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CTAs - A Canary in a Coal Mine?

RPM investments
DIFFERENT MOVES.

CTAs - A CANARY IN A COAL MINE?

Key point: This report is not focusing on CTA-investments per se, but on how being invested in CTAs can provide valuable information for an equity investor. In this report, we will demonstrate how CTAs' aggregate positioning can be utilized for timing one's equity exposure.

This RPM Educational is for investors who already have (sufficient[1]) CTA exposure as part of a strategic risk mitigation approach because they have realized that Managed Futures provide the most (cost) efficient protection during major equity market downturns. The same investors have also understood that, while most CTAs do deliver "crisis alpha" during extended equity crises, only few managers are able to provide offsetting returns during short-lived but violent stock market corrections. The most notorious one so far being VIX-mageddon in early Feb-18 when CTAs actually amplified losses and some investors were asking: "Where is my crisis alpha?!"

So, what to do about it? We are no equity experts, but we know that some of our institutional clients at times neutralize their equity exposure, at least partially, by buying options. But WHEN should one seek this kind of protection? Well, we might have some input to that question. We think that Managed Futures trading and managers' aggregate position taking contain information which can be valuable for equity investors as well. Therefore, we have developed the MESI (RO)™ which is a Managed Futures-based indicator to detect equity market sell-offs (and rebounds). It basically works like a canary in a coal mine, warning of trouble ahead. But, let us start at the beginning…

Since its inception in 1993, RPM has developed a couple of indicators to help managing its CTA exposure, e.g. vertically with regards to overall portfolio risk (leverage) and horizontally regarding CTA substrategy exposure (trend vs. non-trend following strategies). Currently, two main indicators in use are the Market Divergence Indicator (MDI™) and the Coordinated Market Sell-off Indicator (CoMaSe™).

And, once again: TSMOM

In 2012, Moskowitz & Co systematically and definitely documented the presence of a so-called "trend effect" for a broad range of futures and forward contracts, coining the term "time series momentum" (henceforth TSMOM), which relies solely on the continuation of the price direction within a particular asset class. CTAs, whose strategies are mostly trend following, are part of a financial industry that attempts to exploit TSMOM. In other words, most CTAs generate profits in a trending market environment, i.e. when asset prices move substantially and sustainably across several different markets. Since the mid-1990s, approximately 20 years before the introduction to academia, RPM has used MDI™ in order to measure TSMOM and to assess whether the market environment would be beneficial for the applied strategies and invested managers or not.[2]

Figure 1 shows the MDI since Jan-00 with its peaks clearly marking the occurrence of well-known trend events. Interestingly, periods of elevated market trendiness often seem to coincide with episodes of financial market distress such as 09/11, subprime, or Brexit.[3]

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1. In the RPM Educational #9, the optimal CTA allocation in a traditional equity/bond portfolio fluctuates between 5-25% depending on the economic outlook.

2. MDI™ is based on the arithmetic average of modified Sharpe ratios across many different futures markets (>70) and lookback periods (5 to 250 days) with two parameters to be estimated, i.e. the absolute price change over a given period and the according underlying standard deviation of returns. Given that CTAs can profit from both bullish and bearish trends, the direction of a trend does not matter.

3. During times of crisis, investors become synchronized in their actions and markets briefly experience reduced efficiency and, thus, increased TSMOM. During these moments, CTAs can deliver crisis alpha by taking advantage of this predictability.

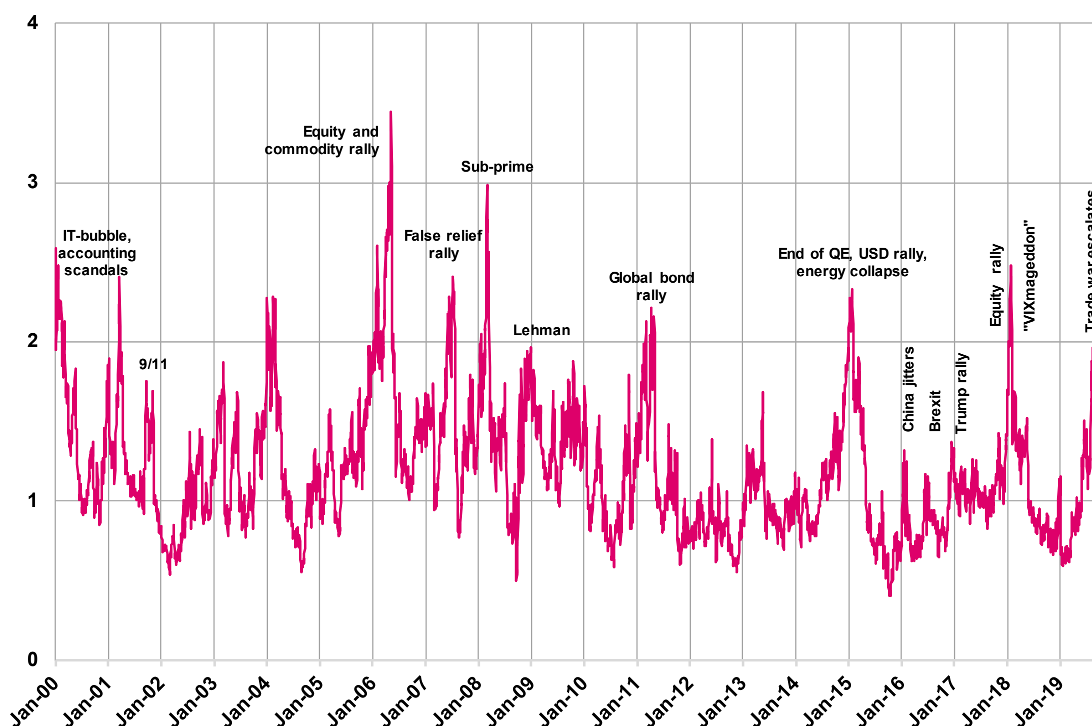

FIGURE 1 - RPM'S MARKET DIVERGENCE INDEX AND MAJOR TREND EVENTS SINCE JAN-00, DAILY DATA

While MDI™ does a very good job in explaining CTA returns, RPM also uses it as a forward-looking risk/opportunity indicator. When the indicator has reached a local maximum (meaning there has already been pronounced TSMOM across many financial markets and time frames), going forward, it is more likely that markets will undergo a period of reduced trendiness. Achtung: Reversal ahead! Vice versa, if the indicator reaches a local minimum, the risk/reward ratio would be quite favorable for CTAs going forward because the next wave of TSMOM is just around the corner. In other words, when MDI™ peaks RPM would normally reduce overall portfolio risk. When the indicator is very low, RPM would typically consider increasing risk across (trend following) managers in the portfolios.

Thus, theoretically, a sophisticated Managed Futures investor could use MDI™ to time her CTA exposure herself. RPM clients have of course daily access to the MDI™ and other RPM indicators through our website. Please get in touch...

When volatily and correlations spike

RPM calls sudden and brutal market reversals with volatility and correlation spikes across many different markets (almost always including equities) "coordinated market sell-offs". This is of course not a new market phenomenon. However, in the last decade or so, markets seem to have become more correlated with each other and intermarket linkages are faster than before due to the

- Convergence of institutional restrictions, i.e. regulation, risk management, investment policies etc.,
- Reduction of the number of independent actors (of significance), i.e. fewer liquidity providers, consolidation of active management etc.,
- Increased uniformity in the production and dissemination of news, i.e. actors simultaneously receive and respond to information with the same origin, and
- Behavioral biases, e.g. herding becomes more pronounced with increased transparency and globalization.

The three volatility spikes in 2018, i.e. VIX-mageddon, VIXplosion, and VIX-mas, are good examples of this phenomenon. Such events are particularly devastating for systematic and diversified trend following managers as these strategies rely on the positive effect of broad asset class diversification. During a coordinated market sell-off the advantage of diversification disappears as correlations spike and becomes a major disadvantage as losses accumulate across many different sectors.

In Mar-08, RPM developed its first version of the so-called Coordinated Market Sell-off Indicator or CoMaSe™ which is based on publicly available macro and market data and proprietary performance and position data in order to identify market environments where such sell-offs are more likely to occur than normally (or when RPM portfolios are more exposed to volatility and correlation events than usually). So, this is not a predictive indicator. It rather measures if the usual pre-conditions for a sell-off are in place or not. Figure 2 shows daily out-of-sample sell-off risk forecasts since Jan-10 and the actual occurrence of coordinated market sell-offs. Please note that levels above 20% are considered "high sell-off risk" prompting us to reduce risk across portfolios and (trend following) managers. Although missing a few sell-offs, in general, the indicator has done a good job in detecting dangerous market environments (for CTAs that is...).

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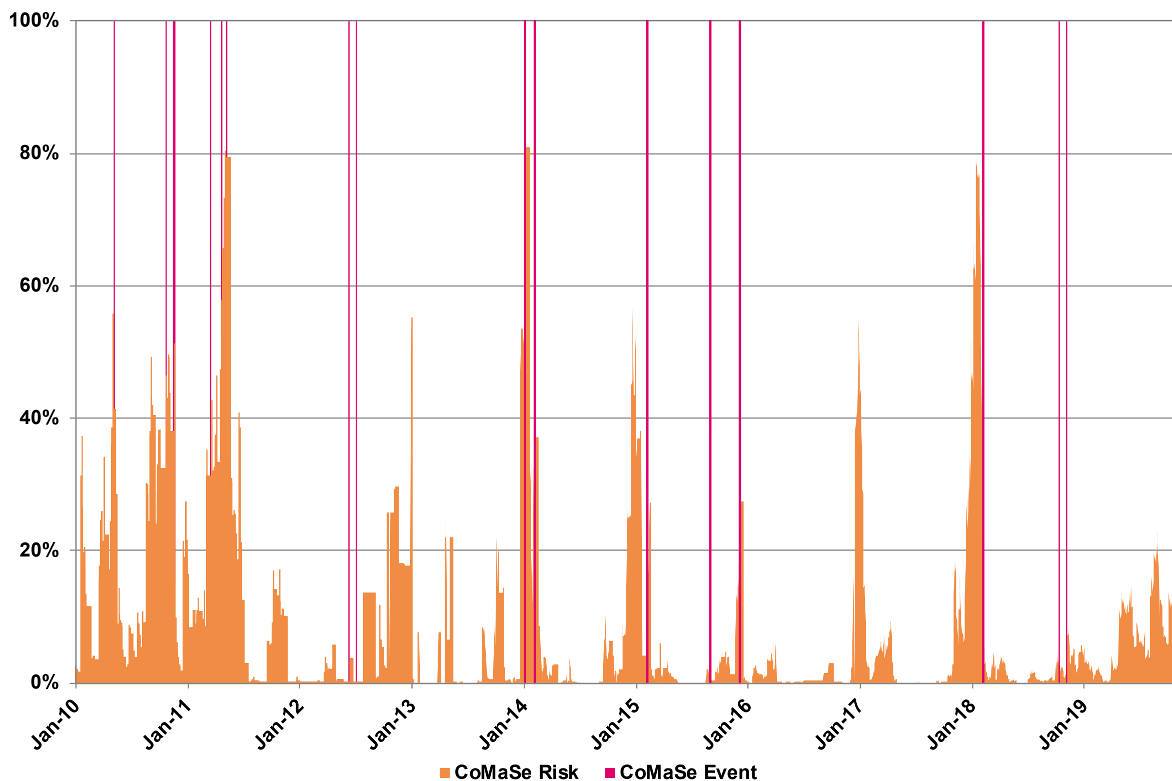

FIGURE 2 - COORDINATED MARKET SELL-OFFS AND COMASE™ SINCE JAN-10, DAILY DATA

Combined, RPM indicators help managing CTA exposure (vertically and horizontally) and have, so far, added significant value to existing portfolios. For example, in 2018, tactical allocations based on MDI™ and CoMaSe™ added a total of approximately 300bps to overall performance in the RPM Evolving CTA Fund.

So, how can one utilize RPM's CTA indicators for the timing of equities? Since inception, RPM invests in CTAs solely using separately managed accounts or SMAs. This means not only full control and legal ownership of positions but also full transparency regarding position taking. Over the years, RPM has gathered quite a unique dataset containing (not only) positions down to the contract level. For example, Figure 3 shows the aggregate daily stock indices exposure of all existing managers (in VAR terms) in the RPM Evolving CTA Fund since its inception in Jun-13. Whereas the portfolio has been long stocks most of the time, managers have been quick in turning positions around in reaction to major equity sell-offs such as Aug-15, Jan-16, Feb-18, Oct-18, and Aug-19.[4] Of course, this information is valuable in terms of risk management but also with regards to above inhouse indicators.

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The basic idea behind any CTA-based equity indicator is to condition the indicators' signal on the current equity exposure in the portfolio - if you have that information that is. In other words, if indicators are sending warning signs and portfolios are net long equities, the warning also applies for long-only equity investors. Vice versa, if indicators are signaling a reversal and CTAs are net short equities on aggregate, the warning sign turns into a buy-signal for equities. This is the rationale behind MESI (RO)™ which will be explained in more detail in the next section.

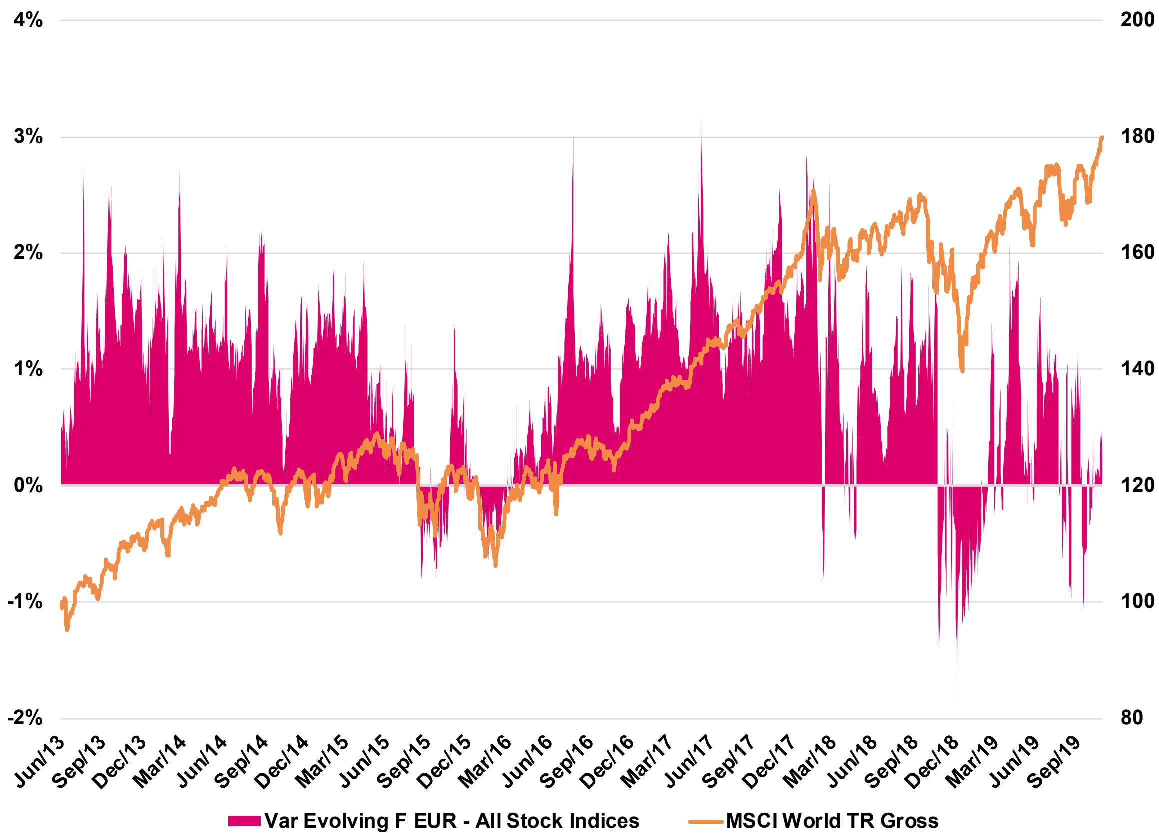

FIGURE 3 - RPM EVOLVING F EUR OVERALL EQUITY EXPOSURE IN VAR TERMS SINCE INCEPTION AND MSCI WORLD TOTAL RETURN GROSS INDEX, DAILY DATA

4. In fact, RPM Evolving managers have been much quicker in adjusting positions than the 20 days postulated in the RPM Educational #4 on Crisis Alpha and Equity Give-back Losses.

Putting it into practice!

The two main input factors of the Managed Futures-based Equity Market Sell-off Indicator (Risk and Opportunity) or MESI (RO)™ are the abovementioned MDI™ and CoMaSe™.[5] Thus, this indicator is not predictive either, but is instead measuring to what extent the conditions typically necessary for equity market corrections (or buy-ins) are in place. Such an indicator could work because with regards to equity markets CTA-based indicators provide two new perspectives:

1. Due to the managers' broadly diversified approach, Managed Futures indicators grasp the whole of the financial market universe at once.
2. CTAs are systematic and responsive by nature and, thus, their exposure always reflects aggregate positioning in financial markets, including of course equity markets. In other words, the larger the aggregate net long equity exposure in a CTA portfolio is, the stronger the TSMOM signal for being long equities has been.

The indicator was developed in 2013Q1 after lively discussions with existing investors (of the sophisticated kind). It has been running unchanged and out-of-sample since May-13. Therefore, all the following analyses will start then.

Figure 4 shows the indicator since its inception and the development of the global stock market represented by the MSCI World Total Return Index. We would consider levels above 20-30% as "high", i.e. a warning signal for equity investors of an imminent sell-off. Levels of -20 to -30%, however, should be considered as "low" indicating a buying opportunity. Looking at the graph, we see that the indicator correctly identifies Feb- and Dec-18 as high-risk environments and 2018Q2/Q3 as a positive period for stocks. However, at other times, the indicator fails to warn us in due course, e.g. in Oct-18 (VIXplosion) and in Aug-15 (first renminbi devaluation). How does it look overall? Is the indicator adding value or not?

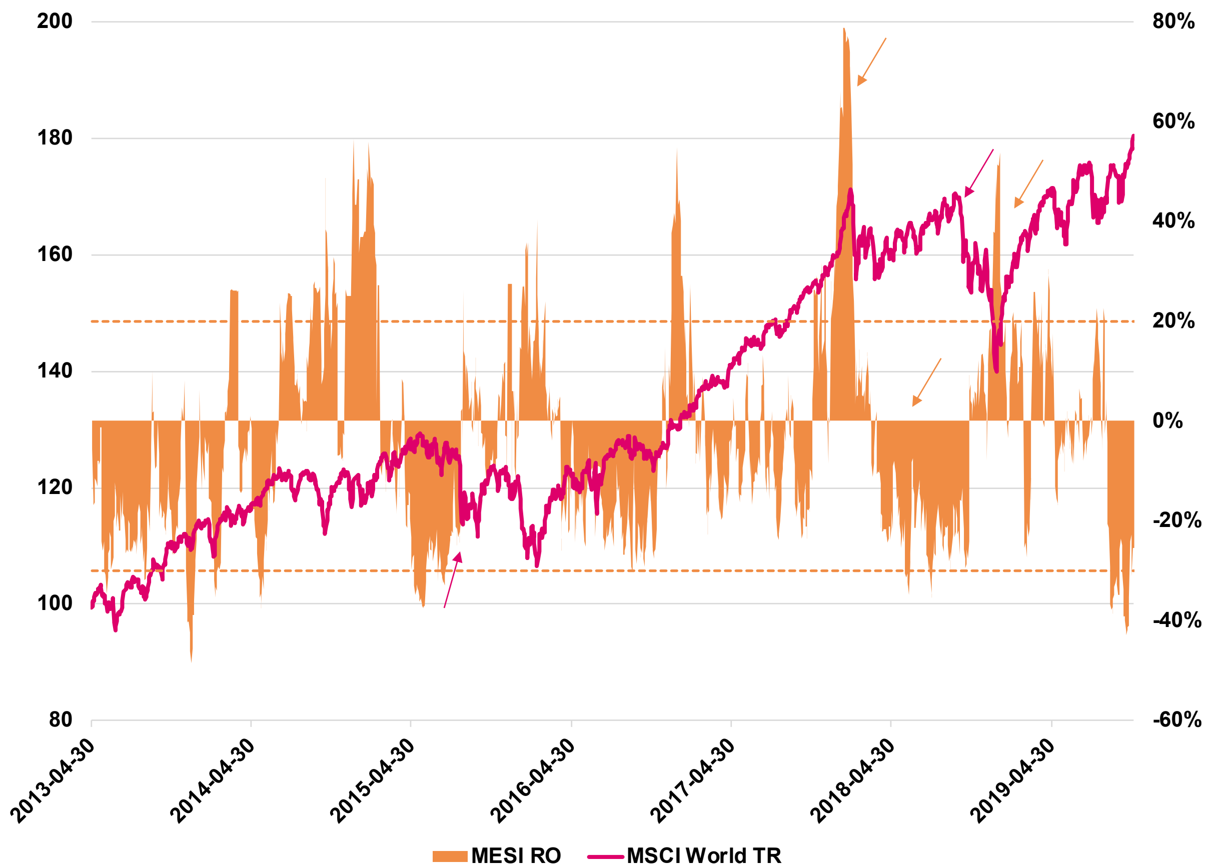

FIGURE 4 - MESI (RO)™AND MSCI SINCE MAY-13, DAILY DATA, OUT-OF-SAMPLE

5. Other input variables are proprietary, but they only receive minor weightings.

To test and illustrate the value added by MESI (RO)™, we have applied a simple allocation rule:

1. If, during the last five trading days, MESI (RO)™ is at or above 20%, no equity exposure the next day. We have built in a 1-day lag for robustness reasons as well.
2. If, during the last five days, MESI (RO)™ is at or below -30%, double equity exposure the next day (again 1-day lag).[6]
3. Otherwise, keep to MSCI exposure at 1x levels.

Figure 5 shows the (logarithmic) value added of this simple allocation rule for the MSCI World TR Index. Overall, the indicator would have added significant value to an equity long-only investor, i.e. since May-13, the dynamic MESI (RO)™ based pro forma equity exposure would have outperformed the simple equity index by 2.2% annualized at roughly the same underlying annualized volatility.

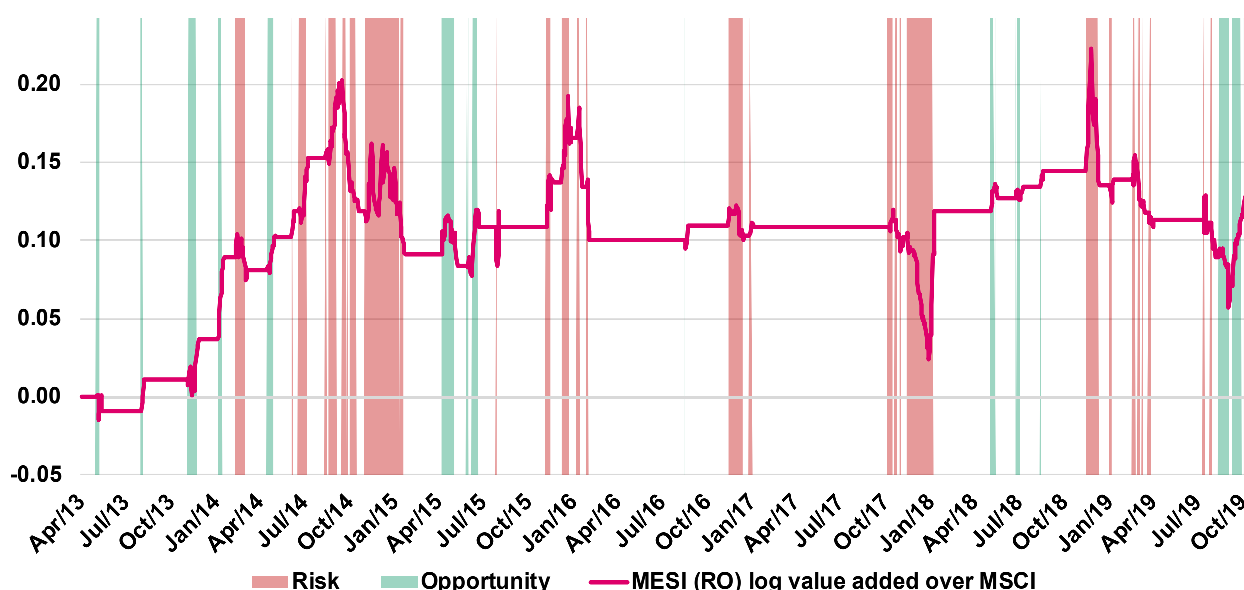

FIGURE 5 - MESI (RO)™ SELL AND BUY SIGNALS AND INDICATOR-BASED ALLOCATION RULE VALUE ADDED OVER MSCI SINCE MAY-13, DAILY DATA, OUT-OF-SAMPLE

Although the indicator does not add value all the time and some final legs of equity runups (e.g. Jan-18) are missed out, overall, the information retrieved from CTAs' behaviour is obviously of benefit from a pure equity perspective. And, as shown in Figure 6, the value-added stems largely from being able to avoid the big drawdowns. Annualized volatility and average drawdown are almost identical, but maximum drawdown and, thus, annualized absolute returns can be improved significantly by utilizing the MESI (RO)™.

6. The asymmetry can be explained by the underlying CTA indicators being more sensitive to detecting risks than opportunities. This asymmetry transpires to the equity indicator.

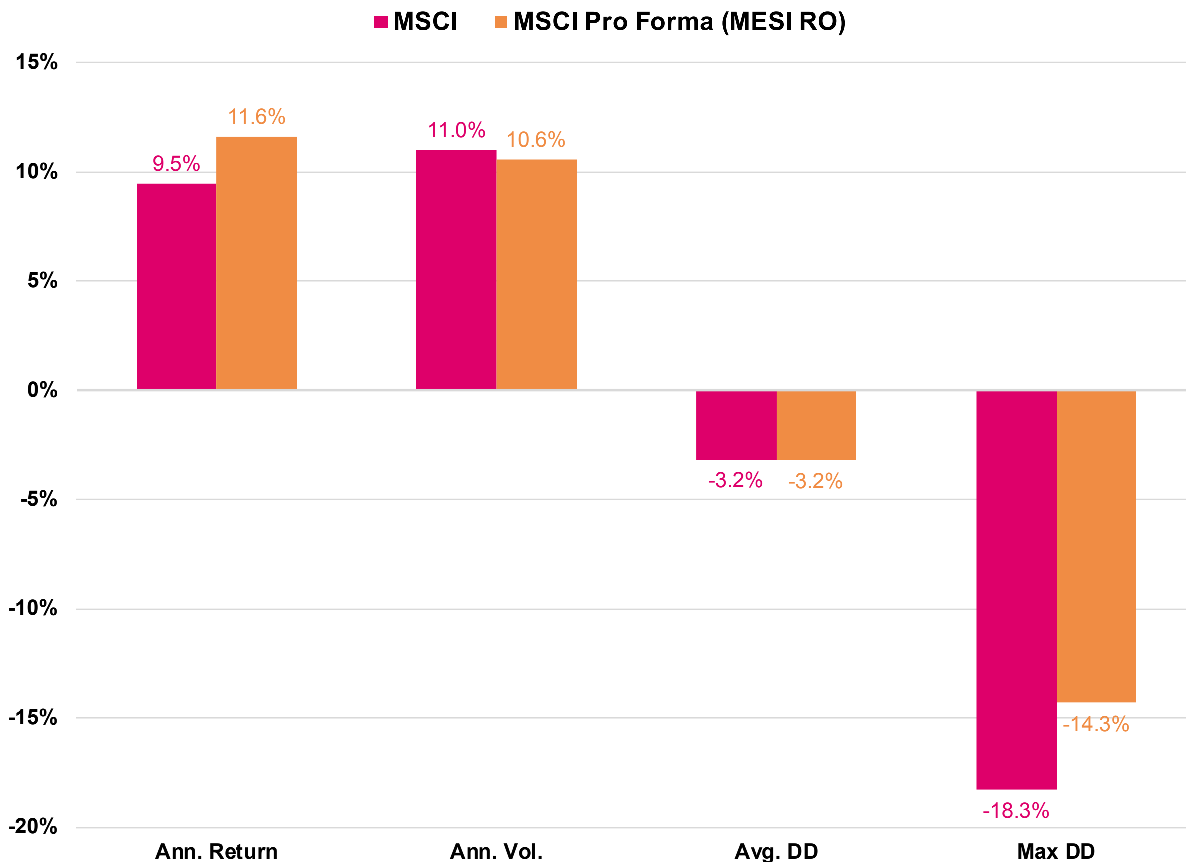

FIGURE 6 - PERFORMANCE STATISTICS OF MSCI VS. MSCI BASED ON MESI (RO)™ ALLOCATION RULE SINCE MAY-13, DAILY DATA, OUT-OF-SAMPLE

Summary & Conclusion

So, CTA investments will not only mitigate drawdowns during extended equity market downturns, but the informational advantage of being invested in CTAs can help one improve the micro timing of equity investing itself as well. Due to the unique features of Managed Futures it is possible to extract valuable information for long-only equity investors by looking at managers' aggregate exposure and behaviour. This is true for both risk and opportunity indications. However, MESI (RO)™ will not add significant value during rangebound market environments as these are periods when most CTA strategies would also fight with conflicting and sometimes contradicting signals themselves. MESI (RO)™ will add most value during (or directly after) pronounced equity run-ups and downturns as, by then, trend following managers would have built up the according positions and it is then, when they are most exposed to reversal risks. So, one could say, that CTAs are the canary in the coal mine – warning you when it is dangerous staying in the mine (equity market).

And in case you've missed, RPM clients have of course daily access to daily positions in the invested portfolio(s) through our website. Please get in touch...

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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