Understanding Systematic Multi-Strategy (SMS)

(February 2019)

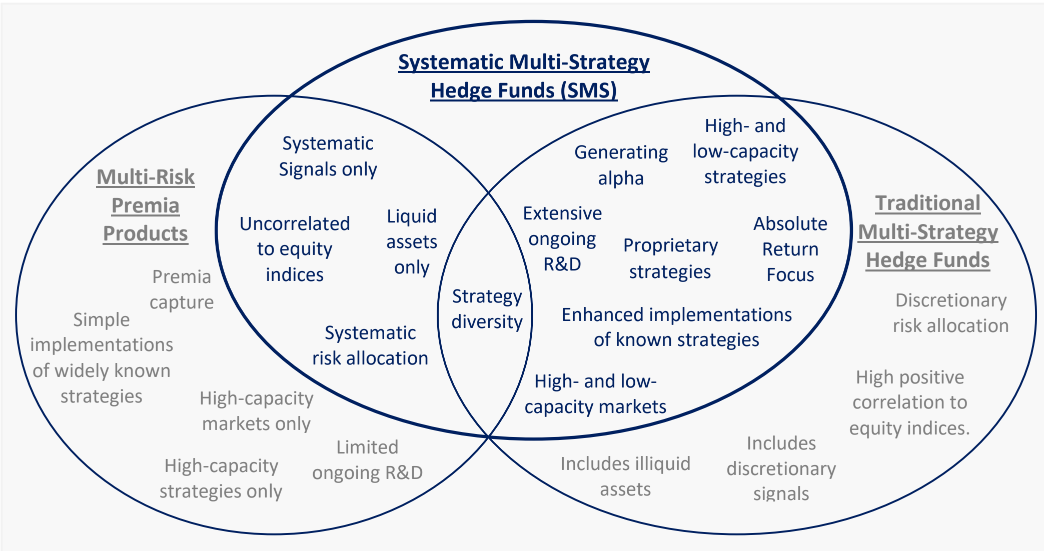
In a year when very few investment strategies worked, **Systematic Multi-Strategy** (SMS) funds were generally profitable in 2018. These absolute return vehicles seek to harness the breadth of numerous systematic investment styles, aiming to deliver uncorrelated and attractive risk-adjusted performance in a wide range of market environments. The systematic process has been successfully applied to a number of different investment domains, including quantitative macro, equity market neutral and short-term trading, along with the more conventional trend following. While these strategies share a core approach rooted in systematic investment principles, they seek to capture vastly different market inefficiencies.

Elsewhere in the alternatives universe, **Multi-Risk Premia** strategies endured a reversal of fortune in 2018, posting sizable losses following several positive years. The Societe Generale Multi-Alternative Risk Premia Index, which launched in January 2018 and tracks the performance of programs that "aim to systematically capture a diversity of discrete premia, including value, carry, momentum and equity style premia[1]," lost 4.7% in its first full year – quite a significant decline considering its 3.7% annualized volatility.

Given the overlap in the types of strategies included, it can be easy to conflate Systematic Multi-Strategy (SMS) and Multi-Risk Premia products. Furthermore, there is also some overlap with **Traditional Multi-Strategy Hedge Funds**, which typically use a discretionary approach to allocate capital across a wide range of alternative strategies. However, there are also important differences across these three fund categories. Some of the biggest differences relate to the liquidity[2] of the underlying assets, the focus on absolute return versus premia capture, and the inclusion of low-capacity strategies, like short-term mean reversion and others.

Exhibit 1: Comparing Different Multi-Strategy Investment Categories

Systematic Multi-Strats (SMS) incorporate elements of both Traditional Multi-Strats and Multi-Risk Premia products. Key differences relate to the liquidity of the underlying assets, the historical correlation to equity indices, the focus on absolute return vs. premia capture, and the inclusion of low-capacity markets and strategies.



Source: Campbell and Company.

In this piece, we will explore the key features of Systematic Multi-Strategy (SMS) funds. We believe that SMS incorporates the most attractive features of Traditional Multi-Strats and Multi-Risk Premia products, resulting in a performance profile that, in our view, offers a compelling balance between stand-alone returns and diversification.

[1] Societe Generale Prime Services

[2] Within the systematic trading realm, "liquidity" and "capacity" tend to be closely linked: more liquid generally implies higher capacity, while less liquid generally implies lower capacity. However, in the broader investment universe, the concepts of liquidity and capacity are not necessarily linked. High capacity assets need not be highly liquid (i.e. real estate is illiquid, but particular opportunities may also be high capacity).

Some Background

The development of the Systematic Multi-Strategy (SMS) segment was a natural result of the enormous evolution in systematic trading that has occurred in the last few decades. As markets became more efficient and competition increased, quantitative researchers expanded their toolset, their reach and their vision – supported by a torrent of technological and operational advancement. A move into new types of securities, such as NDFs, swaps and exotic commodities, provided access to a range of new (but still highly liquid) exposures. Global reach expanded to include the entire developed economy and most corners of the emerging markets landscape – at this point, limited only by liquidity and regulatory considerations. At the same time, technological advancements supported a surge in innovation, allowing for more sophisticated empirical analysis, larger-scale simulations, and the use of machine learning-based techniques. The universe of potential datasets available for analysis expanded exponentially. As one might expect, this led to a rapid rise in the types and numbers of systematic investment styles.

Within the Managed Futures[3] space, this evolution spurred a shift in the composition of the industry overall. In its earlier days, the industry had consisted primarily of specialists: long-term momentum traders aimed to profit from the persistence of market trends, some others aimed to exploit global interest rate differentials (i.e., carry traders), while still others sought to capture shorter-term market inefficiencies (i.e., short-term traders). But in the last few decades, the managed futures landscape expanded beyond specialists, as highly sophisticated investment managers sought to capitalize on their technological and quantitative advantage to create portfolios designed to perform in a variety of market environments, with significantly reduced exposure to single strategy drawdowns.

More generally, the growth of the SMS segment has represented a process of convergence from multiple directions. Some managers in the space had their roots as quantitative equity specialists, later expanding into futures and other derivatives. Others got their start as macro managers or even as traditional multi-strategy hedge funds. The heritage of different firms may result in subtle differences in features such as strategy and market mix. But it's fair to say that all SMS managers, regardless of their origins, share a core belief in the value of the systematic process. They also share some common features which we will describe in the next section.

What are the defining characteristics of a Systematic Multi-Strategy (SMS) portfolio?

While all programs are different, SMS portfolios share a few key attributes. They generally focus on a highly liquid market set spanning multiple instruments, asset classes and regions. They typically trade a wide variety of underlying markets, including developed market and emerging market financials (equity, fixed income and currencies), commodities (traditional and exotics), and credit. Futures contracts and FX forwards tend to be the primary instruments traded, complemented by cash equities, options, interest rate swaps, credit default swaps, and others. Nearly all instruments traded in SMS are centrally-cleared, leading to very low counterparty risk for these vehicles.

Exhibit 2: Key Features of a Systematic Multi-Strategy (SMS) Portfolio

- Absolute return mandate
- Highly liquid market set spanning multiple instruments and asset classes
- Balanced mix among numerous lowly correlated investment styles
- Rigorous research protocol for development and validation of investment ideas
- Minimal discretionary input
- Trades expressed through both relative value and directional implementations
- Uncorrelated to traditional assets

Source: Campbell & Company.

As the name suggests, a fundamental characteristic of SMS is diversification across alpha strategies, with most portfolios including a balanced mix of numerous synergistic investment styles. Trend following is often a component, along with strategies such as multi-asset carry, short-term mean reversion, volatility trading, fundamental value, and various macro styles. Trades are expressed through a combination of

[3] The term "Managed Futures" has become a misnomer. Much like the phrase "CTA" before that, it was intended to represent those managers trading liquid derivatives contracts using primarily quantitative methods. But in the last decade, the underlying trading programs have expanded far beyond the boundaries of traditional futures markets, and certainly trade a broader range of markets than the term CTA would imply.

relative value (RV) and directional exposures; examples of relative value trades include cross-country (i.e., spread between German Bund and US T-Note), term structure (i.e., US 2 year versus 10 year rates) cross-asset within a sector (i.e., Corn versus Wheat), and sector-neutral (i.e., Apple stock versus a basket of tech stocks). RV exposures are typically neutralized to directional exposure.[4]

Portfolios are managed with minimal discretionary input, using a rigorous research protocol to develop, validate and maintain investment models. Strategies may take either long or short positions, providing the potential to seek returns from both rising and falling markets. Performance tends to have little long-term correlation to traditional assets and many types of alternative investments.

What distinguishes Systematic Multi-Strategy (SMS) from a Multi-Risk Premia product?

Most fundamentally, SMS seeks to achieve attractive risk-adjusted returns regardless of the market environment, while Multi-Risk Premia aims for premia capture. The underlying strategy set will also vary significantly between the two investment categories. Multi-Risk Premia tends to focus on simple implementations of widely known strategies, while SMS portfolios include strategies that are much more nuanced, and more alpha-oriented. They may be proprietary strategies, or they may be enhanced implementations of known strategies. Additionally, SMS will often include capacity-constrained strategies, such as short-term trading. Due to the low historical correlation to other components, short-term strategies can be very impactful at the portfolio level, but are typically excluded from Risk Premia products due to limited capacity and resource requirements (i.e., research specialists and computational infrastructure).

Market sets can also be quite different. While SMS often includes some exotic and lower-capacity markets, Multi-Risk Premia products rarely venture into these areas, and also tend to include fewer markets overall.

Finally, portfolio construction and risk management techniques may be more sophisticated in SMS, with further benefits from improved execution models. SMS may represent the confluence of a systematic manager’s best and most proprietary ideas, and may benefit from extensive ongoing research and development. Risk Premia products tend to rely on more traditional signals, and simpler portfolio construction and execution methodologies. They may not benefit from ongoing R&D, as these low-cost offerings often adopt a “set it and forget it” approach to strategy development, portfolio construction and risk management.

With limited performance history available, it is difficult to do a direct comparison, though 2018 did not bode well for Multi-Risk Premia based on the new SG Index returns.

What distinguishes Systematic Multi-Strategy (SMS) from a Traditional Multi-Strategy Hedge Fund?

Relative to the more well-known Traditional Multi-Strat Hedge Funds, SMS portfolios share some key similarities and differences. Both categories may include quantitative, systematic signal generation to determine desirable trades. However, Traditional Multi-Strats may include discretionary trades as well. For example, many macro, equity long-short and event-driven investments may be determined by the portfolio managers rather than by algorithms, even if there is a quantitative rationale behind these decisions.

Allocation procedures also tend to be different. Traditional Multi-Strats often allocate capital to underlying strategies (or trades) using a discretionary approach, which can result in very large swings in portfolio composition through time. The macro views of the portfolio management team are typically relied on heavily to size exposures, along with the relative attractiveness of a particular opportunity. For example, distressed assets may disappear entirely from a Traditional Multi-Strat portfolio during certain points in the economic cycle, as those investments become less attractive. At other times, such investments may account for a material portion of portfolio risk. An SMS portfolio generally does not operate this way. In SMS, risk is measured and allocated using a largely systematic approach. Trade conviction plays a role in position sizing, but conviction is measured using quantitative tools, and may be incorporated by allowing risk to vary within a range.

[4] While RV is sometimes grouped as a distinct alpha strategy, it can also be viewed as applying existing alpha strategies (i.e., macro, reversion, carry, momentum) to a new set of synthetic markets, where each synthetic market is defined as the relevant spread or basket of underlying directional markets.

Another difference between the two categories is the liquidity profile of the underlying markets and instruments. Liquidity is a primary consideration for inclusion in an SMS market set. Unlike Traditional Multi-Strats, SMS portfolios do not trade instruments like convertible bonds or real estate, which are not generally liquid enough to satisfy stringent requirements for inclusion. This can also lead to a difference in the liquidity of the programs themselves, with many SMS portfolio offering weekly or even daily liquidity to investors, while Traditional Multi-Strats can include lock-ups of several months or more.

Because Traditional Multi-Strats do not need to abide by the same limitations as SMS (in terms of liquidity, instruments traded and systematic discipline), they often include more embedded diversity, and thus tend to realize lower levels of volatility.

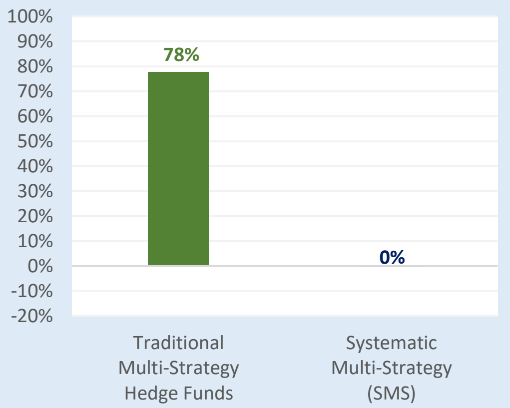
Perhaps the most important difference relates to performance profile of the two investment categories. Traditional Multi-Strats tend to be highly correlated to global equity indices – the Barclay Multi-Strategy Index, which tracks the performance of funds "characterized by their ability to dynamically allocate capital among strategies falling within several traditional hedge fund disciplines[5]," was 69% correlated to the MSCI World Index over the last 10 years (through December 2018). That being said, these programs tend to add significant value by gaining more than the broad market during its positive periods and losing less during its negative periods, particularly on a risk-adjusted basis. SMS, on the other hand, has historically been largely *uncorrelated* to equities, as we demonstrate below.

Any type of performance comparison is challenging due to the fact that the SMS universe can be somewhat difficult to define, and we are unaware of any benchmark indices focused solely on this market segment. As such, we have compiled a list of 11 representative programs (not meant to be exhaustive) run by well-known institutional managers that we believe qualify as SMS, based on our understanding of their mandates. This list is limited by the fact that many programs do not report performance publicly (particularly those that are closed to new assets), while others have limited track records extending back less than four years. For our analysis, the following Systematic Multi-Strategy (SMS) investment programs were included:

- AHL Dimension
- AQR Multi-Strategy
- Campbell Absolute Return
- CFM Stratus
- Fort Global Diversified
- Graham Absolute Return
- John Street Systematic
- Millburn Diversified
- QMS Diversified
- Secor Alpha
- Winton Fund

Exhibit 3: Monthly Correlation to Global Equities

Traditional Multi-Strats have exhibited a high positive correlation to equities. This is in sharp contrast to SMS.



Source: Bloomberg Finance, L.P. Campbell & Company. Monthly correlation of Barclay Multi-Strategy Index and SMS manager group to MSCI World Index since Jul-14, when Campbell Absolute Return began trading as SMS. As of Dec-18.

Exhibit 3 shows the monthly correlation to global equities of Traditional Multi-Strats (using the Barclay Multi-Strategy Index as a proxy for performance), and SMS (average of the representative manager group). The difference is striking – unlike Traditional Multi-Strats, SMS was completely uncorrelated to equities in this period. For this analysis, we use data since July 2014, which is when our own Absolute Return Program began trading as an SMS portfolio.

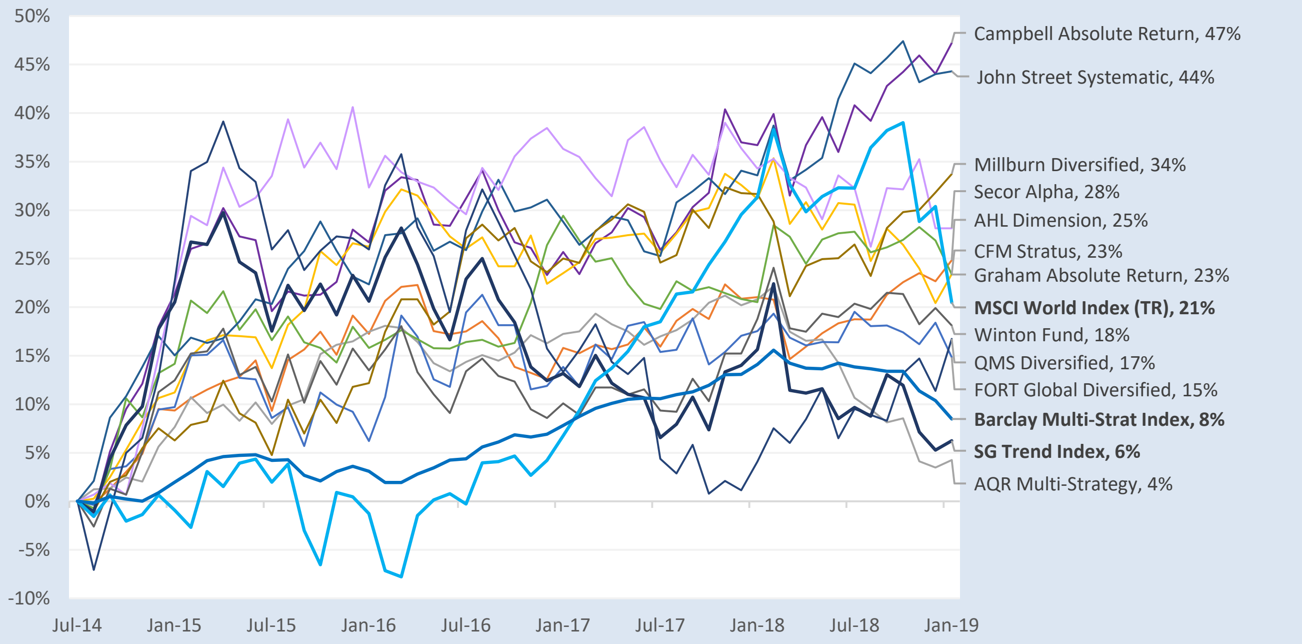
How have SMS portfolios performed historically?

On the next page, the cumulative performance of the 11 representative SMS programs is shown (Exhibit 4). The volatility-adjusted (10% annualized) cumulative performance is also shown (Exhibit 5). For reference, the MSCI World Index, Barclay Multi-Strategy Index and the SG Trend Index are also included in the exhibits (indices are bolded).

[5] Source: BarclayHedge

Exhibit 4: Cumulative Returns of Representative Systematic Multi-Strategy (SMS) Programs since July 2014

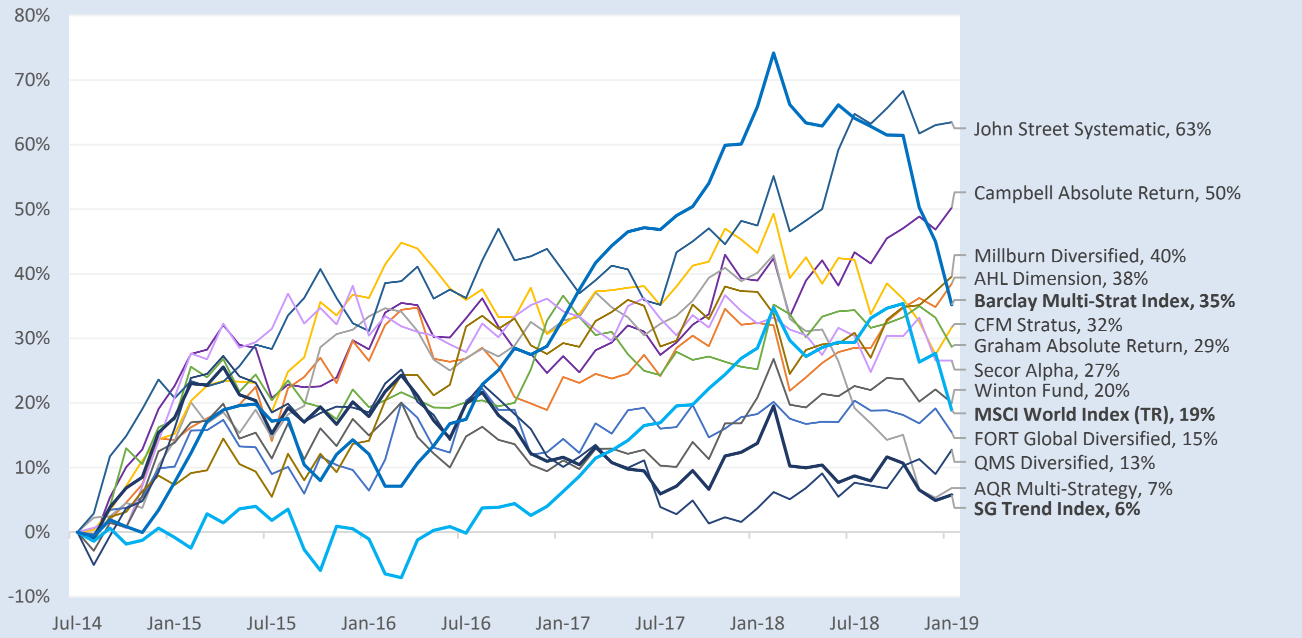
More than half of the representative SMS Programs outperformed global equities, while nearly all outperformed the Barclay Multi-Strategy and SG Trend Indices during this period.



Source: Campbell & Company, Bloomberg Finance L.P., Barclayhedge. Cumulative net performance for representative systematic multi-strategy programs since Jul-14, when Campbell Absolute Return Program began trading in its current format. As of Dec-18.

Exhibit 5: Vol-Adjusted (10% per annum) Cumulative Returns of Representative Systematic Multi-Strategy (SMS) Programs

On a volatility-adjusted basis, the difference in equity correlation between the SMS programs and the Barclay Multi-Strategy Index is visually very clear. It's also apparent that many SMS managers kept up with the Trend Index during its surge in 2014.



Source: Campbell & Company, Bloomberg Finance L.P., Barclayhedge. Based on volatility-adjusted (10% annualized) monthly net performance for representative systematic multi-strategy programs since Jul-14, when Campbell Absolute Return Program began trading in its current format. As of Dec-18.

There are a few important takeaways from the two exhibits. First, you'll notice that while performance was extremely varied, cumulative returns were generally quite positive for the SMS manager group, with all but one of them returning at least 15% and most outperforming global equities, the Multi-Strategy Index and the Trend Index. Second, a visual inspection of the volatility-adjusted performance in Exhibit 5 provides some information about the correlation tendencies of both Traditional Multi-Strats and SMS. Specifically, (i) the performance of Traditional Multi-Strats (i.e., the Barclay Index) has moved in lock-step with the MSCI World Index; (ii) the SMS programs were largely uncorrelated to global equities; and (iii) the SMS managers seemed to be correlated to the SG Trend Index in this period. These three things can all be confirmed quantitatively. From Jul-14 to Dec-18:

- The correlation of the Barclay Multi-Strat Index to Global Equities was 78%;
- The average correlation of the SMS programs to Global Equities was 0%;
- The average correlation of the SMS programs to the SG Trend Index was 65%.

Shortcomings of Correlation

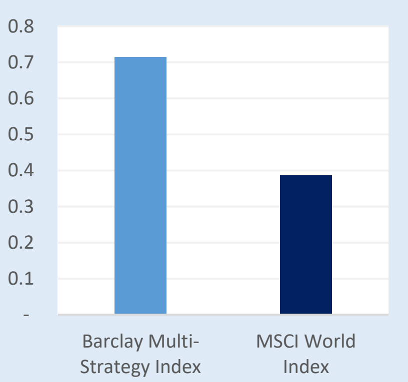
So, what to make of the findings above? Correlation can be a very useful statistic in portfolio construction, as it provides insight into the relationship between the mean performance of two returns streams. However, there is at least one notable shortcoming of the correlation statistic – it provides little information about the *level* of performance. In the case of the Barclay Multi-Strategy Index, a simple correlation analysis might suggest little synergy with global equities. However, as shown in Exhibit 5, the cumulative performance of the Barclay Index was much better than global equities on a risk-adjusted basis, and thus would have significantly improved a portfolio of global stocks. Exhibit 6 shows that the return/risk of the Barclay Index was 1.8x that of global equities since Jul-14.

Similarly, while SMS portfolios were correlated to the SG Trend Index during this period, the mean performance of the SMS managers was significantly better, on both an absolute and risk-adjusted basis. The manager group outperformed the Trend Index by 5X on a risk-adjusted basis, with the programs experiencing an average Sharpe ratio (with risk-free rate = 0) of 0.60 in this period, versus 0.12 for the Trend Index (Exhibit 7).

Of course, the last 3+ years have been historically bad for trend-based strategies. But Exhibit 5 shows us that even in the period from Jul-14 to Mar-15, which was extremely strong for the Trend Index, nearly half of the SMS managers out-performed the Index on a risk-adjusted basis.

Exhibit 6: Sharpe Ratio (Rf=0) since Jul-14
Barclay Multi-Strat vs. Global Equities

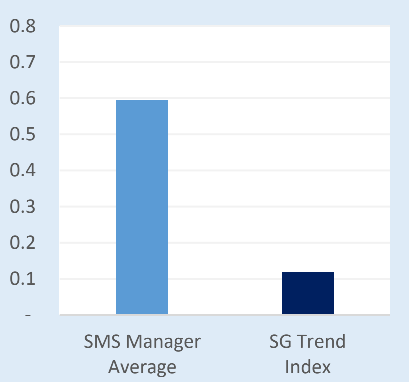
Although they are correlated, Traditional Multi-Strats had far better risk-adjusted returns than global equities.



Source: Campbell, BarclayHedge, Bloomberg Finance L.P., Annualized return/risk as of Dec-18.

Exhibit 7: Sharpe Ratio (Rf=0) since Jul-14
SMS Managers vs. Trend Index

SMS was correlated to Trend, but risk-adjusted performance for SMS was more than 5x better in this period.



Source: Campbell, BarclayHedge, Bloomberg Finance L.P., Annualized return/risk as of Dec-18.

Summary

In this paper, we aimed to provide some insight into Systematic Multi-Strategy (SMS) portfolios, which are absolute return vehicles that seek to harness the breadth of many synergistic investment styles, aiming to deliver largely uncorrelated and attractive risk-adjusted performance in a wide range of market environments. SMS shares numerous similarities with Multi-Risk Premia and Traditional Multi-Strategy Hedge Funds, but there also important differences.

Compared to Multi-Risk Premia, SMS portfolios are differentiated by the following features:

- *Investment Mandate:* SMS has an absolute return mandate, with a goal of providing attractive performance regardless of market environment. The mandate of Multi-Risk Premia products is to efficiently capture risk premia.
- *Capacity:* SMS portfolios will often include low-capacity markets, along with low-capacity investment styles like short-term trading and some relative value macro strategies. Low-capacity markets and strategies are typically excluded from Multi-Risk Premia products due to the lack of scalability and resource requirements.
- *Best Ideas:* SMS portfolios typically represent the confluence of a systematic managers' best and most proprietary ideas, with a primary focus on alpha capture. Multi-Risk Premia products aim to maximize premia capture.

Similarly, some of the key differences between SMS and Traditional Multi-Strats include:

- *Equity Correlation:* SMS has historically been largely uncorrelated to global equities, while Traditional Multi-Strats have exhibited an extremely high positive correlation to stocks.
- *Capital/Risk Allocation:* While both allow conviction to play a role in allocation decisions, SMS does so by using a systematic approach, while many Traditional Multi-Strats use discretion to allocate capital across strategies. Traditional Multi-Strats may also use discretion in determining individual trades.
- *Liquidity:* SMS portfolios include highly liquid markets and instruments only, unlike Traditional Multi-Strats.
- *Volatility:* Because Traditional Multi-Strats do not need to abide by the same limitations as SMS (in terms of liquidity, instruments traded and systematic discipline), they tend to include more embedded diversity and thus realize much lower levels of volatility.

Though the investment category is relatively new, we believe SMS has the potential to play an important role in investor portfolios. Based on the representative programs included in our analyses, we demonstrated that SMS portfolios have provided attractive risk-adjusted performance with very little, if any, correlation to equity indices. In our view, these highly liquid vehicles offer a performance profile with a compelling balance between stand-alone returns and diversification.

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