and "What does the Ultimate Fund look like?" – the result was to be, maybe be chance, something that was later to be labeled a Managed Futures. Similarly, in a 2015 interview, Svante Bergström told me that when he and his co-founders started modelling what was later to become Lynx, they were unaware there was an entire industry out there working in similar directions and the outcome of their

research and approach to successfully trading financial markets would be a systematic CTA.

In this publication, Harold de Boer of Transtrend talks about "Zero and its relatives," Leda Braga and Matthias Hagmann are revisiting "Trend Following CTAs," while Razvan Remsing at Aspect Capital is looking into if we are seeing "A new climate for Systematic Investing." A new trading team from Finland, NS Quant is "Sanity Checking Momentum and Trend" and Austrian smn turns to "Alternative Markets Amidst the COVID Turmoil." We also had the chance to talk about "60/40 Portfolios and the Need for Smart Diversification" with Quantica's Artur Sepp, while NilssonHedge lets us in on "A Potpourri of Flavors."

The team from OQAM talks about how they aim to utilize "The 8th Wonder of the World" to generate returns for their investors.

Man AHL's co-Head Machine Learning, Slavi Marinov, gives us some background on "Natural Language Processing in Finance" in an educational contribution. We also discuss the pros and cons in the epic battle of "Fundies vs. Quants" with insights from several Nordic managers, Alexander Hyll, CEO & Fund Manager at Adaptive Hedge Fund Management, Ola Björkmo and Jonas Sandefeldt, Portfolio Managers of QQM Equity Hedge and Pasi Havia, Portfolio Manager at Helsinki Capital Partners. To wrap it up, Katy Kaminski and Ying Yang from AlphaSimplex are investigating "The Corona-Virus Crisis: What is the same? What's different". And there is more yet!

KAMRAN GHALITSCHI
CEO & PUBLISHER HEDGENORDIC





NINE MISTAKES TO AVOID

WHEN USING SYSTEMATIC TRADING SYSTEMS

By Niels Kaastrup-Larsen and Rob Carver – TopTradersUnplugged.com

Humans are terrible at trading. Evolutionary instincts, hard wired into our brains, make us rush into making bad decisions. Our grey matter is loaded with emotional baggage which leaves us predisposed to repeatedly making the same mistakes. Nobel prize winner Daniel Kahneman and his colleague Amon Tversky call these items of baggage cognitive biases.

They made sense when we were hunting woolly mammoths; but are positively unhelpful when we hunt for elusive profits in today's complex financial markets. These biases form the basis of the theory of behavioural finance. This theory explains why investors and traders often behave in ways which classical financial theories (that assume perfectly rational behaviour) cannot predict. We believe the best solution is to hand over your portfolio to a system which decides what, and when, to buy or sell.

But the process of creating and using trading systems is fraught with dangers. The biases that affect us when we trade can also result in serious mistakes being made when designing trading systems. The result is a strategy which is heavily exposed to large losses. Here are nine mistakes you should try and avoid when building your trading system.

1) Overconfidence

The biggest mistake you can make is to be overconfident. People consistently over estimate their own abilities, both in absolute terms and relative to others. In the jargon of behavioural finance relative overconfidence goes by the catchy title illusory superiority. Feeling a sense of illusory superiority is extremely dangerous. Studies frequently show that more than 90% of drivers believe themselves to be above average. It's likely that 90% of traders, and those designing systematic trading systems, also believe they are in the top tier. Clearly most of those people are kidding themselves.

Overconfidence manifests itself in nearly all the other mistakes listed below. If you think you are better than the rest of the market you are more likely to trade too often and take too much risk, or to design a system which makes those errors. According to market lore the very best discretionary traders are those who are humble enough to admit they are wrong and cut their position when it moves against them. The same humble attitude is necessary for those creating trading systems.

2) Living in an ivory tower

Many people who design trading systems don't come from a trading background, but from a scientific discipline, such as physics, mathematics or engineering. This can be a good thing, for a couple of reasons. Firstly they are more likely to be able to design robust automated trading systems. Also if you have been trained in the dark statistical arts then you should do a better job of fitting your trading system than a novice who is blindly using a piece of back testing software they do not understand.

However those who are scientific black belts but neophytes at trading are prone to making serious errors. Some of the biggest blow ups in trading history have been caused by extremely clever and well qualified



NIELS KAASTRUP-LARSEN



ROBERT CARVER

people making mistakes. The meltdown of Long Term Capital Management in 1998 happened despite the fund

having two Nobel prize winners on their staff. Derivatives backed by subprime mortgages were radically overpriced before they crashed in value in 2008, thanks to traders using a clever model created by a very smart guy with a Phd. Other examples include the quant quake of summer 2007, and the losses suffered in the Swiss France devaluation of January 2015.

In all these cases the rocket scientists had created a model which was a good approximation to reality most of the time, but ignored the very different dynamics of a market crisis which were missing from their data history. Experienced traders, bloodied by numerous market crashes of the past, are more likely to design trading systems that can cope with these extreme situations.

Other common screw ups by those short on practical experience include underestimating the costs of executing an order, and ignoring a critical element of market structure such as stock splits or short selling constraints. A successful systematic trader will have both a good grasp of theory and a big dollop of market savvy.

3) Over complicating

Rocket scientists have another fatal flaw – the tendency to over complicate. If you're very smart then it's tempting to think that to beat other people in the market you have to exploit your intelligence – after all that is the 'edge' that you supposedly have. Also creating a simple, run of the mill, trading system is far too trivial a task for someone with a PhD in signal processing or nuclear physics. Using your scientific knowledge to produce a wonderfully elaborate strategy is much more fun.

Over complication can also happen when you start with a relatively simple trading rule. After testing this you discover that it doesn't perform as well as you'd hoped. So you adapt it, fine tuning it to improve its performance by adding some bells and whistles. A few more iterations and you have something that is far too complicated (This is also a form of over fitting; another mistake discussed next).

The bad news is that complex systems are generally outperformed by simpler alternatives. Complexity is

also bad because it makes the system opaque. A good trading system is predictable. If the market moves in a particular way, you should be able to predict roughly what your strategy should do. If you understand your system you are more likely to trust it, and let it run unimpeded.

4) Over fitting

Another manifestation of over complicating your system is the use of complex backtesting and fitting techniques. Neural networks, support vector machines, artificial intelligence and all things big data are very popular right now. These methods make it very easy to over fit. This is where you train your system to do extremely well in your past data, but end up with something that won't be robust to market conditions changing slightly. Inevitably over fitted trading systems are unprofitable when actually implemented.

Over fitting is not a disease limited to those using fancy data mining tools, even very simple techniques are vulnerable, although with a simple method it is usually easier to know if you are over fitting. For example, consider the simplest form of fitting: 'test and throw away'. Here you consider each possible variation of your trading strategy in turn, discarding those that are not sufficiently profitable. The more variations you test, the more likely that you will discover an apparently wonderful trading rule just by chance.

5) Under diversifying

Discretionary traders often concentrate on a few markets; perhaps a few stocks, a couple of currency markets or a handful of commodity futures. When they come to designing trading systems people usually stick to what they know and understand. However the benefit of a systematic trading strategy, particularly one which is automated, is the ability to trade large numbers of markets simultaneously. Because each instrument doesn't need time consuming manual analysis the size of your portfolio is limited only by the amount of trading capital you have to deploy. It's fun and interesting to indulge yourself in coming up with more esoteric ways to predict the price of your favourite markets. Much less fun is devoting yourself to the tiresome task of uploading past data so you can use your existing trading rules on new markets. However relatively simple systems which are diversified over large numbers of instruments are

likely to perform significantly better than a complex system running on only a few assets. This is because the returns of the diversified simple systems are likely to be relatively uncorrelated, resulting in higher benefits from portfolio diversification.

6) Over trading

Another manifestation of over confidence is trading too much. An unrealistic back test might show that you could earn serious money if you buy and sell dozens of times a day. When combined with unrealistically low expectations of trading costs the result is a system that will make someone a lot of money. Unfortunately, it will be your broker and the market makers that will benefit from your largesse, not you. You should have realistic expectations of what your likely returns will be, and ensure that these will cover a conservative estimate of trading costs several times over.

7) Over betting

Over betting - taking too much risk - is a mistake made by many discretionary traders. Designers of trading systems are just as likely to be convinced by the siren song of high returns that can be earned when leverage is increased.

Suppose your back test shows you could have made 50% a year with a maximum drawdown of 10%. Then it seems obvious that you should leverage the system up by say a factor of 5, so you can earn 250% a year with a bearable 50% drawdown. Those kinds of back test numbers are very unrealistic. Sooner or later someone running with this much leverage will see an unexpectedly large adverse price movement, and the rapid depletion of their account will follow.

It's much better to be realistic, and even pessimistic, about the likely returns and losses of your trading strategy, and to run your system at a relatively low risk target.

8) Lacking commitment

Having a well-designed trading system is a complete waste of time if you aren't committed to it. Your system signals a buy, but you ignore it as you think the market

“It’s much better to be realistic, and even pessimistic, about the likely returns and losses of your trading strategy, and to run your system at a relatively low risk target.”

will pull back. When it doesn't you enter the buy order but end up paying a higher price. Then there is a sell off and the system commands you to close. Petulantly you ignore it; only to see the price collapse, putting you in a deep hole.

You should either be a discretionary trader or a systematic trader. Either you have a system, or you don't. A trading strategy will only work if you commit to it entirely.

You can't pick and choose the trades that you like and ignore the rest. Fully automating your system so it trades automatically is one way to make commitment easier; but it still leaves you open to meddling, which we discuss next.

9) Meddling

Lacking commitment and completely ignoring your system is very dangerous, but there is a more subtle and insidious form of interference that we like to call meddling. This is where you make numerous changes to your system parameters to change its behaviour.

Suppose there is a non-farm payroll number coming out later today. You are nervous about the amount of risk in your portfolio, so you adjust the variable that controls your overall leverage. Lo and behold the system issues a series of closing trades. Strictly speaking you are still blindly following your system; but then you've already altered the strategy so its positions are more in line with what you think they should be!

Meddling can be justified as risk management as in this example, or as an 'improvement' or 'adaptation' to the system. A well designed system will do its own risk management. Also if sufficiently well designed it should not need 'improving'; at best an improvement will be of marginal value and not statistically significant. Unless you are trading very quickly it's unlikely that even several years of live trading will provide enough evidence that your system needs 'adapting' to new market conditions.

Changing your system should be a rare event. At best you will incur extra trading costs from frequent changes; and at worse you'll significantly reduce the returns that your system could have made if left alone.

About the Authors

Robert Carver worked in the City of London for over a decade. He initially traded exotic derivative products for Barclay's investment bank, and then worked as a portfolio manager for AHL, one of the world's largest systematic hedge funds before, during and after the global financial meltdown of 2008. He was responsible for the creation of AHL's fundamental global macro strategy, and then managed the funds multi-billion dollar fixed income portfolio before retiring from the industry in 2013. Robert, who has bachelors and masters degrees in Economics, now systematically trades his own portfolios of futures and equities.

Robert blogs about finance and investment at qoppac.blogspot.com. He is the author of Systematic Trading: A unique new method for designing trading and investing systems, which was published by Harriman House in September 2015. For more information see <http://www.systematictrading.org>

Niels Kaastrup-Larsen is a Swiss-based dad, husband, entrepreneur and hedge fund manager turned podcaster. His podcast TopTradersUnplugged.com is the leading podcast within the hedge fund industry.

Niels divides his professional time between, his full time job at DUNN Capital, his podcast and his family's charity kidsheart.org. Niels wants to revolutionize the hedge fund industry as well as the way schools are equipped to handle cardiac arrests and other heart related emergencies following his own son's cardiac arrest in 2011.

The bio could be much longer, but in the end, all you really need to know is that Niels is a father, a husband, passionate about hedge funds and CTAs and a man who cares deeply about, loves, and admires those closest to him and is humbled and grateful for the opportunity to create, to connect and to serve.

Revisiting Trend-Following CTAs

Crisis Alpha Resurgence and Intensive Innovation



Leda Braga, founder and CEO – Systematica

By Hamlin Lovell – HedgeNordic

Many trend-following CTAs have profited in the first quarter of 2020, and most of Systematica's various trend-following strategies have outperformed the industry averages. One variable differentiating returns of CTA managers has been the speed of their models. In both late 2018 and early 2020, shorter term models proved to be more defensive. And in 2020, shorter term traders in general have outperformed other CTAs: Societe Generale's SG Short-Term Traders Index advanced 4.3% in 2020 to April while the SG Trend Index was up 2.47% and the SG CTA Index was slightly negative at 0.3%.

TIMING IS OF THE ESSENCE

Systematica sits at the shorter-term end of the medium term trend following category, whereas some other CTAs have slowed down their models between 2009 and 2017, according to statistical analysis of the SG CTA Index

revealed in Systematica's Research Soundbite Series paper, "Is the world a slower place?". The SG CTA Index is made up of ten of the largest CTA funds.

A shift to longer term models is possibly a consequence of asset growth since shorter term strategies are less scalable. It could also have been an opportunistic response to market behaviour: slower trend following models worked better during much of the post-GFC period, riding multi-year trends in bonds and equities.

PURE TREND OR MULTI-STRATEGY QUANT?

Some CTAs have also added non-trend strategies, such as volatility arbitrage; fixed income arbitrage; relative value; and equity market neutral or statistical arbitrage, to their trend following funds, which has in effect created multi-strategy quant programs.

"The challenge with trend-following is consistency in the non-crisis periods and modelling innovation must be the answer to that."



Matthias Hagmann, Product Manager
Systematica Investments

Systematica offers a granular strategy menu: these non-trend strategies can be accessed separately or via multi-strategy vehicles, and there are also three mainly or wholly trend-following strategies available on a standalone basis. Two of these trend following strategies, BlueTrend and Systematica Alternative Markets, have a 10-15% sleeve in non-trend strategies, both macro and relative value, and one is a pure trend following strategy, Systematica Trend Following. “We restrict the risk allocated to non-trend in BlueTrend and SAM because those funds are not multi-strategy funds – they are trend followers (TFs). TFs have a very unique and desirable correlation profile and institutional investors tend to have the technical insight into that. Non-trend strategies may have higher expected Sharpe Ratio but not the same defensiveness of TFs. For investors who want a multi-strategy quant fund, we offer customised mandates and also a dedicated multi-strategy fund.”, explains Systematica CEO and founder, Leda Braga.

The latest innovative approach to trend following, BlendTrend, is being deployed as part of some of Systematica’s programmes.

PLAIN VANILLA TREND FOLLOWING

Systematica’s best performing trend strategies in the first quarter of 2020 were BlueTrend (up 9.78% in USD)

and the firm’s plain vanilla, flat fee, 100% trend following program, Systematica Trend Following (STF) (up 7.38% in USD), which is also one building block for its alternative risk premia (ARP) strategy, both of which come under the umbrella of “scalable alternatives” and the former is available in UCITS format. STF trades only around 90 major listed liquid markets (with no OTC markets) and uses only pure trend following signals, but it still uses the firm’s proprietary models, portfolio and risk construction methods and algorithmic trade execution.

Yet more traditional trend following approaches have, over the past decade, sometimes experienced challenging performance for multi-year periods. Notwithstanding the powerful diversification benefit at the portfolio level during some market crises, some investors cannot tolerate long periods of lacklustre numbers.

Two avenues of innovation designed to increase Sharpe ratios have been: diversifying into less widely followed OTC markets, and refining models to use new forms of data and signals.

OTC MARKETS

Systematica was one of the first CTAs to start trading OTC markets, which founder and CEO, Leda Braga, and

CIO, David Kitson, had extensive experience of during their earlier careers: Braga was pricing exotic derivatives at JP Morgan and Cygnifi Derivatives Services and Kitson was trading them on the JP Morgan prop desk. Systematica’s oldest strategy, BlueTrend, which started in 2004, traded forwards; emerging market FX; equity sector swaps; interest rate swaps and commodity swaps on an OTC basis before Systematica Alternative Markets (SAM) launched in 2015, further expanding OTC coverage and offering exposure purely to these markets. As of 2020 Systematica is trading over 270 OTC markets, and using multiple counterparties to access them, including via “high touch” voice execution carried out by a global team of human traders. The OTC markets that SAM trades include credit indices; equity sectors; interest rate swaps; emerging market FX and alternative commodities such as coal, iron ore and electricity. In some cases, the OTC markets offer access to markets for which futures do not exist. In other cases, they are larger and more liquid than the futures markets on the same underlying. This investment universe has generated better returns from trend following than have traditional, futures markets, during most of the post-Great Financial Crisis period. This is because, “OTC markets are less influenced by risk-on risk-off dynamics than traditional CTA markets. Better alpha opportunities and larger internal diversification lead to superior returns on OTC relative to traditional markets trend-following post GFC”, argues SAM product manager, Matthias Hagmann, who worked on a similar OTC trading strategy in his previous tenure. Systematica has also hired a number of former sell side and discretionary traders to further grow OTC coverage. The SAM program has received a number of performance awards.

BlueTrend has a material allocation to alternative/OTC markets, and this sleeve is expected to grow over time although clients will always value the liquidity and long track record of futures markets.

BLENDTREND

One other engine of innovation - model and data refinements - can be sub-divided into four themes. To adapt models to the potential cyclicity and seasonality of trend patterns, it is possible to introduce variable time lag delays to frame the lookback period used to define trends. Another approach is to use price moves in one asset class to generate signals for other asset classes, which can be dubbed “cross-asset signals”;

“Better alpha opportunities and larger internal diversification lead to superior returns on OTC relative to traditional markets trend-following post GFC.”

machine learning techniques are used to divine these indicators. Two other perspectives change how the investment universe is grouped. Whereas traditional trend following identifies trends in individual markets in isolation, trends can also be defined at the level of asset classes (equities, bonds, currencies, commodities) - and implemented by trading baskets of markets. Or trends can be viewed through the prism of Macro factors, which can apply across multiple asset classes, but which could still be implemented via trading individual markets. These factors are persistent and broadly relate to wider economic themes such as risk on/risk off, liquidity and inflation regimes.

The combination of these four formulations is BlendTrend.

Systematica has spent years developing and backtesting these models and arrived at the conclusion that they have suffered less decay of returns than traditional trend following, while still being correlated to traditional trend following and offering similar defensive characteristics. Therefore, BlueTrend started allocating to them in 2019 and by 2020 BlueTrend had 25% exposure to BlendTrend, which may also grow over time.

Some investors have also expressed an interest in accessing a pure play BlendTrend strategy.

To put it in Leda Braga’s words: “The challenge with trend-following is consistency in the non-crisis periods and modelling innovation must be the answer to that.”



Harold de Boer, Managing Director & Head of R&D – Transtrend

Zero and its Relatives

By Harold de Boer – Transtrend

“The meaningfulness of relative measures is completely determined by the relevance of the defined zero.”

One day the thermometer reads 10 °C; the next day 15 °C. Did it get 50% warmer? Measured in Fahrenheit, we would have seen only an 18% rise, from 50 °F to 59 °F. And in Kelvin only a 1.8% rise. Celsius and Kelvin essentially use the same scale. The only difference is the position of zero. With Celsius this is the level below which water freezes, whereas 0 Kelvin refers to an absolute zero.

In the history of mathematics, the invention of zero in the 7th century by the Indian mathematician and astronomer Brahmagupta marked a real breakthrough. From that moment onwards ‘nothing’ became an important pivot point in many calculations. Also, the concept of relative measures is based on the existence and relevance of zero. ‘Twice as large’ as a measure essentially means ‘at twice the distance from zero’. Eight is twice as large as four, measured from nil. However, eight is five times as large as four when measured from three. An important consequence is that the meaningfulness of relative measures is completely determined by the relevance of the defined zero.

In finance, many people are addicted to the use of relative measures. Price changes are usually expressed in relative numbers – a stock rises or falls by 2%, and so forth. To some extent, this habit is indisputable. If coffee rises from 120 cents per pound to 126 cents, this represents the exact same rise as from \$2,645.5 per tonne to \$2,777.8. But is this comparable to a price rise of Starbucks stocks from \$80 to \$84?

The position of zero seems to be indisputable in finance. At a price of zero you can get the stuff for free. At a price above zero you have to pay for it. But this is only from the buyer's perspective. For the coffee producer, for instance, the meter only starts running after production costs have been covered. Prices below that level represent negative territory.

Negative prices do not fit this relative price framework. In models constructed around relative returns, prices can decline indefinitely but never end up below zero. After three consecutive 50% declines, a good still holds 1/8th of its value. However, in the real economy prices of goods and services do occasionally reach negative levels. Last April this happened in the May '20 futures contract of WTI Crude Oil, on the day before its final trading day.

This might have been unprecedented in oil futures, but surely not in other areas of the economy. By now, most of you will be familiar with paying (negative) interest rates on funds deposited at banks. Also, negative prices for physical commodities have been a recurring phenomenon for many years. This happens for instance when producers have to pay for (or otherwise incur costs to get rid of) products that no one is willing or able to buy. We regularly see this in the European power market during off-peak hours, when production is higher than the immediate demand. It also occasionally happens in agricultural commodities such as livestock and dairy, for instance when farmers produce more milk than they are allowed to deliver to their dairy cooperatives.

PUTTING A PRICE TAG ON POLLUTION HAS BROKEN THE ICE FLOOR OF ZERO.

Part of the reason for using zero as the ultimate floor for commodity prices was the idea that producers can just get rid of their excess production if they don't get paid, sometimes literally by flushing it down the drain. But due to the growing awareness of pollution, this isn't always possible anymore. In Europe, for instance, legislation has made it harder for producers to flare gas at oil production sites. As such, we

“Models constructed around relative price changes are based on the idea that zero is the ultimate floor price.”

Negative prices: May '20 futures contract of WTI Crude Oil



could say that putting a price tag on pollution has broken the ice floor of zero. And perhaps this development will at some point extend beyond the perishable commodities. For instance to infrastructure: what is the price of a closed-down bridge across a river? Whether this could also apply to stocks is essentially determined by legal definitions rather than by economic reality. To what extent can owners of a company be held liable for remaining damages after the company goes bankrupt?

We can conclude that the zero in finance is comparable to the zero on the Celsius temperature scale. It might have a clear fundamental meaning, but it isn't as low as it can get. In itself this is not a problem. It just implies that all models using relative price changes have to be adapted, allowing for a more sustainable absolute zero.

Source of price data used in the graph in this article: Refinitiv, Bloomberg and Transtrend.



Razvan Remsing, CFA
Director of Investment Solutions
Aspect Capital

A New Climate for Systematic Investing?

By Hamlin Lovell – HedgeNordic

No one can really know what will be the long-term consequences of the recent market and economic turmoil. Aspect Capital holds the view that the next decade could be much tougher than the last one for investors who have recently enjoyed historically extraordinary returns from the very simple strategy of buying and holding equities and bonds on a long only basis. The firm has authored an insight paper entitled “The Return of Stagflation: Post-Pandemic Implications for Asset Owners”. One potential game changer is that broken supply chains may reverse the megatrend of peak globalization. A return to 1970s style stagflation could result in negative returns for both equities and bonds, and create a more promising climate for various systematic strategies.

Yet Aspect is also open minded about the possibility that some systematic strategies might also diverge from recent history. “We are rethinking whether changes in human behaviour will mean that the heuristics of the past 30 years, such as “buying the dip, will still be valid”, says Razvan Remsing, Director of Investment Solutions, who joined Aspect nearly 10years ago and has participated in HedgeNordic’s roundtable on CTAs several times.

“We are rethinking whether changes in human behaviour will mean that the heuristics of the past 30 years, such as “buying the dip, will still be valid.”

Indeed, it is possible that financial market regimes have radically changed. “The Coronavirus crisis is not a financial crisis per se. It is a wholesale economic shutdown, and is a unique unprecedented crisis as measured by the speed of the crash, and the extent of the liquidation, by both systematic and discretionary managers, which has dwarfed anything seen in 2008”, he continues.

LIQUIDITY

The liquidation panic was manageable from a trading perspective: “liquidity did get stretched, but we were able to trade everything. It cost more in March, even in Treasury markets, where bid/offer spreads blew out to 8 times the normal level”, says Remsing. The worst liquidity was seen in emerging market interest rate swaps, but here Aspect benefitted from having multiple trading counterparties. The model is to ask each counterparty for a two-way quote, which results in an aggregated bid/offer spread narrower than the individual quotes. “We typically get responses from 6-8 counterparties, but sometimes only got two or three back in March”, he recalls. Overall, despite trading three times as much as an average month, the bleed rate per day of trading was only twice as high. As of May, “spreads have now narrowed, but the order book is not quite back to where it was”, says Remsing.

A HIGH SPEED CRASH

The extra trading costs did not prevent many CTAs from generating positive returns, but the crisis has thrown into sharp relief the differences between how systematic strategies performed. Given the speed of the crash, it is unsurprising that short term traders have somewhat outperformed traditional trend following CTAs: Societe Generale’s SG Short-Term Traders Index advanced 4.3% in 2020 to April while the SG Trend Index was up 2.47%.

Similarly, at Aspect, their shorter-term trading strategy, the Aspect Tactical Opportunities Program was up 11.86% as at end of April while the medium-term flagship Aspect Diversified (which is around 80% trend) was flat.

Aspect Core Diversified HV was still nimble enough to have rotated from a risk on to a risk off stance over the first quarter. “We started 2020 as risk on as you can get, long of equities and, commodities, with very little in normal defensive fixed income plays. As US equities made an all time high in February 21, our first moves away from risk came in other asset classes: oil had already entered a bear market in January, and industrial metals had already turned. By the end of January, we had also started rebuilding longs in bonds. Between February 21 and March 10, we were just cutting risk, losing on equities but making up for it on other asset classes”.

The mechanics are worth investigating here: “the trend programs generate signals purely within asset classes. The other asset classes did not generate cross-market signals to reduce actual equity exposure, but having shorts in energy and metals, and longs in bonds and USD, did reduce the overall portfolio’s equity beta”, explains Remsing.

Though the trend program repositioned its exposures towards a risk-off stance, it did not produce the highest returns, partly due to risk management. “The spike in volatility also meant that Aspect was reducing position sizes across all markets in order to maintain its steady volatility target for the trend program. By late February, March and April the program was running at below average risk”, points out Remsing.

RELATIVE VALUE CHALLENGES

Relative value approaches faced headwinds. Some CTAs are in effect multi-strategy quantitative funds, running trend strategies alongside others including relative value, which may help to explain why the SG CTA Index was slightly negative at -0.3% for 2020 to April. “Some relative value spread strategies were decimated in March, particularly where slower moving or static models were upset by the new market environment”, says Remsing. Aspect’s relative value program, Aspect Systematic Global Macro (ASGM), managed to stay in positive territory not least because its models are somewhat faster than those of other relative value traders. Dynamic risk filters shifted exposures, using data not based on fundamental data.

“ Nowcasting and natural language processing based models showed the economic slowdown before the PMI (Purchasing Managers Index) or unemployment data even came in.”

OLD OR NEW DATA AND TECHNIQUES?

Alternative data was also helpful. “ASGM has also benefitted from “nowcasting” techniques using real time data and sentiment to pick up the lurch into recession that could not have been forecast using backward-looking data. Nowcasting and natural language processing based models showed the economic slowdown before the PMI (Purchasing Managers Index) or unemployment data even came in. This meant the strategy was to some degree able to navigate the regime shift”, he points out.

By way of contrast, some other new techniques - machine learning models - used in some of Aspect’s programs did not always adapt well to the market climate in March: they lost money in fixed income, and made only small amounts in stock indices and energies amid record intraday volatility in Treasuries. “Perhaps counter-intuitively, machine learning works better when things are quite stable and does not necessarily cope as well with jump-risk or previously unseen things. One hypothesis is that large and rapid unwinds of basis trades disrupted patterns in bond markets”, says Remsing. ”

Another possibly surprising situation occurred in the single stock equity trading that resides in Aspect’s alternative risk premia strategy, the Aspect Absolute Return program (ARP), where 2,000 equities are traded: backward looking fundamental data signals worked better than forward looking analyst forecasts. This is possibly because the sell side analysts did not update their models fast enough or because the near-term uncertainty was so high that backward looking financial statement data provided a more reliable picture of a company’s resilience

Of course, systematic managers regularly reshuffle and refine models. The crisis could lead to more extensive revision – and even revamping – of both old and new models.

60/40 Portfolios and the Need for Smart Diversification



Artur Sepp, Director of Research
Quantica Capital AG

A key question of any institutional investor in times of high equity valuations and record low yields is: What are the most effective diversifiers for a balanced 60/40 equity/bond portfolio? Despite its simplicity, a typical 60/40 portfolio has been able to deliver persistently strong risk-adjusted returns over the past decades. Still, because of its dominant risk exposure to equities, and the limited risk diversification potential of the bond component, such portfolios have not always been immune to larger drawdowns in times of equity market stress. During the recent Corona crisis, typical 60/40 balanced equity/bond portfolios have suffered from greater than 20% declines, from their peak values, in a short period of time. Although not a new topic, improving drawdown protection without compromising long-term risk-adjusted returns is more important than ever. A common approach to achieving greater diversification is to look at complementing

By Artur Sepp – Quantica Capital AG

alternative investment solutions that display low correlation to the 60/40 portfolio. However, all too often this approach fails, as it does not take into account the behavioral differences during different market regimes.

MEASURING AND IDENTIFYING A GOOD DIVERSIFIER

Answering our initial question requires a clear definition of what an “effective diversifier” means in this context. Low correlation to the portfolio alone is not sufficient to imply that an investment strategy provides the desired diversification. What investors should look for, in order to achieve “Smart Diversification”, is negative correlation in down markets and positive correlation in up markets. With this objective in mind, we introduce a framework to quantify diversification benefits of alternative strategies.

“Smart Diversification seeks to identify strategies that deliver positive Sharpe ratio contribution in all three regimes.”

The concept of “Smart Diversification” will be illustrated on a range of hedge fund and alternative risk premia indices from Societe Generale, Barclays, HFR and Eureka hedge. We will also include the Quantica Managed Futures (“QMF”) Program in our analysis, the track record of which goes back to 2005.

SMART DIVERSIFICATION METHODOLOGY

Our Smart Diversification methodology is based on the analysis of isolated benchmark-specific regimes over a given observation period (e.g. weekly, monthly, quarterly). We will use the S&P 500 Balanced 60/40 Equity and Corporate Bond Index (SPXNBT) as our benchmark. Because balanced portfolios are typically associated with a longer investment horizon, we chose to measure the diversification benefits over a medium-term, i.e. quarterly time frame. As such, we define three different regimes, based on non-overlapping quarterly returns of the benchmark. We label market regimes

- 1. as Bear regime when returns of the benchmark are below the sample’s 16%-quantile;
- 2. as Bull regime when returns are above the sample’s 84%-quantile;
- 3. as Normal regime when returns are in-between the 16%- and 84%-quantiles.

The justification for using a 16%-84% range is that these thresholds correspond to the percentiles below/above one standard deviation of a normally distributed sample.

Based on these regimes, one can compute regime-conditional averages of quarterly excess returns (over the 3-months T-Bill rate) for each alternative strategy considered. Excess returns are then annualized by the frequency of each regime, and divided by the in-sample annualized volatility measured over the full history. The

result is a regime-conditional Sharpe ratio attribution for each strategy, as shown in Figure 1. The numbers shown inside the bars show the corresponding regime-conditional correlations of the strategy against the Balanced benchmark.

Smart Diversification seeks to identify strategies that deliver positive Sharpe ratio contribution in all three regimes. Strikingly, most of the candidates, and in particular all risk premia proxies, fail to meet this criterion by producing significant negative Sharpe ratios in Bear regimes. Those strategies underperform and do not deliver diversification when it is most needed, i.e. in a stressed market environment. Tail risk and short-term strategies, on the other hand, do produce positive Sharpe ratios in Bear regimes. However, this comes at a significant cost of negative Sharpe ratio contributions in the remaining 84% of the time.

Figure 1 highlights that only a few alternative investment strategies appear to offer the desired Smart Diversification characteristics. These strategies are namely CTAs, trend-followers – including the QMF Program – and systematic and discretionary macro strategies.

SMART DIVERSIFICATION IN A PORTFOLIO CONTEXT

The previous analysis focused purely on the Sharpe ratios of individual strategies, but did not look at a portfolio’s risk-adjusted returns resulting from adding the strategies to the 60/40 benchmark.

We define an Overlay Portfolio as a fixed 100% allocation to the benchmark plus an additional variable allocation to an individual strategy. To account for the different volatilities of the strategies considered, we compute a range of Overlay Portfolios using volatility parity weights from 0 to 100%, and multiplied by the ratio of

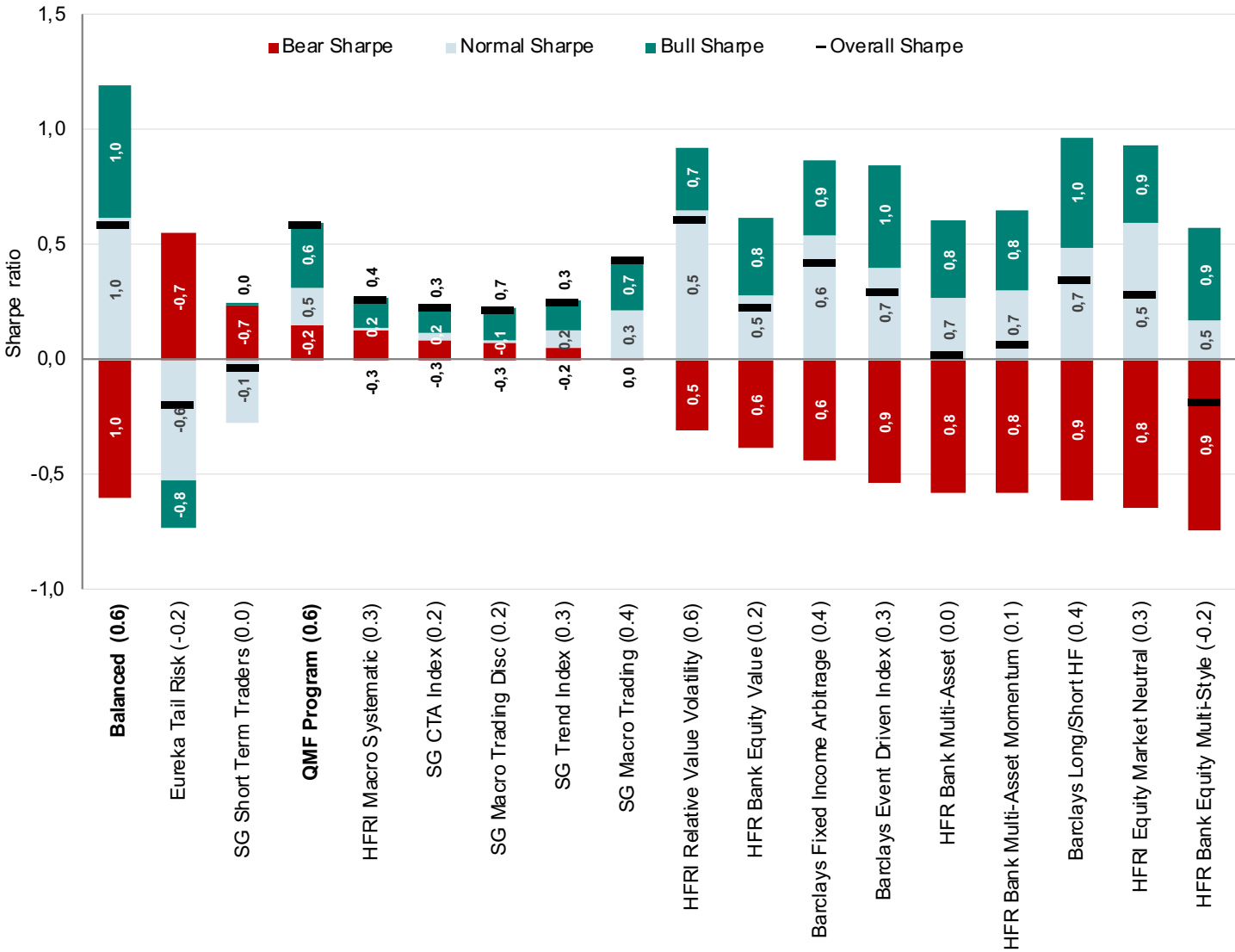


Figure 1. Attribution of in-sample Sharpe ratios of excess returns by Bear, Normal, Bull periods of the balanced portfolio using quarterly realized performance from 1 January 2008 to 31 March 2020. Regime-conditional correlations are shown inside the bars. Total Sharpe ratios are shown in brackets in the labels. Past performance is not necessarily an indication for future results.

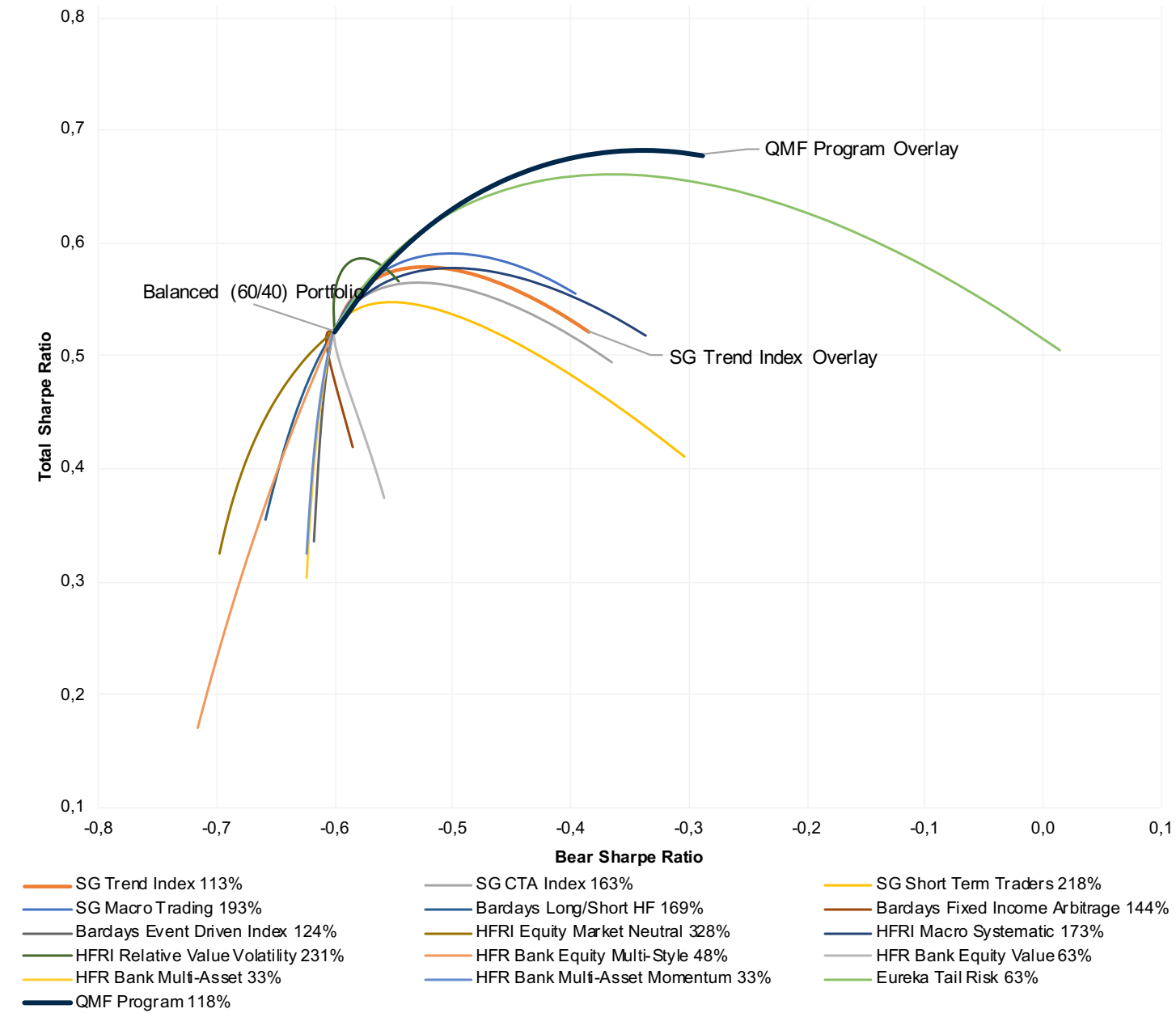


Figure 2. Total Sharpe ratios vs Bear Sharpe ratios of simulated in-sample overlay portfolios with 100% allocation to the balanced portfolio and volatility parity allocations to the diversifying strategy with weights from 0 to 100%, rebalanced quarterly. The percentage in the label is the notional allocation to the overlay strategy delivering the same volatility as the benchmark. Past performance is not necessarily an indication for future results.

“The Smart Diversification framework offers a simple yet powerful tool for investors looking beyond simple correlation metrics to assess the diversification potential of an investment opportunity.”

the benchmark volatility divided by the strategy volatility. Figure 2 shows the resulting Sharpe ratio vs the Bear Sharpe ratio for these Overlay Portfolios. The “Balanced (60/40) Portfolio” corresponds to a 100% allocation to the 60/40 benchmark. The corner portfolio, i.e. the end-point of each curve, corresponds to a volatility parity Overlay Portfolio, allocating the notional weight labeled to the strategy.

An upward sloping curve to the right means that the Overlay Portfolio increases the Sharpe ratio while, at the same time, improving the portfolio’s Bear regime characteristics.

Inversely, poor diversification benefits are resulting from strategies associated with downward sloping curves to the left, corresponding to a simultaneous reduction in total and Bear regime Sharpe ratios of Overlay Portfolios. As such, a large number of strategies in the above sample do not provide beneficial diversification benefits to the benchmark 60/40 portfolio.

CONCLUSION

The Smart Diversification framework offers a simple yet powerful tool for investors looking beyond simple correlation metrics to assess the diversification potential of an investment opportunity. As illustrated with the example of a balanced 60/40 portfolio, trend-followers, CTAs and certain macro strategies appear to be attractive candidates from a Smart Diversification perspective.

Quantica’s Managed Futures Program is a specific example of a Smart Diversification strategy that has been able to generate positive returns in all different market regimes, while at the same time contributing to an increased Sharpe ratio in an Overlay Portfolio context.



Gernot Heitzinger, Managing Director – SMN

Alternative Markets Amidst Covid Turmoil

By Jonathan Furelid – HedgeNordic

Since 2016, Austrian CTA SMN has been trading its Structural Alpha Trend program as part of its flagship SMN Diversified Futures Fund, which was founded in 1996. The program aims to add alpha through trading in less correlated and – most of the time – less liquid markets and make use of synthetic markets as a means of capturing trends that are not exploited by traditional trend following systems. The recent turbulent market action, amid the coronavirus outbreak, has proven the alpha capture abilities of SMN's alternative markets approach.

"The structural alpha trend program has benefited from the fact that there have been some consistent moves in the relative price action of commodities and its underlying expiry months. While at the same time traditional trend following strategies overall have not been able to profit from the violent market moves seen during the COVID

turmoil, Gernot Heitzinger, Managing Director of SMN says.

The Structural Alpha Trend program has been trading live since June 2016 and focuses on approximately 50 markets that are outside the universe of about 120 liquid futures markets that are traded by most CTAs. It has identified around 200 instruments within this space and about 40 different uncorrelated return drivers. What has been particularly successful during the recent market turmoil is the programs ability to trade the relative price action of expiry months, the energy sector being an obvious example, according to Heitzinger.

"While the price of oil has crashed, it has nevertheless been difficult for many medium-term trend following systems to capture the move given its speed and the short-term price swings experienced in this market. However, the

fact that the term structure of oil has trended consistently into contango (prices for future delivery rising above the spot market) has created profitable opportunities for the structural alpha program", he says.

By the end of May, the program had gained around 4,7% on the year, significantly outpacing the SG CTA Index which was down 1,1 percent since the start of 2020 at the time.

"It shows the correlation benefits of Structural Alpha as compared to a medium-term trend following system. Although using a similar average holding period as our Diversified Futures Fund of around 100 days, the cross correlation of the return drivers in Structural Alpha to those in Diversified Futures is literally non-existent, adding significant diversification to the overall portfolio."

Heitzinger recognizes that there is an inherent dependence on the most liquid futures markets among the world's most allocated to CTA programs, the simple reason being that they need liquidity to turn around large-sized orders, this creates what Heitzinger refers to as a "liquidity skewed portfolio".

"Instead of creating a truly diversified portfolio of uncorrelated return drivers, optimized on risk-adjusted returns, today's CTAs have an overexposure to the most liquid financial markets which results in a loss of diversification as market weights are primarily based on accessibility. In addition to that, larger CTAs are forced into trading OTC contracts in order to find enough liquidity", he says. Rather than turning to OTC-markets to expand the number of uncorrelated return drivers, the Structural Alpha program instead trades a number of so-called synthetic markets. Synthetic markets refer to a combination of different contracts, this might be spreads between two markets, calendar spreads and baskets of different contracts.

"Synthetic markets expand the opportunity-set while at the same time introducing exploitable and alternative trends not being captured in traditional managed futures programs", Heitzinger says.

He further argues that the Structural Alpha Trend program, which has a set capacity limit of 800 MUSD, has a number of advantages going for it, especially in the current market environment.

"We have a significant allocation to the commodity sector, which is a result of optimizing on correlations rather than

"Instead of creating a truly diversified portfolio of uncorrelated return drivers, optimized on risk-adjusted returns, today's CTAs have an overexposure to the most liquid financial markets which results in a loss of diversification..."

seeking liquidity. There is good reason to believe that commodities will exploit some interesting trends as the pandemic unfolds. We have already seen demand side disruptions in energies, but the supply side in certain markets could face serious disruptions as well, should the situation turn for the worse", he says continuing:

"Additionally, with a truly diversified managed futures portfolio, you are less dependent on the fixed income sector, which in the current market is likely to be a good thing. Bond yields are likely to remain low for quite some time given depressed economic data and continued low inflation and inflation expectations. This is just not the time to be heavily allocated to fixed income from a trend perspective."

SMN have yet to offer the Structural Alpha program as a stand-alone fund, but he continues to see good interest for the approach as allocators around the world are starting to think along the lines of concentration risks in their CTA portfolios. However, there are opportunities to co-invest the program via an existing vehicle on the Irish AMX platform

"I think that investors are beginning to recognize that they have too little diversification within their CTA book and that the exposure to financial contracts tends to get the bulk of the exposure. This gets particularly obvious in the current market environment. By adding a program that exclusively focus on the markets that are not picked up on by big name CTAs will leave you with a much more balanced portfolio in terms of sectors and markets traded as well as adding uncorrelated trend exposure."



Natural Language Processing in Finance: Shakespeare Without the Monkeys

By Slavi Marinov – Man AHL

We want Facebook to be somewhere where you can start meaningful relationships,” Mark Zuckerberg said on 1 May, 2018.

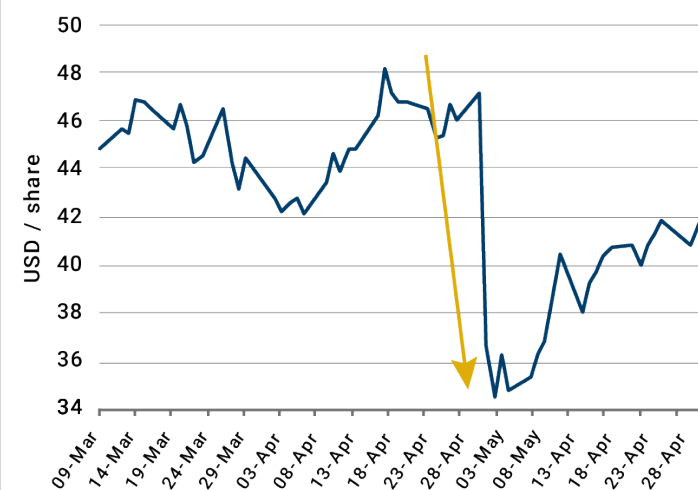
The announcement sparked gasps – not just from the crowd in front of whom Zuckerberg was talking – but also in financial markets. The share price of Match Group (the company that owns Match.com, Tinder and other dating websites) plunged by more than 20%.

Why is this significant? Financial markets were being swayed by a sentence made up of just a few words. There was not a single number in the announcement.

This behaviour – a few words causing strong reactions rippling through markets – happens all the time. The automatic analysis of text by computers, also known as Natural Language Processing (‘NLP’), aims to extract meaning from words and predict the ripples even as they are happening. NLP is a sub-field of artificial intelligence and seeks to program computers to process, understand and analyse large amounts of human language.

Figure 1. Facebook’s Announcement Creates Ripples in Match.com

Share price of Match.com plunged on 1 May, 2018, as Facebook announced that it would integrate a feature for online dating directly onto its app.



Source: Bloomberg; between 9 March, 2018 and 1 June, 2018. Illustrative example. For information only



Slavi Marinov
Partner & Co-Head Machine Learning - Man AHL

HOW IS NLP USEFUL IN FINANCE?

As we saw in the Facebook example, NLP is useful in uncovering market-moving events. Facebook unveiled a new product that resulted in a very strong market move. Numerous such events happen in financial markets all the time. For many of them, text is the primary source. Methods from NLP can automate monitoring many data streams and automatically issue notifications upon the emergence of key events.

There are, however, many other ways in which machines can help.

A common application of NLP in finance is measuring document tone. The idea is simple: get the machine to ‘read’ a document and assign it a “sentiment” score from -10 (very negative) to +10 (very positive).

The sentence below would maybe get a score of 8:

French Cosmetics giant L’Oreal said strong demand for luxury skin creams helped it beat fourth-quarter sales forecasts - another company reporting better-than-feared demand from China after LVMH last week.

While this example is company-specific, sentiment analysis can be done with respect to the economy in general, or toward specific topics such as inflation or interest rates.

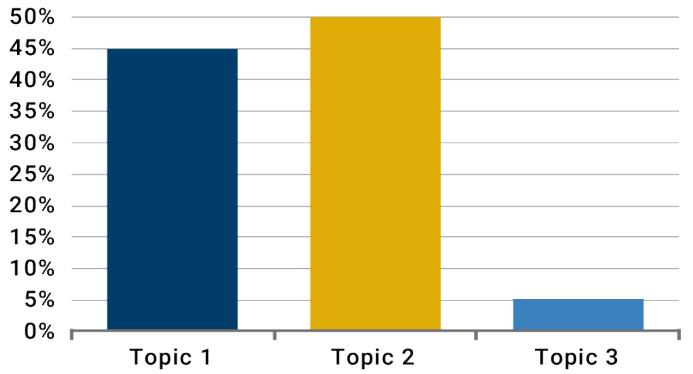
Often, the important information in a document is not just the tone, but its focus, and NLP systems need to automatically extract a document’s topic structure. Consider this news snippet:

Oil prices fell on Monday after climbing to their highest this year earlier in the session as China reported automobile sales in January fell for a seventh month, raising concerns about fuel demand in the world’s second-largest oil user.

This extract contains two key topics: oil, with words such as “oil” and “fuel”, and the global economy, with words such as “world” and “China”. Understanding the topic structure of a document helps identify events,

Figure 2. An Example of Machine Learning Models Inferring Topic Structure From a Document

Oil prices fell on Monday after climbing to their highest this year earlier in the session as China reported automobile sales in January fell for a seventh month, raising concerns about fuel demand in the world’s second-largest oil user



Topic 1: Oil

oil	5%
fuel	3%
OPEC	2%
...	

Topic 2: Global Economy

China	3%
demand	2%
world	1%
...	

Topic 3: Sectors

automobiles	4%
utilities	3%
banking	2%
...	

Source: Man Group; for illustration purposes only. The model has determined that the sentence is 45% about Topic 1, 50% about Topic 2, and 5% about other topics. We have explicitly labelled Topic 1 as Oil and Topic 2 as the Global Economy based on the most probable words associated with each of the topics.

“The automatic analysis of text by computers, also known as Natural Language Processing (‘NLP’), aims to extract meaning from words and predict the ripples even as they are happening.”

informs the correct attribution of sentiment and allows to assess document similarity on a semantic level.

The information contained in text data is sometimes obvious to the human eye, but can just as often be buried. Another application of NLP is measuring textual change: comparing the same documents over time, and finding subtle differences. Such subtle changes can be tricky and painstaking for a human to identify. Yet, to a machine, these changes are obvious: for example, an algorithm can scan through millions of documents and identify added, deleted, or modified risk factors, classify them according to topic, and check which companies have modified their risk factors in similar ways.

WHY SHOULD WE CARE ABOUT NLP NOW?

In the last 10 years, we have witnessed a major wave of scientific breakthroughs from the field of neural networks – also known as deep learning.

Neural network models get their inspiration from the human brain. Building blocks, called artificial neurons, are connected together, in code, to form larger networks. These neurons take raw input data and transfer their impulses forward, ultimately resulting in a prediction. By designing different connectivity patterns, researchers can define the ‘shape’ of the network. Given sufficiently large and complex datasets and computer resources, the strength of the neurons connections can be learned. Researchers can create the blueprint, provide data and guide the learning process; the neural networks adjust the neuron connection strengths to make the most accurate predictions.

Neural network models have successfully modelled problems ranging from representing the meaning of words in a computer, through capturing the meaning of chunks of words, to modelling the sequential and compositional nature of phrases. These ideas have been the foundation of many of the recent state-of-the-art results in modern NLP.

Figure 3. Comparing IBM’s Annual Reports

IBM’s 2016 annual report	IBM’s 2017 annual report
[...] IBM has one of the strongest brand names in the world, and its brand and overall reputation could be negatively impacted by many factors, including if the company does not continue to be recognized for its industry-leading technology and solutions and as a cognitive leader. If the company’s brand image is tarnished by negative perceptions, its ability to attract and retain customers could be impacted.	Damage to IBM’s Reputation Could Impact the Company’s Business: IBM has one of the strongest brand names in the world, and its brand and overall reputation could be negatively impacted by many factors, including if the company does not continue to be recognized for its industry-leading technology and solutions and as a cognitive leader. IBM’s reputation is potentially susceptible to damage by events such as significant disputes with clients, product defects, internal control deficiencies, delivery failures, cybersecurity incidents, government investigations or legal proceedings or actions of current or former clients, directors, employees, competitors, vendors, alliance partners or joint venture partners. If the company’s brand image is tarnished by negative perceptions, its ability to attract and retain customers could be impacted.

Source: IBM; as of 2017. Illustrative example. For information only.

THE ARMS-RACE: APPLYING NLP IN ASSET MANAGEMENT

The first obvious challenge with NLP is scale. Unlike many numerical datasets, text data can be very large and thus requires significant investment in data storage and computation capacities to enable efficient processing.

A second challenge is the need to mesh insights from NLP with existing strategies. Whilst we believe there may be significant alpha opportunities within the space, it requires experience to successfully incorporate new signals into an effective investment strategy.

Perhaps the ultimate challenge is talent. To make sense of text data, experts from the fields of linguistics, machine learning and computer science need to be hired. In today’s highly competitive market, one needs to fight hard in the war for the best and brightest.

We believe all of these factors favour well-resourced asset managers with sophisticated technology infrastructure and world-class research teams. As NLP becomes more common, we could see bifurcation between those managers able to implement machine learning techniques, and those who are not. As a research-focused systematic manager, Man AHL is therefore committed to investing in our machine learning capabilities to maintain an edge in such a fast-paced arms race.

CONCLUSION

We believe NLP is an extremely exciting research area in finance due to the vast range of problems it can tackle for both quant and discretionary fund managers.

Combined with the availability of more data than ever and vast amounts of available computing power and improved tools, these exciting recent research advances may create a rich and fruitful opportunity.

Machine Learning at Man Group

- Man AHL is Man Group’s quantitative investment manager and a pioneer in systematic trading with over 30 years’ experience. We currently manage a variety of alternative and long-only strategies, supported by over 100 researchers and technologists.
- To complement our deep practical experience, Man AHL launched the Oxford Man Institute (‘OMI’) in 2007. The OMI is Man Group’s unique collaboration with the University of Oxford, through which we work closely with renowned academics and researchers.
- Over the last decade, the OMI has been conducting pioneering research into quantitative finance, and now focuses primarily on machine learning techniques and data analytics.

The organisations mentioned in this paragraph are for reference and information purposes only. The content of this material should not be construed as a recommendation for their purchase or sale. 20/0958/RoW/RW/R/W

Sanity Checking Momentum and Trend

Left back: Jarmo Lappalainen. Left front: Kenneth Barner-Rasmussen.
Right front: Markku Malkamäki. Right back: Markus Malkamäki.



In February 2020 Finnish asset manager Northern Star Partners launched a new fund, NS Quant, to capture positive and negative price trends early across several asset classes. The period since has been a somewhat challenging environment for many trend-followers. Judging from its 16.2 percent-gain gross of fees since its inception in February through the end of May, NS Quant is obviously doing something right – and different. “Classifying NS Quant as a trend-follower is hard and inaccurate because there is more to it,” says Kenneth Barner-Rasmussen, who previously had worked at Man Group’s discretionary investment engine Man GLG.

According to Markku Malkamäki, the chief architect behind the strategy powering NS Quant, the origins of NS Quant go back a few decades to his PhD work and his time at Finnish asset manager Pohjola Asset Management. “Earlier versions of NS Quant are really used for a long time,” Malkamäki tells HedgeNordic. Yet, the beginning of 2019 was one of the most fruitful periods, when Malkamäki and his older son, Markus, formalised and coded the existing systematic approach powering NS Quant. “After a couple of months, Kenneth joined us and contributed significantly with position tracking and risk management.”

Malkamäki describes NS Quant as “a systematic long/short strategy investing in liquid equity and commodity futures.” But the question of which strategy bucket NS Quant fits into is difficult to answer precisely, reckons Malkamäki. “NS Quant relies on a managed futures concept with a flavour of trend-following,” he explains. Perhaps the difficulty in locating the fund into a specific strategy bucket represents a competitive advantage and an explanation for the fund’s strong performance so far in 2020.

By Eugeniu Guzun – HedgeNordic

“If the two slower models, trend and quality, are both in disagreement with the momentum, the signals provided by the momentum model will be overridden to minimise false signals.”

“We have conducted extensive research to look for the optimal stop loss for each underlying instrument without adding too much activity in trading,”

THREE INTERRELATED MODELS

The philosophy and objective of NS Quant, on the other hand, is much more straightforward. “The philosophy driving NS Quant is to exhibit limited drawdowns and limited volatility, and maximise our Sharpe ratio,” Barner-Rasmussen tells HedgeNordic. “Historically, the way positions are run in NS Quant has resulted in uncorrelated returns with the underlying markets we trade.” To achieve its objective, NS Quant relies on three interrelated models – momentum, trend, and trend-quality – that use day-to-day price data to trade major U.S. equity indices, as well as oil and gold futures.

“These three models are independent of each other, but we designed them to interact,” explains Malkamäki, emphasising that this interaction “is really the core of the NS Quant strategy.” The first model, momentum, is the “quickest model and is pretty active,” according to Malkamäki. This model generates trading signals when there is a change in momentum. “But these signals occur all too often, and most of these signals are really false signals,” says Malkamäki. These signals, therefore, “need to be evaluated to identify if price changes are significant and exhibit some duration.” That is the role of the second model, the trend model.

The last model, dubbed quality, “is like a sanity check,” explains Malkamäki. “This model evaluates on a daily basis if the trend is on or not.” The quality model aims to either confirm current signals or oppose false signals triggered by the momentum model. According to Malkamäki, “if the two slower models, trend and quality, are both in disagreement with the momentum, the signals provided by the momentum model will be overridden to minimise false signals.” This set-up aims to eliminate false signals, optimise performance and minimise trading activity. Any disagreements between the slower models, on the other hand, “can neutralise existing positions and give us new signals for new positions,” adds Barner-Rasmussen.

NS Quant relies on the three interrelated models to trade futures on the S&P 500, Nasdaq, gold and oil. “At any point in time, we maintain a portfolio with equal weightings between these four underlying instruments and conduct monthly rebalancing,” explains Barner-Rasmussen. “While we normally hold four positions, naturally, due to our risk management processes, we might hold fewer positions,” he adds. “If we stop loss some positions out, then we would hold three positions.” Malkamäki emphasises that “it is very rare that positions reach the stop loss,” for reasons related to the risk management design. “Usually a contradictory signal comes before that, and then we simply take the other side of the trade.”

LIMITED DRAWDOWNS AND RISK MANAGEMENT

In the backtest, out-of-sample and live periods, NS Quant has exhibited limited drawdowns. Barner-Rasmussen finds two main explanations for this behaviour. First, “the portfolio is quite nicely diversified” and second, the existence of a robust risk management design. There are two aspects of the risk management design that has contributed to limited drawdowns. Because NS Quant receives strong and light signals, “we carefully analyse the light signals to make sure the signal is correct and we feel comfortable with it before going in.” That is the first aspect.

The second aspect relates to the process of setting stop losses for each position. “Every single instrument we trade has its individually-set stop loss level,” explains Barner-Rasmussen. “We have conducted extensive research to look for the optimal stop loss for each underlying instrument without adding too much activity in trading,” he adds. “The risk management design is a constantly-evolving research process,” according to Barner-Rasmussen, who was hired to rebuild the Alpha Capture platform at Man Group. “We are constantly

trying to see with more data if we need to modify our risk limits and our positioning,” says Barner-Rasmussen. “It is an ongoing process.”

The investment approach behind NS Quant is mostly systematic, but it does contain some discretionary components. “There are no discretionary elements on position-taking,” explains Barner-Rasmussen. “The risk management process, however, occasionally has some manual overrides,” he points out. “When you see moves in markets that we have seen this year, with the correlation between gold and equity going up, you need to make sure to sanity check the investment approach.” For that reason, the team at NS Quant “might interfere in terms of stop losses or overriding signals, but we never go against a signal.”

PERFORMANCE ON IN RISK-OFF ENVIRONMENTS

NS Quant gained about 12 percent gross of fees in the risk-off environment during the first quarter of 2020. While satisfied with the performance, the team running the fund does not appear surprised by the outcome. After all, the backtest results show that NS Quant performed well in other risk-off environments such as the fourth quarter of 2018. “This set-up of three models usually captures early trends, and the model finds the turning points of the markets quite well,” explains Malkamäki.

Explaining the robust performance of NS Quant at the beginning of the year, Malkamäki says that “it is just market dynamics that created the performance, which has little to do with the models.” When markets go up, “the trends are choppy, and there are many drawdowns and many bull legs,” according to Malkamäki. “While the markets go up very slowly, they usually come down very quickly.”



Andreas Olsson, Co-founder and CEO - OQAM and Thorbjörn Wallentin, Co-founder and CIO - OQAM

The 8th Wonder of the World

By Eugeniu Guzun – HedgeNordic

The might of compound interest has become part of asset management pop-culture at least since Albert Einstein's quotation that compound interest was the most powerful force in the universe. "Compound interest is the 8th wonder of the world," Einstein once famously said. "He who understands it, earns it; he who doesn't, pays it."

One asset manager operating out of Sweden's southern town of Malmö holds this credo especially high. Backed by six family offices, quantitative asset management firm OQAM is managing a multi-strategy systematic hedge fund named ia with capital preservation and uninterrupted compounding at the heart of their philosophy. "We have different targets and goals that we want to achieve for our clients with ia's strategy," Andreas Olsson, Co-Founder and CEO of OQAM, tells HedgeNordic. "But we do everything with capital preservation in the back of our minds and focus on limiting drawdowns to enable compounding," he continues. "ia is firmly in the absolute-return space," emphasizes Olsson. "We actively manage total risk and from there, we exploit investment opportunities."

Before setting up OQAM with CIO Thorbjörn Wallentin in 2016, Olsson co-founded and managed award-winning hedge fund Stella Nova for nearly ten years until its closure in 2012. Wallentin joined Olsson from Nordea, where he managed multi-billion euro cross-asset mandates as a

"...we do everything with capital preservation in the back of our minds and focus on limiting drawdowns to enable compounding."

senior investment manager in the unit responsible for the bank's treasury operations and asset and liability management. Wallentin took up his first role at Nordea just one week before the bankruptcy of Lehman Brothers sent markets spinning, an experience he describes as "learning by burning." Olsson and Wallentin joined forces after realizing that "a quantitative framework is probably the future of investing, and we saw huge opportunities in utilizing that framework."

SPECIALIST KNOWLEDGE IN A QUANTITATIVE FRAMEWORK

Olsson describes ia as an algorithm-based human hedge fund. "We combine our human experience and knowledge with a quantitative framework to create a quantamental investment approach," the CEO of OQAM tells HedgeNordic. "We built everything from scratch, utilizing our experiences and backgrounds." The duo leveraged on their experience to build "a multi-strategy approach across different asset classes, markets, holding periods and instruments" that can deliver returns in both risk-on and risk-off environments, according to Wallentin. "We deploy different, purely systematic strategies that have strengths and weaknesses in different market environments."

ia currently employs about 20 different models, which can be grouped into four broader categories: asset allocation, short-term trading, trend strategies, and relative-value strategies across fixed-income, foreign exchange, equity and commodities (metals) markets. Some of these strategies play the role of return generators in risk-on environments, while others have the potential to generate positive returns in risk-off environments. "Typically, our trend-following strategies are designed to perform in risk-off environments," explains Wallentin. "Short-term trading strategies, which are well diversified in nature and have a decent turnover per day, and some of our relative-value strategies are also designed to have a risk-off profile."

The asset allocation strategies, meanwhile, are designed to serve as longer-term return generators by allocating across fixed income, precious metals, equity index futures and Nordic single stocks. "We still believe in risk premia going forward, so we want to be exposed to these sources of return," explains Wallentin. "We are trying to dynamically capture risk premia across asset classes over time."

"This whole innovation process around extending the range of strategies and models is something we constantly work on."

The allocation between each of the 20 and growing number of models is performed in a systematic manner. "All our models and sub-strategies exhibit a regime focus, with each sub-strategy or model deploying a different amount of risk depending on prevailing market conditions," says Wallentin. Some models take on more risk in risk-off environments. The process of implementing new strategies or scraping off existing ones is the only discretionary component in managing ia. "Once a model is implemented, we do not take discretionary decisions," explains Olsson. "Then it is 100 percent systematic."

INNOVATION AND OQAM'S OWN "OTHER BETS" INCUBATOR

"ia is our innovation engine," according to Olsson. Besides these four main strategy categories, "we also have a special vehicle called LAB, where we deploy different models in the market more quickly," says Wallentin. "We start from developing a suitable model for a specific thesis on the market," he tells HedgeNordic. "We like to iterate and think fast, and we try to improve from there or scrap the model depending on how it works."

"This whole innovation process around extending the range of strategies and models is something we constantly work on," highlights Olsson. "We are always trying to use our backgrounds and experiences to find new models and enhance the current ones." The team running ia puts more focus on whether a specific model or strategy will work going forward rather than backtest. "We don't rely on back-testing in the way many others do," emphasizes Wallentin. "One of the models that served us really well earlier this year had never been back-tested."

Olsson emphasizes that "every strategy we employ is developed by us, so we really try to find new ways to do things that will add value to the fund." Although OQAM is a relatively small asset management company, "we are really focused on research and work hard on that side." OQAM collaborates with Lund University to engage students in a lot of ongoing projects, "which is a great way for us to work on different concepts and strategies." This collaboration, which sets the stage for other potential collaborations with Danish universities across the Øresund Bridge, "increases our research capabilities quite a lot."

ia's set of systematic strategies requires a large amount and variety of data. "We are very dependent on price data and a lot of indicators built on that data, but we basically use all the data one can find," explains Wallentin. ia also relies on a wide range of macroeconomic data, crowding data to get a sense of how market participants are positioned, as well as in-house-built data. "We feel alternative data is a very promising and interesting area," reckons Wallentin. "It is an area we have channelled a lot of effort and time in the past year."

RISK MANAGEMENT AND PERFORMANCE

"You can always be wrong as an asset manager," considers Wallentin. "The quantamental approach, however, will limit your downside if you are wrong." Because ia seeks to operate as a diversifier that protects capital in any market environment, "true active risk management is our starting point and incorporated into everything, reaching from risk filters to the sizing of positions." Also, if ia's portfolio loses more than ten percent, the size of the positions and the risk allocated is decreased with a manual override. "This is an important signal to send to our investors," reckons Wallentin. "It is crucial for our investors to feel that they are not invested in an asset that might end up dropping 20 percent."

Heavily relying on the OQAM team's experience and background, scenario analysis complements their use of other traditional risk management tools. "We can never be 100 percent prepared for all scenarios coming our way, but we always try to prepare for the scenarios that can hurt us most," says Wallentin. This scenario assessment enabled ia to perform well in February and March this year. "According to one of our scenarios, the market was one-sided at the beginning of the year as CTAs were very long in an uptrend and equities were rallying for an extended period," recalls Wallentin. "For that reason, we wanted to have models that could capture a quite sudden drop in asset prices early on."

"We were prepared for the environment that came along, and our short-term strategies and trend strategies indeed performed quite well," explains Wallentin. ia gained 2.2 percent in the first quarter of 2020. "For us, this innovative quantamental approach where we utilize specialist knowledge within a quantitative approach truly adds value," reckons Olsson. "We are taking the best of both worlds."



Enigma, the German cipher machine created for sending messages during World War 2. Enigma's settings offered 150,000,000,000,000,000 possible encryptions. On display in Bletchley Park, Milton Keynes, Britain

Machine Learning and Artificial Intelligence

By Hamlin Lovell, HedgeNordic

Growing adoption in front, middle and back offices

The earliest use of machine learning as a concept has been credited to UK wartime codebreaker, Alan Turing, who devised a machine called Bombe, which cracked the Nazis' Enigma code. The earliest use of the phrases "Machine learning, and "Artificial Intelligence", probably date back to the Dartmouth Conference of 1956, organized by computer scientist, John McCarthy. The earliest image classification system may have come a year later in the form of Perceptron, while the first natural language application might have been discovered in 1964, and applied to algebra. A notable fictional manifestation of AI was the talking computer named "Hal" in Stanley Kubrick's 1968 movie, entitled "2001: A Space Odyssey", which was at the time classified as "science fiction".

Techniques were applied to robots in the 1960s and the early 1970s, and then progress slowed down until the mid-1990s – a generation that has been dubbed the "AI Winter". Interest perked up when IBM's Deep Blue machine defeated Garry Kasparov at Chess in 1997 and growing computer power allowed internet companies such as Google, Amazon and Baidu to apply techniques to mine vast amounts of customer and search data.

The first hedge fund managers using AI around the same time are thought to have included Jim Simons' Renaissance Technologies (RenTec), and David Shaw's D.E.Shaw. It is probable that funds were experimenting with AI/ML techniques some years before they began talking about them; it is typical for systematic and quantitative funds to "incubate" new techniques, often using proprietary capital, for a number of years before rolling them out to external investors.

Pure play or partial ML/AI

Over 1,000 systematic and quantitative hedge funds now exist (1,360 according to Preqin), but one should not assume that they are exclusively using ML or AI techniques. Though an AI hedge fund index - the Eurekahedge AI hedge fund index – now exists, it has just 16 constituent funds, and "pure play" ML or AI funds are thought to be rare. They are often said to include Sweden's award-winning Taaffeite Capital Management; Hong Kong-based Aidiya Holdings, or Cerebellum Capital and Numerai, which are both located in San Francisco, near the tech hub of Silicon Valley. Also US-headquartered, Millburn Ridgefield Corporation, which was one of the first trend-following CTAs back in the early 1970s, has been gradually adapting its systems to the point where 100% is now based on statistical or machine learning, as of 2019.

If pure AI remains rare, Barclayhedge's July 2018 Hedge Fund Sentiment survey found over half of respondents using ML/AI to inform investment decisions, with over a quarter using it for trade execution. A significant proportion have just started using it over the past year or two. A 2018 Greenwich Associates survey also found 56% of managers were planning to integrate AI into their process. Managers including multi-billion shops, Man Group, Winton and Aspect Capital in Europe, and Two Sigma and Acadian Asset Management in the US, are applying it selectively.

It is not only systematic funds who are using AI. Many managers that also run discretionary strategies, including Blue Mountain, are also hiring teams of data scientists to crunch data and inform both systematic and discretionary investment processes. And at groups such as Man Group, there can be valuable idea-sharing between the systematic units (Man AHL and Man Numeric) and the discretionary part (Man GLG). Some erstwhile discretionary managers may have even morphed into quants: Paul Brewer's Rubicon Capital Management reportedly shut down a discretionary macro strategy, but is still running an AI-based strategy.

“Though an AI hedge fund index - the Eurekahedge AI hedge fund index – now exists, it has just 16 constituent funds, and “pure play” ML or AI funds are thought to be rare.”

AI, ML and data types

A key use case of ML/AI is turning 'Big Data' including unstructured data – such as satellite images, news, or social media postings – into structured data that can be more easily used to generate trading signals. For news or corporate earnings releases, Natural Language Processing (NLP) techniques can be used. Indeed, some managers who espouse ML/AI, also enthuse about alternative data, but the two are quite different: the data is the fuel, and the technique is the engine. It is possible to apply ML/AI to traditional data, or to apply traditional, hypothesis-based analysis to alternative data.

AI is also being used to select funds and managers, by firms including FQS, which was set up by Robert Frey, who worked at RenTec in the early days. Multi-manager platforms can also use AI to assess individual traders.

None of these fashionable new techniques are guaranteed to make a profit however. Many hedge funds shut down after a few years, and ML/AI based strategies are no exception. Large teams of highly trained scientists, sometimes including eminent academics, have devised models that lost money. New asset management companies, and funds within larger platforms have been closed down. It is natural that any new field of research will experience some trial and error, but AI/ML might have a higher success rate when applied to non-investment functions.

Back and middle office

EY's 2018 Global Alternative Fund Survey (previously named its Global Hedge Fund and Investor Survey) has identified that AI has seen the most spectacular growth in front office functions – 300% year on year. But the survey finds it is also relevant to the back and middle office processes, such as confirmations, reconciliations and regulatory reporting.

Many other service providers, including most naturally technology firms, and also custodians; administrators; depositaries; shadow accounting firms; and providers of outsourced back and mid office solutions, are developing AI/ML solutions.

The back office may be more amenable to AI/ML because financial markets are "noisy", in the sense that it is difficult to separate signals from random

noise when hundreds of factors including "unknown unknowns" could affect asset prices. But other problems in a back office environment, such as confirmations, reconciliations or currency hedging, are much closer to being what mathematicians call a "closed form solution".

It is possible to pre-define most, if not all, reasons for trade breaks, or errors in reconciliations or currency hedges. The glitches could come from power cuts; internet outages; inconsistent naming conventions; erroneous ISIN codes, or inverted exchange rate quotes, for instance. And a computer program could be written to identify these and other sources of errors, reduce human time spent, and speed up NAV calculations. The program could be trained to recognize recurring patterns in the data, and in some cases, automatically correct them. In other cases, some manual human intervention may still be needed to investigate the problems.

Office furniture

Indeed, there are still limits to the applications of computing power and paradoxically it is some apparently simple tasks that may elude automation. What follows may sound flippant but it makes a serious point. Assembling office furniture from IKEA could take advanced robots half an hour, and involve errors and broken parts, according to 2018 experiments in Singapore.

The reason is that manual dexterity cannot yet be programmed into a machine. Humans and other animals learn manual dexterity through trial and error when they are young, making millions of movements and often falling over before finding their balance. Though computers have been programmed to learn the rules of Chess – and more recently in 2016, Deep Mind's Alpha Go beat champion Lee Sedol at a more difficult game, Go – an office table can be more reliably and efficiently assembled by a human being, or possibly another primate, such as a chimpanzee.

CTAste – A Potpourri of Flavors

By Linus Nilsson - NilssonHedge

Allocators frequently differentiate between systematic and discretionary strategies and do typically view the groups differently. In this short exposé, we will establish that the groups are less different than what conventionally believed and that there is plenty of commonalities. They often have the same goals and are often hybrids with substantial overlap in trading and decision-making approaches. There are some distinctive styles in the CTA space, but far from all managers manage money according to a pure approach.

At times, the word CTA is synonymous with trend-following strategies. But, CTAs represent so much more than a specific strategy, even if the trend following strategy is popular.

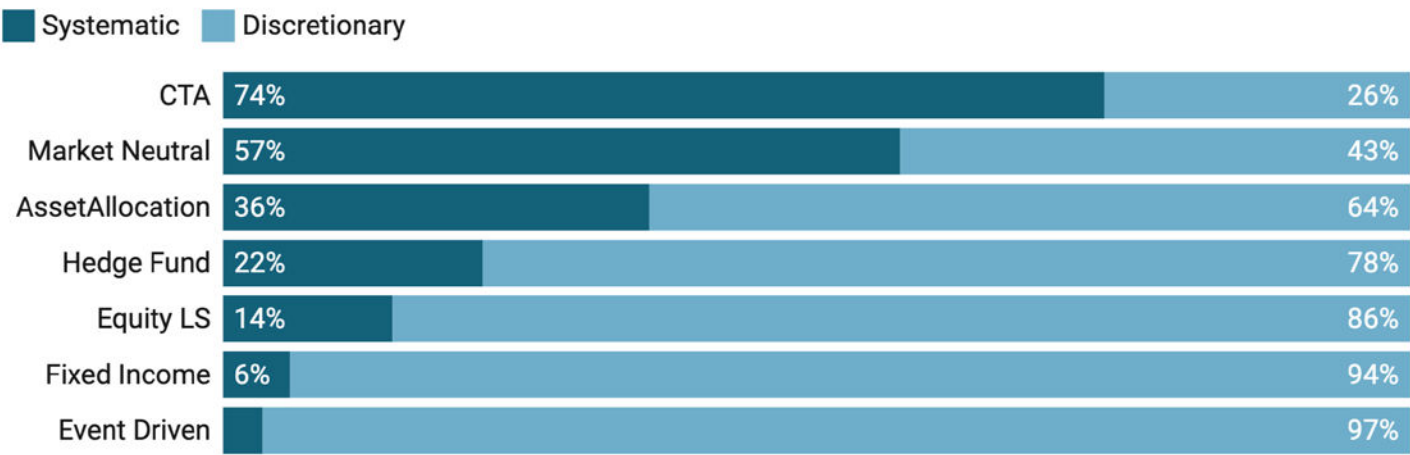
SETTING THE STAGE

In this article, a Systematic strategy is an investment proposition that relies on quantitatively driven systems or processes that are implemented across markets using non-discretionary techniques. A Discretionary strategy is driven by the judgment of the portfolio manager to implement trading views and ideas. That is our definition, but we acknowledge that it is difficult to map a strategy to a specific flavor.

As illustrated in the graph, systematic strategies strongly dominate managed Futures managers. The supremacy of the systematic investment framework is rarely seen in other hedge fund strategies. Three out of four CTAs are driven by a systematic investment process. The



Systematic vs Discretionary Managers



A snapshot of Systematic vs Discretionary decision making in different hedge fund strategies.

“Over the last 20 years, the ratio between man and machines amongst Futures traders have not reflected any changes in technology. Innovation has not created a noticeable move.”

closest cousin is Market Neutral strategies that are dominated by various factor-driven strategies. For some strategies, such as Equity Long/Short or Event-Driven strategies, the discretionary approach is the preferred way to invest.

In terms of assets under management, the skew is even more pronounced. An effect of allocators having associated CTAs with the large trend-following managers due to the presumption of beneficial tail risk behavior. There may also be a reporting bias as our database. The database captures strategies that are reporting numbers into the public domain and may be missing some of the more secretive Global Macro managers.

THE IMPACT OF TECHNOLOGY?

One could have formed a hypothesis that systematic strategies would gradually have emerged and come to dominate as technology evolved. Not to mention the increased capabilities to trade electronically and access to new and exciting data sources.

Headlines such as The Economist’s “March of the Machines” may have given the impression that the dominance of systematic trading strategies was a new and rapid development.

Over the last 20 years, the ratio between man and machines amongst Futures traders have not reflected

any changes in technology. Innovation has not created a noticeable move.

Over time the balance has shifted marginally in favor of Discretionary managers, although this remains the smaller group. This may be somewhat surprising given the strong performance CTAs had during the Great Financial Crisis (2008/09).

DIVING INTO THE DATA POOL

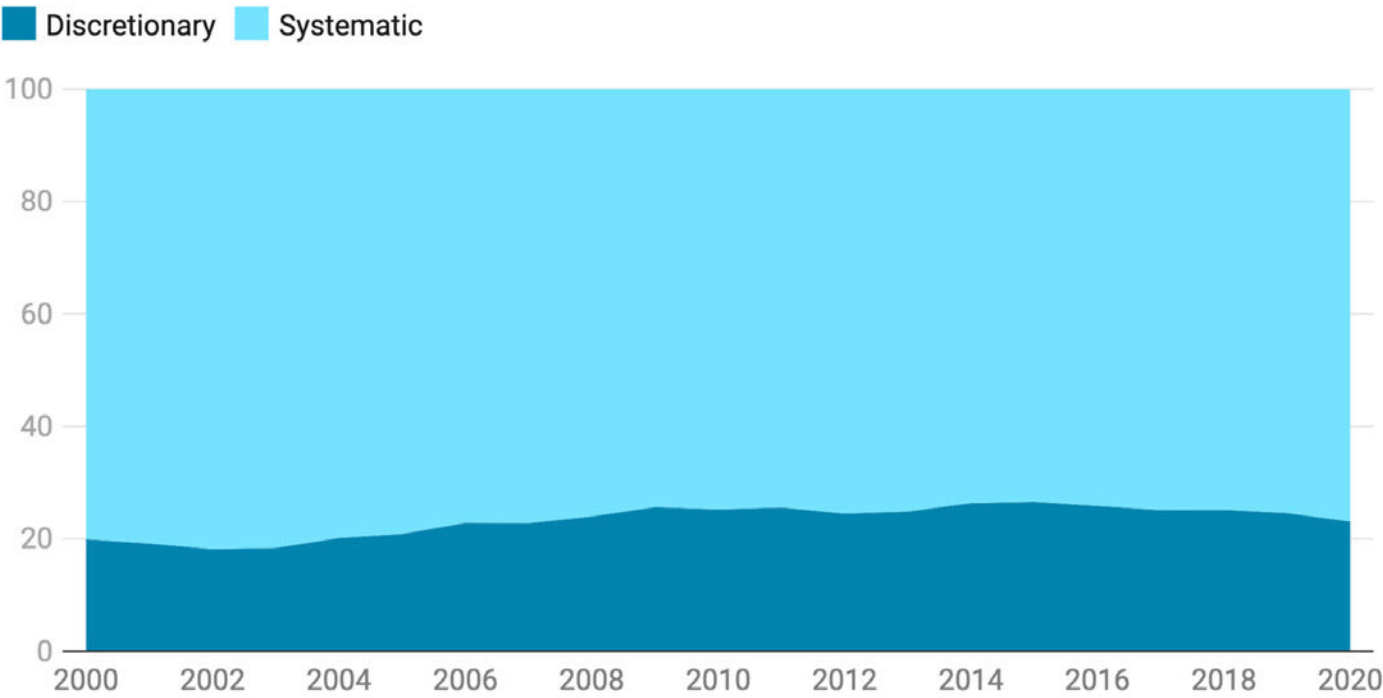
We continue our data journey by looking at the correlation between each of the decision-making strategies. The correlation within the two subgroups is low and perhaps lower than expected. The average cross-correlation within the two groups is 0.08 (Systematic), respectively 0.02 (Discretionary). This implies a large dispersion, regardless of investment structure.

Knowing if a manager is systematic or discretionary does not tell you if it is a good fit for your portfolio. As it seems, the diversification benefit may be larger for the Discretionary traders, but the benefit is relatively marginal from a 30,000-foot perspective. Thus, the unique style of the manager matters more than its decision-making framework.

Often, systematic managers are viewed as more robust to staff changes and by extension more institutionalized. In contrast, Discretionary managers typically are more dependent on a specific key person. And thereby less potentially for long-term institutional investors.

We use the average life of closed and active funds as a proxy for process robustness (luck will presumably disappear for a larger sample). To our mild surprise, we observe that closed managers, in the two groups, have about the same life expectancy of approximately six

Systematic Managers dominate the investment style



The division between Systematic and Discretionary managers is fairly static over time with Systematic Managers representing about 75% of the available investment opportunities

¹ With skew we refer to the distribution of assets under management for CTAs that is tilted towards the larger managers.
² Oct 5th, 2019

Systematic Managers have marginally longer staying power

	Active	Closed
Discretionary	7.4	5.9
Systematic	8.7	6.0
Difference	1.3	0.1

years, regardless of the investment method. Systematic funds that are still operating, tend to have a one year longer track-record than their Discretionary peers. But the difference is relatively small.

One of the few quantitative differences that we find is that Systematic strategies tend to be better at keeping volatility stable over time. We believe that this correlates highly with the feature that most Systematic strategies incorporate risk management techniques

RESULTS OVER PROCESS?

Over a tumultuous period in global markets, regardless of your underlying process, realized returns have been rather similar. Discretionary managers have come out somewhat better (and with lower volatility), using NilssonHedge’s discretionary and systematic CTA indices.

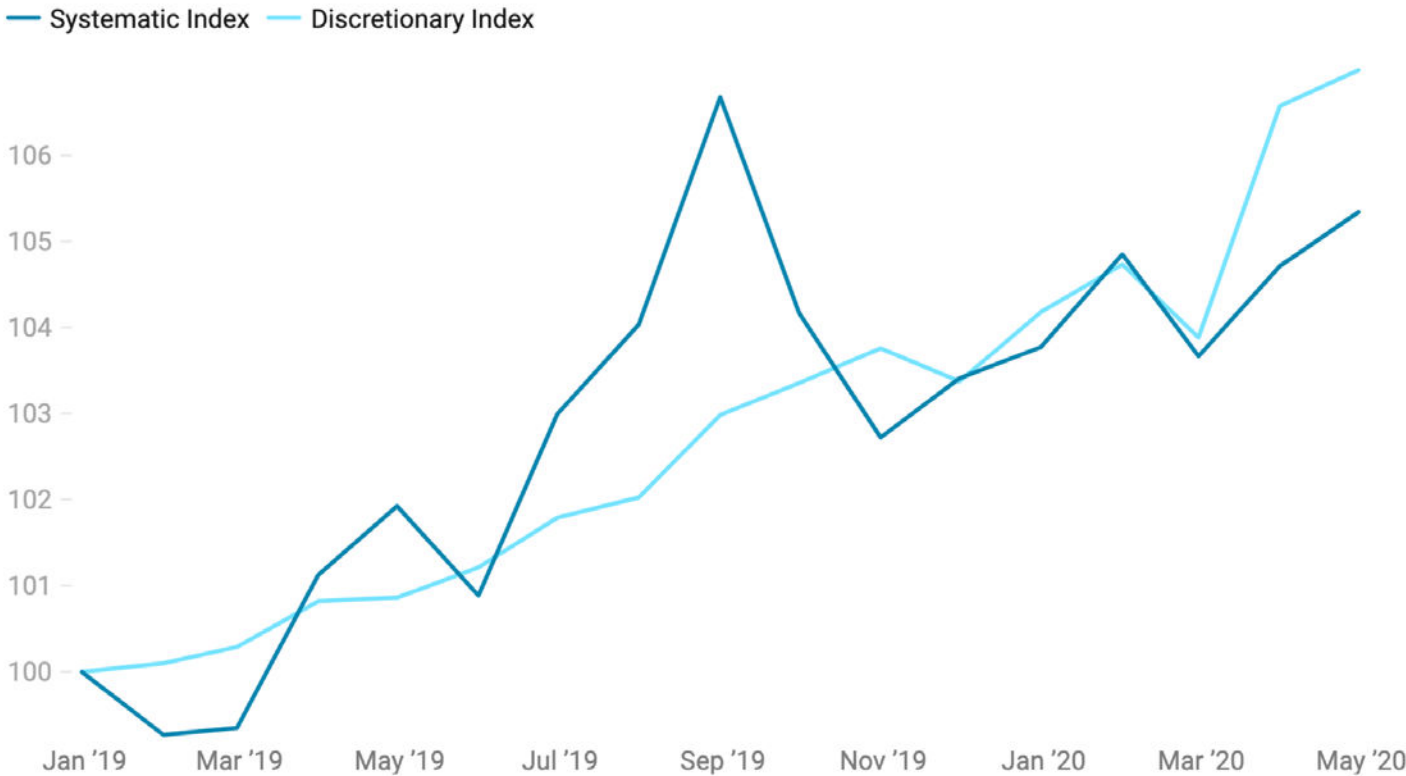
We have all learned that a repeatable and robust process creates a good outcome. But here, there is little evidence that different strategy flavors have led to materially different outcomes. Given the importance that we assert to the decision-making process, we would have expected a larger difference.

A MODEST PROPOSAL

The difference between Systematic and Discretionary investment processes is not as significant as we would like to pretend it is. It may be sold, packaged, and presented differently. But the investment strategies do have the same goal, extracting returns from another market participant in the best way possible.

“Knowing if a manager is systematic or discretionary does not tell you if it is a good fit for your portfolio.”

Discretionary & Systematic Managers delivered similar returns



A hedge fund’s client will likely take a discretionary decision to allocate to a manager. Very few systematic managers allocate to their strategies on a systematic basis. Very few discretionary managers allocate solely on their judgment. Herein lies a paradox that does not fit with our mental basis for differentiating between different decision-making frameworks.

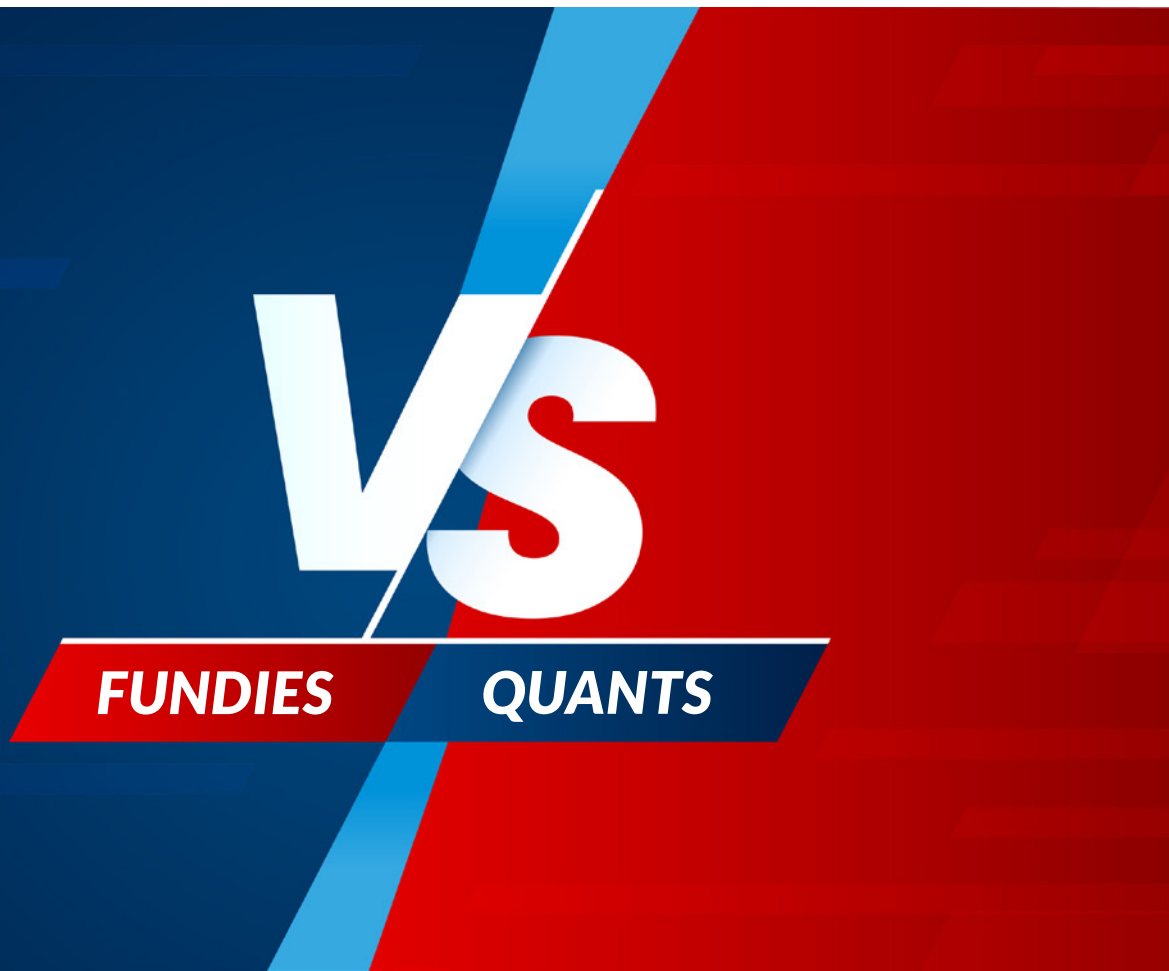
The reality check we undertook with this article should urge investors to dig below the surface of simplistic and standardized categories to find the features they expect for their portfolio.

We want to end with a quote from the legendary trader Ed Seykota: “System trading is ultimately discretionary. The manager still has to decide how risk to accept, which market to play, and how aggressively to increase or decrease the trading base as a function of equity changes. These decisions are rather important – often more important than trade timing.”

If you have come this far, we would like to invite you to dig deeper into our data at www.nilssonhedge.com.

About the Author: Linus Nilsson founded NilssonHedge, a public hedge fund database, as an initiative to bring transparency to the hedge fund universe. The database combines an innovative way of aggregating public performance data and offers access to hedge fund returns.

Disclaimer: Mr. Nilsson wrote this article in his capacity as founder of NilssonHedge. The views expressed in the article do not necessarily represent the views of any current, past, or future employers. I would also like to thank Didier Duret for his insightful comments.



Fundies vs. Quants

By Eugeniu Guzun - HedgeNordic

In finance, we too often like to think in buckets. Assets are classified as either growth or value, investment products as either passive or active, research processes as top-down or bottom-up, and investment approaches as either systematic or discretionary. The latter will concern us for the purpose of this article.

Alternatives manager AQR Capital Management attempts to explain the two approaches as follows, "... systematic (commonly associated with the term 'quant') generally applies a more repeatable and data driven approach, relying on computers to identify investment opportunities across many securities; in contrast, a discretionary approach involves in-depth analysis across a smaller number of securities and relies more on information that is not always easily codified."

Based on discussions with a select group of Nordic hedge fund managers, this article seeks to highlight some of the main advantages and disadvantages of systematic investment strategies compared to discretionary strategies.

RESILIENCE AGAINST HUMAN PSYCHOLOGY

"The investor's chief problem – and even his worst enemy – is likely to be himself," once wrote Benjamin Graham, the famed value investor. Behavioural biases affect most investors, if not all, and their investment decisions. A systematic and data-driven process, however, can minimise the impact of behavioural biases on decision making.

Pasi Havia, who manages quant-based stock-picking fund HCP Quant, reckons that the main advantage of a systematic strategy is "that human emotions are not involved in the investment process." There is growing evidence that the average investor's market returns significantly lag behind benchmark indices, partly because of their error-prone behaviour. "It has been proven in several academic studies how our own emotions are probably the biggest reason for underperformance," says Havia. He goes on to say that "once the algorithm is in place, it will not panic in a

**"The investor's chief problem – and even his worst enemy – is likely to be himself."
- Benjamin Graham**

market crash." The algorithm "simply does what it has been instructed to do."

Other Nordic hedge fund managers corroborate Havia's view. Ola Björkmo, who runs systematic market-neutral fund QQM Equity Hedge alongside Jonas Sandefeldt, points out that "a quantitative process allows for a quick,

unemotional reaction to new information." Andreas Olsson, the co-founder of Malmö-based quantitative asset management firm OQAM, says that "we try to combine our human experience and knowledge with a systematic quantitative framework to get rid of our day-to-day biases."

Alexander Hyll, who employs a quantamental investment approach to run long/short equity fund Adaptive Paradigm Alpha, points out that "quantitative strategies negate much of the effects of biases by taking human decision making out of the equation." The Linköping-based fund manager emphasises that a systematic approach "allows finding opportunities that may have otherwise been missed, as well as being able to make a fairer assessment of the data than a human could."

PROCESSING POWER AND SPEED

Pasi Havia, the portfolio manager of Finnish systematic equity fund HCP Quant, identifies that another



Alexander Hyll, CEO & Fund Manager - Adaptive Hedge Fund Management



Ola Björkmo and Jonas Sandefeldt, Portfolio Managers - QQM Equity Hedge



Pasi Havia, Portfolio Manager- Helsinki Capital Partners

advantage of a systematic investment approach is the ability to “process bigger amounts of information than any human army of analysts would ever be able to.” More importantly, a systematic process has the ability to analyse massive amounts of data in a relatively short period. “A quantitative strategy is able to process vast amounts of data fast and execute without emotions involved,” summarises Havia.

“The amount of data that can be analysed with the assistance of computation far supersedes human capacity,” highlights Alexander Hyll, who manages a Ray Dalio-inspired fund that seeks to capitalise on global paradigm shifts. Although “insight and creativity are abilities that computers do not possess, quantitative methods have power and precision far above human capabilities.” Ola Björkmo of Stockholm-based QQM Fund Management shares the view, saying that “quantitative processes can utilise all relevant information on each stock across a large investment universe on a daily basis.”

REPLICATING THE HUMAN MIND

One cannot really compare any computer with the human brain. No computer, however powerful and sophisticated, can replicate the human mind. “Discretionary strategies revolve around a human’s understanding of a subject,

“History doesn’t repeat itself, but it often rhymes.” - Mark Twain

which means that the analysis conducted by a human has more depth than a quantitative analysis,” Alexander Hyll tells HedgeNordic. “Quantitative strategies can suffer from being overgeneralised, without a layer of understanding, to fit more situations than may be warranted.”

Pasi Havia, who uses a fundamentals-based systematic strategy to run HCP Quant, points out that one disadvantage of a systematic strategy stems from the interpretation of company fundamental data. “In some cases, it is obvious and explainable for a human why there can be discrepancies in an income statement or a balance sheet, for example,” says Havia. A fundamentals-based quantitative strategy, however, “will often just read the data as reported, which might be misleading.”

“History doesn’t repeat itself, but it often rhymes,” Havia references Mark Twain’s well-known saying.

“Quantitative strategies are often trained on past history and can work well within certain boundaries.” The human mind, however, could be better at confronting “situations that are unknown for mankind,” suggests Havia. “When something unexpected happens that is way off the charts and has not happened before in history (for instance double-digit standard deviation event), quantitative strategies can face challenges,” he reckons. “Unknown is unknown. It is hard to train something you do not yet know.”

GARBAGE IN, GARBAGE OUT

For a systematic, data-driven investment strategy, data quality is paramount. “Quantitative strategies are highly dependent on the quality of data,” emphasises Havia. Many of us know of the “garbage in, garbage out” mantra. “If a strategy is fed with incorrect information, the output is also nonsense,” says the fund manager of HCP Quant. “This is not to say that discretionary strategies could work with low-quality data either,” points out Havia, “but data quality is a bigger challenge for a quantitative strategy.”

Linköping-based fund manager Alexander Hyll emphasises that “quality of data varies both in terms of method for collection, generalisation, and depth.” He suggests that the success of a systematic strategy, as

well as a data-driven discretionary strategy strongly depends on data quality. “To perform high-quality analysis, a lot of work and money need to go into collecting and controlling data.”

THE BEST OF BOTH WORLDS

Although systematic and discretionary managers have their virtues and pitfalls and may differ in many ways, there is a common ground shared between the two camps. “Both quantitative and discretionary fundamental strategies have their advantages and disadvantages,” highlights Pasi Havia. But “they both aim for the same goal” of achieving the investment objectives of different types of investors. “It is good that there is a rich amount of flavours to choose from,” says Havia. Björkmo and Sandefeldt, the duo managing QQM Equity Hedge, agree. “We believe that fundamental discretionary and quantitative strategies complement each other in a portfolio.”

On the one hand, “quantitative methods have power and precision far above human capabilities. On the other hand, insight and creativity are abilities that computers do not possess,” says Alexander Hyll. “To gain a full understanding, we need the depth of human understanding with the width of technology – a quantamental investment strategy.”

Don't Blame the Quants!

Who Causes Crashes?



Whenever markets crash, there is a desire to seek scapegoats and pin the blame on somebody else. There is nothing very new about this. In the 1987 stockmarket crash, “program trading” – one of the earliest quantitative investing approaches – was blamed. In the 2010 “flash crash”, algorithmic high frequency traders were blamed. And once again, quants are allegedly behind the Great Coronavirus Crash (GCC) of March 2020, which was the fastest and most violent market crash in decades. Several European regulators temporarily banned short selling of individual equities in 2020 (they generally have not touched index futures; bonds, or commodities, and cannot really act on currencies, where one currency is expressed in terms of another).

By Hamlin Lovell – HedgeNordic

HISTORY

History shows that bubbles and busts have been a feature of financial markets for centuries, long before computers were created. Most centuries have contained multiple financial crises. The real cause of markets overshooting and undershooting is probably mass human psychology and herd behaviour. Nobody can blame quant funds for the Dutch tulip mania of 1636-37, the South Sea bubble of 1720, or numerous other cases of speculation.

Historically, it was sadly the case that certain minority ethnic and religious groups were blamed for financial crashes. Most often there were claims of “Jewish conspiracies” (sometimes based on falsified documents), but any minority could be singled out. Recent academic research suggests that economic recessions lead to a

“History shows that bubbles and busts have been a feature of financial markets for centuries, long before computers were created.”

general rise in all kinds of anti-foreigner sentiment. The mystique persisting around quant strategies makes them a good candidate for venting frustrations – quant investing seems “foreign” to some people. This is no rational basis for this essentially superstitious prejudice.

SIZE

The strongest data-based counter-argument is simply the size of the systematic hedge fund industry. Of hedge fund industry assets around US\$3 trillion, quant funds make up around \$1 trillion, according to HFR data. To put things into perspective, global equity markets worth c \$90 trillion at the end of 2019. Global bond markets are worth over US\$ 100 trillion, according to SIFMA. Taking these two together, quant funds are about 0.5% of global bond and equity markets. By way of comparison, global pension assets are US\$ 46 trillion, according to the Towers Watson Global Pension Assets Study, and global insurance industry assets are around US\$ 33 trillion. Taken together, pension and insurance assets of US\$ 77 trillion are around 40% of global equity and bond markets, and are 77 times larger than systematic hedge fund assets.

PROCYCLICALITY?

We then need to examine to what extent various market participants’ behaviour is pro-cyclical or anti-cyclical. Here there is no straightforward answer.

Whilst trend-following systematic hedge fund strategies are in theory likely to go short after markets go down, in practice the situation is more complicated. Most of these funds target constant or at least steady volatility, so after an explosion in volatility, they are in fact likely to be lightening up all positions, including short positions. Some of the funds we have recently interviewed mentioned this.

“Whilst trend-following systematic hedge fund strategies are in theory likely to go short after markets go down, in practice the situation is more complicated.”

Some systematic strategies, such as statistical arbitrage, are more based on mean reversion of single securities. As such they could be seen as counter-cyclical, buying losing markets or stocks and selling winners.

Or in other cases, relative value traders will be short of some markets and long of others, with no overall long or short position.

For instance, fundamentally driven quantitative equity market neutral strategies could also be a counter-cyclical influence. The largest US liquid alternatives house, AQR, has kept the faith in “value investing”, which has seen another leg down in the first quarter of 2020. It is possible that quant managers buying up value stocks have reduced the extent of falls in these equities.

It is also not easy to estimate whether much larger pension funds and insurance companies are likely to be amplifying or softening trends. To the extent that some pension funds have fixed targets for asset allocation, in March 2020 they should have been rebalancing portfolios by selling bonds that appreciated and buying equities after the drop, to maintain their target weights.

However, some pension funds and insurers have a minimum solvency level that could force them to de-risk portfolios after a drop in value, and/or an increase in volatility and the financial markets in 2020 have caused a double whammy plunging many pension funds further into deficit. Lower interest rates increase the value of liabilities, while the GCC has cut the value of assets. Given that the long term megatrend of rising longevity has, fortunately, thus far only been marginally impacted by Covid-19 mortalities, it is likely that solvency ratios for defined benefit pension funds will have fallen further. In some cases, this may accelerate de-risking of portfolios, which might well have amplified the downtrend in March.

RETAIL INVESTORS

The biggest culprit of market crashes may be neither quant funds nor traditional real money investors, like pensions or insurance, but small retail investors, who have been much more active than normal since March 2020: statistics show DARTS (Daily Average Revenue Trades) at retail brokerages have quadrupled over this period. Hundreds of thousands of brokerage accounts have been opened. Individuals who have either lost their jobs or are working from home have more time available for “day trading” the markets. The temporary hiatus in sports matches has also meant that those who previously gambled on sports, have now shifted to betting on stocks.

And multiple studies suggest that individual investors are bad at timing markets. The “money-weighted” return on most collective investment funds is much lower than the “time-weighted” return, meaning that most funds have received net inflows at higher prices and net outflows at lower prices.

Further evidence of retail investors’ investing record comes from the EU ESMA regulator requirement for brokers offering leveraged equity trading accounts (known as “spread betting” in the UK) to publish the percentage of retail clients who lose money. In the UK in, this is now running at over 80%.

Retail investment is quite insignificant in some European countries, but in the US, retail investors own about 30% of the stockmarket. It seems highly probable that retail investors in general (and leveraged ones in particular) who have a habit of buying at the top, have also been spooked into selling at the bottom. This could well have accelerated the recent GCC, and along with pension and insurer de-risking, seems likely to have been a much more important factor than quant funds.

THE CORONAVIRUS CRISIS:

WHAT IS THE SAME? WHAT'S DIFFERENT?

By Kathryn M. Kaminski, Ph.D., CAIA and Ying Yang, M.F.E. - AlphaSimplex



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History doesn't repeat itself, but it does tend to rhyme. Each crisis period in financial markets is different, but they may have some aspects in common. In 2020, equity markets endured a devastating fall in the wake of concerns around the novel coronavirus COVID-19. This paper takes a look at recent market conditions from the perspective of a trend-following strategy to determine what is similar and what is different from the crisis periods that came before. Trend following strategies take long and short positions across a wide range of asset classes (i.e., equity indices, bond index futures, rates, currencies, and commodities). Over time and across asset classes, they adapt to changing market conditions using statistical techniques that measure and adjust to prevailing market trends sometimes achieving "crisis alpha". ¹Given that the speed of trend measurement can provide different results in different crisis periods, this paper also considers two different trend-following trading systems:



a faster trend system (with signals using data from less than six months) and a slower trend system (with signals using data from greater than six months). This paper first examines the severity of each crisis period in recent history, focused on both depth and length. It then discusses how trend signal speed, prior equity positioning, and non-trend signals impact performance during both the crisis and subsequent recovery periods.

CRISIS OR CORRECTION?

A correction is a short-term loss that recovers relatively quickly. A crisis, on the other hand, is a prolonged period

of market stress with sustained losses. For the purpose of this paper, losses of 15% or more over periods of two months or less are corrections, while more sustained or deeper losses are crises. It is important to note that each crisis or correction is different and that both the length and depth of each crisis, as well as its recovery period, varies from one drawdown to another. To put this into perspective, we consider the peak-to-trough loss in equity markets using data from 1992 to 2020. Using this approach, we are able to identify nine substantial drawdowns since 1998. ²Each of these crisis and correction events are detailed below in Table 1

¹"Crisis alpha" opportunities are profit opportunities gained from persistent trends during periods of market stress or crisis. For more information on the concept of Crisis Alpha, see Kaminski 2011.

²Note that the Tech Crisis is defined by four substantial drawdowns (September 2000 – November 2000, February 2001 – March 2001, May 2001 – September 2001, and June 2002 – July 2002). For comparison with the recent COVID-19 crisis, we consider the recovery period for the first drawdown in each crisis period for the remainder of the paper. Note that only the Tech Crisis experiences multiple drawdowns in this period.

Description	Peak Date	Trough Date	Total Depth	Total Length	Fast Trend-Following Weights	Slow Trend-Following Weights	Fast Trend Return (%)	Slow Trend Return (%)
Russian Debt Crisis	19980717	19980831	19.19%	31	20%	20%	4.85%	4.68%
Tech Crisis 1	20000901	20001130	13.29%	64	39%	36%	2.62%	3.49%
Sub-Prime	20071009	20080310	17.91%	108	23%	6%	15.74%	19.61%
Lehman	20080519	20090309	51.52%	209	20%	14%	7.86%	4.94%
Flash Crash	20100503	20100630	13.93%	42	26%	41%	0.88%	-0.21%
Euro Crisis	20110801	20110808	12.96%	5	-5%	-7%	1.93%	3.05%
Volpocalypse	20180201	20180208	8.51%	5	43%	60%	-4.97%	-5.67%
Equity Sell-Off	20180920	20181224	19.36%	67	17%	15%	1.49%	-2.54%
COVID-19	20200219	20200323	33.79%	23	35%	107%	7.51%	-1.92%

Table 1: Description of Crisis/Correction periods for the S&P 500 from 1992 to 2020. Past performance is not necessarily indicative of future results. Each crisis/correction period is defined as the peak-to-trough loss. For certain periods such as the tech bubble, there are several waves of losses which warrant distinct time periods. Fast Trend-Following represents a generic trend following strategy implemented with equal risk-weighting across futures markets spanning commodities, equity indices, fixed income, and currencies, with signals using data from less than six months. Slow Trend-Following represents a similar generic trend following strategy with signals using data from greater than six months. Source: Bloomberg, AlphaSimplex.

For each of these periods, we highlight the exact dates of the period, the total depth (cumulative loss), total length (number of trading days), the corresponding equity position of a slow and fast trend following system at the beginning, and the return of a representative fast and slow trend following system for the same period. Each crisis period is given a description, which will be used in the remainder of this paper for simplicity. Figure 1 plots the cumulative return of the S&P 500 Total Return Index with these periods highlighted for reference.

To visualize these events based on depth and length, Figure 2 plots a schematic of past crisis and correction periods where the relative adjusted size of the circle represents crisis speed defined as the depth divided by length (the total time period). This approach can help us visualize how different crisis/correction periods differ. From this simple picture, we can clearly see that the European Debt Crisis, Volpocalypse, and the COVID-19 crisis had the highest crisis speed (drawdown divided by length of drawdown) of all periods. The drop for COVID-19 lasted 23 days with a roughly 34% loss, while the Euro Crisis lasted a mere five days with a roughly 13% loss and Volpocalypse lasted five days with a 8.5% loss. Using the definition given above, losses of 15% or

“During quick sell-offs faster trend-following systems seem to be able to navigate the environment slightly better. But on average, for many crisis periods, both slow and fast systems seem to navigate the events somewhat similarly.”

Crisis and Correction Periods (1992 to 2020)

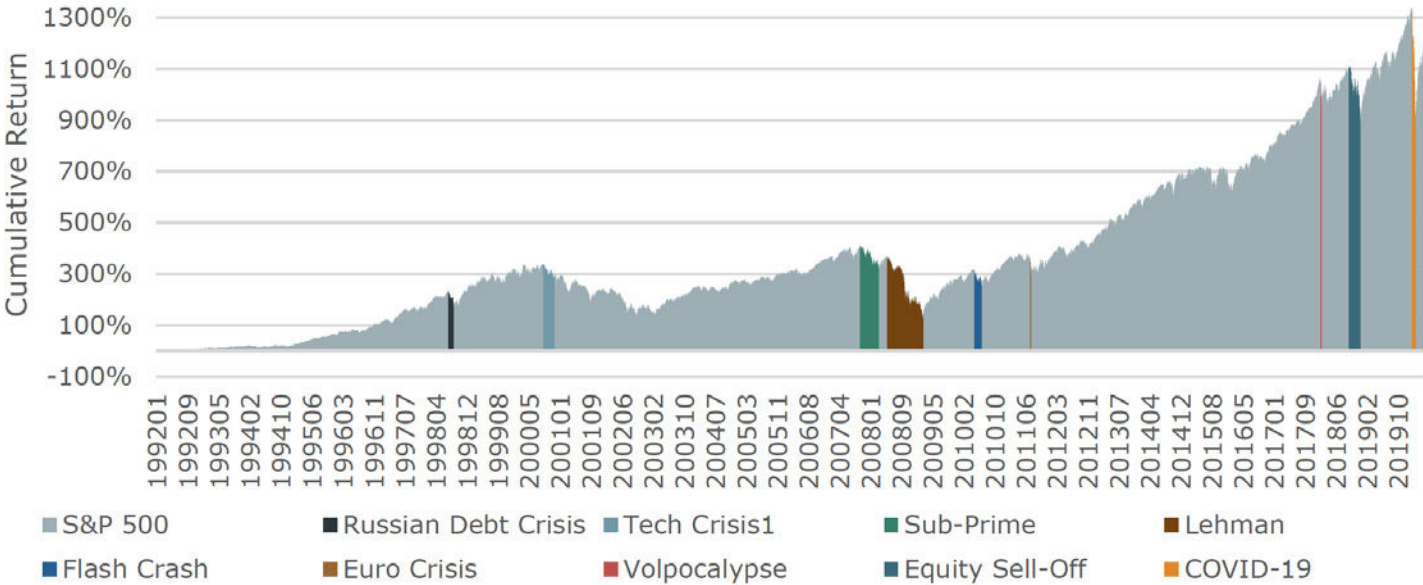


Figure 1: Cumulative return of the S&P 500 Total Return Index from January 1, 1992 to May 31, 2020. As described in Table 1, only the first drawdown is plotted for the Tech Crisis Period. Source: Bloomberg. A correction is defined as losses of 15% or more over a period of two months or less. A correction with more sustained or deeper losses is considered a crisis. Past performance is not necessarily indicative of future results.

Historical Crisis and Correction Periods (1992-2020)

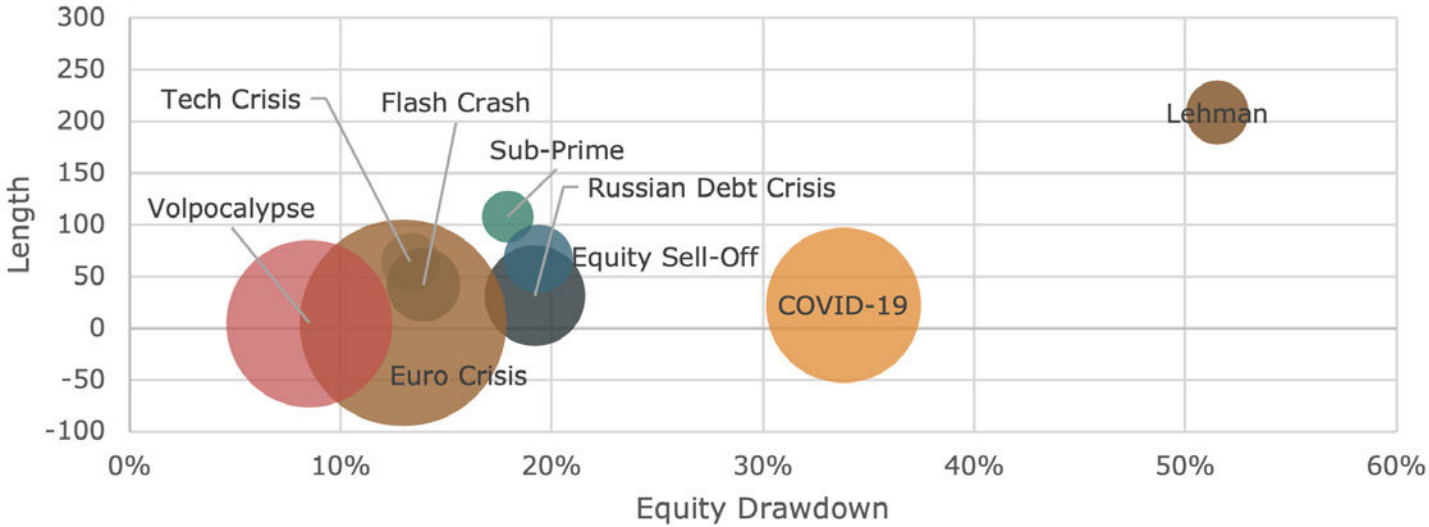


Figure 2: Description of Crisis/Correction periods for the S&P 500 Total Return Index from 1992 to 2020. The size of each circle represents the relative speed of the crisis/correction periods where speed is defined as drawdown divided by length of drawdown. Past performance is not necessarily indicative of future results. Source: Bloomberg, AlphaSimplex.

more over periods of two months or less are corrections, while more sustained or deeper losses are crises.³

TREND SPEED AND PRIOR POSITIONING MATTERS, ESPECIALLY FOR SHORT PERIODS

As we saw in Figure 1, each crisis or correction is different both in depth and length. So clearly for trend-following strategies, prior positioning matters. ⁴First, faster systems tend to be better at navigating faster crisis events. If things move quickly, one might argue it is advantageous to be faster—even if the prediction is wrong. For trend-following strategies, this has historically been true; however, it really depends on how a crisis or correction period evolves.

Secondly, if trend-following strategies are long equities going into a crisis or correction period, they can take time to adjust to changing market trends. As we saw in Table 1, the COVID-19 Crisis and the Volpocalypse in 2018 included some of the biggest equity exposures going into the events. However, since trend-following strategies adapt and find trends across asset classes, we cannot simply look at equities and see the whole picture. Instead, we need to consider the equity position before the crisis and compare with the returns of other asset classes during periods of stress. To demonstrate this, Figure 3 plots the performance of representative slow and fast trend systems for each crisis and correction period against the prior equity position.

Each of these graphs demonstrates how trend-following strategies can often capture crisis alpha; most of these crisis periods resulted in positive returns for the strategy, whether it is fast or slow—but there are a few exceptions. For example, during short corrections where the strategy is long equity, the strategy may not be able to get out of its equity position and find other opportunities before the market corrects. During quick sell-offs faster trend-following systems seem to be able to navigate the environment slightly better. But on average, for many crisis periods, both slow and fast systems seem to navigate the events somewhat similarly.

These two graphs show that if trend-followers are long equities going into a crisis the strategy will experience some losses; however faster trend systems are able to move out of equity markets faster. Consider the recent COVID-19 Crisis. Given the speed of the crisis period,

“Trend-following strategies are well known to have the potential to generate “crisis alpha” by adapting to the persistent trends that occur in the wake of market crisis.”

³For additional details on the distinction between a crisis and a correction, please see Kaminski 2019.
⁴For additional details, please see Kaminski 2019.

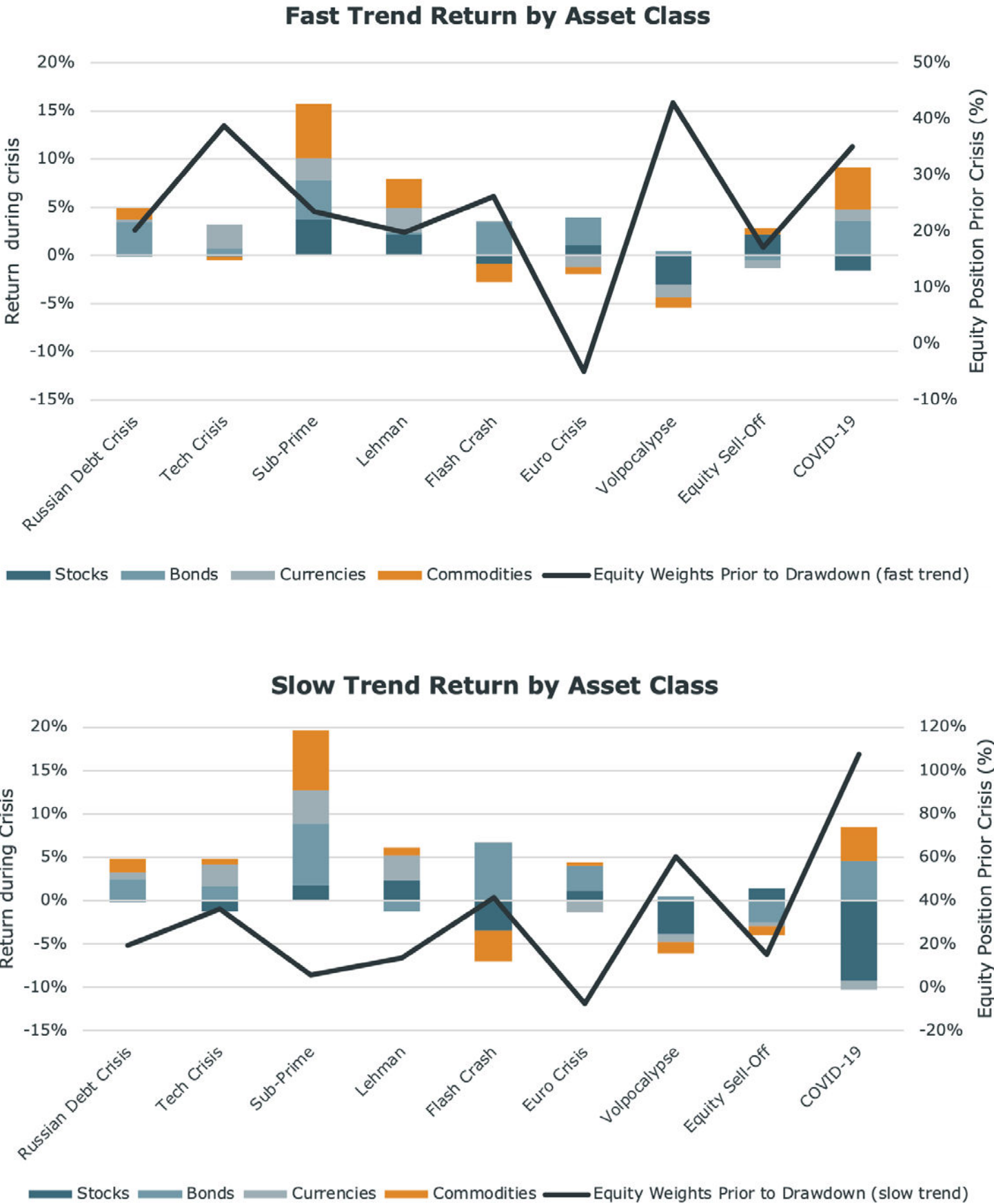


Figure 3: Performance by asset class for both a Fast and a Slow Trend-Following generic strategy for each Crisis and Correction period. For reference, the initial equity positions for the trend-following systems are plotted for comparison. Source: AlphaSimplex.

faster trend systems were able to move out of equities faster. Additionally, these systems were likely already positioned with lower equity exposure, perhaps due to increased equity volatility in late January. It is notable that for each crisis or correction period there are positive trends in a range of asset classes (commodities, fixed income, currencies, and equity indices). The key takeaway from the recent COVID-19 Crisis is the divergence in performance between fast and slow trend systems. During the one of the fastest crisis periods, being fast was clearly better while historically in other periods with more sustained crisis losses this distinction has been less clear.

TREND VS. MULTI-STRATEGY CTA

In most of the prior analyses, we use a simple representative trend following strategy to demonstrate how trend would react to market moves. In practice, many managers also include a range of other

approaches outside of pure trend, which can affect performance during periods of equity market losses.⁵ To demonstrate how this might impact returns, we compare the performance of a pure trend index (the SG Trend Index) and a multi-strategy CTA approach (the SG CTA Index).

In order to visualize the relative performance differences between a pure trend and multi-strategy approach, Figure 4 plots a visual circle for each crisis period. The shaded circles indicate times when pure trend outperformed multi-strategy; and the clear circles indicate times when multi-strategy outperformed trend. The size of each circle indicates the relative magnitude of outperformance or underperformance of pure trend versus multi-strategy.

In this Figure, the pure trend strategy seems to outperform during the longer, more sustained crisis periods, as well as during the COVID-19 crisis. On the other hand, the multi-strategy approach seems to perform better during

the short events like the Flash Crash, the Equity Sell-off in 2018, and the Volpocalypse in 2018. Since the composition of managers and their strategies change over time further research may be necessary to pinpoint what strategies or approaches outside of trend might be driving these differences.⁶

CONCLUSIONS

2020 has been a challenging market environment for most investment portfolios. Few strategies seem eager to navigate this high volatility, fear-driven, and uncertain environment. Trend-following strategies are well known to have the potential to generate “crisis alpha” by adapting to the persistent trends that occur in the wake of market crisis. The 2020 COVID-19 market crisis was one of the fastest crisis periods in history. Despite being long equities going into this historic move, trend-following strategies managed to adapt to find positive opportunities despite the difficult scenario, as they have done during past crisis periods. What “rhymed” with past crises is that trend followers, especially pure trend followers, found opportunities that allowed them to outperform while navigating market moves, and faster systems were better poised to move with such large moves. What was different was the sheer speed of the equity losses. What still remains unclear is where we will go from here, whether markets will experience a recovery or face a second or third wave of losses. One thing holds true: when it comes to “crisis alpha,” everyone likes the alpha but no one likes the crisis.

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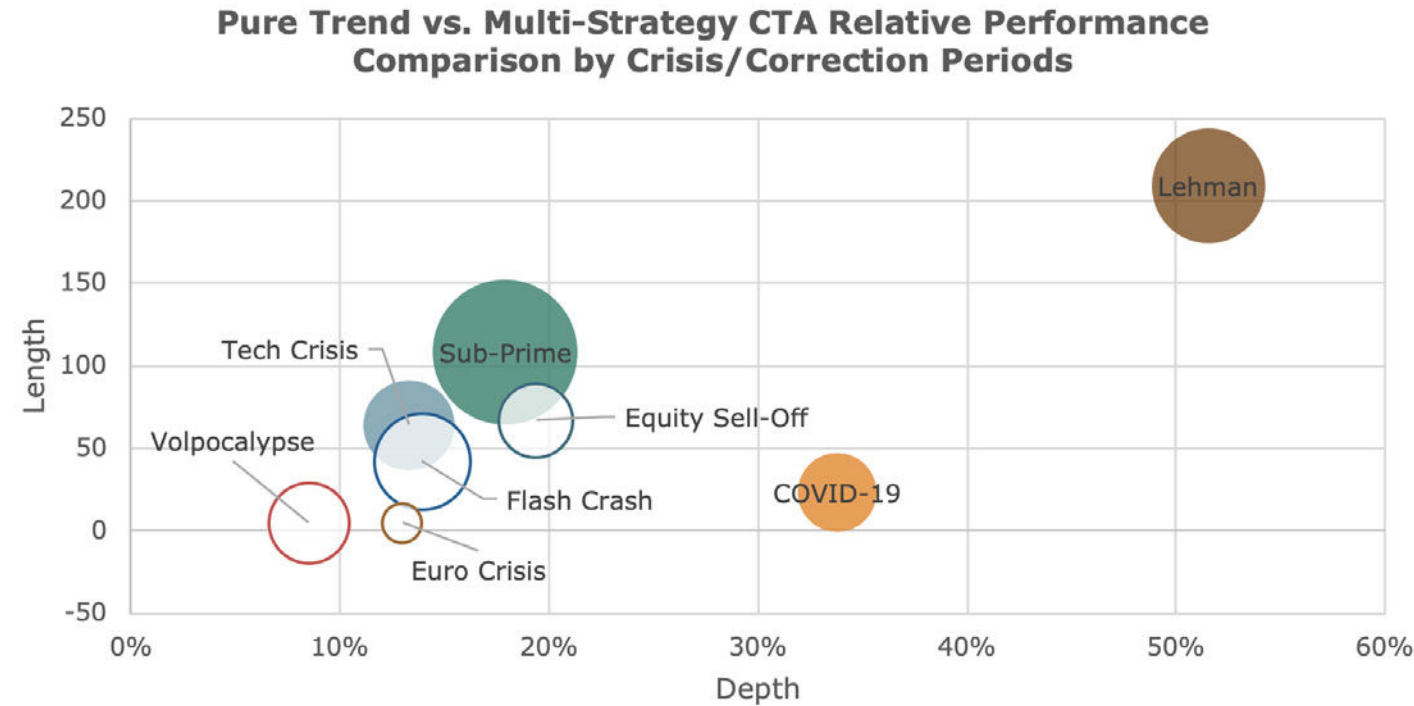


Figure 4: A visual representation of the relative performance difference between pure trend (using the SG Trend Index) and multi-strategy CTA (using the SG CTA Index) approaches. The shaded circles demonstrate when pure trend outperforms and the clear circles show when multi-strategy outperforms. The size of the circles represents the magnitude of the return differences during each crisis or correction period. Past performance is not necessarily indicative of future results. Source: Bloomberg, AlphaSimplex.

⁵ This concept is discussed in detail in Chapter 16 of Greyserman and Kaminski 2014.
⁶ See also Kaminski and Sinnott 2019.

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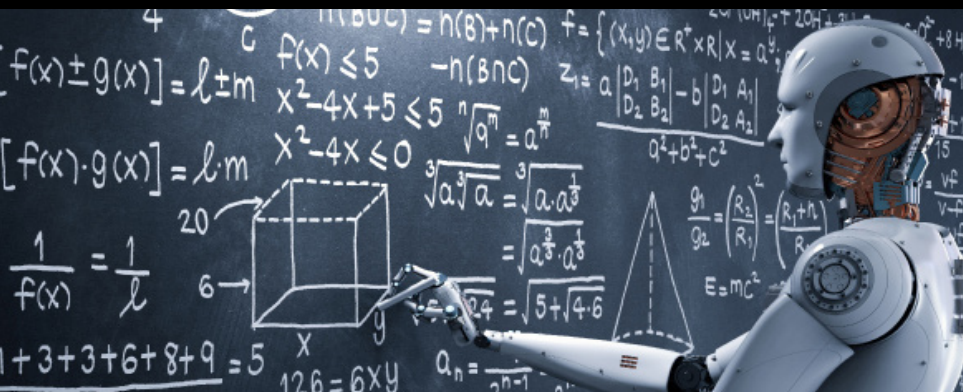
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