

ALTERNATIVE INVESTMENTS—CTAs AN ALL-WEATHER STRATEGY

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CTAs (Commodity Trading Advisors) or “managed futures” are a special category of hedge funds that pursues mainly a very specific strategy called “Trend Following”. They use mathematical models to identify trends and breaking points in asset prices. Their name originates from the 70s when they were primarily trading commodities. They now engage into many markets, including bonds, currencies, and equities. Although they can appear complex at first, a lot can be revealed upon further investigation.

CTAs are pursuing a well identified investment style

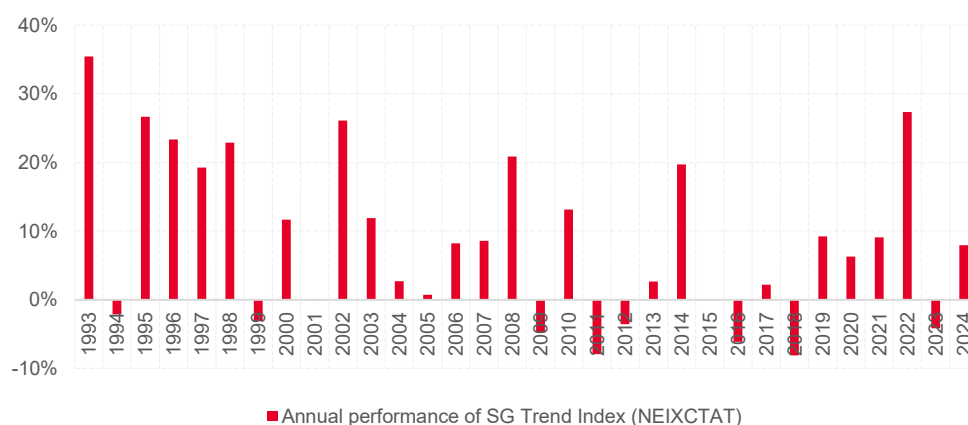
The story of CTAs and ‘trend following’ is the tale of markets’ greatest rises and falls. From the Tulip Mania (1637) to the South Sea Bubble (1720), the Great Depression (1929), and the Subprime Crisis

(2008), these events showcase how long-lasting herd behavior can lead to prolonged bull or bear markets.

Trend following is an investment style that has proved to be a valuable addition to traditional portfolios over time. It is a well-established strategy, with the CTA hedge fund industry managing over \$350bn in 2023, but it is a strategy also run internally by asset managers all over the world.

This investment style has consistently delivered performance in line with expectations for years if not decades or centuries. The returns have been positively skewed, with positive returns being more positive on average than negative returns, and positive returns occurring more frequently than negative returns. Additionally and importantly, trend followers have outperformed traditional assets during challenging times.

Three decades of trend following



Source: SG Cross Asset Research/Cross Asset Quant

Annual returns for MSCI World and US Bonds versus SG Trend Index

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SG Trend Index | 35% | -2% | 27% | 23% | 19% | 23% | -3% | 12% | 0% | 26% | 12% | 3% | 1% | 8% | 9% | 21% | -5% | 13% | -8% | -4% | 3% | 20% | 0% | -6% | 2% | -8% | 9% | 6% | 9% | 27% | -4% | 8% |
| US Bonds | 11% | -3% | 18% | 3% | 10% | 10% | -3% | 14% | 7% | 12% | 2% | 4% | 3% | 3% | 9% | 14% | -4% | 6% | 10% | 2% | -3% | 5% | 1% | 1% | 2% | 1% | 7% | 8% | -2% | -12% | 4% | 0% |
| MSCI World | 20% | 3% | 19% | 12% | 14% | 23% | 24% | -14% | -18% | -21% | 31% | 13% | 8% | 18% | 7% | -42% | 27% | 10% | -8% | 13% | 24% | 3% | -3% | 5% | 20% | -10% | 25% | 14% | 20% | -19% | 22% | 18% |

Source: SG Cross Asset Research/Cross Asset Quant – 2024 is YTD performance

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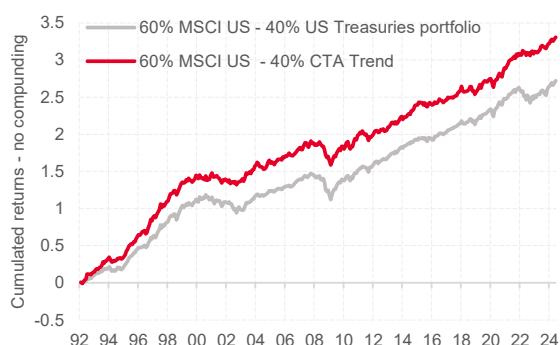
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CTAs are fantastic alternative diversifiers

Long-only investors traditionally run a 60% allocation in equities and 40% allocation in bonds. This allocation has performed handsomely over the past three decades, especially in the US. But replacing bond holdings with a trend-following strategy has clear benefits: it offers the same defensive profile as bonds, both in a cyclical crisis such as 2001-03 or in a systemic crisis such as 2007-08. It does not give up gains as easily when equity markets are up, and it does much better in an inflation-led crisis such as in 2021-22.

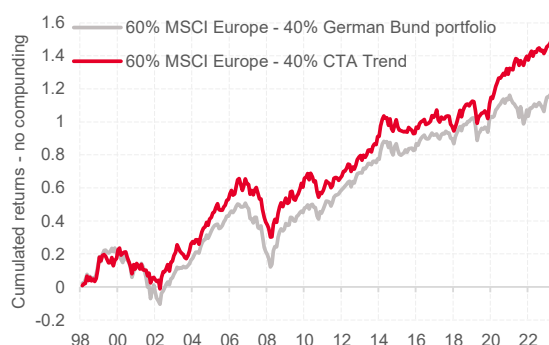
Market participants often focus on the US markets, where a lot of the price action happens and where investors have been blessed by buoyant equity prices and buoyant bond prices until recently. The story of the 60/40 portfolio also holds in Europe. A European-based investor splitting his assets between MSCI Europe and German bunds would have doubled its assets in 30 years, yet replacing the German bund allocation by an allocation in CTAs would have led to a superior outcome.

Trend followers' diversification benefit in the US



Source: SG Cross Asset Research/Cross Asset Quant

And in Europe: same as bonds, just a bit better



A systematic framework to invest in markets

Trend following is an investment style that follows a set of pre-defined algorithmic rules. At heart, the idea is so simple that even ChatGPT can program a basic trend system in Python or any other popular programming language in just a few seconds. You simply buy assets whose prices have been going up and sell the assets whose prices have been going down. But there are also a lot of parameters that enter a trend system and can make a significant difference.

In a recent research paper, we demonstrated where CTAs can differentiate themselves. There are a lot of incremental choices that a trend follower can make

to improve on performance: increasing the universe to include as many asset classes as possible, carefully crafting the signal, controlling for costs and, lastly, controlling for risks by measuring the degree of uncertainty in asset prices.

The most debated parameter is probably the choice of the periods over which the trend is measured, also referred to as the lookback windows. Some prefer one, three and 12 months. Others restrict the selection to a single period, such as a five-month window. In the equity world, for a cross-sectional momentum approach, it has been typical to focus on three-month to one-year horizons.

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It turns out that, under some assumptions, the cost of trading the strategy is related to the length of the lookback window. The shorter the time window, the more reactive the strategy, and the more costly it is to trade. This trade-off can be used to fine-tune the trading signals and offers a superior outcome to the investor.

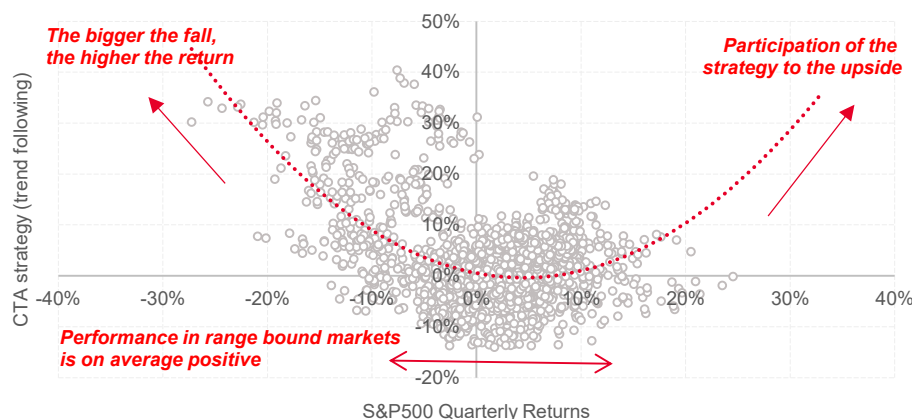
Trend systems benefit from markets rising or falling substantially, but less so when markets are range-bound. In a range-bound market, a trend-following system is more likely to be wrong and to lose money, which can be addressed by advanced cost control mechanisms.

Defensive strategies with significant upside potential

Trend-following systems have a defensive risk profile thanks to their positive returns in market downturns. As such, trend strategies can play a central role in the design of a portfolio hedging policy.

As the graph below shows, trend-following systems can provide a much-needed cushion during periods of stress. Thanks to its convex profile, they offer strong positive returns in long lasting bear markets, while participating positively to the upside.

Performance of a trend system vs the S&P 500 (1990-2016)



Source: SG Cross Asset Research/Cross Asset Quant

How to access CTA returns

A few non-investible benchmarks provided by banks or independent data providers allow investors to benchmark the performance of the strategy. The most popular one is the SG Trend Index, calculated by SG Prime Services. Every year, the alternative investment consulting team at SG selects the 10 largest CTA managers still open to investment, that engage only into a trend following strategy. They then subsequently calculate the net daily rate of return for

that pool of managers, simply equally weighting the performance.

The returns of those CTA hedge funds cannot be accessed using a long-only portfolio of standard asset classes. Academic research shows that it is difficult to capture the alpha components of hedge fund returns in general using traditional assets and linear replication methods. This is even more difficult in the case of hedge fund CTAs.

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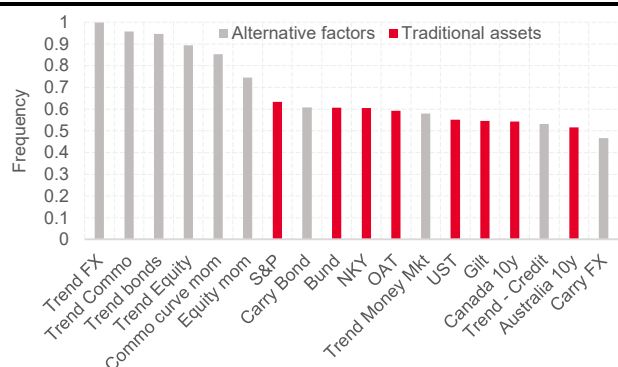
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To understand further the returns of the hedge fund CTAs, we constructed a replication algorithm for the SG Trend Index. Every month, we use a penalised regression to choose the factors that would have best replicated the index over the past year. We use this list to replicate the index the next month.

The factors can either be classical assets classes, such as the S&P 500 or US Treasuries, or alternative factors that cover aggressive and defensive market-neutral styles in equity and credit, carry strategies in rates, commodities and FX, cross-sectional momentum in equity and commodities and algorithmic trend-following strategies applied on single assets.

Unsurprisingly, the SG Trend Index is best replicated with trend factors. Moreover, the exposure of hedge fund CTAs to trend factors is not constant across time. Over the past few years, the model we use estimates that hedge fund CTAs have recently increased their leverage to bond and equity trend factors. Allocation to currency trend is close to an historical low, and the allocation to commodities trend is at an historical high. This makes sense in the current markets, where equities have been on a strong upward stretch since the end of last year, and where bond markets are much determined by central banks-driven policies.

Most frequent factors selected in replication of SG Trend index



Source: SG Cross Asset Research/Cross Asset Quant

How a model replication CTA funds would be positioned?



The challenges of an algorithmic trend-follower

Beyond the features of a trend-following strategy, investing in CTAs brings a few additional benefits. The fund manager constantly oversees the algorithm. The fund investment committee may take adequate actions when needed. The model committee can decide to adapt the methodology to new market conditions. In an extreme event, the manager can even have the flexibility to unplug the system.

However, for investors who need transparency or liquidity, investing in CTA funds may not be an option.

Furthermore, collateral issues or capital requirements fixed by regulation may also be a deterrent for investing in open-ended funds.

For all these investors, an algorithmic solution based on liquid instruments is an alternative. Still, building a robust system that will serve the investor well in the future is a real challenge for two reasons.

Firstly, we have the danger of cherry-picking. With a system with many parameters, there is always the risk of fine-tuning the system to improve past performance.

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Second, an algorithmic solution should be able to cope with future challenges. In the CTA world, such a task is achieved with human intervention, be it the fund manager or an investment committee. Building a systematic trading strategy that can adapt and evolve in a changing environment is a complicated task.

One of the solutions to address this challenge is to use a multi-asset class, multi-time window approach, that

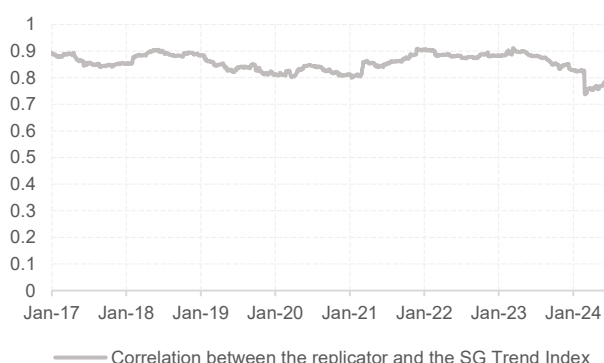
explicitly aims at replicating the performance of the CTA hedge funds. For example, the SG Trend Index can be replicated relatively efficiently by an algorithm making use of trend factors, and some advanced regression techniques known as graphical models. An example of such a replication is provided below and it shows that it is possible to achieve a relatively high level of correlation with the CTA industry, using standard trend factors.

An example of CTA replicator using advanced replication techniques



Source: SG Cross Asset Research/Cross Asset Quant, SGI, AI4A

Correlation between the SG Trend Index and its replication



Trend-following going forward

After the quantitative easing years, where most liquid assets outside the US remained range-bound, CTA's performance have strongly rebounded.

A closer look at performance shows that there has been a lot of dispersion across asset classes over this past decade. In 2014-15, trend systems in fixed income and commodities benefited greatly from the US dollar rally, while equities were mostly range bound. In 2016-17, this was exactly the opposite: equities had a long period of good performance and strong upward trends, while fixed income market remained in a range. From 2019 onwards, different markets trended at different time.

In the early years of the Covid pandemic, commodities prices slowly recovered from their very low levels of March 2020, as market participants transitioned from a world with no inflation to a world with record high inflation. In 2022, significant trends started to form in bond markets and in the dollar, as central banks around the world adjusted to this new era of higher inflation. Finally, over the past few months, equity investors jumped on the bandwagon, lifting equity prices across the globe.

Why trends are disappearing in some markets and persist in others can be debated at length. One thing is certain: when global macro-equilibrium is shifting and when consensus is being challenged, it takes a long time for market participants to adjust

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Trend-following over the past five years



Source: SG Cross Asset Research/Cross Asset Quant

their expectations. And this is exactly when herding behaviour starts to emerge and trends to form.

Patience is a virtue, and those who positioned for harvesting trends have typically been rewarded and most probably will be. And solutions exist to improve the performance of a traditional trend-follower. Active management of trends via strategic allocation can help in picking up the right asset at the right time. Algorithmic trend-following can also be extended to alternative markets. And techniques inspired from the Machine Learning literature can only improve outcome.

Further readings:

[‘Staying on trend Designing an algorithmic trading system’](#), February 2024, Societe Generale Cross Asset Quant Research

[‘Hedge fund replication – How to replicate the CTA Trend industry’](#), November 2022, Societe Generale Cross Asset Quant Research

[‘Why you need trend systems in your portfolio – A multi asset approach’](#), June 2016, Societe Generale Cross Asset Quant Research

[‘Two Centuries of Trend Following’](#), 2014, Y. Lempérière, C. Deremble, P. Seager, M. Potters, J. P. Bouchaud, CFM paper.

[‘A Century of Evidence on Trend-Following Investing’](#), 2012, Hurst, Brian K., Yao Hua Ooi and Lasse H. Pedersen , AQR White Paper



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