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”I’m in the band” - a CTA Sub Strategy Comparision

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DIFFERENT MOVES.

”I’M IN THE BAND” - A CTA SUB STRATEGY COMPARISION

Key point: Although trend following is the dominating strategy in the CTA universe, there are also other sub strategies with different characteristics. Whereas trend following is superior in trending markets and persistent crises; during non-trending periods and short-lived crises, trend following suffers more than so-called “diversifying strategies”. Thus, combining different CTA sub strategies can be advantageous from a portfolio perspective.

Intro: SocGen CTA vs. SocGen Trend

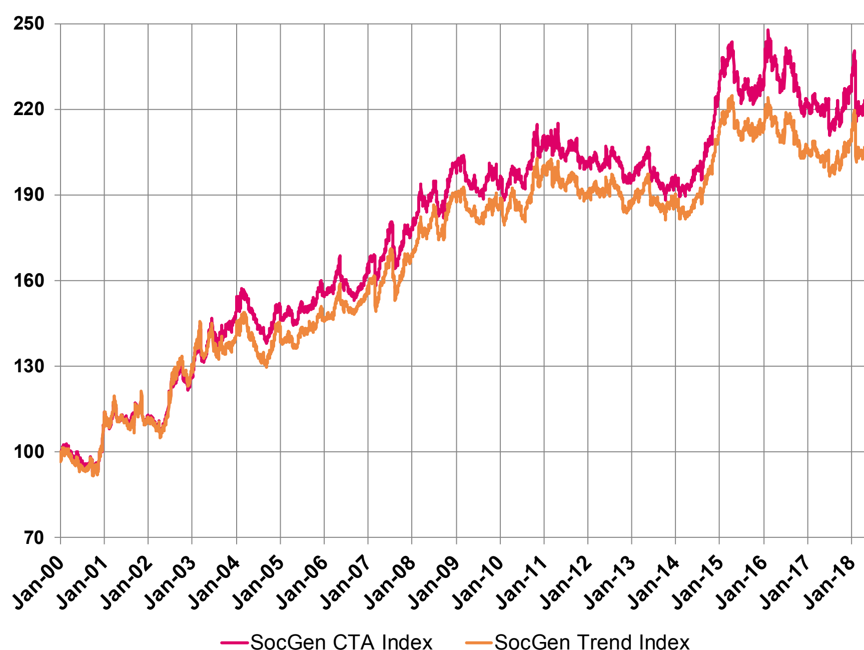
“Less is more... How can that be? It’s impossible... More is more.” - Yngwie Malmsteen (One of TIME’s ten greatest electric guitar players of all time)

When one thinks of CTAs, one thinks of diversified technical trend following. CTAs? Trend following! It is the same phenomenon as when you think of a famous rock band. That is, you can only remember the lead singer’s name but you have no idea what the other band members are/were called. The Rolling Stones? Mick Jagger! The Doors? Jim Morrison! Nirvana? Kurt Cobain! You get the idea... Maybe you can also name the lead guitarist or drummer (i.e. Keith Richards, Robby Krieger, Dave Grohl, who is now the lead singer of the Foo Fighters), but the rest of the band evaporates into obscurity (if you are not a dedicated fan). The point is that lead singers are often synonymous with the whole band. Same goes for CTAs. Trend following is all too often synonymous with the entire CTA universe. However, without the complete band there would not be any music. So, let us put the band back together...

Again, when one thinks of CTAs, one thinks of diversified technical trend following and, basically, yes, this is a correct view as Figure 1 suggests, comparing the trend following-only SocGen Trend Index with the broader SocGen CTA Index.[1] Trend following dominates CTA returns. End of story! End of story? No, the graph also suggests that there is something more to it. Apparently, there are other, non-trend following strategies that – when combined with a bunch of trend following managers – yield better risk-adjusted returns than a portfolio of trend following managers alone.

FIGURE 1

SocGen CTA Index and SocGen Trend Index since inception, daily data, volatility adjusted. Source: BarclayHedge



1. For the exact index definitions as well as current index constituents please go to https://cib.societegenerale.com/en/prime-services-indices

Thus, in this *RPM Educational* we will first introduce a few (not all!) non-trend following CTA strategies, which we refer to as “diversifying strategies”. Then, we try to illustrate that trend following and diversifying strategies behave differently in different market environments, especially during so-called “crisis alpha periods”, and why it would make sense to combine trend following as well as non-trend following managers in a broader portfolio approach.

“Song 2” – CTA Sub Strategy Classifications

Let us go backstage then, shall we? SocGen (“SG”) provide a “slightly” more sophisticated classification template for CTAs (see Figure 2). Whereas this multilayer scheme has the advantage of completely covering every imaginable angle of any trading strategy, it does little to help identifying any structurally different maybe even complementing sub strategy types. For example, a systematic, technical, medium-term, equities-only momentum strategy is not structurally different from a systematic, technical, medium-term, fixed income-only momentum approach other than both strategies will perform somewhat differently depending on what is happening in the underlying markets. For our purposes, we need (non-overlapping) distinct sub strategy indices. Luckily, on their website, SocGen provide a couple of such sub strategy benchmarks. Figure 3 shows the broad SG CTA Index (CTA), the SG Trend Index (TI), the SG Short-term Traders Index (STTI), the SG Macro Trading Index (MTI), and the SG Volatility Trading Index (VTI) since the inception of the STTI in Jan-08.[2]

EXHIBIT 3

CTA Classification Framework

Approach	**Discretionary**			**Systematic**
Inputs/Research	**Fundamental**			**Technical**
Time Frame	**Intraday**	**Short-Term**	**Medium-Term**	**Long-Term**
	<1 day	<10 days	<3 months	>3 months
Sector	**Focused**			**Diversified**
	Commodities Currencies Equities Fixed Income			
Methodology	**Non-Trend**			**Trend**
	Carry Directional Mean Reversal/Counter Trend Machine Learning Relative Value Opportunistic			Break-out Momentum

Source: SG CIB

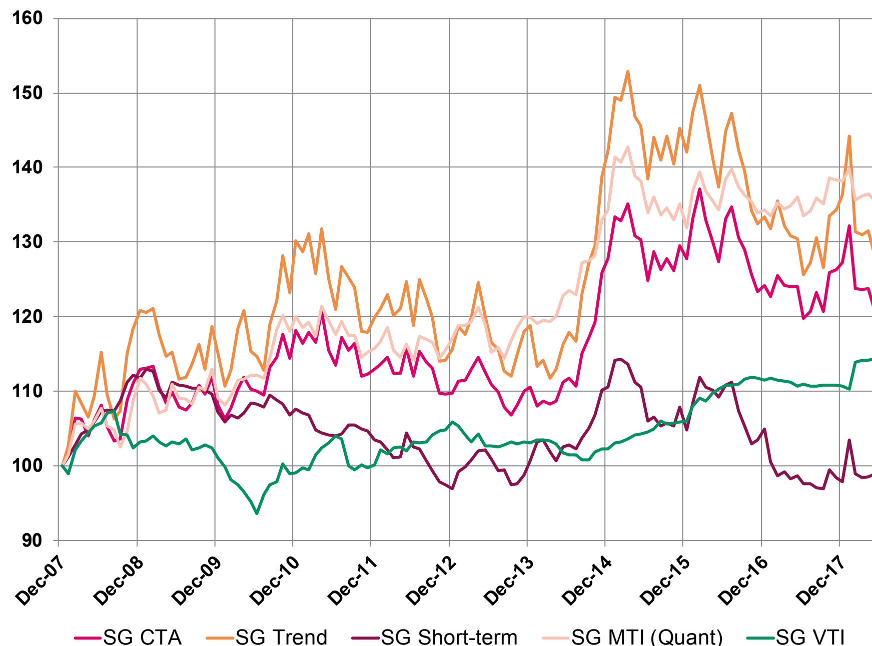
FIGURE 2 - CTA CLASSIFICATION FRAMEWORK

Source: SG CIB

2. Please note that we disregard the other indices also available on SG’s website, namely the SG CTA Mutual Fund Index, the SG Multi Alternative Risk Premia Index, and the SG Commodity Trading Index. In our view, these indices include too much trend following and no structurally different trading strategies to ensure a robust analysis. The SG Trend Indicator is not an index of reporting managers but a time series momentum (TSMOM) indicator constructed and updated by SG themselves. Furthermore, we chose to focus on quantitative global macro managers and, thus, disregard discretionary ones. As SG show in one of their research reports, individual discretionary macro manager returns reveal significant dispersion of returns both upwards and downwards and, thus, an investor’s experience of macro performance may therefore be somewhat different from the index. In other words, an index of discretionary managers is not reliable and cannot be used in a systematic analysis. Thus, in this report, we exclusively look at indices of systematic managers.

FIGURE 3

SG CTA (CTA), SG Trend (TI), SG Short-term Traders (STTI), SG Macro Trading (Quantitative) (MTI), and SG Volatility Trading Index (VTI) since inception of STTI, monthly data.
Source: SG CIB



Obviously, indices perform (very) differently over the observation period. Other than that, we note the following:

- Trend following is the "lead singer" of the CTA industry. Trend following managers try to exploit so-called "time series momentum" (TSMOM) seeking to profit from large market moves or trends in financial markets. They use technical look-back indicators (moving averages, momentum, volatility breakouts etc.) to extrapolate the direction of asset price movements into the future.
- Looking at absolute performance, short-term trading is to CTAs what Nickelback is to rock music. However, there are (brief) periods, when the STTI has provided downside protection to trend following managers. Correlation over the period is 0.6. SG defines short-term traders like this: "Diversified CTA and global macro managers with average holding period of less than ten days."[3]
- As a group, systematic global macro managers perform very similar to trend following (correlation is 0.8), but have performed slightly different over the period, i.e. at a lower volatility. May we call them "lead guitarist" in this context? Currently, this is the best performing CTA sub strategy. SG's definition goes like this: "Systematic global macro managers typically employing top-down fundamental research to forecast the effect of global macroeconomic and political events on the valuation of financial instruments."[4]
- Whereas volatility traders have provided strong absolute returns and are totally uncorrelated to trend following, the index exhibits a significantly lower realized volatility. So, one would need to scale returns to be able to compare indices properly. For SG, any manager mainly trading volatility (directional or arbitrage) as an asset class is a volatility trader.

"Only Happy When it Rains" - CTA Sub Strategies during Different Market Environments

In the next two subsections, we will analyze how different CTA sub strategies perform during different market environments. First, we will look at trending and non-trending as well as expanding and contracting volatility regimes. There are many ways to measure TSMOM and volatility. We have chosen our own MDI and the VIX Index to quantify markets' trendiness and volatility respectively (see Figure 4).[5]

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3. Our own definition is less overlapping with trend following: "Everything technical but non-trend. Exploiting (short-term) price inefficiencies through technical analysis."

4. Again, our inhouse definition differs slightly from SG's to reduce overlapping with trend following: "Fundamental strategies try to capture price trends before they occur. Managers systematically analyze a wide range of fundamental (non-price) data and apply econometric modeling to derive the intrinsic (often relative) value of securities."

5. RPM's Market Divergence Indicator MDI measures overall "trendiness" of financial and commodity futures markets by correlating the price-changes and the underlying volatilities of 75+ futures markets across all sectors and across multiple time frames.

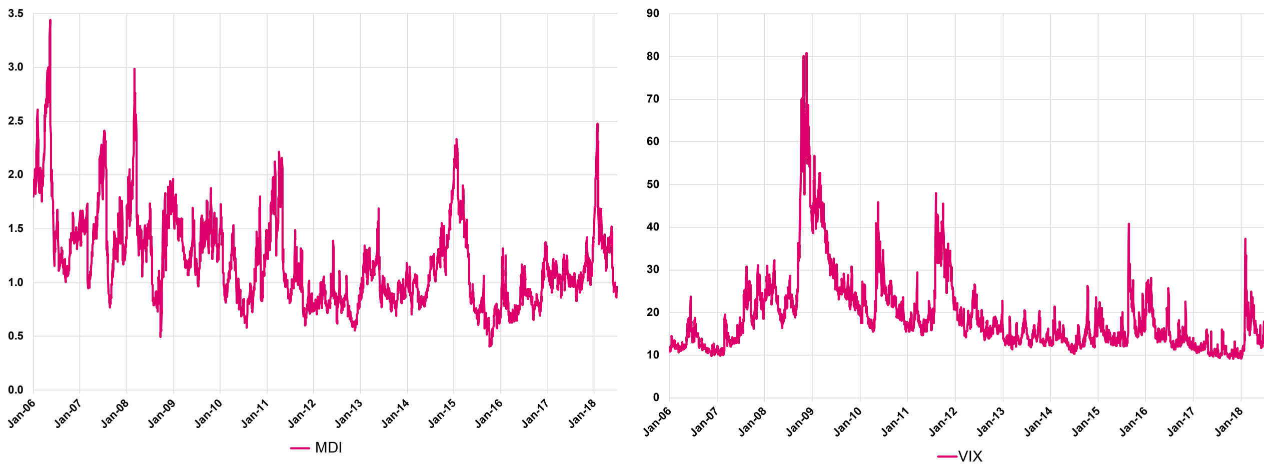


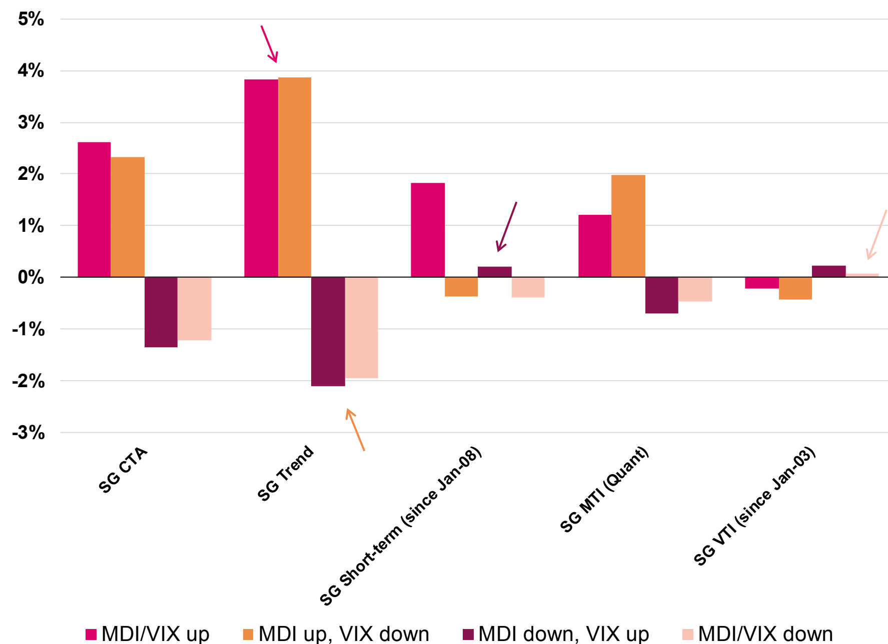
FIGURE 4 - RPM MDI AND VIX SINCE JAN-06, DAILY DATA

Since respective inception, we take only the upper and lower quartiles of monthly changes, thus, measuring only significant increases and decreases in TSMOM and volatility, and define four distinct market environments, i.e.

1. **MDI and VIX up (TSMOM scenario): Both MDI and VIX increase significantly, i.e. markets are trending and volatility is expanding.**
2. **MDI up, VIX down (growth scenario): MDI increases significantly whereas volatility drops markedly, i.e. markets are trending but volatility is rapidly decreasing at the same time. In other words, things are moving but at a steady pace, nothing dramatic.**
3. **MDI down, VIX up (reversal scenario): MDI decreases significantly whereas volatility spikes, i.e. markets reverse forcefully.**
4. **MDI and VIX down (sideways scenario): Both MDI and VIX decrease meaningfully, i.e. markets fluctuate in a tight range while volatility is decreasing.**

FIGURE 5

Median SG CTA and sub strategy excess return during different market environments as defined by MDI and VIX, Monthly data Jan-00 to Jun-18



In Figure 5 we have divided CTA sub strategies' median returns (excl. the risk-free rate) according to these scenarios.[6] We note the following:

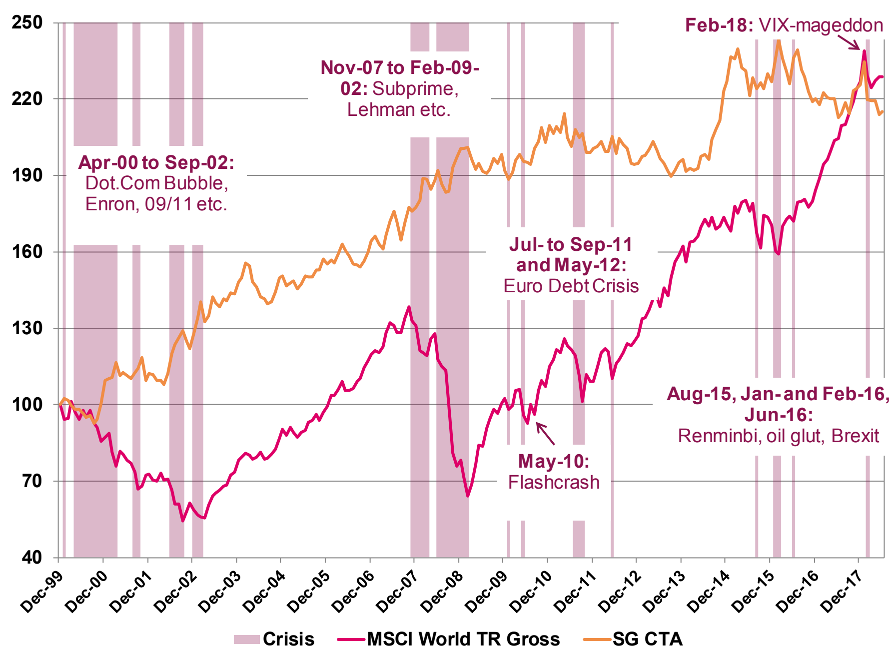
- Not surprisingly trend following performs best when TSMOM is increasing. However, for trend followers it does not really matter if markets are trending at increasing or decreasing volatility.[7] As soon as TSMOM reverses, trend following suffers. Again, it does not matter if volatility spikes or not. Trend following CTAs are known to perform poorly during reversals as well as during sideway periods. These give-back and whipsaw losses and periods are significant and often cause investor disappointment and forcing us to explain why "trend following is not dead".
- Systematic global macro managers show a similar pattern with one slight distinction, i.e. macro managers prefer the "growth scenario" as compared to the TSMOM scenario, i.e. they perform better when things are normal.
- In contrast to trend following managers, short-term trading managers really like volatility. This sub strategy seems to provide downside protection during market reversals but suffers when volatility is decreasing.
- Apparently, there is only one CTA sub strategy that can profit in choppy trading conditions and decreasing volatility, thus, providing offsetting returns during this difficult time for other CTAs, i.e. VIX traders.

"Run to the Hills" – Crisis Alpha for Different CTA Sub Strategies

FIGURE 6

MSCI World Total Return Gross and SG CTA Index since Jan-00 incl. crisis periods, monthly data.

Source BarclayHedge



Periods of general financial market distress are of special interest to CTA investors, and in particular, when equity markets are in crisis as CTAs are expected to provide "crisis alpha" and downside protection. However, in recent years, especially in Feb-18, the crisis alpha ability of CTAs has been questioned. Figure 6 shows equities' (MSCI World Total Return Gross Index) and CTAs' (SG CTA Index) monthly performance since Jan-00. We have marked all crises during this period.[8] The first thing that catches the eye is that, since the 2008 Financial Crisis, there have not been so many major crises but more often brief episodes of market panic such as the flash crash in May-10, the renminbi devaluation in Aug-15, or VIX-mageddon in Feb-18.

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6. Please note that columns in Figure 5 are not comparable across strategies but only within each strategy index because returns are not volatility adjusted and observation periods do not have the same length, i.e. the VTI goes back to Jan-03 and the STTI started in Jan-08 whereas the CTA, TI, and the MTI go back to Jan-00.

7. The misconception of CTAs being just "long volatility" was addressed in *RPM Educational #7.*

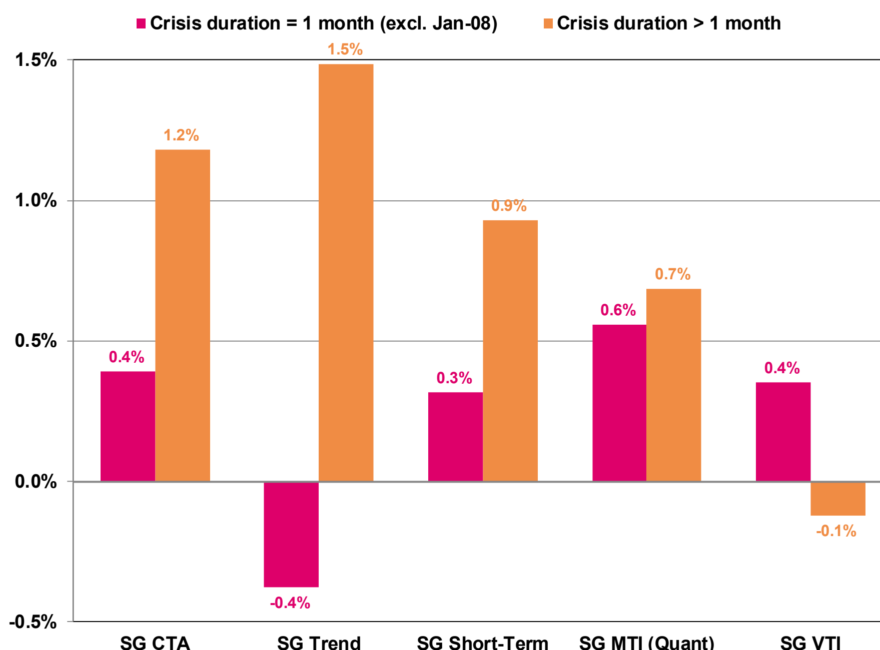
8. Crisis periods defined according to a contextual definition meaning a fundamentally identified period around a month, or months, in which the MSCI World Equity index was negative -4% or more.

In Figure 7 we have divided CTA sub strategies' average monthly returns (excl. the risk-free rate, not volatility adjusted) according to crisis periods longer than one month and one month on-off crises. We note the following:

- Trend following provides the most crisis alpha of all CTA strategies, usually, when crises last longer than one month. In other words, if there is a "real" crisis, trend followers will deliver. However, if the shock vanishes after a month, the typical trend following manager does not have enough time to adjust positions and, thus, performance suffers accordingly. This phenomenon was already addressed in the *RPM Educational #4*, i.e. on average trend following CTAs need 20 days to adjust exposure after a major reversal.
- All other diversifying sub strategies seem to provide offsetting returns during these short-lived crises or market corrections.[9] However, in the long-run, the VTI does not provide a positive crisis alpha.

FIGURE 7

SG CTA and sub strategy indices during crisis periods for different durations. Based on average monthly RoR from Jan-08 to Jun-18. Excluding risk freee rate. Monthly data
Source: SG CIB



The Encore: Mixing it up!

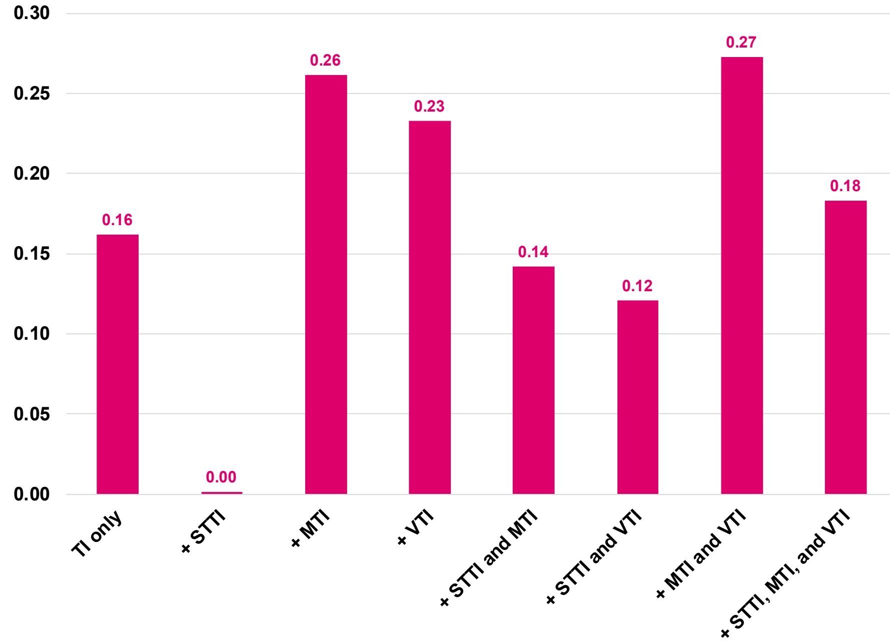
After we have shown that different CTA sub strategies perform differently during different market regimes, we now show that a combination of CTA sub strategies can overcome the drawbacks of trend following and improve overall performance. Figure 8 and Figure 9 show the Sharpe ratios and crisis alpha returns of the SG TI and a couple of pro forma indices with different mixes of diversifying CTA strategies.[10]

9. We imagine that both short-term traders and global macro managers profit from the reversal itself as they often take contrarian positions. The former based on their fundamental view of securities' valuation and the latter because they often engage in contrarian positioning when trends have matured. On the other hand, in our experience, volatility traders often suffer during the onset of a crisis but profit all the more once markets correct again and return to normal.

10. First, we have added 48% of each diversifying SG sub strategy benchmark to the trend index stand alone. Then, we have split the 48% allocation equally between two diversifying sub strategies. Finally, we have allotted 16% to each non-trend strategy. All at equal volatility and with monthly rebalancing.

FIGURE 8

Sharpe ratio for SG Trend Index and pro forma indices since Jan-08, monthly data
Source: SG CIB

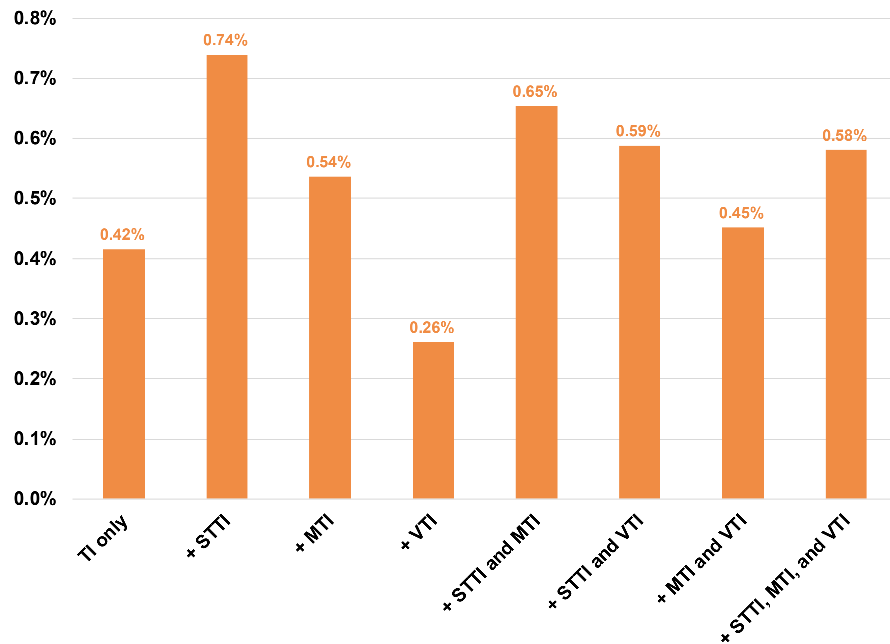


We note the following:

- Given sub strategies' performances over the observation period, i.e. Jan-08 to Jun-18, adding macro and/or VIX trading to trend following would significantly improve overall performance. Adding short-term trading would, of course, not have improved the Sharpe ratio. A static mix of 52% trend following, 16% short-term trading, 16% fundamental trading, and 16% VIX trading (i.e. what we would call "fully diversified") would have slightly increased overall performance.
- Regarding crisis alpha, adding any of the diversifying strategies (except for VIX trading) to trend following would have increased overall crisis alpha notably. Especially, short-term trading has provided crisis alpha during the recent short-lived crises-only period. Again, a fully diversified CTA portfolio would have improved the overall crisis alpha impact.

FIGURE 9

Crisis alpha for SG Trend Index and pro forma indices since Jan-08, monthly data, volatility adjusted
Source: SG CIB



Outro: Summary & Conclusion

The CTA universe is (and probably will be) dominated by trend following strategies. However, the CTA space consists of structurally different sub strategies with specific characteristics and behavior during different market environments.

Trend following is superior in trending markets and during persistent crises. However, during non-trending periods and short-lived crises, trend following often suffers making CTAs a challenging investment at times due to prolonged drawdowns and a seeming lack of equity downside protection. Here, diversification across the whole CTA sub strategy spectrum could help by providing offsetting returns.

Thus, combining different CTA sub strategies (what we call "strategy balancing") can be advantageous from a portfolio and/or risk mitigating perspective. In our view, a *dynamic* allocation between sub strategies responding to different market regimes or the onset of a financial crisis could improve portfolio characteristics even further compared to a trend following-only portfolio.

Sticking to the above rock band metaphor play, maybe one could compare CTAs to the Ramones. That is, they all have the same family name (here: CTAs) but play different instruments (here: different sub strategies). One-by-one they do not perform with virtuosity (here: CTA sub strategies are not rocket science), but put together, they become the greatest punk rock band of all times. In this sense... "Ladies and gentlemen, please welcome: The CTAs!"[11]

"Hey! Ho! Let's go!" Joey Ramone (American musician and singer-songwriter, lead vocalist of the punk rock band the Ramones)

If you want to enjoy the music refered to in this RPM Educational, please access the Spotify playlist below:

https://open.spotify.com/user/11126527041/playlist/3kA6GqkGl1I2nGMfIRybcN

We are more than happy to receive feedback, questions, comments and to engage in further discussions regarding CTAs in general. Please reach out to us on:

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11. Playing around with this idea a bit further, if you are not a dedicated fan and wanted to buy a Ramones album, you would have two choices, i.e. first you could buy the best of-album (here: invest in a broadly diversified CTA index. Oops, there is no investable version...) or you could ask an expert which album to buy (here: ask a CTA specialist). If you only knew one...

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