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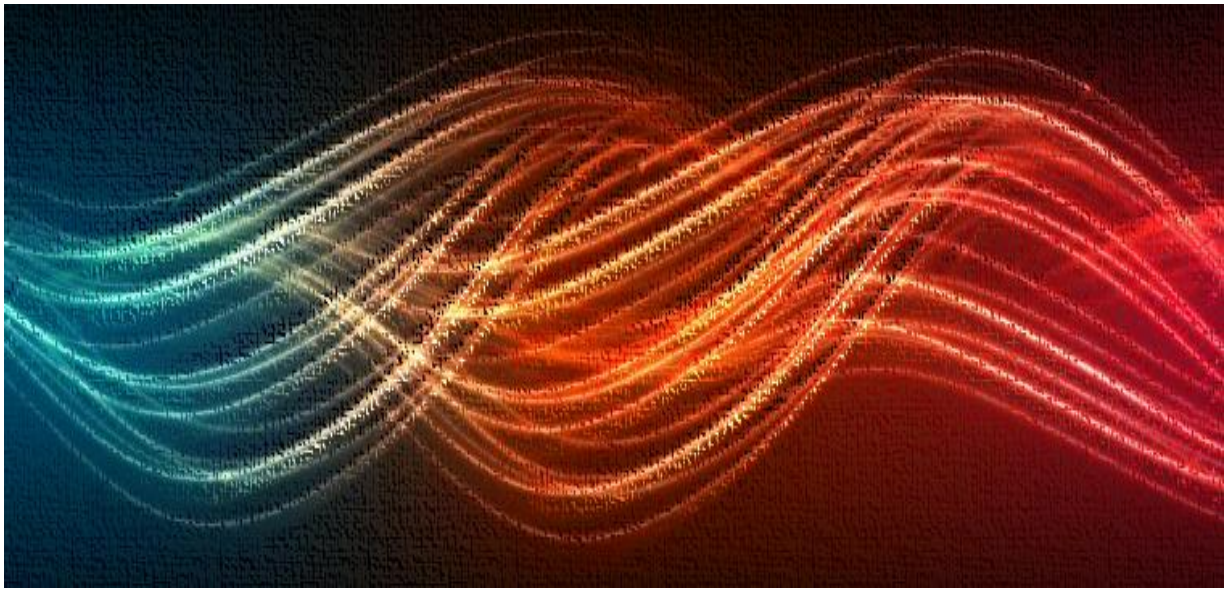

Quant Lab

CTA and Trend Strategies in High Volatility Regimes

Fast or Slow Trending Strategies

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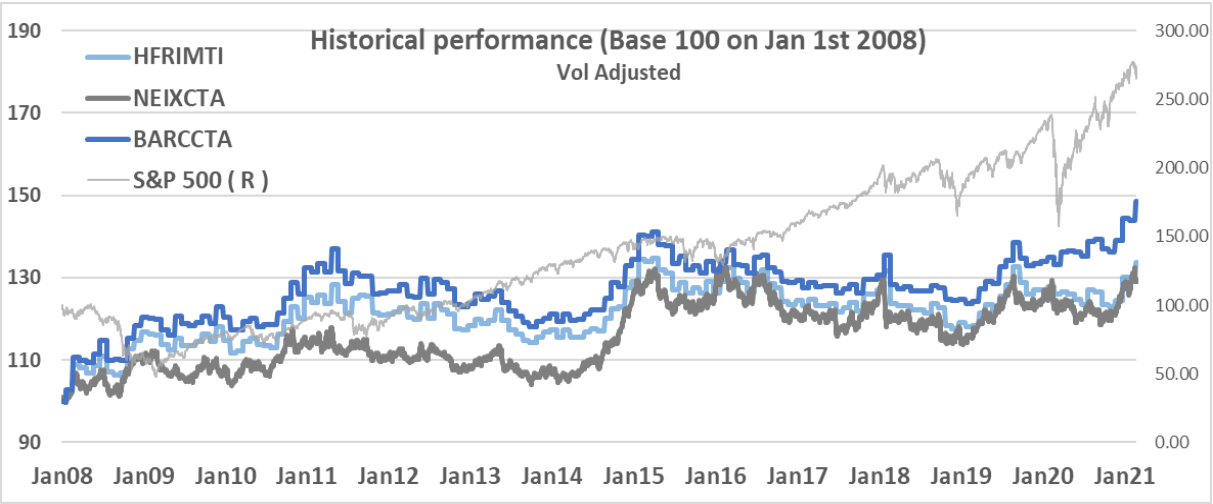
Introduction

Many investors have been considering CTAs and other trend strategies for their consistent returns in trending markets as well as their defensive qualities in bear markets. A closer look at CTA historical returns reveals that the returns are not always positive in large equity sell-offs in recent history. In striking contrast to 2015, the Soc Gen CTA index was down -0.54% in the first quarter of 2020 during one of the sharpest market corrections of our lifetime.

There is obviously great dispersion amongst CTA returns. While most employ long term or mix trend signals, there are quite a few which have designed faster models, reducing the reaction time to market prices from months to weeks. Introducing alternative markets, OTC products or long/short single stock momentum has transformed some of the largest CTAs into systematic multi-strategy products. While dealing with the capacity issue, some of those variations could potentially deteriorate CTA's agility in crisis periods.

Figure 1 represents the performance of the S&P 500 index, HFRI Macro Systematic Diversified Index, Soc Gen CTA (NEIXCTA) Index and the Barclays CTA Index since January 2008.

Figure 1: Historical Performance of CTA Indices Vs S&P 500 (Volatility Adjusted)

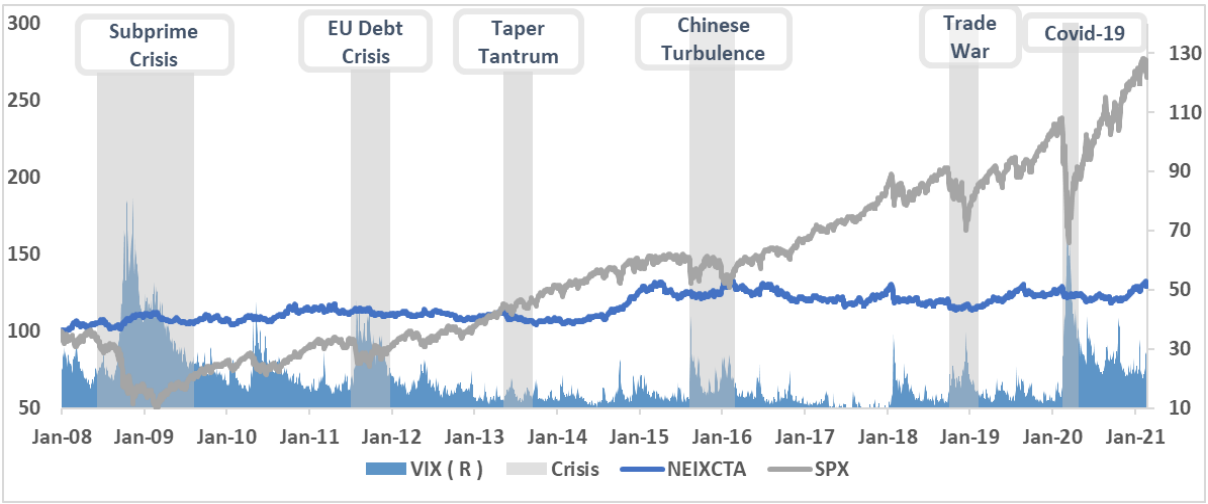


Source: Bloomberg, Investcorp-Tages

CTA Returns in Crisis periods

While CTAs have been successful at profiting from the uptrend in equity markets, they have a mixed track record in crisis periods. We should recognize the fact that CTA strategies usually expand across various asset classes. Most investors have an equity bias in their selection of CTA programs, especially those with a defensive requirement. Figure 2 below represents the SG CTA index, S&P 500, and the VIX index on the right axis. The index has rarely protected investors in crisis periods since 2008.

Figure 2: Historical SG CTA Index, S&P 500 and VIX in Crisis Periods



Source: Bloomberg, Investcorp-Tages

Looking at the crisis periods individually in Figure 3, one realizes that the CTA and Trend indices have trouble adapting in fast and short-lived sell-offs such as Q1 2020 and during the taper Tantrum market correction. On the contrary, in longer periods of market dislocation, both indices demonstrate they had time to adapt and change exposure from long to short.

Figure 3: Performance of S&P 500, CTA and Trend Indices in Crisis periods

	Start	End	No of Days	S&P 500	SG CTA	SG Trend
Sub-Prime	13/06/2008	23/04/2009	314	-45.98%	2.32%	1.65%
EU Debt	13/07/2011	28/11/2011	138	-9.50%	-1.62%	-3.11%
Taper Tantrum	17/05/2013	25/06/2013	39	-4.98%	-5.30%	-6.09%
China	17/08/2015	17/02/2016	184	-8.35%	5.08%	3.23%
US-China Trade	12/10/2018	04/01/2019	84	-8.50%	1.23%	-3.22%
Covid	24/02/2020	07/04/2020	43	-17.50%	-4.87%	-2.43%

Source: Bloomberg, Investcorp-Tages

Traditional CTAs were long term trend followers and had more difficulty adapting to sharp price actions. Having said that, tail events happened much less frequently during the post-war period up to 1987. Looking at the 2008 crisis, despite six quarters of negative equity performance, the SG CTA index was only up +2.3% during the crisis as it was slow to react, and also gave back some of its gains in the early weeks of the recovery rally. Nonetheless, the full year 2008 performance was up a decent +13.1%.

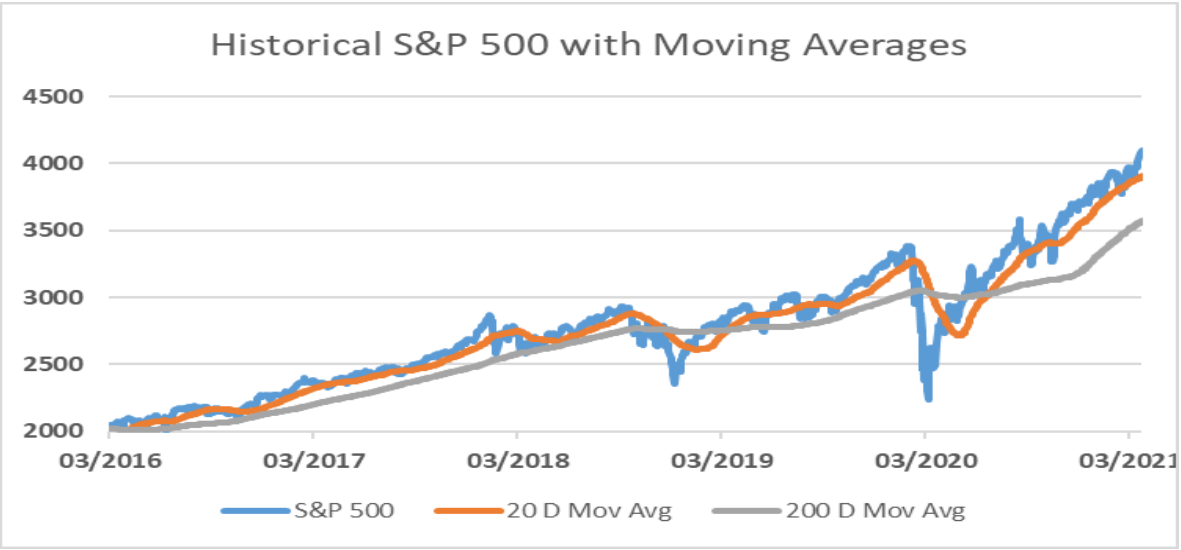
Speed Matters

The degree of protection offered by trend strategies mainly depends on the speed at which they shift exposure from long to short, following a sell-off in a specific market. Too fast, the model might get whipsawed by short term rallies and sell-offs, costing it in performance over the long term trends. But by reacting quickly to market movements, a fast trend strategy will switch exposure to short much earlier in the case of a prolonged sell-off.

A slower model will fully benefit from long term trends as it does not get distracted by small price movements. The other side of the coin is that it will be slower to react in a crisis. It might even completely miss a sharp and short term crisis such as the one experienced in Q1 2020.

The 20 day and 200 day moving averages on S&P 500 in Figure 4 below demonstrate how the faster 20 day moving average could benefit from the sell-off in Q1 2020.

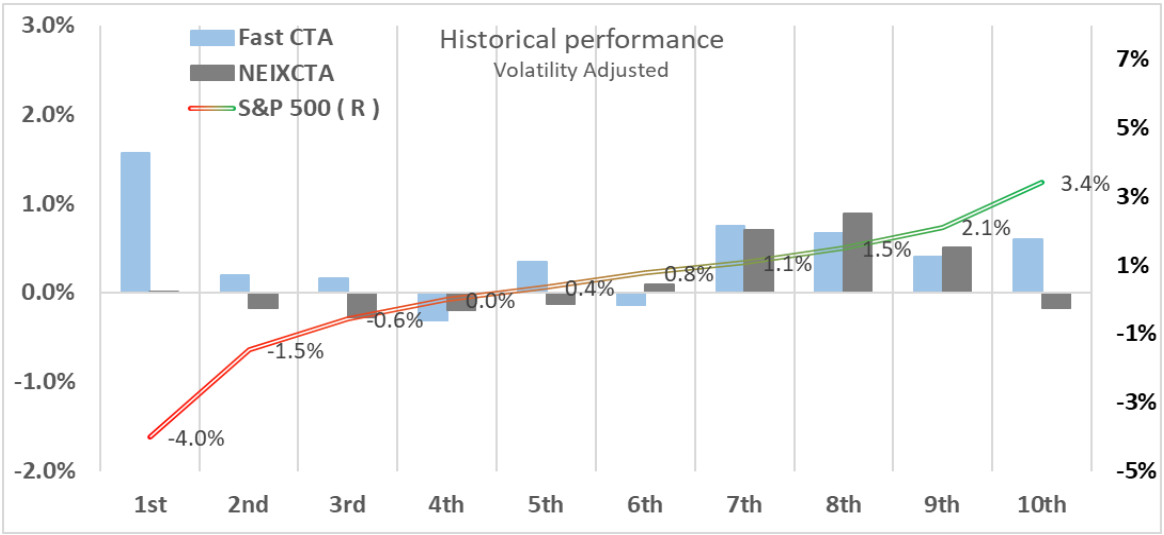
Figure 4: S&P 500 Price with Moving Averages



Source: Bloomberg, Investcorp-Tages

Figure 5 below better demonstrates the performance of the SG CTA index and a relatively fast CTA in best to worst monthly S&P 500 returns divided into 10 deciles, with the best S&P monthly returns on the right-hand side and the worst monthly returns on the left-hand side.

Figure 5: CTA Performance Relative to S&P 500 Monthly Return Since January 2008



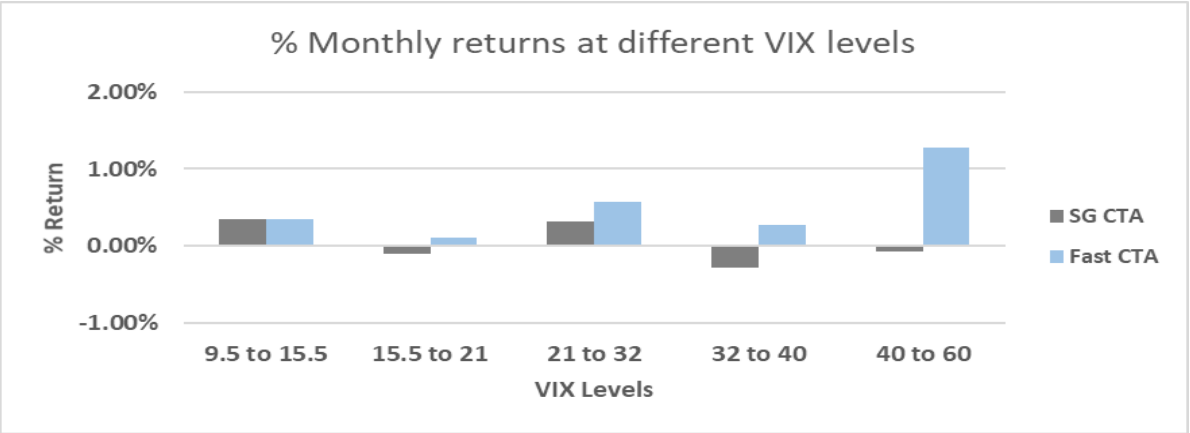
Source: Bloomberg, Investcorp-Tages

As expected, the faster CTA underperforms the CTA index in 6th to 9th decile as the S&P 500 trends higher. On the other hand, it happens to be much more profitable on the left-hand side, when the S&P 500 suffers its sharpest fall. Contrary to general investor belief, the CTA index does not appear to offer any protection in equity bear markets.

CTA Performance in Volatile Periods

In order to better observe CTA performance in different volatility regimes, we calculate volatility adjusted average monthly returns of the two strategies for different levels of equity volatility (VIX) in Figure 6 (see overleaf). The CTA index seems to do generally better when the VIX index is under 30. It definitively does not perform well in high volatility regimes. The faster CTA seems to perform well at different VIX levels and exceptionally well in the highest section when the VIX index is over 40.

Figure 6: Volatility Adjusted Monthly Performance at Different VIX Levels (Since January 2008)



Source: Bloomberg, Investcorp-Tages

It is important to remember those strategies are multi-asset CTAs and other factors such as FX, commodity and fixed income markets could impact the performances in different periods including the ones we are analysing. The changing correlations between bonds and equities during some of those periods is another important factor to consider.

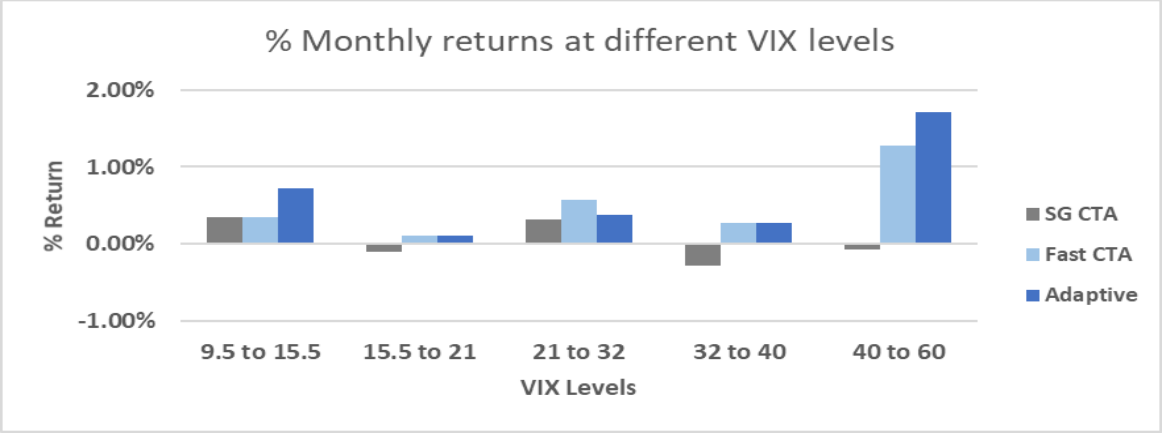
Adaptive Trend Strategies

As a very defensive fund, the Tages Paladin UCITS fund has been investing in fast trend strategies in fixed income and equity markets for some time. They add an interesting dimension to our hedging strategies. In the meantime, we have been working on an adaptive model which changes its behavior in volatile markets. This allows the program to benefit from trending markets up or down and to benefit from sharp market movements when they occur.

Many CTAs have adopted such strategies over the past three years, with some adopting machine learning technics to help them better monitor the changes in market patterns.

Figure 7 (see overleaf) includes the monthly volatility adjusted returns of the previous two CTA models and the adaptive one in different equity volatility levels since January 2008.

Figure 7: Volatility Adjusted Monthly Performance at Different VIX Levels (incl. Adaptive Model)



Source: Bloomberg, Investcorp-Tages

The newly introduced adaptive model is better prepared to face extremes in VIX levels as well as providing a decent trend performance in quieter times.

Conclusion

While trend following models have provided investors with decent returns over the long term, it is important to recognize they are not hedging strategies. They could occasionally perform well in dislocated markets, depending on the following:

- Duration of the crisis
- Depth of the sell-off
- Speed of change from flat or bull market to a down market
- Strength of a bull trend prior to sell-off. If CTAs are caught very long risky assets pre-crisis, they would potentially suffer heavy losses in early days/weeks of a sell-off before changing exposure.
- Type of models and signals utilized

Investors would benefit from clarifying the desired functionality of CTAs in a specific portfolio. That would help in deciding the type of strategy and model which is required.

What is clear is that the choice of CTAs and other trending strategies is not any more limited to fast, medium or slow models. The wide range of new techniques and markets that have been employed to improve performance in multiple market conditions, make the selection process more complex, but also much more interesting.

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