

## INSIGHTS

# When Does Trend Following “Kick In?”

The first quarter of 2020 was very difficult for most risky asset classes, and managed futures<sup>1</sup> funds delivered mixed returns while equities drew down more than 20%. The increasing popularity of terms such as “crisis alpha” and “crisis risk offset” may have exacerbated confusion as to how managed futures may be beneficial during market downturns, leading some investors to think of managed futures as an equity market hedge.

In this note, we will show that trend-following becomes increasingly negatively correlated to equities as the observation window lengthens (i.e. daily, monthly, quarterly) and that trend-following exhibits the strongest convexity (defined later) to equities at the quarterly horizon. This underlines what we have been saying for many years: managed futures are not a hedge, per se, but may provide some downside risk mitigation during equity bear markets, when they often (but not always) experience positive returns.

## CORRELATION

Let’s first look at the basic or unconditional correlation between the S&P 500® tracker ETF (“SPY”) and the SG Trend Index (“Trend”) over various horizons:

Correlation: SPY vs. TREND (Jan 2000 - Apr 2020)

DAILY	-0.0633
MONTHLY	-0.0961
QUARTERLY	-0.1962
ANNUAL	-0.3421

*“ To us, a hedge is expected to directly offset the risk of an investment. It needs to have significant negative correlation so that most of the time the returns are opposite to that of the underlying instrument. While this mitigates risk it also reduces the return of the instrument being hedged.*

<sup>1</sup>Although the term “managed futures” is typically associated with trend-following, there is in fact a wide range of trading strategies that futures traders employ.

Definitions of Terms and Indices can be found on page 5.

No amount of diversification or correlation can ensure profits or prevent losses. An investment in managed futures is speculative and involves a high degree of risk. Investors can lose money in a managed futures program. There is no guarantee that an investment in managed futures will achieve its objectives, goals, generate positive returns, or avoid losses. PAST PERFORMANCE DATA QUOTED HERE REPRESENTS PAST PERFORMANCE. CURRENT PERFORMANCE MAY BE LOWER OR HIGHER THAN THE PERFORMANCE QUOTED ABOVE. PAST PERFORMANCE DOES NOT GUARANTEE FUTURE RESULTS.

The correlation between the two indices decreases monotonically as we go from daily to annual observations. This presents us with a clue as to what kind of behavior to expect from trend-following: daily and monthly correlations are close to zero, suggesting that Trend returns during negative days and months for stocks are almost equally likely to be positive or negative. For quarterly and annual observations, the correlation is much more meaningful and negative, suggesting that Trend is often, but not always, positive when the SPY has a losing quarter or year.

If we zoom in on conditional correlations when the SPY has a losing month or quarter, we see an even stronger negative relationship. This translates into positive expected return for Trend when the SPY has a negative quarter. By 'positive expected return' we just mean that Trend has positive conditional returns on average, not that they are always positive. On the other hand, the correlation is positive when the SPY has a positive quarter, indicating that Trend returns are more likely to be positive than negative during positive SPY quarters.

Correlation: SPY vs. TREND

	All Observations	SPY Positive	SPY Negative
<b>MONTHLY</b>	-0.0961	-0.0746	-0.2629
<b>QUARTERLY</b>	-0.1962	-0.2457	-0.3967

Average Trend Returns

	Positive Quarters	Negative Quarters	Total
<b>SPY POSITIVE QUARTERS</b>	5.0% (29)	-4.4% (27)	0.5% (56)
<b>SPY NEGATIVE QUARTERS</b>	8.0% (15)	-4.6% (10)	2.9% (25)
<b>TOTAL</b>	6.0% (44)	-4.5% (37)	1.2% (81)

Since January 2000, SPY returns for 24 out of 81 calendar quarters have been negative (approximately 1/3 of the time) with an average return of -9.0%. Trend was positive 15 of those 24 quarters (about 60% of the time) and had an average return of 3.2% when the SPY had a negative quarter. Put another way, when the SPY has had a negative quarter, Trend has generated positive average returns. Trend also made money, albeit much less (0.5% vs 3.2%)

on average when the SPY was positive. While this is not what a "hedge" would look like, it certainly shows that Trend has portfolio benefits and a tendency to provide some downside risk mitigation when stocks have protracted losses. However, this analysis does not take the magnitude of loss into account; we discuss that in the next section.

## CONVEXITY

Sepp 2018 defines convexity as "the beta coefficient of strategy returns to the square of returns on the benchmark. In this way, the convexity measures the dynamic risk of strategy performance in tails of the performance of the index." Strategies with positive convexity tend to have strong positive performance when the benchmark has extreme returns. Trend exhibits slight negative convexity relative to the benchmark when we look at daily returns

but has strong positive convexity for quarterly observations. When we examine the scatter plot of quarterly returns for SPY and Trend, we see an asymmetric pattern that is sometimes called a "smirk" rather than a "smile": Trend performs more strongly during large negative quarters for the SPY This is exactly what investors would prefer that it "kicked in."

S&P® 500 – SPDR S&P® 500 ETF (Ticker: SPY)

SG Trend Index by Societe Generale Prime Services

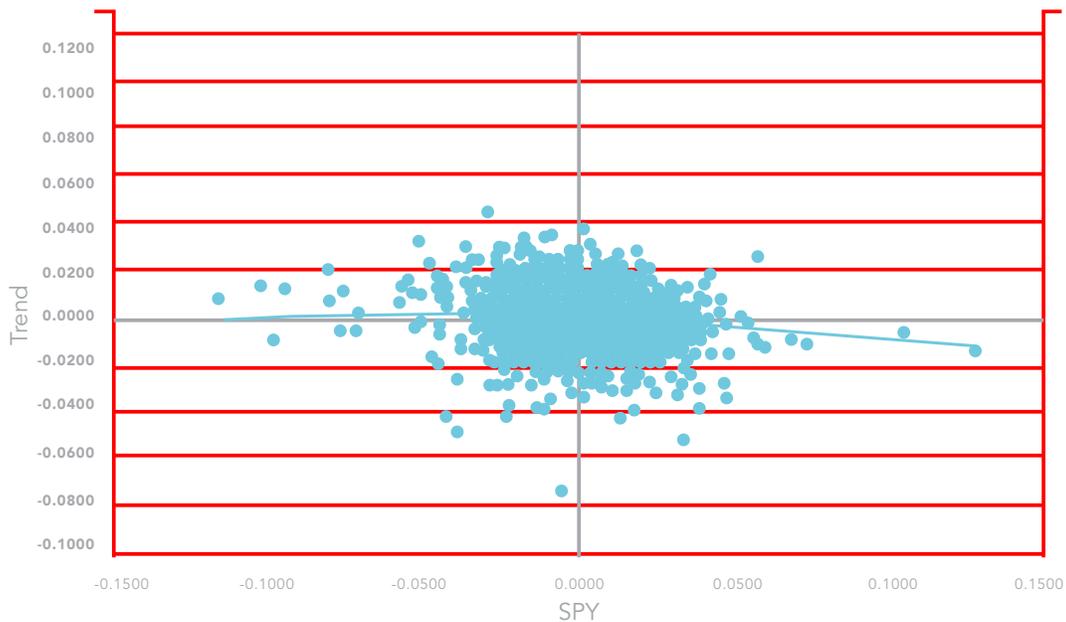
Sepp, Artur. "Trend-following strategies for tail-risk hedging and alpha generation." White Paper. April 23, 2018.

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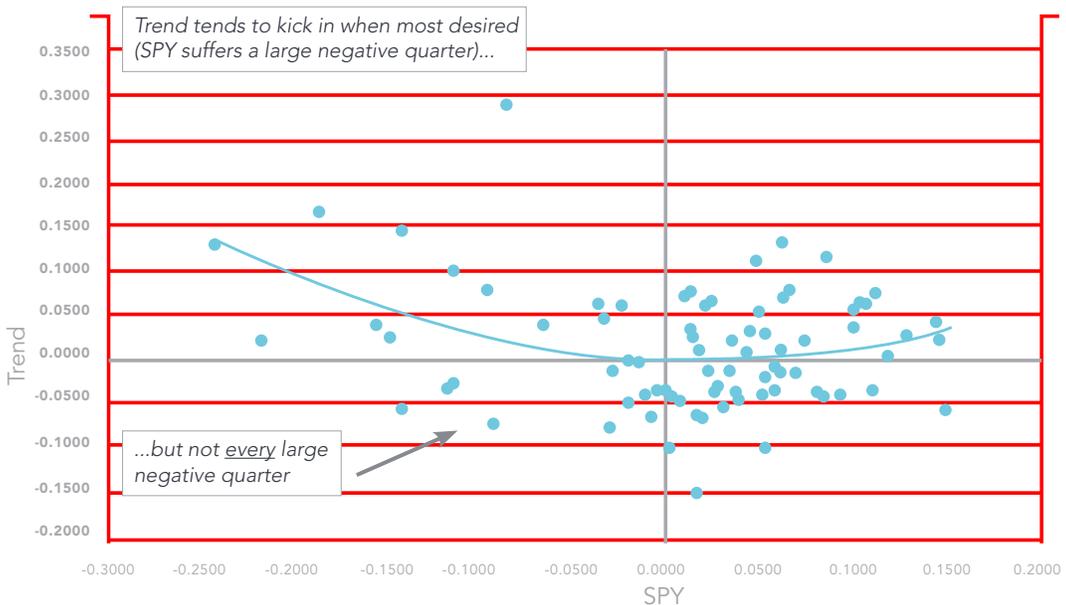
### SPY vs. TREND (Daily Observations)

Stocks and Trends are effectively independent at the daily scale



### SPY vs. TREND (Calendar Quarters)

Trend kicking in when most desired (SPY suffers a large negative quarter)



X Axis = S&P® 500, Y Axis = SG Trend Index. Plot points represent returns of both indices.

S&P® 500 – SPDR S&P® 500 ETF (Ticker: SPY)

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## RATIONALE

Why does Trend behave in this fashion? A very simple explanation is that most trend-following strategies, by definition, need time to change the direction of their positions. Depending on how things play out, a trend-follower could take several weeks to flip from long to short in any given market. Trend-followers will often lose money on long equity positions in the early stages of a bear market. If the bear market continues to develop, trend-followers will reduce their longs and ultimately go short and make money during the downturn. The most recent equity downturn was one of the fastest in recorded history, with much of the "action" taking place over two days; Thursday March 12th and Monday March 16th. Due to the rapidity of the drawdown, many medium and long-term trend followers were still long equities and suffered losses, while shorter-term trend followers were profitable. While disappointing, this is to be expected given the way trend following systems are designed to work. Faster, more reactive trend strategies fared better, with some turning in

strong positive performance. This does not mean that those strategies are better, just that they were better suited for that specific situation.

As most readers know, trend-followers also trade bonds, currencies, and commodities. A slightly more nuanced explanation (explored in our previous piece: "Managed Futures During Equity "Crises" – An Update") is that bear markets do not play out in a vacuum – investors withdraw their funds from equities and move them elsewhere. As a bear market deepens, capital flows tend to accelerate from "risk-on" assets into "risk-off" assets, and trend-followers can also earn profits from being long "risk-off" assets. These profits may even exceed those from short equity positions, as trend-followers tend to size their positions inversely to volatility. In a volatile equity bear market, short equity positions may be smaller than long "risk-off" positions whose volatilities may be lower.

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## CONCLUSION

While managed futures should not be viewed as a reliable hedge for equity risk, they have tended to offer material downside risk mitigation during equity bear markets or "crises," as we can see from the performance of Trend during negative quarters for the SPY, with higher returns

often, but not always, "kicking in" during large negative quarters. This suggests that managed futures strategies continue to offer substantial diversification benefits for risky portfolios, with the potential for some downside risk mitigation as a bonus.

Managed Futures During Equity "Crises" – An Update. Equinox Funds.  
Definitions of Terms and Indices can be found on page 5.

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## DEFINITIONS OF TERMS AND INDICES

### Terms

**Beta** is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the markets as a whole.

**Correlation** is measured on a scale from 1.00 to -1.00. [1.00] Investments with high correlation tend to rise and fall together. [0.00] Non-correlated investments tend to move up and down with no relation to one another. [-1.00] Investments with negative correlation tend to move in opposite directions.

**Crisis alpha** refers to profits or gains that can be made by exploiting certain market trends during times of market turmoil.

**Long Position** refers to the buying of a security such as a stock, commodity or currency, with the expectation that the asset will rise in value.

**Managed futures** is an alternative investment strategy in which professional portfolio managers use futures contracts as part of their overall investment strategy. Managed futures provide portfolio diversification among various types of investment styles and asset classes to help mitigate portfolio risk in a way that may not be possible in direct equity investments.

**Risk-on risk-off** is an investment setting in which price behavior responds to and is driven by changes in investor risk tolerance. Risk-on risk-off refers to changes in investment activity in response to global economic patterns. During periods when risk is perceived as low, the risk-on risk-off theory states that investors tend to engage in higher-risk investments; when risk is perceived to be high, investors have the tendency to gravitate toward lower-risk investments.

**Short Position** is a position whereby an investor sells borrowed securities in anticipation of a price decline and is required to return an equal number of shares at some point in the future.

A **Trend-Following Strategy** seeks to capitalize on momentum or price trends across global asset classes by taking either long or short positions as a trend is underway. Price trends are created when investors are slow to act on new information or sell prematurely and hold on to losing investments to long. Price trends continue when investors continue to buy and investment that is going up in price or sell an investment that is going down in price.

**Volatility** is a measure of fluctuation in the value of an asset or investment. Lower volatility improves the stability and lowers the risk of an investment portfolio.

### Index Descriptions

**Investors cannot directly invest in an index and unmanaged index returns do not reflect any fees, expenses or sales charges.**

The **SG Trend Index** (Societe Generale) is designed to track the 10 largest (by AUM) trend following CTAs and be representative of the trend-followers in the managed futures space. The SG Trend Index is equally weighted, and rebalanced and reconstituted annually.

The **S&P 500® Total Return Index** is widely regarded as the best single gauge of the US equities market. This world-renowned Index includes 500 leading companies in leading industries of the US economy.

The **SPDR® S&P 500® ETF Trust** seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the S&P 500® Index. Equity securities may fluctuate in value in response to the activities of individual companies and general market and economic conditions. While the shares of ETFs are tradable on secondary markets, they may not readily trade in all market conditions and may trade at significant discounts in periods of market stress. ETFs trade like stocks, are subject to investment risk, fluctuate in market value and may trade at prices above or below the ETFs net asset value. Brokerage commissions and ETF expenses will reduce returns. Carefully consider the Fund's investment objective, risk factors, and charges and expenses before investing. This and other information can be found in the Fund's prospectus.

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## A Word About Risk

The purchase of a managed futures investment involves a high degree of risk. Specifically, you should be aware that, in addition to normal investment risks, managed futures investments entail certain risks, including, in all or some cases:

- Managed futures often engage in leveraging and other speculative investment practices that may increase the risk of investment loss.
- Managed futures can be highly illiquid.
- Managed futures are not required to provide periodic pricing or valuation information to investors.
- Managed futures may involve complex tax structures and delays in distributing important tax information.
- Managed futures are not subject to the same regulatory requirements as mutual funds.
- Managed futures often charge high fees



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