



MULTI ASSET ARTIFICIAL INTELLIGENCE

JULY 2023 NEWSLETTER

theam QUANT FUNDS

MARKETING COMMUNICATION | FOR PROFESSIONAL CLIENTS ONLY

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INVESTMENT OBJECTIVE

The objective of the THEAM Quant Multi Asset Artificial Intelligence is to increase the value of its assets over the medium term, by being exposed to a diversified long/short portfolio across different asset classes (equities, fixed income and commodities), allocation of which is determined using a systematic method based on artificial intelligence. The exposure to the portfolio is adapted in order to keep the Sub-fund annual volatility at a target level of 8%*.

STRATEGY

It is built around the following approach :

Use of an Artificial Intelligence algorithm (neural networks) for an improved allocation of existing robust Quantitative Investment Strategies developed by BNP Paribas: trend following and mean reversion across asset classes.

- This allows for the inclusion of indicators that go beyond the standard trend ones and thus improve the risk/return profile by aiming to capture reversal as well.
- The algorithm considers many parameters such as observation periods for trends (1-month to 1-year) and mean reversion (1-week to 1-month) - which allows to better fit optimal frequency for each component, while avoiding overfitting issues.
- Machine learning techniques allow to solve non-linear optimization across this enriched set of 378 indicators and hence to go one step further in the enhancement of the allocation process.

A dynamic daily allocation, parameters of which are entirely reviewed on a regular basis, to ensure reactivity to changing market conditions. It results from the collaboration between the BNP Paribas Global Markets Data and AI Lab and Quantitative Investment Strategies teams.

These internal guidelines are for indicative purposes only; Prospectus and KID are prevailing.

**There is no guarantee that the performance objective will be achieved.*

PERFORMANCE

As of 31/07/2023	THEAM Quant - Multi Asset Artificial Intelligence ¹	SG Trend Index ²
1 month performance	-0.84%	-1.60%
YTD performance	-10.55%	-1.47%
Global annualised return ³	-2.35%	10.65%
Annualised volatility	7.42%	11.44%

¹ - Refers to LU2051087422, THEAM Quant – Multi Asset Artificial Intelligence <TMAII EA LX Equity >

² - The SG Trend Index (NEIXCTAT Index) is for comparative purposes only and does not represent any official benchmark for the Fund.

³ - Annualised return since 16/12/2019.

Source: Bloomberg. Past performance is not an indicator of future performance.

Follow the icon to go to the fund page on the THEAM Quant website



Listen to the Replay



Our experts Data Scientist and Multi-Asset Specialists explore how Artificial Intelligence can address the key challenges in trend investing. They explain how an AI brain can navigate between trends and reversals, and how the continuous learning process ensures being updated with recent market patterns without falling into overfitting issues.

Laurent Carlier, Head of the Data and AI Lab, Global Markets



Yannick Daniel, Head of QIS Multi-Asset Strategies, Global Markets



MONTHLY COMMENTARY

THEAM Quant - Multi Asset Artificial Intelligence posted a negative performance in July (-0.84%), in a context in which a comparative index such as the SG Trend Index posted a return of -1.60%.

MACRO BACKGROUND

At the **Federal Open Market Committee (FOMC)** meeting on 25/26 July, the **US Federal Reserve (Fed)** raised the federal funds target rate by 25bp into the 5.25% -5.50% range. 'Moderate' data on inflation and growth has influenced the fed to make policy decisions 'meeting by meeting', again not leaning too heavily to forward guidance which could unsettle long term rates. The manufacturing sector Purchasing Managers' Index (PMI) and most regional activity indices rose in July, and there was a rebound in household confidence against the backdrop of a tight labour market and slowing inflation. The Fed's preferred inflation indicator, core PCE, fell to 3.6% YoY in July (after 4.1% in June).

As anticipated, the **European Central Bank (ECB)** increased its key rates by 25bp on 27th of July to 3.75%, this is their highest level since 2001. The ECB's tone is starting to turn dovish, with Christine Lagarde stressing the possibility of a 'pause'. Contributors to the 'pause' narrative included weaker than expected GDP growth at 0.3% in Q2, stagnation in the German economy, and a fall in consumption in France. Core inflation in July stayed unchanged at 5.5% YoY. However, headline inflation was at 5.3% in July.

Global equities rose by 3.6% (MSCI AC World index in US dollar terms), coming off of data confirming the inflexion of inflation which reassured investors paired with strong US economic indicators. The rally, micro economically, was driven by tech/AI, as well as US companies beating earnings expectations. In July, the S&P 500 gained 3.1%. US equity markets outperformed their European counterparts (+1.6% for the EURO STOXX 50; +1.2% for the STOXX Europe 50). In contrast, the Tokyo stock market was penalised by the rise in the yen in line with the tweak in the yield curve control policy. Inflation remained well above target and various rumours led investors to anticipate the end of ultra-accommodative monetary policy, which the BoJ denied. In the Eurozone, disappointing economic data and still-high inflation sustained some investor nervousness. This weighed on equity indices despite the good performance of the financial sector. The yield on the **US 10-year T note** (3.84% at the end of June), reached 4.06% on July 7th, the highest yield since early march. This increase was driven by stronger than expected economic indicators, specifically on unemployment. Additionally, the release of 13/14 June monetary policy meeting minutes signified that inflation still remains sticky with further hikes needed. The 10-year T note ended the month at 3.96%, a 12bp increase from the end of June.

The **10-year Bund** yield (2.39% at the end of June) moved above 2.50% to stand at 2.65%. This threshold triggered repositioning as yields were attractive to investors. Then there was a subsequent fall in yields led by US economic data on the inflexion of inflation. The slight outperformance of Bunds relative to their US counterparts can be attributed to weak Eurozone economic data. For example, Eurozone manufacturing PMI fell to its low est in 38 months, to 42.7. This disappointing data and the more-dovish-than-expected tone adopted by the ECB after the (widely expected) 25bp rise in its three key rates on 27 July led the German 2-year Bund yield to ease by 16bp, from 3.20% at the end of June to 3.04% at the end of July.

The Yen trended upwards against the US dollar by 1.4%, coming off the announcement of a more 'flexible' YCC policy allowing the 10Y JGB to breach the 1% threshold. The **USD/JPY exchange rate** (144.31 at the end of June) moved between 138 and 141 during trading on 28 July, as market participants were convinced that the normalisation of Japanese monetary policy had begun, which the BoJ denied. The exchange rate ended the month at 142.29. The GBP/USD exchange rate ended up by 1% with investors believing in more hikes to come after the 50bp June hike.

Total returns were positive in July across all segments of the **credit market**, which benefited from a risk-on mood and limited supply. In the US, spreads on government bonds fell to their lowest of the year to levels not seen since April 2022 in the IG (Investment Grade) and HY (High Yield) indices. For Euro indices, credit spreads tightened back to their lowest levels since early March 2023. The trend was somewhat erratic for HY indices while affirming itself from the start of the month in IG indices. The economic outlook for the Eurozone may explain this difference, as investors are more comfortable positioning themselves in investment grade credit.

PERFORMANCE

- The strategy posted a negative performance in July (-1.07 %). Exact fund performance figures can be found in the tables below after fees and cash returns.
- The strategy benefited mainly from its Japanese and Chinese Equity positions, each contributing +0.49 % and +0.34 % respectively.
- These gains were completely offset by the most negative contributions: EUR 10Y bonds and JPY 10Y bonds, each contributing -1.28 % and -0.6 %
- In regards to weighting evolution, the largest weight increases were USD 10Y bonds (from -49.57 % to -3.29 %) and Japanese Equities (from -1.9 % to +13.95 %).
- The largest weight decreases were US Equities (from +19.44 % to +3.54 %) and EUR 10Y bonds (from +47.36 % to +21.5 %)
- With respect to the biggest exposures, at the end of the month, the strategy is long JPY 10Y bonds (+51.86 %) and short USD 10Y bonds (-3.29 %).

MONTHLY ALLOCATION AND PERFORMANCE CONTRIBUTION

	Contribution	Current Weight	Weight Variation	Underlying Performance
Per Asset Class				
Equities	1.15%	51.65%	-0.9%	3.03%
Bonds	-2.10%	70.06%	17.4%	-0.85%
Commodities	-0.12%	-6.69%	-3.5%	7.24%
Per Asset				
BNPP EZ Equity Futures ¹	-0.17%	19.34%	-2.05%	1.52%
BNPP US Equity Futures ²	0.25%	3.54%	-15.91%	2.73%
BNPP JP Equity Futures ³	0.49%	13.95%	15.85%	0.12%
BNPP China Equity Futures ⁴	0.33%	9.92%	1.52%	8.24%
BNPP EM Equity Futures ⁵	0.25%	4.91%	-0.29%	5.31%
BNPP EUR 10Y Futures ⁶	-1.27%	21.50%	-25.87%	-0.71%
BNPP USD 10Y Futures ⁷	-0.22%	-3.29%	46.28%	-0.75%
BNPP JPY 10Y Futures ⁸	-0.60%	51.86%	-3.04%	-1.11%
Commodities ⁹	-0.12%	-6.69%	-3.54%	7.24%

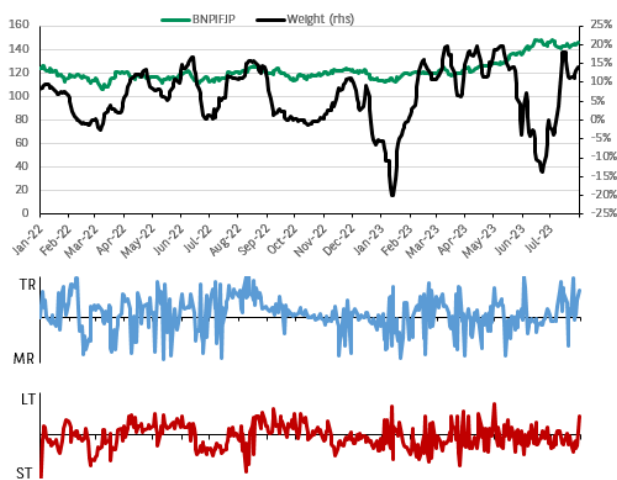
Source: Bloomberg, BNP Paribas as of 31/07/2023. Refers to the index to which the fund is exposed.

Past performance is not an indicator of future performance.

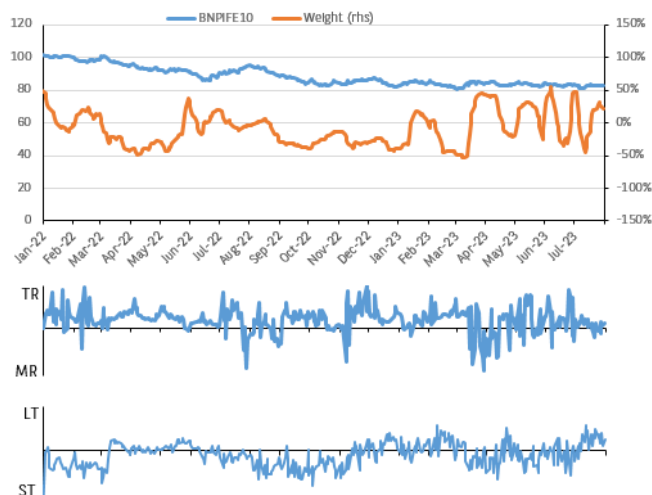
Bloomberg Codes: ¹ BNPIFEU Index ² BNPIFUS Index ³ BNPIFJP Index ⁴ BNPIFCN Index ⁵ BNPIFEM Index ⁶ BNPIFE10 Index ⁷ BNPIFU10 Index ⁸ BNPIFJ10 Index ⁹ BBUXALC Index.

BEST AND WORST MTD CONTRIBUTORS

Best MTD contribution to performance: JP Equities (BNPIFJP, 0.49%)



Worst MTD contribution to performance: 10y Ger Bonds (BNPIFE10, -1.27%)



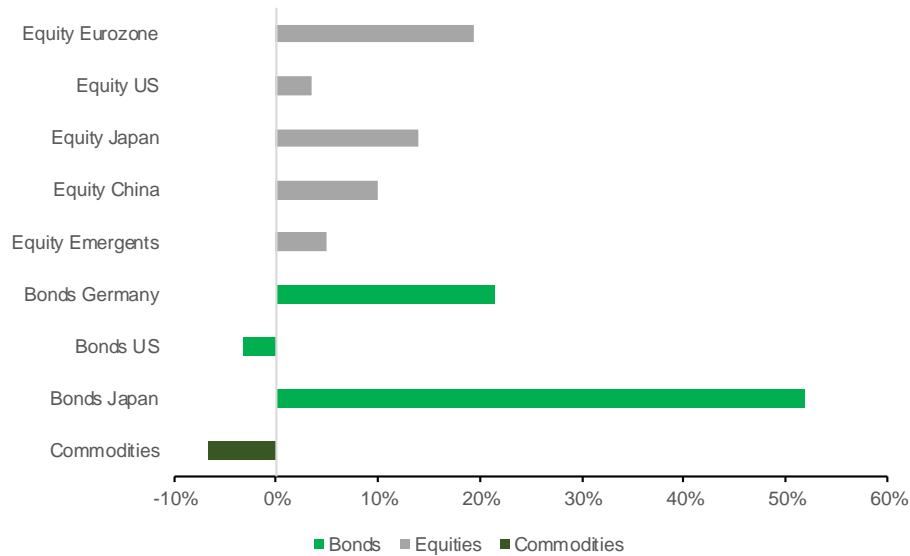
Source: Bloomberg, BNP Paribas as of 31/07/2023. Refers to the index to which the fund is exposed.

Past performance is not an indicator of future performance.

TR - MR = Positioning between Trend Following and Mean Reversion AI signals.

LT - ST = Positioning between Long Term and Short Term AI signals.

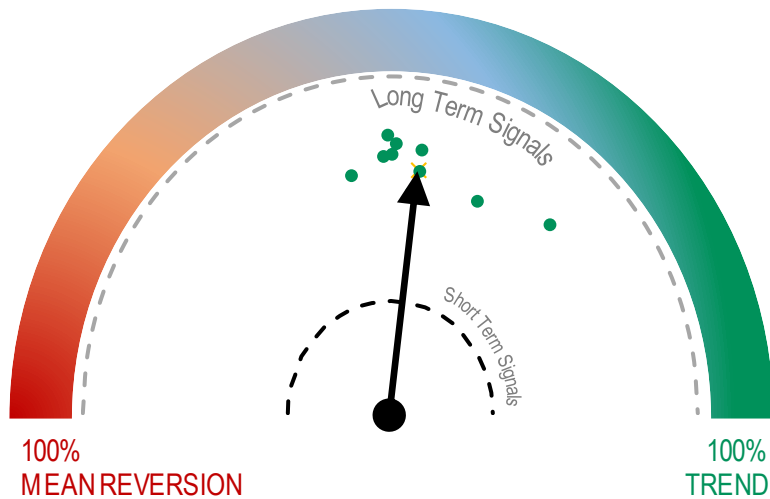
ALLOCATIONS OF THE STRATEGY



Source: BNP Paribas. For illustrative purposes only. Data as of 31/07/2023

POSITIONING: MAD AI “SPEEDOMETER”

In July, average signals were tending towards trend following.

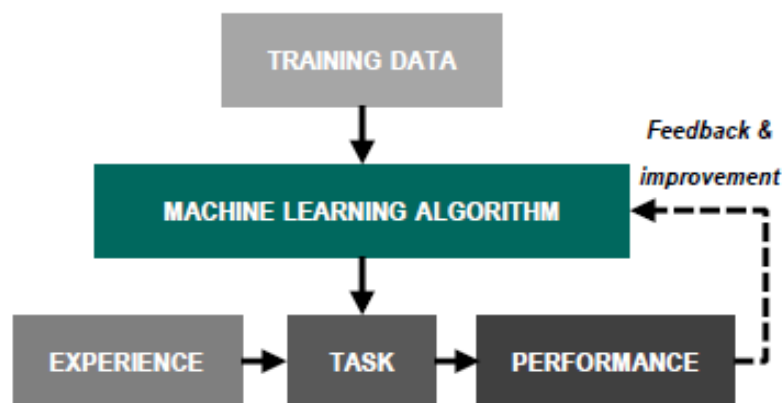


How to read the Speedometer:

- The direction of the arrow shows if the signals in the period were in average rather more trend-following or mean-reverting.
- The length of the arrow is proportional with the average horizon of the signals (the shorter horizon the closer to the smaller dotted arc) during the period.
- Each underlying instrument is then represented by a dot depending on its own average Trend/Mean Reversion nature and its average horizon.

Sources: BNP Paribas. Data as of 31/07/2023. Past performance is not a reliable indicator of future performance.

INVESTMENT PROCESS IN A NUTSHELL



- The Artificial Intelligence uses **past financial markets data** to train a machine learning algorithm to generate performance during different market conditions.
- During the calibration, models with **25 to 3000 neurons** have been tested.

The final model is a combination of the top 5 models, selected based on their **performance and robustness**.



I. A broadly diversified investment universe

- Allocation across equities, commodities and government bonds futures, asset classes with data available since 1995 to train the neural network
- Liquid strategy 100% invested in futures



II. Allocation based on a machine learning algorithm, identifying the investment style that seems the most profitable at this point of time for each component:

- **Trend following**, based on the idea that assets which have performed well continue to perform well; assets that have performed poorly continue to perform poorly.
- **Mean Reversion**, which is based on the idea that prices and returns eventually move back toward the mean or average.



III. Rigorous risk control

- The strategy embeds a risk control mechanism which aims to maintain the annualized volatility around 8%, uses a leverage/deleverage mechanism, the maximum leverage is set at 150%.
- The sum of all assets must range between -300% and 300% (through leverage)
- There is also a FX hedging mechanism to protect against currency risk

FUTURES UNIVERSE

Equity Europe

Equity US

Equity Japan

Equity China

Equity Emerging Markets

Government Bonds Germany

Government Bonds Japan

Government Bonds US

Commodities

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FUND CHARACTERISTICS AND RISKS

THEAM Quant – Multi Asset Artificial Intelligence	
Management company	BNP Paribas Asset Management France
Type of fund	Sub-fund of the SICAV THEAM QUANT
Recommended investment horizon	4 years
Capital protected	No
SFDR Article	6
SRI Risk Classification (scale of 1-7) ³	3
Share ⁴	Share I (EUR) ACC
Launch date	16 December 2019
Bloomberg Code	TMAIIEA LX Equity
ISIN Code	LU2051087422
Subscription/ Exit fees	0.00% max / 0.00% max
On-going charges	0.76%
International registration	Austria, France, Germany, Italy, Switzerland, United Kingdom

³ - The Summary Risk Indicator is determined on a scale from 1 to 7 (7 being the highest risk level), the higher the risk, the longer the recommended investment horizon.

⁴ - For all shares available, please refer to the prospectus [here](#).

WHAT ARE THE RISKS?

The value of investments and the income from them may go down as well as up and investors may not get back the amount originally invested.

Liquidity Risk: This risk arises from the difficulty of selling an asset at a fair market price and at a desired time due to lack of buyers.

Counterparty Risk: linked to the default of a counterparty on over-the-counter markets.

Derivatives Risk: The use of derivatives by the funds includes various risks. Those risks are (without limitation), the lack of secondary market liquidity under circumstances, valuations risks, the lack of standardization and regulation, the risk of leverage, the risk of counterparty.

Risk related to the use of forward financial instruments: In order to achieve its investment objective, the UCITS makes use of forward financial instruments traded over-the-counter that allow it to replicate the performance of the strategy. These instruments may involve a series of risks that could lead to adjustments or even the early termination of the instrument, which may affect the net asset value of the UCITS.

For the full list of risks, please refer to the prospectus.

DISCLAIMER

“THEAM Quant” is the generic name given to a broad range of systematic strategies designed by BNP Paribas Global Markets and mostly implemented in Funds managed by BNP Paribas Asset Management

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