PROFILE

Tungsten TRYCON AI Global Markets UCITS

25 years of AI research and short-term trading

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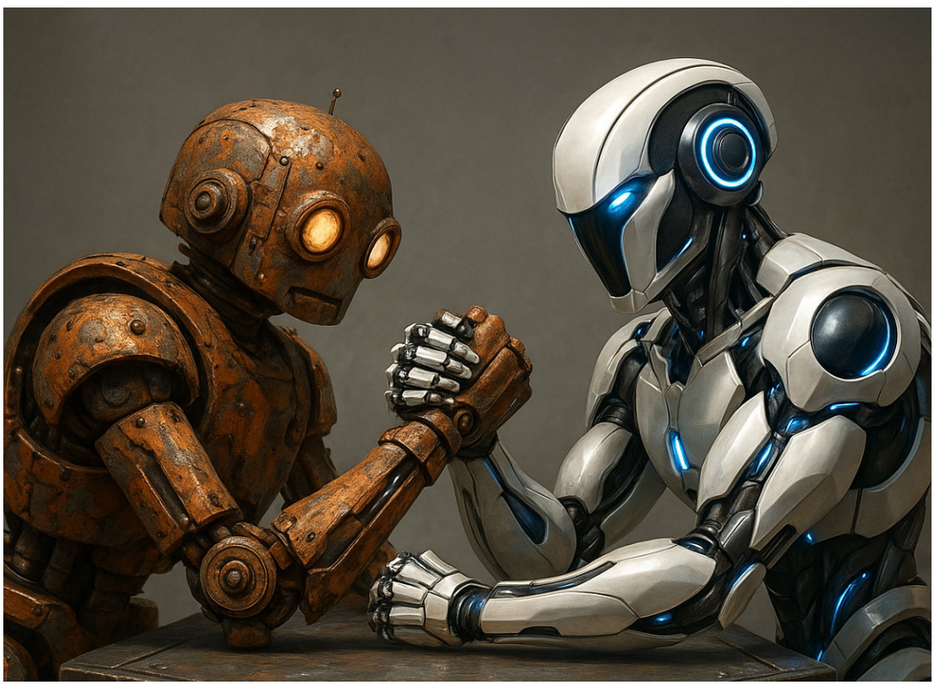

Tungsten TRYCON AI Global Markets has again won *The Hedge Fund Journal's* UCITS Hedge award, this time for Best Performing Fund in 2024 and over 2, 3, 5 and 10 years ending in December 2024, in the CTA - Short Term Trader strategy category.

The fund is one of the oldest AI-based UCITS-compliant hedge funds, and the responsible portfolio managers at Tungsten Capital Management ('Tungsten TRYCON'), Pablo Hess and Michael Günther, were among the pioneers to apply AI to investing with an AI research history going back to the year 2000 – before the iPhone and Facebook showed up. The two founders have always been invested in the fund.

The return profile has been lowly correlated to equities and bonds and moderately correlated to CTAs. In contrast, Tungsten TRYCON calculate that "liquid alternatives" as a group could be as much as 80% correlated to equities.

New double leveraged fund version launched

Driven by investor demand, a higher return, higher risk version, Tungsten TRYCON AI Global Markets Dynamic, targeting volatility of 10-15% launched in May 2024. The new fund is based on identical trading signals and therefore shows very correlated, but more dynamic performance than the established fund.

Multi-strategy futures program

The strategy is not just based on one AI model. The program consists of 3 AI model families, which were built to be uncorrelated and to complement each other. More granular analysis reveals that the three model families taken together include 48 sub-models. As such, the strategy can also be described as a multi-strategy futures program, with the sub-models comparable to a digital version of specialized trading teams (pods).

The fund is lowly correlated to other short term trader CTAs and has a dynamically varying correlation to trend following, reflecting the models' opportunistic and selective use of trend signals alongside contrarian and other signals. It is quite common for the strategy to be employed as a second or third CTA by investors seeking diversification, particularly when a traditional trend-following CTA is already in place. The correlation to trend followers fluctuates and may be opportunistically pronounced at times but can also be as low as near zero – for example in early 2025. In the first quarter of 2025, Tungsten has decoupled from most trend followers and made a positive return partly due to a rather different geographic split of equity exposure: the program's forward-looking models accurately anticipated the spectacular outperformance of European equities whilst some backward-looking trend followers were wrong-footed by long exposure to US equities.

From trend to AI

The current fund started with trend-based trading in 2010 before transitioning to two AI model families in 2013 and adding a third one in 2019. "We found trend following was too cyclical. We felt frustrated with shallow use of data in traditional systematic strategies and wanted a much deeper dive," recalls Hess. For instance, "AI allows more precise capture of probabilities and can pick up non-linear patterns and relationships. A simple example of a non-linear pattern is when price trends go parabolic, pure trend following would also increase positioning, while AI can easily factor in the increased risk of a reversal," he continues.

The two portfolio managers have been extensively researching AI strategies since 2000 and piloted them with personal capital, but did not apply them in the fund until September 2013 when they were convinced that the result was superior to what they already had. "Today, we can look back on over 55,000 transactions in the fund which were produced by AI," says Günther.

Trend and countertrend – in a short-term way

The first model family opportunistically applies trends while the second and third can alternate between trend and contrarian positioning. "In reality, there are far more nuanced "states" than merely trend and contrarian, but this description offers a concise way to summarize it," says Hess. The default stance is equally weighting the three

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— PABLO HESS

▲ *(L-R):* **Pablo Hess** and **Michael Günther,** Portfolio Managers, Tungsten Capital Management

models, though the allocations can fluctuate within a fairly stable range. The trio are moderately correlated. Sometimes they will augment one another and at other times they offset one another, but signals from all three are netted off. This also reduces trading costs, which is important for such a dynamic strategy.

The strategy's best year was 2014, which was also strong for trend followers, though the performance attribution was different. Whereas many trend following CTAs profited from shorting oil, Tungsten TRYCON does not trade commodities. The team have traded commodities in a non-UCITS vehicle before but have found that some institutional investors in Europe anyway prefer to avoid certain commodities such as agriculturals.

In 2014 Tungsten TRYCON made its best gains from rising European government bond prices and the declining Euro versus the USD. The large currency contribution was somewhat unusual. Since inception, bonds and equities have contributed the largest profits while rates, volatility and FX have been more intermittent; for instance, currencies positively contributed in 2024 but detracted in the last quarter of 2023.

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— MICHAEL GÜNTHER

Contrarian or countertrend models can cut and reverse positions before the market reverses course, and last year this worked well for the Hang Seng Index in one trade example between September and October 2024, and for the Yen currency during the "Yenmaggedon" August 2024 episode.

Letting the data speak

Tungsten TRYCON remain somewhat traditional in one respect: data inputs are entirely price and price derivative data with no fundamental data nor text. The strategy's developers have not diversified into fundamental or alternative data for various reasons including predictable periodicity and quality. "We have reservations about some fundamental and alternative data not offering enough data points. In addition, training models on social media platforms can result in alpha decay due to changes of ownership, political censorship or fake news, as we saw with Cambridge Analytica bots in the 2016 US Presidential election and the takeover of Twitter," explains Hess. This also means that one widely used AI application, NLP (natural language processing), is not part of the process.

There are nonetheless now thousands of explanatory variables per market and millions of data points overall. In the early years AI research was a slow process, partly due to limited computer power. "Pentium processors could take days only to discover spurious correlations or curve-fitted results. We started so early that we had to be creative in testing strategies in a different way, and this has given us new ideas. Now much more powerful computers can do the same thing in no time at all, but it is still vital to have a thoughtful approach rather than maximizing the amount of data which is processed," says Günther.

Tungsten TRYCON employ a variety of AI and machine learning algorithms with deep learning being one core category. Some algorithms have been modified to better handle noisy financial data. The training process of all models is designed to "let the data speak" and find the pattern and relationships in the data in an empirical way. There is no hypothesis that determines the final outcome from the beginning, except that one model, "QuantMatrix T", should behave in some way like trend following.

"We are driven by a deep desire to get ever closer to solving the riddle of how markets behave. And we realised early on that we must use the sharpest available tool for this task. For us, this is clearly AI. Our lean structure and the fact that we are a management-owned business allow us to develop ideas inspired by curiosity and experience, rather than by guidelines defined elsewhere," says Hess.

Some of these techniques are perceived to be opaque but Tungsten TRYCON view AI as a "grey box" rather than a "black box" and argue that human decision-making is certainly not always transparent. "We have been actively explaining what AI can bring to investors at conferences, and directly to investors. Today, not least owing to the high rate of adoption of AI in everyday life, investors understand it is a useful tool that does not need explanation or justification," says Günther.

CORPORATE STRUCTURE

Frankfurt and Cologne-based Tungsten Capital Management, which was founded in 2006, is directly regulated by the German BaFin and acts as the funds' portfolio manager while TRYCON G.C.M. is the funds' initiator and strategy advisor. Both firms have been working closely together since 2013 under the Tungsten brand. Tungsten provides marketing, distribution, operations and regulation. Operations are a shared effort: TRYCON runs its own IT infrastructure in addition to Tungsten's, providing resources for everything AI-related. TRYCON is majority owned by Hess and Günther, owns the IP behind the AI strategy, and will soon take a minority stake in Tungsten. Besides the TRYCON strategy and range of funds, Tungsten runs other derivatives-based liquid alternative strategies.

Fig.1 Traditional CTA vs AI

	TRADITIONAL CTA	AI
Model creation	Driven by developer's hypotheses	Data-driven by Artificial Intelligence
Data processing	Mostly linear rules	Linear and non-linear relationships
Data	Few variables	Thousands of explanatory variables (structured data rather than exotic data sources)
Model updates	Static; manual recalibration	Regular learning based on new data

New models raise Sharpe ratio

The first model family, QuantMatrix T, and second model family, QuantMatrix 1, were introduced in September 2013. The first uses 6 sub-models for AI trend following and the second uses 18 sub-models for short term AI trading, which can be simplified as momentum/contrarian signals and is much more dynamic than trend following. It also includes cross market patterns, where action in one asset class such as currencies might influence signals for another such as equities.

The third model family, QuantMatrix 2, introduced in January 2019, also uses short term AI momentum/contrarian signals, but with 24 sub-models and a different approach to handle the data with "forced robustness" to focus more on the general pattern, while QuantMatrix 1 puts more focus on the details in the data.

Every model family and sub-model looks at the markets from a different angle, using different algorithms and input factors. The smallest models can have less than 100 such explanatory variables while bigger ones can have several thousand.

The addition of the third model family has raised the Sharpe ratio from 0.44 to 0.61, which is within the set target of greater than 0.5.

QuantMatrix 2 was introduced in January 2019 after three years of R&D. "The strategy's worst drawdown in 2018 provided additional inspiration to work more intensely on the completion of the third model family and ensure that it was lowly correlated. However, we were not tempted to switch off any of the older models after our analysis had shown that there were no structural problems with it. We rather wanted to make sure the third model family would be complementary," recalls Hess.

Retraining

The 48 models per market add up to over 2,800 models, which produce a new trading signal each day. "All models are regularly reviewed and updated and retrained rather like smart phone version updates, automatically incorporating new data and market conditions. Older models can be upgraded or replaced. Permanent research is one of the core tasks and therefore new models for example based on new or improved AI algorithms can be added and expand the range of sub-models, if no existing models are simultaneously removed. The process of updating or replacing models is executed very cautiously to avoid substantially altering the character of the entire system in a single update cycle and ensuring a continuous evolution instead," says Günther.

In an indirect way AI also contributes to risk management. All models focus their AI power on calculating probabilities of market moves. It is therefore also their task to avoid being on the wrong side of the market with their positioning.

Apart from that, risk management is systematically coded in the proprietary software and does not use AI. "It defines risk budgets per market per day and ensures that the AI signals are embedded in a strict, proven risk management framework which cannot be overruled by the AI," says Günther. The risk management process includes volatility adjustments, volatility shocks and risk cluster analysis.

Liquid investment universe

The investment universe has steadily expanded from about 45 to 60 liquid markets in equity indices, bonds, currencies and volatility. Tungsten TRYCON keep a close eye on liquidity and might remove markets if trading volumes fall below an optimal level or if the risk profile changes.

There have also been some deletions such as the Russian Rouble and short-term interest rates (STIRS) during the ZIRP period.

Bond collateral and 2022

The fund already has some rates exposure through its unencumbered collateral. In common with most CTAs this is a cash rich strategy that benefits from higher interest rates. Cash is invested in core European government bonds issued by Germany, Austria, France, KfW, the EU and others. Cash held in bond collateral incurred some mark to market losses of 4.1% in 2022, which have been recovered as the bonds matured. Investors analysing the trading strategy may want to handicap 2022 returns to allow for this, adding back the bond losses to identify the trading return. As of April 2025, the cash return is just over 2% per year.

Expanding investor base

The investor base has been mainly drawn from the DACH countries – Germany, Austria and Switzerland – as well as Liechtenstein and Luxembourg. Both funds shall soon obtain approval for distribution in the UK and can register elsewhere in response to interest.

Plenty of capacity

The Tungsten TRYCON strategy funds contain EUR 600 million of assets. The fastest models viewed in isolation have lower capacity but given that the short-term model signals are netted off against other signals, capacity is larger than otherwise. Capacity is estimated at EUR 3 billion based on what other short-term traders manage. This is probably conservative since trading timeframes of days to weeks are at the longer end of the spectrum for the "short-term trading" universe where some strategies trade intraday or even intra-second. THFJ