QUANTAMENTAL INVESTING

A MARRIAGE OF HUMANS AND MACHINES IN SEARCH OF SUPERIOR INVESTMENT OUTCOMES

BNP PARIBAS
ASSET MANAGEMENT

The asset manager for a changing world

INTRODUCTION

The asset management industry is continuing to change, significantly. Driven by constant pressure on fees and the search for value for money, client demand is increasingly taking the shape of a 'barbell' with high-conviction, high-alpha strategies on the one side and passive strategies on the other. In addition, clients are looking for sustainable investment performance with well-controlled, outcome-oriented investment solutions that allow them to adequately meet their future financial objectives. Transparency is at the top of clients' agendas, and over the past few years, we have seen investors' consideration of sustainable investing develop rapidly from a thematic niche to a mainstream requirement in the management of their assets. Alongside this, the digital revolution is changing all aspects of society as we know it, with unprecedented growth in data availability and computing power – providing a wealth of new information about human behaviour and the world around us.

Clearly, such an environment brings significant challenges and we believe the asset management industry is now at an inflection point. The challenges, and specifically the digital revolution, pose a threat to those asset managers who are reluctant or unable to adapt: their business models may be disrupted and their offering may lag the industry. However, the new environment also provides unique opportunities for those asset managers who embrace change to enhance their investment processes, products and services, drawing upon existing investment strengths and adding improved insights and methodologies in the digital era. We strongly believe that a key opportunity in today's asset management world is 'quantamental' investing: the marriage of fundamental and quantitative techniques in investment research and portfolio construction. A marriage between human and machine aiming to deliver superior, sustainable investment returns in a well-controlled risk framework. And a marriage that aims to deliver an outcome that is larger than the sum of its parts.

Quantamental is not an easy concept to grasp: among clients and asset managers there are diverse views on its precise meaning in the day-to-day management of investment portfolios.

- It is therefore important to start by explaining what, at BNP Paribas Asset Management (BNPP AM) and in our Multi Asset, Quantitative and Solutions team (MAQS) specifically, we consider to be quantamental investing.

- We will then clarify how quantamental investing is practised in the industry and can help portfolio managers in their search for superior risk-adjusted performance, and how it can deliver this in a cost-efficient way.

- In addition, we will explain how quantamental investing works for us, at BNPP AM and in the MAQS teams, to help us deliver better products and solutions for our clients.

- We put a specific focus on sustainable investing as we believe this to be a prime example of how fundamental research and quantitative analysis enhance each other to bring new insights and drive investment opinions.

- Finally, we define what we believe to be the pivotal success factors for investment teams when developing and implementing a quantamental investment approach.

QUANTAMENTAL:
WHAT'S IN A NAME?

Just by the composition of the word, to many people, 'quantamental' suggests 'quantitative' first, 'fundamental' second. Yet we believe this intuitive conclusion can be misleading. To us, quantamental means any investment approach whereby analysts and portfolio managers build investment convictions based on their extensive fundamental market insights and complement these with the best quantitative techniques at hand. Alternatively: where investment teams use their fundamental insights to develop models generating investment ideas, and then let human judgement reflect on these. Indeed, the human touch in applying quantamental is critical, especially in situations where models may be at risk of being biased or backward-looking. The result should be the ability to take investment decisions that are better than those purely based on just fundamental or just quantitative views.

With this definition, quant can take the lead for certain (groups of) investment strategies, and deliver fundamental insights for others – as we will see when we explain some of the strategies we run in the MAQS team.

Some would refer to quantamental using terms such as 'augmented investments', and yet others would argue that combining fundamental views with quantitative insights has been practised in the industry for a long time. We do not care too much about the label, and we do not dispute that combining fundamental insights with quant techniques has been around for quite some time.
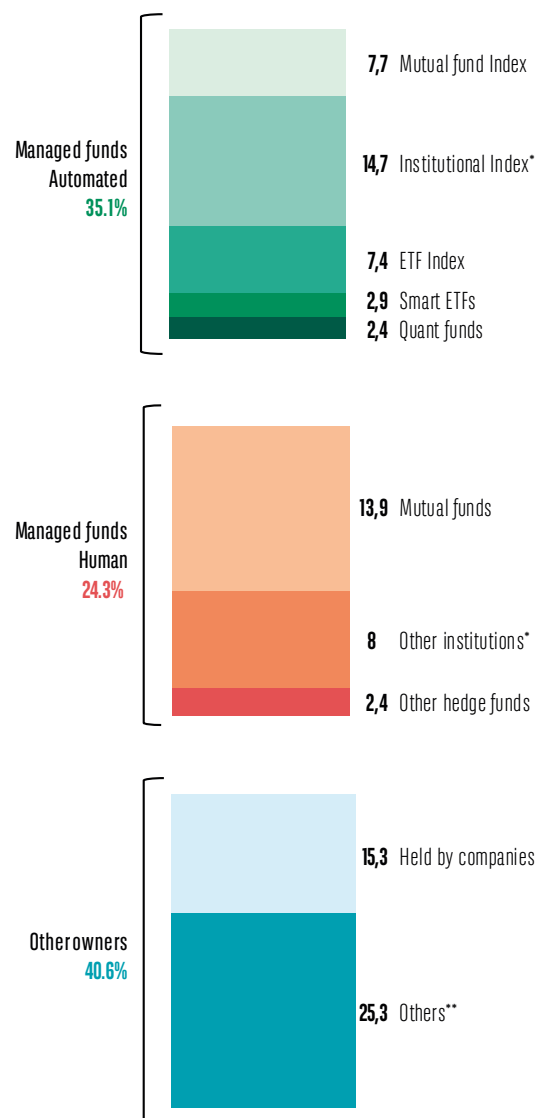
However, we think that the proliferation of quantamental is much stronger today than ever before:

• it is in strong focus with a broad group of asset managers

• demand for cost-effective, sustainable investing has risen rapidly

• good quality data is increasingly available

• computing costs are continuing to fall.

With these trends, we have no doubt that quantamental investing will be a critical factor shaping the asset management industry in the years to come.

Quantamental – how public equity assets are managed in the United States

Breakdown of fund management –
Automated / Human / Other by percentage
of total public equities (worth USD 31 trillion)

Managed funds Automated **35.1%**
7,7 Mutual fund Index
14,7 Institutional Index*
7,4 ETF Index
2,9 Smart ETFs
2,4 Quant funds

Managed funds Human **24.3%**
13,9 Mutual funds
8 Other institutions*
2,4 Other hedge funds

Other owners **40.6%**
15,3 Held by companies
25,3 Others**

Source: US Federal Reserve, Bloomberg, Russell 3000, as of June 2019

HOW QUANTAMENTAL
ENHANCES INVESTMENT PROCESSES

The primary objective of investment teams is to deliver sustainable performance that allows clients to meet their future financial objectives, and to do so with transparent, well-managed risks. We see a number of areas where quantamental investing is helping teams to deliver on their promise to clients.

ENHANCING RESEARCH INSIGHTS

Fundamental research to identify superior investment opportunities will always be a cornerstone of the asset management industry. However, the industry will need to find answers as to how it can, with a continuous rise in new types of investment strategies and thematic products, keep up with the ever-rising need to bring differentiating views to the portfolios. The vast amount of new data available, combined with greater computing power and the development of artificial intelligence or machine learning, bring unparalleled opportunities to gain new investment insights in addition to traditional fundamental research.

As an example, analysts are using earnings calls – the presentation of a company's quarterly or annual results and outlook – to understand the fundamental drivers of business performance. Nowadays, analysts can enrich the information they receive by applying algorithms that analyse specific words in the corporate's messages to further refine their assessment of the company's optimism or pessimism on business prospects. The word 'confident' when used disproportionally often may be considered a 'buy' signal; 'caution' may be a warning signal. Such algorithms can also be used to read thousands of earnings call transcripts every quarter, turning unstructured textual information into signals that help analysts rank the attractiveness of investment opportunities in their universe. This helps them focus on those companies where they detect considerable optimism or concerns; or where they see a strong positive or negative momentum versus the previous quarter's corporate communication.

Taken in isolation, such signals may have limited meaning. However, integrated into the overall fundamental analysis they may be very helpful in confirming specific insights that the analyst had already built. In addition, they will help

focus research attention on specific companies or themes – thus significantly increasing the efficiency of the research process. In general, quantitative models can create better insights in macro and company dynamics by analysing, in complement to traditional fundamental research, all sorts of new data available, such as web searches, e-invoice data, web traffic and social media.

## IMPROVED PORTFOLIO CONSTRUCTION

Methods that combine fundamental insights with quantitative rules can significantly ease and support the construction of client portfolios. Quantamental portfolio construction can take many forms such as:

- index replication aiming at the lowest possible tracking difference

- stock selection targeting the lowest possible volatility for a given market exposure

- selection and weighting based on stock attributes such as value, momentum and quality

- dynamic, risk-based strategies that target constant volatility levels

- advanced portfolio optimisation techniques using the latest academic insights.

There are a number of distinct benefits from the use of quantitative techniques in portfolio construction.

First, investors can be too tentative or hesitant in appropriately sizing their bets – e.g. the risk of 'being an outlier' or 'falling in love' with their views. In such cases, quant techniques such as using an optimiser can help translate convictions into corresponding risk exposures – rather than staying too close to the portfolio's benchmark.

Second, when managing large numbers of portfolios for a diverse client base with potentially a highly heterogeneous set of investment guidelines and objectives, portfolio implementation can become a complex exercise – getting
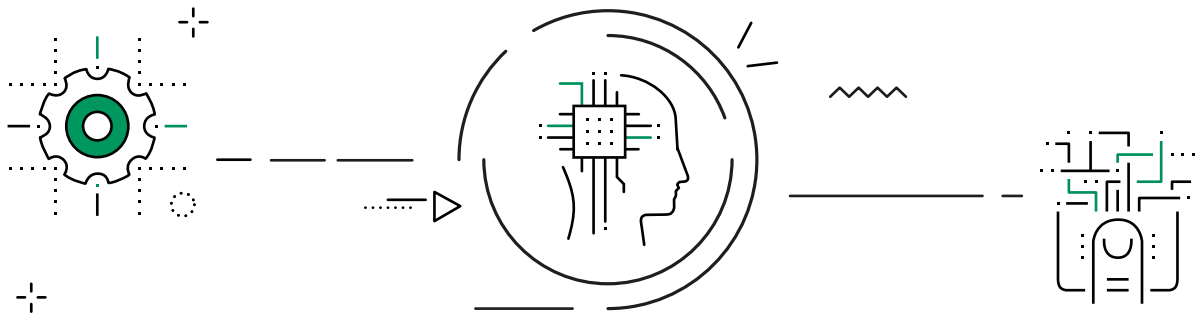
the best investment ideas properly represented in all portfolios can pose a challenge. The use of quantitative models can significantly ease the implementation of investment convictions. As an example, the 'Multi Factor Allocation' model that has recently been introduced by BNPP AM's MAQS team will automatically suggest how to best translate the asset allocation views of our investment committee into a wide range of individual portfolios. For example, a positive view on emerging debt will be properly sized to every portfolio's own specificities. In doing so, our investment team can be confident that client portfolios always include their best investment ideas; and they save time from what historically would have been a laborious manual exercise.

Third, quantitative models can enhance the risk budgeting process. A better insight into underlying investment risks allows portfolio managers to construct portfolios that maximise intended risk exposures and mitigate any 'unintended' risks, while seeking maximum diversification at the overall portfolio level. Through sophisticated quantitative analysis, models can help decompose portfolio risks into their true underlying sources; portfolio managers can gain significant insights into the sensitivity of the portfolio to different types of underlying risks, and how they interact. This way, they can tailor the client portfolio to the desired overall risk level, including a maximisation of the available risk budget (and hence opportunity for alpha) and securing robustness by testing the portfolio against adverse risk scenarios. Risk budgeting based on the combination of human, judgmental views and unbiased quantitative insights is another example of the benefits of quantamental investing.

DIRECTING SCARCE RESEARCH RESOURCES

A key challenge of the industry is how to make the most efficient use of scarce research resources or, in other words: how can asset managers make sure that their fundamental analysts focus on the right companies or investment themes at the right time?

The answer is by letting quantitative models help guide the research agenda. 'Investment screens' that apply pre-set algorithms to a universe of stocks, issuers or macro factors will help identify those stocks or factors which, based on the criteria used, require the immediate attention of the analyst team. This way, the research process can be more relevant, timelier and more complete: the chance of failing to identify emerging opportunities or risks can be significantly reduced.

One example is a quantitative screen on a stock universe where a combination of low valuation, positive earnings momentum and upward analyst revisions signals the need for an update on the fundamental analysis and view. The wider the universe of a strategy (e.g. US stocks, global asset allocation), the more important a clear compass for allocating research time will be to help the investment team in their search for superior opportunities.

ENHANCING QUANTITATIVE MODELS

As explained, quantitative tools can significantly support fundamental analysis and portfolio construction. However, quantitative models come with their limitations: they apply rules-based decision-making that often is derived from and tested against historical patterns and events. This inherently means that algorithms are not so well suited to predict and cope with sudden changes in market conditions, or, in general, deal with any unexpected event that drives excessive market movements and price reactions.

Indeed, during the 2008 financial crisis, and even more specifically in the aftermath when we entered the era of significant monetary stimulus by central banks, many quantitative-based investment strategies failed to fully identify the impact of structural changes in markets – and were relying too much on the historical patterns that the models were familiar with. It is here that fundamental insights can help to build better quantitative models: investment teams can challenge some of the outcomes of their models when they suspect that the predictive value may be temporarily hampered. Alternatively, they may modify models in response to market disruptions and regulatory changes in a constant effort to improve the models' predictability.
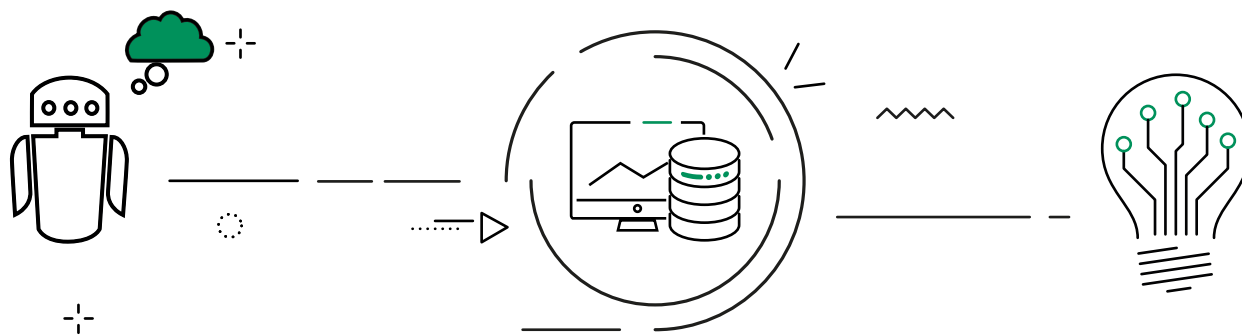
An example of such quantamental innovation is the systematic assessment of liquidity costs as a predictor of market direction and prices. Quantamental also manifests itself in the analysis, cleaning and modification of data before the data is processed through the models. The experienced views of analysts and portfolio managers on the quality and completeness of data-points, together with correct formatting, are essential in ensuring that the models' outputs are meaningful and will not result in spurious conclusions. Indeed, at BNPP AM, we consider the experience and expertise that we have gathered in building our databases over the years to be a crucial factor in being successful in quantamental investing.

SUSTAINABLE INVESTING AND ESG INTEGRATION

One overriding trend of recent years has been for investment teams to integrate sustainable factors (environmental, social and governance factors – ESG) in their investment processes, both in research and portfolio construction, and in mainstream strategies, not only in more thematic (SRI – sustainable and responsible investment) offerings. ESG has historically been applied through straightforward screening techniques, where the least attractive companies measured by ESG scores are excluded from the portfolio ('exclusionary screening'); or where the focus is specifically on the most attractive companies by ESG score ('positive screening' or 'best-in-class' approaches). Such techniques have been used both in fundamental strategies and in quantitative approaches. The industry's increased focus on ESG coincides both with the rapid improvements seen in the availability of ESG data, its quality and its statistical relevance, and the development of the institutionalisation of sustainability reporting through various industry bodies and working groups.

Leading ESG data providers have built their ESG scoring methodology on vast amounts of data: the computation of an issuer's ESG score can be composed of more than 100 single underlying data items, mathematically processed to arrive at views and signals at an aggregate level that are meaningful and statistically sound. Scores are then held against analysts' fundamental opinions to test and potentially challenge the team's assessment of a company's sustainability, and its environmental, social and governance risks.

Likewise, ESG scores can be used to rank best or worst-performing companies on ESG aspects to identify potential targets for investment, engagement or divestment. ESG scores also help to devise additional investment targets, beyond the traditional risk and return objectives, such as carbon footprint levels. This is quantamental investing at its essence: it requires a disciplined approach to marrying human, fundamental views with machine-generated quantitative factors to enhance objective setting, decision-making and portfolio construction.

In addition, it is here that the analysis of unstructured data can provide important new insights. Typically, softer evidence of a company's sustainable practices may be found not only through what is officially reported, but also through anecdotal evidence shared in the media, in business publications or on social media platforms. When quantitative models are able to detect patterns, investment teams may improve their insights into a company's behaviour on hard-to-measure issues such as corporate values, gender equality or its commitment to the environment – with better investment decisions as a result.

THE MEANING OF QUANTAMENTAL
FOR THE MULTI ASSETS, QUANTITATIVE AND SOLUTIONS TEAMS
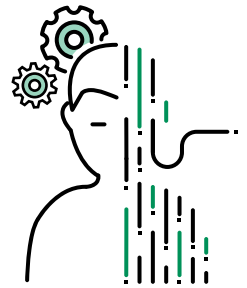
The value of quantamental investing always comes down to a meaningful combination of fundamental and quantitative techniques, where depending on the specificities of the investment process, one may lead the other. To illustrate what quantamental means for us at BNPP AM and in our MAQS teams, we will discuss a few of our applications below.

MULTI-ASSET INVESTING

Since the late 1990s, we have managed our multi-asset strategies through a combination of fundamental research and the application of quantitative tools. More recently, we have implemented a number of important quantamental enhancements to our research, decision-making and portfolio construction. This has resulted in a state-of-the–art investment process that helps us improve research and portfolio construction decisions.

Our multi-asset research approach is labelled 'FDQ': in short, a combination of fundamental (F), dynamics (D) and quantitative (Q) inputs. It means that our teams' fundamental macroeconomic and asset class research is complemented with a thorough review of relevant market dynamics – through the analysis of sets of quantitative indicators. These indicators help to sharpen the team's convictions, or they may add additional insights to the initial analysis. It is a straightforward but significant tool in reading the 'state of the market'.

The 'Q' stands for our 'Quantnow' model: a proprietary model that assesses the attractiveness of an asset class based on a series of factors and algorithms, then generates a recommendation that is included in the overall research view in an autonomous way. The algorithm draws upon a wealth of investment data and experience using earlier versions of the model over more than 10 years to refine our investment decisions. Thus, while led by our fundamental research expertise, our asset allocation convictions include various quantamental aspects that help us to assess what is happening in markets and what will be the most likely market developments.

"FUNDAMENTAL AND QUANTITATIVE INVESTMENT APPROACHES CAN EACH BE VERY EFFECTIVE; SINGLY, THEY EACH HAVE USEFUL AND LESS USEFUL ELEMENTS. BUT WHAT REALLY MATTERS IS COMBINING THE TWO IN A SMART WAY, TAKING THE BEST OF BOTH TO DELIVER THE BEST POSSIBLE INVESTMENT OUTCOMES."

Denis Panel,
head of Multi Assets,
Quantitative and Solutions
(MAQS)
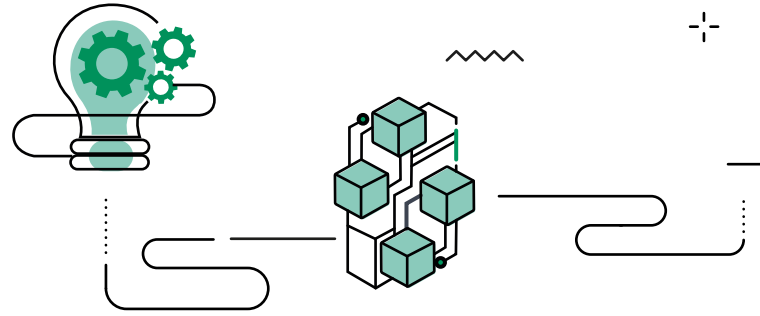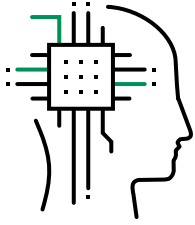
"WE ARE CONVINCED THAT MODELS CAN DO A GREAT JOB WHEN PRESENTED WITH A LARGE UNIVERSE OF ASSETS. HOWEVER, WHEN THINGS STRUCTURALLY CHANGE, YOU NEED HUMAN JUDGEMENT. THESE TWO TYPES OF 'BRAIN' – HUMAN AND MACHINE – CAN WORK WELL TOGETHER, AND THERE IS ENORMOUS POTENTIAL WHEN YOU SUCCESSFULLY USE BOTH TO CONSTRUCT YOUR INVESTMENT STRATEGY. THIS IS WHAT WE DO FOR OUR MULTI-ASSET STRATEGIES."

Tarek Issaoui, portfolio manager, multi-asset management

In the portfolio construction process, we combine our fundamental and quantitative views to build portfolios that are optimised to the clients' investment objectives and constraints. This 'holistic' construction – taking all relevant aspects of portfolio construction simultaneously into account – is driven by our 'Multi Factor Allocation' (MFA) model.[1] This model uses robust optimisation. It is an evolution from the simple optimisers that are notorious for suffering from sensitivities to inputs and initial modelling conditions. Based on a full set of risks and correlations, and our assessment of attractiveness (returns) across asset classes, it helps us to define the best investment allocation. It allows the team to size our investment ideas to the specific risk/return characteristics and constraints of each client, and to do this efficiently for the large amount of individual portfolios that we manage for clients.

MULTI-FACTOR EQUITY

Multi-factor investing has seen strong growth in recent years. It is based on an approach whereby selection and portfolio construction are driven by stock attributes for which academic research has found strong correlations with investment returns. This approach has increasingly become an alternative for fundamental investment strategies covering large, developed investment universes, especially in equities. It also has become popular as an alternative to full replication strategies – where the tailoring to specific factors can deliver an index-tracking strategy with a superior risk-return profile ('smart beta'). MAQS has been a provider of equity factor strategies for many years: over that time, our combination of fundamental, academic views and quantitative modelling expertise has resulted in a robust multi-factor offering which, as a first, today fully integrates ESG criteria and the achievement of carbon footprint targets in the investment process.

The MAQS multi-factor investment process is built on four factors: value, momentum, quality and low volatility.

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1. Based on the latest academic insights, MFA provides us with an efficient and precise tool to translate our views on the drivers and factors affecting the core asset classes into multi-asset portfolios. Its objective is to maximise the portfolio's risk/return and its outcome-based targets, while linking the size of positions in the portfolio to the strength of the conviction scores on the core asset classes
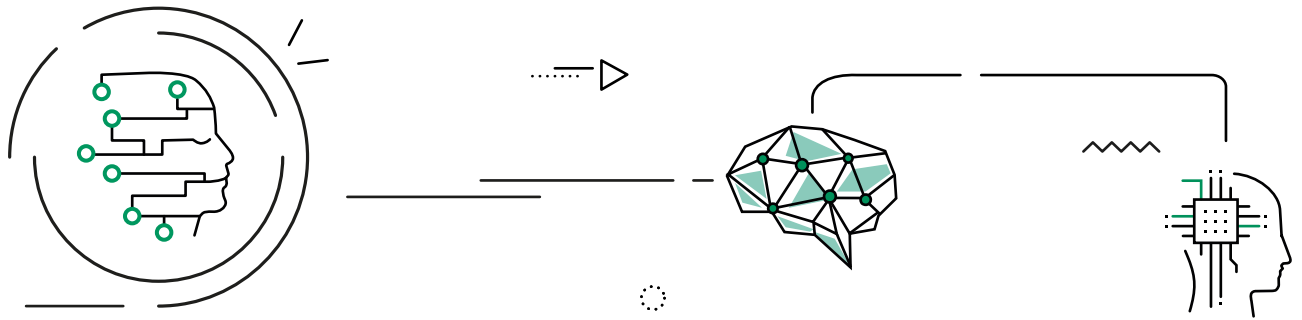
Whereas these factors in themselves are researched and applied by other investment managers, we believe our approach is unique, that our data cleaning, modelling and portfolio construction make a tangible difference. Quantamental has brought us significant refinements to the tested multi-factor algorithms and allows us to differentiate ourselves from our competition.

As an example, we 'purify' the data: we take standard data and amend it for potential biases in terms of sector, size or beta effects. In doing so, we ensure that we can capture the true factor exposures without 'noise' – uncontrolled directional risks – and turn data that is available to the whole market into a proprietary data set that is used exclusively for the benefit of clients.

We have made significant research efforts to arrive at what we believe is the best possible method of diversifying the exposure to factors in client portfolios. We apply an equal risk contribution, but only after extensive analysis of the correlation between factors and the robustness of the model, and taking into account our fundamental beliefs on drivers of market return in various conditions. Our analysis showed that a more sophisticated weighting of factors would in most conditions not generate more performance over the longer term.

In our multi-factor equity portfolios, ESG integration is present in an advanced form: throughout the selection and portfolio construction process, we take into account the ESG score of each of the stocks in the investment universe, as well as the overall carbon footprint as a relative target versus the broad market.

With the ability to attribute environmental, social and governance scores across the investment opportunity set, and with the inclusion of specific sustainability investment targets, we aim to construct quantitative equity portfolios

• that are at least 20% 'more sustainable' than the market average

• that have a carbon footprint – measured by the level of CO2 emissions generated by the companies we invest in – that is 50% below the market average.[2]

Balancing many different factors, ESG components and multi-layered investment objectives is indeed an 'art' – one that we have mastered through our many years of quantamental thinking.

QUANTITATIVE FIXED INCOME

Fixed-income factor investing has been drawing increased interest from investors of late. In MAQS, we manage quantamental fixed-income strategies where we aim to capture, through algorithms, the drivers of alpha in fixed income and foreign exchange markets. Our approach is based on various multi-factor engines: a model for security selection for corporate bonds; a model for country allocation for Treasuries and government-related instruments; and a model to capture alpha from currencies, implemented through an overlay.

Each alpha source deserves its own multi-factor model, taking into account the specificities of the segment and our fundamental insights into the drivers of market performance. Portfolio construction takes into account pre-defined risk budgets to each factor, while aligning the overall risk of the client portfolio (duration, spread and volatility) to the benchmark.

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2. For illustrative purposes only; for individual funds, please consult the relevant prospectus.
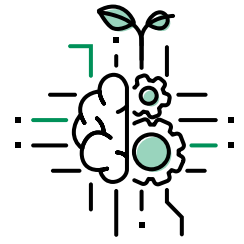
We believe that quantamental fixed-income approaches can be especially well suited for global aggregate strategies with benchmarks containing thousands of securities; covering the broad scope of Treasuries, government-related, corporate, mortgage-backed and asset-backed instruments; and covering a wide range of countries. It is in investment strategies with such a complex opportunity set, and such a large coverage of data points, that algorithms can provide effective and efficient security selection and portfolio construction – and deliver solutions that can be a true alternative or good diversifier to fundamental fixed-income strategies.

That is not to say that our fixed-income factor models are fully quantitative led. Like any quantamental strategy, it is human and machine together that can generate the best outcomes. As an example, when the central bank of Japan in 2016 intervened in the Japanese bond market to manage interest rates, we immediately adapted our models. We removed Japanese bonds because we could no longer assume our model would continue to adequately predict market developments. Once again, it showed that human judgement is always needed to reflect on the machine outcomes, and where needed, adapt and refine.

OTHER APPLICATIONS OF QUANTAMENTAL

Alongside the strategies discussed so far, we apply quantamental to a number of other investment processes. As an example, we run a passive activity, offering a range of ETF and index portfolios. Although largely quantitative by nature, ETF and index management still require portfolio manager judgement and fundamental insights to combine product features in the best possible way for clients. Given the specificities of the investment universe, choices need to be made as to what is the most appropriate passive management technique: full, optimised or synthetic replication, or stratified sampling. In addition, extensive experience is critical to ensuring the products can be managed with the lowest possible tracking error, while keeping turnover low.

"BEFORE THE FINANCIAL CRISIS, MANY ELEMENTS OF THE QUANTITATIVE MODELS WE USED WERE SIMILAR TO THOSE OF TODAY. WE WERE TESTING THESE STRATEGIES EXTENSIVELY, QUESTIONING HOW THEY WORKED. BUT NOT WHY THEY WORKED. THAT'S HOW, CONTRARY TO THE EARLIER MODELS, QUANTAMENTAL FIXED-INCOME INVESTING IS NOWADAYS A MORE ROBUST WAY OF MANAGING FIXED-INCOME PORTFOLIOS"

Olivier Laplenie,
portfolio manager, multi-factor
fixed income

In addition, more clients are focusing on sustainable ETF and index solutions. We have seen demand for BNPP AM's Low Carbon ETF[3], a first in the market launched more than 10 years ago, rise sharply recently: assets have risen ten-fold over the past 18 months. While still small in the ETF world, it illustrates the strong growth dynamic for sustainable passive investing. This is reinforced by the actions of market-leading providers who are launching, alongside their existing ranges, ESG ranges that vary from simple exclusion strategies to more advanced thematic and impact-driven ETFs. At MAQS, quantamental will help us to meet this evolving client need.

Another application of quantamental is in our Solutions and Client Advisory business, where we manage a significant book of customised investment portfolios tailored to our institutional clients' specific financial needs and objectives – such as funding future pension or life insurance liabilities. Investment processes always combine fundamental and quantitative aspects, from the advisory on asset allocation and underlying investment solutions, to the algorithms we apply to ensure clients can expect to have sufficient means to meet their future needs. Stochastic modelling of assets versus the client's liability structure is a vital ingredient of the quantamental approach, allowing us to understand the performance of the portfolio under different market scenarios and helping to make strategic asset allocation decisions that are as robust and effective as possible.

These examples of quantamental investing, we believe, show how diverse the application of quantamental investing is in practice, and how the art of marrying fundamental and quantitative approaches can be very different from one set of strategies to another. We also like to stress that, although we have been mastering quantamental investing in MAQS for many years now, we continue to evolve our techniques and offering, every day. New quantitative techniques, academic insights and new data sets all provide opportunities to be better in constructing portfolios, managing risks and generating returns. With that, quantamental investing is providing a constant dynamic to the industry – it leaves no room for complacency in the search for superior outcomes.
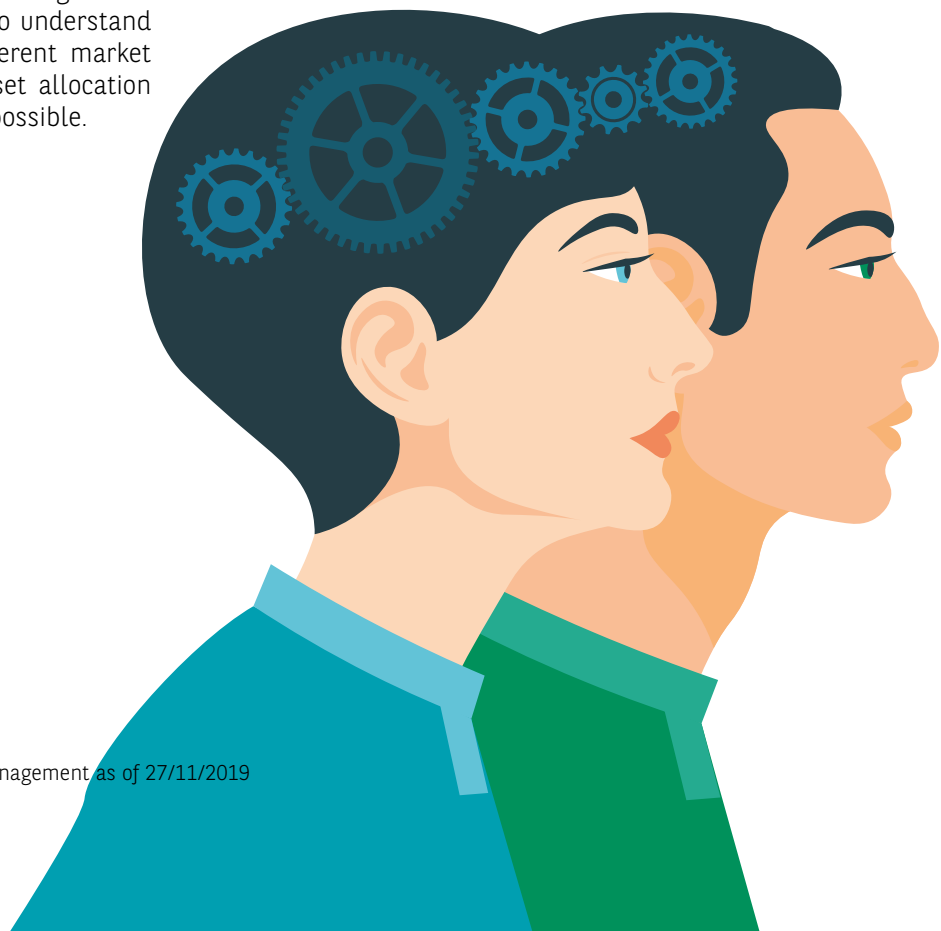
3. AuM : EUR 843 779 231. Source: BNP Paribas Asset Management as of 27/11/2019

SUCCESS FACTORS
IN QUANTAMENTAL MANAGEMENT
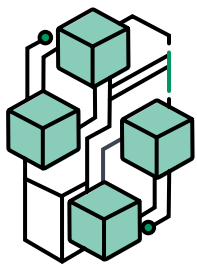
"I HAD A BACKGROUND IN FUNDAMENTAL ANALYSIS BEFORE MOVING TO QUANT. I HAVE FOUND IT EASIER TO INTRODUCE QUANTAMENTAL INVESTING AT BNPP AM AS A RESULT OF COMBINING BOTH DISCIPLINES IN MY OWN CAREER; AND TO GET US WHERE WE ARE TODAY, IT HAS BEEN ESSENTIAL FOR ME TO HAVE SEEN BOTH WORLDS."

Denis Panel,
head of Multi Assets,
Quantitative and Solutions
(MAQS)

Now, what makes the difference between a successful and an average quantamental investor? Many arguments can be brought to the table, ranging from expertise in data management, sophistication of tools, or the ability to balance academic insights with the reality of investment constraints. But to us, the essential driver of quantamental investment success is people: at MAQS, we believe you need analysts – fundamental and quantitative – and portfolio managers who have a deep understanding of the models they are working with; have extensive experience in applying them, through many different market cycles; and who are working in full partnership with each other. Mastering only one of these elements will not be enough to successfully capture the best of both worlds, and deliver the best outcomes for clients.

The experience of the portfolio managers in MAQS dates back to before the turn of the millennium – giving us more than 20 years' experience in quantamental investing. Some of them are 'quants' by training, mathematicians who over time have experienced the power, but also the limitations, of their models. Another group of portfolio managers has their background in macroeconomic research and stock-picking, and have come to learn about the ability of algorithms to help them make better fundamental decisions as they saw the availability of information grow in such a way that they reached the limits of what they could possibly process themselves. Whatever the background or career path, we see this dual experience as a necessity in being able to marry fundamental and quantitative views into added-value investment convictions.

The quantitative analysts in our Quantitative Research Group (QRG) have long experience in data processing, modelling and thought leadership. Almost 30[4] analysts, with specialisations in specific asset classes, develop quantitative models in support of the alpha generation of our investment teams; they perform financial engineering

4. Source: BNP Paribas Asset Management as of 27/11/2019
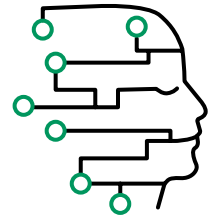
where existing strategies are quantitatively enhanced; and they ensure that the latest academic insights and their applications are shared and discussed throughout the firm. Recently, we introduced a 'research lab'. It focuses on the research of big data. The team frequently delivers speakers at quantitative seminars, and over the years has published an impressive series of papers in leading academic financial journals.

Over the years, our analysts and portfolio managers have developed a true partnership where intellectual curiosity, constructive challenging and the drive to deliver superior risk-adjusted returns has shaped our quantamental investment platform. The analysts sharpen their views and generate new insights through a constant dialogue internally with the portfolio managers, while also bringing external views from industry peers to the table. Precision and attention to detail are further crucial elements of successful cooperation. This goes so far as analysts and portfolio managers separately running the same models, then comparing and discussing the outputs – to ensure nothing is missed and that everyone has a fully accurate understanding of what the models are telling them.

"WE ALWAYS DISCUSS ALL THE MODEL OUTCOMES WITH THE PORTFOLIO MANAGERS: WHY WE HAVE 15% ALLOCATED TO THIS, WHY 10% TO THAT. WE NEED TO DISCUSS THE MATHEMATICS AND THE FINANCIALS – WE CANNOT LET THE MACHINE RUN ON ITS OWN."

Francois Soupé,
co-head, Quant Research
Group (QRG)

QUANTAMENTAL
MOVING FORWARD

We see quantamental investing as more than just adding up fundamental and quantitative views: to us, it is not a compromise between opposing views of the world, but a marriage between the insights of humans and machines. We believe quantamental investing can only be successfully applied by those investment teams where both analysts and portfolio managers master a deep understanding of the data and the models used, and truly understand how quantamental can enhance their investment insights. Doing so in a true partnership between analysts and portfolio managers is an art that we have been mastering in MAQS for years now.

We believe that we are at an inflection point and that quantamental investing is set to be a pivotal trend shaping the asset management industry in the years to come. This is thanks to the many trends in the industry that favour combining scarce fundamental research resources and scalable systematic investment approaches: the proliferation of increasingly customised client demand; the search for new sources of alpha; sustainable investing with its significant data intensity; and of course, the continued need to reduce costs.

All these will support the need for asset managers to review and adapt their platforms, and building a quantamental approach can be the answer to many of the challenges. The marriage between humans and machines will in our view be crucial in helping the industry generate superior, sustainable returns by combining fundamental and quantitative views in an approach that delivers investments insights that are better than the sum of its parts. At BNPP AM, and in MAQS, we are ready for it.
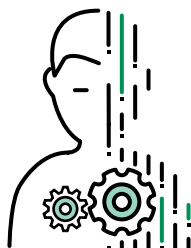
BIOGRAPHY

- LUCIEN CARTON -

HEAD OF INVESTMENT PROCESS
MULTI ASSETS, QUANTITATIVE AND SOLUTIONS (MAQS)

Lucien Carton has been Head of Investment Process for Multi Asset, Quantitative and Solutions (MAQS) at BNP Paribas Asset Management since January 2019.

Prior to his current role, Lucien was Programme Manager for BNP Paribas Asset Management's global investments transformation plan, where, among other matters, he was involved in the firm's global sustainability integration programme. Before this, Lucien was Chief Operating Officer and Head of Marketing of the firm's institutional activities (2013 to 2016). From 2008 to 2013 he led the firm's global team of product specialists and RFP analysts, after having been a product specialist for multi asset solutions himself (2004 to 2008). Lucien started his career in 1998 as a portfolio manager for European Equities. Lucien brings more than 20 years of investment experience in roles across the investment industry's value chain.

Lucien holds a Master's degree in Financial Economics from the Erasmus University in Rotterdam, Netherlands and is a CFA charterholder.

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