Beyond mathematical models and algorithms: Quantitative investing explained by Edmond de Rothschild

March 2026

EDMOND DE ROTHSCHILD

Beyond mathematical models and algorithms: Quantitative investing explained by Edmond de Rothschild

March 2026

Beyond mathematical models and algorithms:
Quantitative investing explained by Edmond de Rothschild 4

by **Bruno Taillardat**

1. Our vision of quantitative investing

2. The drivers that lead us to develop this expertise today

3. How this approach differs from common or other perceptions of quantitative investing

4. The role of human supervision: man and machine

5. Risk management at the heart of our investment process

6. An expertise at the service of long-term investors

Bruno Taillardat
Head of Quantitative Investing
at Edmond de Rothschild
Asset Management

Quantitative investing, sometimes referred to as systematic investing, has recently gained popularity and is actively sought after by many investors looking for stable performance and rigorous risk management. However, this type of investment is often seen as mechanical or opaque.

In our view, quantitative investing provides a rigorous and transparent framework for structuring our investment convictions, combining systematic portfolio construction with the supervision of experienced portfolio managers to navigate increasingly complex equity markets.

1. Our vision of quantitative investing

In equity markets, risks and opportunities are numerous, interconnected, and constantly evolving. Incorporating such a wide spectrum of information into a coherent investment process requires structure and a clearly defined process. Quantitative portfolio construction provides a way of organising that complexity, enabling us to analyse large amounts of data consistently and transparently.

"Quantitative investing helps reduce emotional bias and supports a more effective use of investors' risk budgets over the long term."

By structuring decisions in this way, quantitative investing helps reduce emotional bias and supports a more effective use of investors' risk budgets over the long term. It also helps structure the intuitions of portfolio managers within a disciplined investment framework.

Quantitative models inevitably rely on historical data, meaning experienced portfolio managers must play an essential role in guiding the process, challenging assumptions and incorporating forward-looking perspectives where necessary. Building a team composed of seasoned portfolio managers with different backgrounds and long experience in managing quantitative strategies in different market contexts is essential.

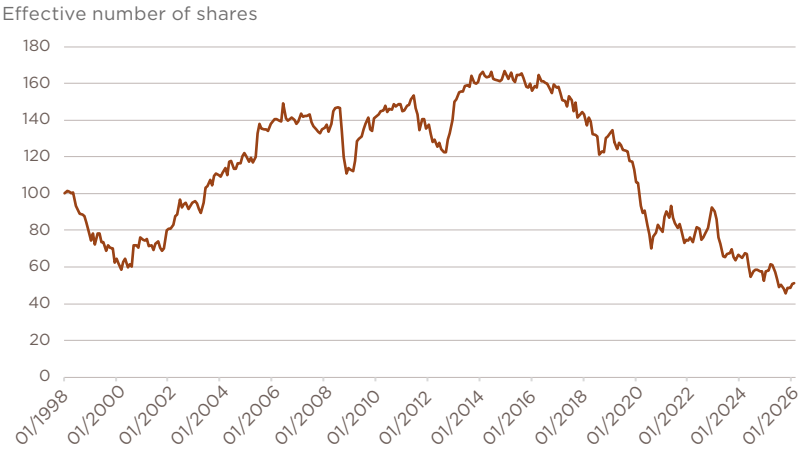
In our view, quantitative investing is therefore most effective when systematic discipline and human oversight operate together.

Quantitative strategies sit naturally alongside our existing capabilities in equity, multi-asset and fixed income investment. They provide new ways of expressing our investment convictions, complementing rather than replacing the principles that have long guided our approach.

2. The drivers that lead us to develop this expertise today

In today's equity markets, risks emerge quickly from different sources such as new geopolitical tensions, economic uncertainties, and their impact on some companies. Concentration can also represent a risk and can even amplify the other sources of risks. Indeed, equity indices often exhibit a high degree of concentration, with a relatively small number of large companies accounting for a significant share of performance.

High market concentration



The effective number of shares is used to quantify the level of concentration embedded in equity index or portfolio.

A low-level means that the portfolio's allocation is dominated by a few names and suffers from a lack of diversification across its holdings.

As illustrated by the chart above, the level of diversification of the S&P500 has dropped at an exceptional level over the last few years. Hence, the level of concentration of the index at the end of 2025 has never been so high since 1998.

Source: S&P, Edmond de Rothschild Asset Management, Bloomberg. Data as of 28/02/2026.

Such concentration can create unintended risk exposures for investors who rely heavily on benchmarks, reducing diversification at precisely the moment it may be most needed.

At the same time, market participants naturally tend to extrapolate recent trends and to favour recent winners. Emotional responses, whether driven by fear, greed or overconfidence, can reinforce market movements and increase volatility, particularly in periods of macroeconomic or geopolitical uncertainty.

Uncertain equity markets support well-structured, diversified and disciplined investment approaches and there is currently a renewed interest for quantitative strategies from the investors.

In uncertain environments, quantitative investing provides a framework for applying investment rules consistently and constructing well-diversified portfolios. By systematically allocating risk and reducing the influence of short-term sentiment, this approach seeks to optimise investors' risk budgets (the amount of risk an investor chooses to allocate across a portfolio).

Quantitative investing therefore complements other parts of an equity allocation, potentially generating diversified returns that differ from traditional stock-picking strategies. Our quantitative expertise can also be used to design tailored solutions to address increasingly complex and multi-dimensional investors' objectives. For example, combining quantitative investing with the integration of climate criteria can allow investors to efficiently address three investment dimensions at once: risk, return and sustainability.

3. How this approach differs from common or other perceptions of quantitative investing

Quantitative investing is sometimes perceived as a mechanical process, closely tied to benchmarks or driven by a narrow set of signals (indicators derived from data). Our approach is broader and more actively managed. We construct portfolios with a fuller understanding of risks and opportunities by combining systematic portfolio construction with multiple sources of investment insight.

Fully active approach

We design portfolios to deliver superior risk-adjusted returns rather than to replicate an index or implement simple factor tilts.

Our investment process is adaptative and dynamic and aims at adjusting the portfolio depending on the evolution of the market context.

Research-driven and innovation mindset

We believe that research and innovation are the main drivers for delivering consistent outperformance over the long-term.

Dispersion among quality indicators

The chart shows the L/S return dispersion among a variety of metrics used by Bloomberg to define the Quality factor. This dispersion is calculated using the inverse of average pairwise correlation among metrics based on 12 rolling months.

The level of dispersion is unstable and varies over time. Over recent years, dispersion has increased, showing a higher discrepancy between the different variables used to define Quality, such as debt ratios, operating margin, profitability, ...

Like other equity factors, Quality is multi-faceted and a wide spectrum of metrics can be chosen to form the factor. Its nature and performance may significantly differ depending on the selected metrics.

To navigate this complexity and to adapt to changing contexts, Machine Learning techniques can be used to guide the PM when defining and building the most relevant equity factors.

Source: Edmond de Rothschild Asset Management (France). Data as of 27/02/2026.

As markets and technologies evolve over time, it is crucial for quantitative managers to continuously enhance their investment process to adapt to these changing market conditions and to embark on new technologies. Quantitative portfolio managers can leverage on their platform to test new ideas and to further enhance investment signals and portfolio construction techniques.

The team has designed an ambitious research agenda as the source of R&D of the team. In 2026, the team is focused on the development of the strategies that will be launched thorough the year.

Alongside this development, the main research projects are:

— Extend our Long only strategies to Long/Short

— Integrating Sustainability objectives into our quantitative investment process designing a dedicated Climate equity strategy

— Integrating AI / Machine Learning in our new Core multi-factor strategies to better adapt to rapid changes of market dynamics

Advances in data science and artificial intelligence are also expanding the scope of quantitative investing. These techniques allow us to analyse increasingly large and multidimensional datasets, including alternative sources of information that complement traditional financial data. In turn, this helps us identify patterns, understand risk, and adapt portfolios to markets that have become more complex and reactive.

4. The role of human supervision: man and machine

Quantitative investing relies on systematic processes, but they are not a substitute for experienced portfolio managers. Technology and artificial intelligence strengthen the investment process, but they do not replace human judgement. For us, models provide structure, analytical depth and consistency, but portfolio managers remain responsible for interpreting results, challenging model outputs and making final investment decisions. Human oversight is essential not only in day-to-day portfolio management, but also in the design and ongoing development of strategies.

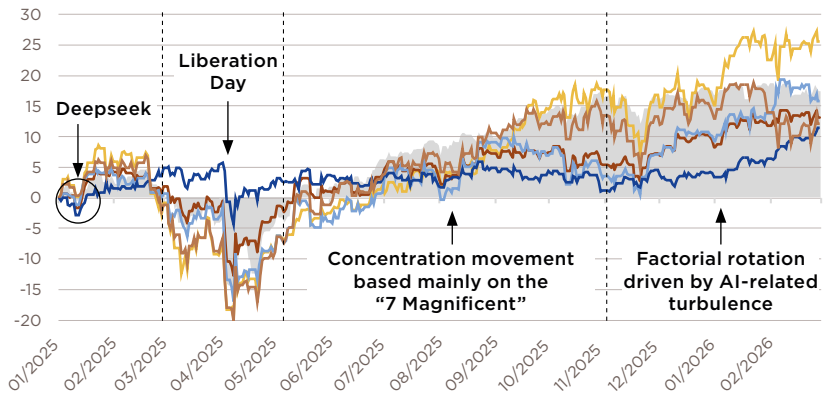
"Quantitative investing relies on systematic processes, but they are not a substitute for experienced portfolio managers."

This oversight becomes particularly important when markets are affected by events that are difficult to model using historical data. Exogenous shocks such as sudden regulatory change, geopolitical tensions, sanctions, or abrupt shifts in energy and climate policy, can alter risk characteristics in ways that models may not immediately reflect.

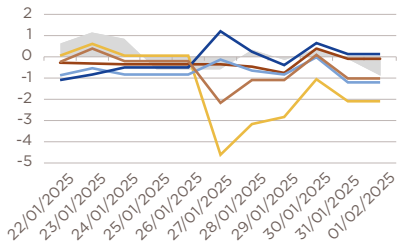
Trade policy provides a useful illustration. For example, the US "Liberation Day" tariffs announcement on 2 April 2025 highlighted how political decisions can quickly change the outlook for specific industries or regions. While markets may eventually incorporate such developments, there is often a period during which risks are not fully reflected in historical relationships.

In such circumstances, human intervention helps ensure that portfolios remain appropriately positioned. Portfolio managers may adjust exposure to sensitive sectors or regions, introduce temporary constraints or overlays and reassess model assumptions and stress scenarios.

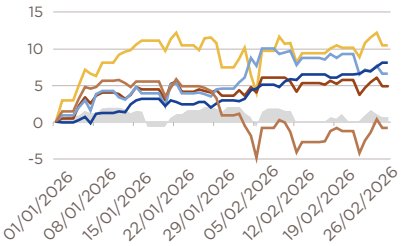
US Long-Only Factors Performance



News about Deepseek



Factor rotation in 2026



S&P500 Index TR
Low Volatility (Q1) TR
Value (Q1) TR
Quality (Q1) TR
High Momentum (Q1) TR
Growth (Q1) TR

The chart shows the performance of traditional equity factors, as constructed and calculated by Bloomberg, based on long-only US factor baskets and compared with the S&P 500.

In 2025, equity markets went through several distinct phases, marked by pronounced factor rotation.

In January 2025, DeepSeek challenged the dominance of historical AI providers, briefly weighing on the Momentum factor as past winners appeared vulnerable to disruption. This market event was short-lived and was quickly absorbed.

End of Q1 2025, new US tax restrictions triggered a negative equity market reaction around the "Liberation Day" event. In this stress phase, cyclical factors such as Growth and Momentum sharply underperformed, while defensive factors like Low Volatility benefited from the market turbulence.

The AI-driven rally then resumed, again favouring Growth and Momentum, amid rising market concentration and growing factor dispersion toward year-end 2025.

Since late 2025, a new factor regime has emerged: as of end-February 2026, Low Volatility and Value have delivered strong performance, reflecting higher volatility and dispersion in equity markets and greater instability in Growth and Momentum factors.

Source: S&P, Edmond de Rothschild Asset Management, Bloomberg. Data as of 28/02/2026.

Past performance and volatility are not indicative of future performance and volatility and are not constant over time.

5. Risk management at the heart of our investment process

Risk management is embedded in our quantitative investment process from the outset. It begins with the design of models and continues through portfolio construction, monitoring, and ongoing review.

Model construction places strong emphasis on economic and financial rationale. We select signals not only for their statistical properties, but also for their consistency with observable market behaviour and investment logic. We take particular care to avoid overfitting to historical data, using techniques such as cross-validation and out-of-sample testing to ensure that models remain robust across different market environments.

We build diversification into the process by design. Portfolio construction seeks to avoid excessive concentration in individual securities, sectors or factors, and to limit unintended exposures to specific macroeconomic outcomes. The objective is to manage a portfolio exposed to different sectors and factors, and to adjust it in line with changes in the market environment in order to better control risk over the long term.

The portfolio rebalancing tends to happen monthly but we rebalance portfolios as frequently as needed to incorporate new data and signals, reassess valuations and risk characteristics, while controlling turnover and transaction costs.

Event-driven adjustments: Additional rebalancing may take place during periods of abrupt changes in macro-economic environments, significant company-specific developments, major index changes, or during material ESG and governance events that alter the risk profile of particular holdings.

Escalation: Predefined escalation mechanisms support our monitoring, triggering additional review when exposures or performance deviate from expected ranges. Such reviews may lead, where appropriate, to temporary risk reductions, adjustments to portfolio constraints or, in some cases, recalibration of models. As in any well-structured investment team, all major investment decisions are discussed and validated during dedicated investment committees.

Together, these processes ensure that risk management is not a separate layer added after investment decisions are made, but an integral part of the investment process itself. We embed it in the design of models, the construction of portfolios and the ongoing oversight of results.

Like all equity strategies, quantitative portfolios may experience periods of underperformance or market environments in which certain signals are less effective. Such phases are a normal part of the investment cycle. A disciplined process and clear understanding of risk help investors remain focused on long-term objectives rather than reacting to short-term fluctuations.

6. An expertise at the service of long-term investors

At Edmond de Rothschild we design quantitative investment strategies primarily for core, medium- to long-term equity investors, who seek transparent investment processes, clearly defined risk controls and diversified sources of return within a broader portfolio.

"We design quantitative investment strategies primarily for investors, who seek transparent investment processes, clearly defined risk controls and diversified sources of return within a broader portfolio."

The investment horizon is therefore aligned with full market cycles, and we have built the process to deliver consistent outcomes over time. Within a broader asset allocation, quantitative strategies can also complement other equity approaches, helping investors diversify sources of return for investors while maintaining a structured framework for managing risk.

Conclusion

Equity markets are changing rapidly under the influence of a range of risks and opportunities (structural concentration, behavioral biases, access to an ever-expanding pool of data). In this environment, investors need approaches that can help them clearly interpret information, manage risk, and remain aligned with their long-term objectives.

Quantitative investing, as applied at Edmond de Rothschild, provides a practical way to address these challenges. By combining systematic portfolio construction, the integration of new technologies such as artificial intelligence, and the supervision of experienced portfolio managers, we are able to make investment decisions within a disciplined and transparent framework, while retaining the flexibility to adapt as conditions change.

For long-term investors, the role of such strategies is clear: to serve as core components of equity allocations, providing diversified exposure and well-defined sources of return within a robust risk framework.

Our quantitative capabilities will continue to evolve as markets, data and research advance, and as we further integrate these approaches across the Edmond de Rothschild platform.

BEYOND MATHEMATICAL MODELS AND ALGORITHMS:
QUANTITATIVE INVESTING EXPLAINED BY EDMOND DE ROTHSCHILD

Executive summary

— At Edmond de Rothschild, we define quantitative investment as **a clear and transparent investment approach based on economic and financial indicators**.

— We use quantitative investing to help give **structure to our investment convictions**. Our process is **fully systematic, but not fully automated**: human oversight remains essential at every stage.

— Data and models bring **consistency, transparency, and robustness** to portfolio construction, giving us the flexibility we need to respond to evolving market conditions.

— For us, quantitative investing is a natural extension of our long-standing investment philosophy, which emphasises long-term conviction and optimal management of market risks.

— Quant investing is **particularly pertinent in today's equity markets, where structural concentration**, rapid regime shifts and increasing complexity shape market behaviour. In such conditions, disciplined, diversified and data-driven strategies become increasingly valuable.

— Our quantitative investing capability helps investors **use their risk budgets more effectively**, whether it is aimed at controlling absolute risk (volatility) or relative risk (tracking error), rather than maximising short-term returns at any cost. This sits within a clear investment process that investors can understand and monitor over time.

EDMOND DE ROTHSCHILD ASSET MANAGEMENT (FRANCE)
47, rue du Faubourg Saint-Honoré 75401 Paris Cedex 08
Société anonyme governed by an executive board and a supervisory board with capital of 11.033.769 euros
AMF Registration number GP 04000015 - 332.652.536 R.C.S. Paris
www.edmond-de-rothschild.com