UNIGESTION

COLLABORATIVE INTELLIGENCE: COMBINING HUMAN INSIGHT WITH LEADING-EDGE TECHNOLOGY

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Overview

Embracing technological change is essential for asset managers to thrive in an increasingly competitive environment. Technology costs are growing year after year across our industry, currently representing around 5% of revenues and 8% of costs (and even more for Unigestion). We believe technology will not replace asset managers, but those who invest in it will undoubtedly outsmart those who do not.

However, digital transformation is not just about technology: by automating more processes, it is also transforming the division of labour and relationships between man and machine. The development of machine learning and the proliferation of alternative data sources offer enormous opportunities to our industry, but they also present a challenge: as machines continue to evolve, how much control should investment managers relinquish to technology to deliver the best results for investors?

We believe that the asset management industry will continue to evolve as a synthesis of humans and artificial intelligence in a way that harnesses the power of both. While computers can emulate intelligent behaviour, we do not believe they will replace investment managers in the future. At Unigestion, we believe in collaborative intelligence and in the strength of humans and machines working together. We empower our investment teams with leading-edge technology to gain a deeper understanding of financial markets in order to achieve better investment outcomes for our clients.

In this paper, we discuss how to achieve a balance between computer-powered analysis and human insight, and how we are incorporating some of the latest developments in machine learning and big data into our investment strategies.

The Power of Humans and Machines Working Together

A systematic approach to investment decisions offers many advantages. Machines enable us to process vast samples in a world where there is more and more data available. They permit us not only to process the data, but to do so fast and often. Using technology also reduces subjectivity and the risk of emotional bias, allowing us to develop structured, disciplined and repeatable investment processes.

However, while models offer huge potential to enhance the way we manage risk and deliver alpha for our investors, they are subject to flaws and therefore human involvement remains essential. Models tend to overfit by design and are also inherently backward-looking, meaning the impacts of unprecedented events, such as Brexit or other geopolitical developments, cannot be addressed through a purely quantitative process. Models can identify regime shifts and identify new risk factors, but they are effectively weak at interpreting data and adapting to new paradigms.

Fiona Frick
Group CEO

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That is why we believe systematic analysis should be combined with the forward-looking views of investment managers. In January 2019, for example, we saw a marked shift in central bank policy, from hawkish to dovish, triggering a sharp reversal in appetite for risk assets, yet economic data continued to decelerate. Consequently, we decided to reinvest in growth assets such as equity and credit. As this example shows, it is essential to continually assess the relevance of past data for the future and adapt as markets evolve. John Maynard Keynes is often quoted as saying: "When the facts change, I change my mind. What do you do, sir?" That is what we expect from an investment manager.

Collaborative Intelligence at Unigestion

We use many proprietary systematic models to support us in managing our investment portfolios, but always in conjunction with the oversight of our investment teams. In addition, having our investment managers working side-by side with quantitative analysts allows us to maximise knowledge sharing and awareness of fundamental shifts in market sentiment. We use this combined approach across all aspects of our investment processes, from asset allocation to instrument selection, research and development to co-creating bespoke solutions with our clients. Here are just some examples of the ways we use collaborative intelligence in these key areas:

1. Dynamic Asset Allocation in our Multi Asset Portfolios

Our multi asset approach combines a long-term strategic allocation with a shorter-term dynamic allocation that allows us to adapt our investment portfolios to the current macroeconomic environment. While the strategic allocation is purely systematic, the dynamic is set using both systematic models and discretionary insight from investment managers. For the systematic component, we use our proprietary Nowcaster indicators, which aggregate a wide set of economic and market data to provide synthetic real-time measures of growth, inflation and investor sentiment. We complement these with discretionary scoring from our investment managers to adjust our portfolios for macro developments that are not yet captured in quantitative measures. For example, the current environment is largely uncharted territory: since the financial crisis, we have been in a 'new normal' era of secular stagnation, with bond yields at levels unseen in history. Adding a forward-looking human eye to understand the opportunities and risks of a completely new scenario therefore makes our estimates more robust.

2. Stock Selection in our Equity Portfolios

Unigestion's core risk-managed equity strategy combines systematic portfolio construction techniques with discretionary analysis in order to build defensive portfolios with the best asymmetry between downside protection and upside participation. This is key to our aim of delivering consistent returns for investors. The investment process starts with a systematic screening model that sorts stocks based on criteria such as price stability, diversification, earnings quality, company financial strength, liquidity or valuation.

By automating the initial screening, it allows us to increase scalability, better focus our investment team's resources and remove some of the potential behavioural bias. We then complement our quantitative risk measures with a qualitative assessment incorporating two dimensions: a fundamental stock analysis and an analysis of top-down risks, such as macro, sector, company and ESG. As an example, in the current environment of low yields and slowing economic momentum, we have implemented a top-down constraint on banks, as we believe that risks faced by this sector in terms of business model and cashflow generation are not reflected in historical data. By combining a systematic process with fundamental validation, we aim to deliver a more stable out-of-sample risk profile.

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3. Integrating ESG into our Investment Process

We integrate ESG considerations into all our investment decision-making using both systematic and discretionary processes to help deliver stronger risk-adjusted returns for our investors. A major challenge, especially for a pure data-driven ESG approach, is the lack of transparency and common standard ESG reporting format for companies. Correlation between results from different databases can vary significantly, depending on how they define their ESG criteria. To address this, we have developed a proprietary ESG score, which is systematically calculated for all stocks, corporate bonds and government bonds within the investment universe. Nevertheless, the ESG assessment of a potential candidate to the portfolio is always reviewed qualitatively to confirm our level of confidence and validate the data sources.

Furthermore, we believe that ESG issues cannot be managed purely using a quantitative approach, as they need to be projected into a world that is very different from the past. For example, whereas tobacco stocks were historically an important component of defensive equity portfolios, favoured for their relatively stable cash flows and share price behaviour, this is unlikely to be the case in the future. In order to understand that, an investment manager has to assess on a forward-looking basis the risk that increasing ethical concerns could snowball into new regulation, taxes, decreasing consumption and hence into an unsustainable business model. A quantitative model will not necessarily be able to recognise the existential threats of inequality and climate change, nor imagine the societal shifts and legislation that will take place to influence the behaviour of individuals, states, corporations and even investors.

Finally, we believe it is possible to deliver additional alpha by engaging with companies. In our equity process, we use an internal scoring model to rank stocks according to ESG criteria and trends in relation to their score. While we will exclude the worst decile of stocks showing no progress in their scoring, we may invest in stocks were we see a positive trend and engage with the underlying company.

4. Navigating the 'Factor Zoo'

Human validation is also vital in the growing market for alternative risk premia solutions, which was born out of developments in factor investing. Since the publication of the Fama-French three-factor model, researchers have discovered a myriad of other factors with positive historical returns and decent levels of statistical significance, giving rise to the term 'factor zoo'. That is where investment managers come in: understanding which factors make sense and have the potential to perform in the future and which ones to avoid. Not all statistical results are true in that they accurately reflect an underlying structural reality – correlation is by no means a proof of causality.

Furthermore, we believe that factors evolve with their environment. Some factors make more sense than others, depending on which macro environment we are in. For example, we believe that carry strategies are compelling investments in the current macroeconomic environment of secular stagnation combined with accommodative central bank policy. They can serve as an alternative source of income in the desperate hunt for yield, as well as a defensive allocation in time of uncertainty. We also like the quality factor, which tends to have a structural beta to bonds and therefore tends to perform well in times of recession and market stress.

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In addition, some factors that have worked in the past could stop working because they have been arbitraged away or the market structure has changed. For example, we are currently cautious of pure passive minimum volatility strategies, especially those available under an ETF structure, which are at multi-year highs in terms of valuation and are suffering from overcrowding. These strategies could face problems if liquidity dries up. The question for investors is: will they get what they pay for when investing in a strategy that aims to reduce risk? Momentum is another factor that is very important to monitor. As its composition varies depending on which asset has worked in the recent past, its future response to the economic environment cannot be assessed by its historical behaviour alone.

Using Machine Learning to Enhance Investment Decision-making

We strongly believe that machine learning can help active managers differentiate themselves from passive ones. There is huge potential for asset managers to use machine learning to support their investment decision-making and deliver better outcomes to investors, especially if backed up by human experience. Thanks to their ability to process much more complex patterns with better forecasting power, modern machine learning algorithms outperform traditional linear regression.

An artificial intelligence (AI) system is something that 'learns' from the data it is fed in order to take decisions normally done by humans. AI is very good at finding statistical patterns through a mass of numbers, but those patterns are merely correlations amongst vast reams of data rather than causative truths. As with any data-driven method, the data quality has a huge impact on the usefulness of the model output. The principle of 'garbage in, garbage out' is also valid in the new quantitative world. For this reason, we believe investment managers must give an economic meaning to machine learning algorithms. Unrelated variables moving together can reveal a powerful and undiscovered new connection with strong predictive or explanatory power. On the other hand, they could just as easily represent spurious statistical noise or a previously undetected bias in the data. Furthermore, investment managers need to find the right trade-off between higher performance and interpretability of the results.

Machine Learning at Unigestion

Most asset managers use machine learning to extract short-term alpha signals from liquid and easily tradable instruments where the amount of data available, speed of processing and the ability to find patterns not easily detectable by traditional analysis can provide an advantage. However, the signal-to-noise ratio remains relatively low and is further confounded by the adaptive and dynamic nature of financial markets. The best stock or portfolio in the world may, on any given day, experience wild swings in performance due to unanticipated news in the market.

At Unigestion, we have chosen a different route. We use machine learning to extract patterns to help us assess risk, screen investments and adapt our portfolios to new signals. For us, machine learning development should be integrated into an investment process and not become the investment process per se. We are firm believers that the more we use machine learning, the more important it is to have a strong investment philosophy to avoid the risk of 'overfitting' data to an elusive and weak signal.

At present, we mainly work with supervised learning algorithms, where we provide our models with labelled data so that they can learn to generalise based on those labels. Computers may be getting smarter all the time, but in our case, they still depend on investment managers to train them, monitor them and check their accuracy. Here are some practical examples of how we include machine learning in our processes:

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1. Improving Stock-specific Return Forecasts

We have developed a machine learning algorithm to help us improve stock-specific return distribution forecasts. Our goal was to define which variables help the most to assess the return distribution shape of specific stocks. In order to do so, we feed the algorithm with around 150 families of data, including fundamental data, market statistics, technical indicators and sentiment data. The results showed some clear statistical significance in the prediction of individual stock return distributions that goes beyond linear regression. This machine learning algorithm helps us to enhance our systematic stock filtering model by opting out of stocks with an unattractive distribution.

2. Enhancing Private Equity Fund Selection

We are also integrating machine learning within our private equity process to help improve fund screening and selection for our primary activity. We have developed a wide range of machine learning algorithms to create a scoring mechanism to assess private equity funds' performance potential, using a sample of 1200 funds from vintage years 1999-2013. The model has shown good predictive power for fund performance and will increase the investment team's processing power, enabling them to screen a larger pool of potential opportunities. It will also provide a framework for deselecting funds with unrewarded risk, which should allow the team to focus more on finding new emerging managers and uncover more 'hidden gems' in niche areas that can deliver future outperformance.

3. Improving Macro Risk Models

To evaluate the risk of securities in a multi asset framework, and particularly their exposure to macro risk factors, we use a combination of different regression techniques, including statistical / machine learning ones such as Lasso and Ridge regressions. This allows us to estimate the risk exposures in a more robust way, as any single methodology will have its own pitfalls. Lasso and Ridge regressions are particularly good at reducing model complexity and selection of relevant factors. One current promising research field is to use machine learning techniques to mimic macro factors such as growth, inflation surprises or market stress (known as macro baskets in our multi asset framework), which can be incorporated into our risk models.

Harnessing Big Data with the Right Tools and Techniques

With machine learning comes big data, as for machines to learn, they need to feed on a massive amount of data. Over the past decade, we have seen exponential growth in new alternative data sources: according to AlternativeData.org, there are now more than 400 providers, up from about 100 in 2008. However, there is little premium in simply getting hold of data. The premium lies in determining the most meaningful data and then interpreting it in the right way.

Grinold's fundamental law of active management tells us that achieving high risk-adjusted returns is a function of three things: skill, the number of independent investment decisions taken, and the translation of these insights into portfolio implementation. If alpha is generated by skilfully exploiting information, the enormous rise in the volume of data available presents opportunities for asset managers to develop much more advanced indicators than in the past and transform their research into new sources of return for investors.

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At Unigestion, we are constantly working to integrate new data and the signals they provide into our investment processes. We want to exploit the 'datafication' of our society to identify new types of analysis to help us deliver better investment outcomes to our clients. However, we believe that there is limited value in using these new data-driven signals as a standalone investment strategy, but instead they should be used to complement our existing approach. For us, alternative data is an enhancement and not a replacement for traditional academic metrics.

Recent Developments in Big Data at Unigestion

The challenge for our investment managers lies in how to extract meaning and actionable triggers from big data and implement them in our processes. To help us overcome this, we work with external big data specialists. For example, we recently collaborated with RavenPack, whose Natural Language Processing engine analyses large amounts of unstructured content coming from 19,000 sources including regular news, social media, regulatory filings and transcripts. We have used some of our findings to enhance our investment processes in equities and multi asset by systematically incorporating the effects of public information and market sentiment in our models.

1. Augmenting our Nowcasters with Market Sentiment Data

Nowcasting – accurately assessing current macroeconomic conditions – is a core component across all our areas of investment expertise. We sought to evolve this key differentiator by using big data to extract a quantitative 'macroeconomic sentiment' indicator from news coming from both traditional and social media. We have integrated these new insights into our proprietary Nowcaster indicators, with the aim of obtaining new, timely signals that will influence our allocation strategies across asset classes.

2. Using Market News to Better Understand Stock-specific Risk

We also use big data around news sentiment to augment the set of variables we consider when assessing the future behaviour of a stock. Our analysts combine the news sentiment with other investment models to anticipate changes in trading volumes and potential price anomalies in some securities. For example, we have observed that the mean reversion of a stock following a big price move is much more likely if the price move does not coincide with an increase in news flow. Therefore, we assess both variables to understand what action to take in our portfolios.

Using Technology to Collaborate with Clients

We also use collaborative intelligence to help us co-create tailored investment solutions for our clients on a 'made with you' rather than 'made for you' approach. Our systematic models provide an open interface that we can share with clients, allowing them to see the output provided by the same quantitative tools we use when building portfolios, such as asset allocation models, macroeconomic forecasts or risk factor analysis tools. This has become even more important recently, as investors are looking for increasingly complex risk management tools, shifting out of equities and into more sophisticated asset classes to achieve their investment goals.

For example, we use our macro risk allocation framework to help our clients understand the impact of different asset allocation decisions. Our discussion starts with an analysis of their current portfolio allocation. Applying our expertise and analytical tools, we then work with clients to identify any potential dislocation between the risk profile of their overall portfolio and their investment goals while comparing their market assumptions with ours. We can show the impact of their preferences in terms of risk, liquidity and expected returns while integrating any regulatory or accounting constraints, as well as any specific ESG considerations.

Here again, the synergy between our systematic models and the insight of our investment managers permits us to maintain an open and transparent dialogue with our clients, where we work together to develop investment solutions that fit their evolving needs. Our systematic models are key to that dialogue and help us deliver a value-added service to our clients that goes beyond pure investment activities.

Looking to the Future

We don't believe in technological determinism, which assumes that technology drives the development of a society. This theory has existed since the 19th century and has been proven wrong ever since. For us, technology is neither good nor bad; what matters is the way we use it. It will change the way we do things, but it will not alter the essence of asset management, which is to deliver consistent returns to investors in a way that meets their needs and objectives.

The future of asset management will likely involve a synthesis of human and artificial intelligence that harnesses the power of both. However, we need to clearly define the sharing of control between machine and manager. While we are not as negative as Pablo Picasso, who once said, "Computers are useless. They can only give you answers", we do not believe technology can replace investment managers. Computers excel in responding to well-formulated questions with clear objectives, but humans remain key in asking the right questions and interpreting the results.

What separates us from AI is our consciousness, which is not the same as intelligence. It is our consciousness that permits us to imagine, adapt, understand the consequences of an action and give meaning to facts and figures. These dynamic responses are many years and fundamental discoveries away for machine learning.

Ultimately, when everyone is using the same trading strategy, no one is left with an edge — the super computers will cancel out each other's advantage. Asset management is a domain where you benefit not just from being smart…but from being smart in a different way to others. Machine learning and AI can provide more insight with less human effort, creating more time for investment managers to think differently. Embracing new technologies will be one way for active managers to outsmart passive ones.

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