A Contemporary Evaluation of Key Alternative Investments: CTAs, Risk Premia and Hedge Funds

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Overview

The primary focus of this analysis is a contemporary evaluation of alternative investments represented by CTAs, Risk Premia, and Hedge Funds. We use Risk Premia as a proxy for passive/semi-passive investments in alternative strategies and contrast that with the active management approach of CTAs and Hedge Funds.

A general premise of our discussion is that Risk Premia was initially presented as a low-cost alternative for various actively managed alternative investment strategies including strategies used in CTAs and Hedge Funds (e.g. value, momentum, carry, volatility). In this analysis “Hedge Funds” represent all managers in our universe that are not categorized as “CTAs” or “Risk Premia”.

We proceed in the context that Risk Premia, CTAs, and Hedge Funds are developed and managed to pursue generally similar outcomes over a three-to-seven year “peak-to-peak” investment cycle. These common outcomes include: positive returns, overall diversification, positive skew (in the case of CTAs) and Alpha (in the case of CTAs and Hedge Funds.) For each of these three investments, we evaluate:

A. Historical Return Outcomes
B. Diversification Attributes
C. Skew Profiles
D. Alpha Profiles

Throughout this article, we will be using a new dataset, based on the NilssonHedge Database, a dataset that is combining public disclosures with direct reporting from funds. The database only covers funds that are reporting returns and may not include the specific funds you are considering. For those, the returns could be substantially different.

In certain of our analyses herein, we have chosen indices we believe are generally representative of each asset class that we are illustrating. These are proxies for the performance of the asset class in terms of risk and return.

A. Crypto and Equities are the Leaders - For Now

To begin, we thought it helpful to look at the recent returns of these investments alongside Public Equities, Private Equity and Cryptocurrency as additional “alternatives”. We include these three categories initially to acknowledge they have garnered the lion’s share of media coverage, marginal capital allocations in institutional portfolios, and/or have been top relative and absolute performers in the recent past. We also note that it may be fair to expect that if accommodative monetary and fiscal activity continues or expands, one or more of these three markets could continue to dominate performance rankings.

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>5yr Total Return (%)</th>
<th>10yr Total Return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Equity (Prequin)</td>
<td>108</td>
<td>277</td>
</tr>
<tr>
<td>US Equity (S&amp;P 500 TR)</td>
<td>103</td>
<td>267</td>
</tr>
<tr>
<td>Crypto (Bitcoin)</td>
<td>6,610</td>
<td>9,665,327 (!)</td>
</tr>
<tr>
<td>CTA (Barclay)</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Risk Premia (SocGen)</td>
<td>-6</td>
<td>NA</td>
</tr>
</tbody>
</table>

Source: Bloomberg, Prequin, BarclayHedge, SocGen • Created with Datawrapper
Indeed, the balance of our analysis presumes this sustained accommodation and stimulus will not be the case in the future. Instead, this analysis anticipates that allocation and investment decisions will once again be primarily driven by both individual market fundamentals and a wide range of global macro considerations (once an investor’s performance objective is determined.) And, that the uncertainty around these considerations will again amplify the dynamic challenges of asset allocation.

Figure 1 and Tables 1 and 2 demonstrate the particularly favorable environment for absolute returns in equity-centric investments. Clear too is the meteoric rise of Cryptocurrency, represented by Bitcoin here. We have excluded Bitcoin in Figure 1 and included it only in tabular form to accommodate the magnitude difference in returns of Bitcoin. We have also excluded Crypto Trading strategies from our current definition of Hedge Funds and so excluded them as well from the balance of our analyses.

Figure 1 - NAV Chart

Index NAV development for US Equities, Private Equity, CTAs, and Risk Premia. Quarterly Data up until Dec 2020.

Annualized performance (unadjusted for volatility) (Table 2) makes it clear that long equity investments have fared quite well relative to their own historical absolute results, and against CTAs, Risk Premia, and Hedge Funds.

This equity out-performance does bring into clear relief a concern of a reversion to long-term averages. If such a reversion is in store, our analysis of alternative investments here seems all the more pertinent and timely.

Table 2 - Risk and Return Breakdown for Asset Classes

<table>
<thead>
<tr>
<th>Asset</th>
<th>1yr(an)</th>
<th>3yr(an)</th>
<th>5yr(an)</th>
<th>10yr(an)</th>
<th>Vol(5yr)</th>
<th>Max Drawdown</th>
<th>Corr US Eq</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Equity (S&amp;P 500 TR)</td>
<td>18%</td>
<td>14%</td>
<td>15%</td>
<td>14%</td>
<td>17%</td>
<td>-20%</td>
<td>1.0</td>
</tr>
<tr>
<td>Private Equity (Preqin)</td>
<td>24%</td>
<td>16%</td>
<td>16%</td>
<td>14%</td>
<td>7%</td>
<td>-7%</td>
<td>0.8</td>
</tr>
<tr>
<td>CTA (Barclay)</td>
<td>5%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
<td>-5%</td>
<td>0.2</td>
</tr>
<tr>
<td>Risk Premia (SocGen)</td>
<td>-15%</td>
<td>-6%</td>
<td>-1%</td>
<td>NA</td>
<td>5%</td>
<td>-16%</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Source: Bloomberg, Preqin, BarclayHedge, SocGen - Created with Datawrapper
Table 2 includes a comparison of return volatility represented by annualized standard deviation of quarterly returns over the five years up to December 2020. We have used quarterly data for all investments to align with the quarterly data available for Private Equity (Preqin).

When afforded less granular mark-to-market frequency, CTA volatility is notably less than Private Equity. Drawdown results are also worth highlighting. Such comparisons may be subject to debate, though it is often interesting to consider disparate investments like CTAs and Private Equity from alternative perspectives. In this case, considering CTAs from the vantage point of less liquid investments.

In Figure 2, we use this same quarterly data to evaluate correlation to equity markets for the various investments. A striking observation is that there are few diversifiers available to investors.

**B. Diversification profiles are best when they can be relied on over time. Some investments may not have such reliability.**

**Revisiting Risk Premia**

We have previously defined Risk Premia products as passive/semi-passively managed investments that offer exposure to certain key drivers of alternative investments. These drivers, or Alternative Beta factors, are offered by Risk Premia products normally through a formulaic, quantitative strategy that generates position entry and exit signals, and position sizing in a mechanical, repeatable manner. In this section, Risk Premia return data (from the NilssonHedge Database) is primarily sourced from funds that are either allocating to Risk Premia Strategies through swaps or are replicating Risk Premia Strategies directly. We exclude Risk Premia offered by banks as these are not readily reported publicly and due to the heterogeneity of this broadly defined category.
The availability of Risk Premia products followed considerable academic work on Alternative Beta and an effort to identify the factor exposures common across alternative investment managers. Banks and fund managers rushed to create various Risk Premia and factor-based products beginning in the mid-2010s.

In addition to a lower-cost proposal, Risk Premia Strategies were at times presented as a more robust, more transparent way of obtaining certain components of Hedge Fund returns. They purportedly brought to light traditionally opaque trading tactics of actively managed quantitative and discretionary managers. Others argued that an implicit goal of Risk Premia was to eventually commoditize or otherwise disintermediate CTA and Hedge Fund strategies.

Over time, some institutional investors have sought to bring management of Risk Premia (and other alternative investment strategies) in-house. Others have looked to combine Risk Premia products with external active managers to increase diversification, to mitigate Equity Beta risk, or to otherwise reflect preferred portfolio biases.

**The Curious Progression of Risk Premia Correlations**

Since the advent of Alternative Beta studies, one of the most researched factors has been time series momentum. This price trend following factor is generally recognized as a primary trading signal for CTAs. Deployed across a diversified set of global futures markets and often various timeframes, this strategy is mostly responsible for the sought-after absolute return and uncorrelated profile of trend following CTAs.

As illustrated in Figure 3, most Risk Premia Strategies launched early on seemingly demonstrated a significant allocation to some version of these trend following signals. Not surprisingly, early on, CTA and Risk Premia correlations were high, and Risk Premia correlation to equities comparatively lower. See Table 3, “First Half” period from December 2015 to October 2018.
A Contemporary Evaluation of Key Alternative Investments: 
CTAs, Risk Premia and Hedge Funds.

As the universe of Risk Premia grew and matured, their performance profile shifted toward a lower correlation to CTAs and to higher correlation to long-only equity (see “Second Half” in Figure 3). More recently, Risk Premia Strategies have approximately a 0.5-0.7 correlation with the US Equity Markets. Table 3 demonstrates the shift in correlation between CTAs and Risk Premia as well as the increase in correlation of Risk Premia to Equities over the same time period.

Table 3 - Periodic Correlations

<table>
<thead>
<tr>
<th></th>
<th>First Half (Dec-17 to Sep-19)</th>
<th>Second Half (Sep-19 – Jul-21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA (Barclay) vs Risk Premia (SocGen)</td>
<td>0.71</td>
<td>0.15</td>
</tr>
<tr>
<td>CTA (Barclay) vs US Equity (S&amp;P 500)</td>
<td>0.52</td>
<td>0.18</td>
</tr>
<tr>
<td>CTA (Barclay) vs Hedge Funds (HFR)</td>
<td>0.68</td>
<td>0.13</td>
</tr>
<tr>
<td>US Equity (S&amp;P 500) vs Risk Premia (SocGen)</td>
<td>0.37</td>
<td>0.52</td>
</tr>
<tr>
<td>US Equity (S&amp;P 500) vs Hedge Funds (HFR)</td>
<td>0.86</td>
<td>0.88</td>
</tr>
<tr>
<td>Hedge Funds (HFR) vs Risk Premia (SocGen)</td>
<td>0.57</td>
<td>0.57</td>
</tr>
</tbody>
</table>

As the universe of Risk Premia grew and matured, their performance profile shifted toward a lower correlation to CTAs and to higher correlation to long-only equity (see “Second Half” in Figure 3). More recently, Risk Premia Strategies have approximately a 0.5-0.7 correlation with the US Equity Markets. Table 3 demonstrates the shift in correlation between CTAs and Risk Premia as well as the increase in correlation of Risk Premia to Equities over the same time period.

A Multiple Regression Review of Alternative Investments

To evaluate our three alternative investments from another perspective, we run a large-scale multiple regression of monthly alternative investment manager returns (Risk Premia, CTAs and Hedge Funds) against the Fama French Five-Factor Model with the addition of the (cross-sectional equity) Momentum Factor. We use a rolling lookback period of 24-months to calculate factor loadings of the various managers. For this analysis, we use the specific track-records of managers from the NilssonHedge Database.

This regression tells us the individual loadings of each fund in the database (for additional comment see Appendix A – Mechanics of the Analysis). These loadings are subsequently grouped into our three alternative investment categories: CTAs, Risk Premia, and Hedge Funds, where the latter category consists of a variety of Equity Long/Short, Market Neutral, Event-Driven, Fixed Income, and other strategies. The 24-month rolling average regression Betas are used in Figures 4 and 5.

Most of the selected factors are equity-centric, but we hope to learn something from the changes and levels of factor correlations. The factors do not carry fees, transaction costs, liquidity restrictions, and are generally hypothetical in nature. Thus, they have a distinct advantage over the actual funds used in this analysis. That said, they are generally accepted benchmarks for understanding exposure and strategies.

1 Alex Lostado, quant analyst with NilssonHedge, contributed with code and initial analysis
2 Factor data from the Kenneth R French data library
Figure 4 - Rolling 24-month Regression against the Fama French Five Factor + Momentum Model

The Y-axis is the factor loading derived from the standardized multiple regression model.
An inspection of the six factors in Figure 4 reveals that the Hedge Funds category demonstrates slower changes in exposure for all factors compared to the CTAs and Risk Premia Strategies. This is likely in part due to the level of strategy diversification in our Hedge Fund category, but also more static exposures to those factors. For most of the factors, Risk Premia and CTAs do generally show more variability.

We note that Risk Premia Strategies have low exposure to the “Small minus Big” (SMB) factor (a proxy for small cap exposure and illiquidity), whereas Hedge Funds have seen an increase to this exposure lately. This ties in well with the notion that Risk Premia Strategies do not generally seek to earn returns from illiquidity, as a matter of how they are operated. Thus, there is no obvious liquidity mismatch for Risk Premia products.

Focusing on the Market Exposure (MKT) factor repeated in Figure 5, we observe Risk Premia Strategies have a larger similarity with Hedge Funds than they do with CTAs, since 2019. And, both Risk Premia and Hedge Funds demonstrate a slowly increasing MKT factor loading since 2018.

This is consistent with the observation that both Risk Premia and Hedge Funds may have structurally increased their exposure to Equity Beta. Seemingly, this has not been the case for CTAs as they would not be expected to structurally increase their exposure to Equity Beta over time. Instead, during a sustained rally(decline), we would likely see CTAs approach their permissible boundaries of long(short) equity exposure already imbedded in their risk allocation framework.

An increasing correlation over time between the equity market factor, Risk Premia, and Hedge Funds may speak to an unintended equity exposure present in an otherwise seemingly diversified portfolio of strategies. A continued lack of Risk Premia performance in combination with higher correlation to the equity market may for many investors result in another negative performance “surprise”, akin to the equity drawdown we observed early on during the Covid-crisis.

We wonder here if such a downward shock can really be considered unexpected at this point as history is replete with similar events and today’s measures project a willing tolerance (again!) for considerable Equity Beta.
In Figure 6 we explore correlation distribution to evaluate what diversification contribution our three investments offer a portfolio with a predominant equity profile.

Our universe of CTAs has a bell-curved correlation distribution (about half have negative, half have positive correlation). This is in-line with conventional understanding that the most common CTA strategy, systematic trend following tend to have variable correlation to equities over time. In contrast, both Hedge Funds and Risk Premia Strategies are biased toward a positive correlation to equity markets. These results corroborate the comparison we observe in Figure 2, Figure 3, and Table 3.

C. Risk Premia and Long Equity have Negative Skew

Next, we study the skew across all the funds in the database again represented by CTAs, Hedge Funds, and Risk Premia, to discern tendencies toward positive and negative skew profiles.

It is important to point out that negative skew may be demonstrative of the existence of a Risk Premia. In this sense, premia represent an insurance-like payoff, rewarding the risk holder with ongoing compounding positive returns and periodic outsized negative returns.
In Table 4, the results for CTAs (positive skew) and Hedge Funds (negative skew) are in-line with prior research and general perception. For Risk Premia Strategies, most are realizing negative skew. This is likely as expected for Risk Premia, as in the long-term this may indeed be the reason why one should expect a positive payoff from the strategy.

**Table 4 - Realized Skew**

<table>
<thead>
<tr>
<th>Quartile</th>
<th>CTA</th>
<th>HF</th>
<th>Risk Premia</th>
<th>US Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (25th)</td>
<td>-0.3</td>
<td>-1.2</td>
<td>-1.7</td>
<td>-1.3</td>
</tr>
<tr>
<td>2nd (Median)</td>
<td>0.2</td>
<td>-0.4</td>
<td>-0.7</td>
<td></td>
</tr>
<tr>
<td>3rd (75th)</td>
<td>0.7</td>
<td>0.1</td>
<td>-0.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: NilssonHedge, Bloomberg • Created with Datawrapper

In addition, the performance success and so popularity of the Volatility Risk Premia may contribute to a high realized negative skew and potentially high correlation to equity market downturns. Here again we observe that Risk Premia Strategies have a skew that is structurally closer to Hedge Funds and equity markets than to CTAs.

**D. Alpha is at a Premium**

Hereunder, we review delivered total returns (and correlations) as well as Alpha, calculated as the residual returns adjusted for common factor exposures (the Fama French factors above).

**Figure 7 - NAV and 24-month Rolling Correlation**

Returns are for Hedge funds (HFRX Global hedge Fund Index), Risk Premia (SG Risk Premia), and CTAs (Barclay CTA).

Evaluating historical returns (Figure 7), it is striking to observe that although Risk Premia funds kept pace with CTAs and Hedge Funds up to 2019, their returns then started to diverge (despite sustained relatively high correlation to Hedge Funds and equities and during a sustained equity bull market).
Adjusting for implied factor exposures (Figure 8) gives approximately the same picture, with Risk Premia Strategies delivering negative Alpha beyond what would be expected net of costs. Hedge Funds and CTAs have recovered, and on average, delivered marginally positive Alpha over the period. Risk Premia is yet to catch up, though 2021 has seen a recent recovery for Risk Premia, in terms of absolute return.

It should be highlighted that the factors are unadjusted for transaction costs or fund-specific fees. Thus, the Alpha estimates might be a bit too pessimistic. Nevertheless, the relative trends are noteworthy (there may also be other factors that explain more of the recent increase in factor-adjusted performance.)

**Re-evaluate Your Alternative Investments with a Critical Eye Towards Equity Beta**

The recent past has been a banner period for risk-on investments like long equity, private investments and Cryptocurrency. Still more recently, commodity markets have also flourished as economies reflate and monetary and fiscal stimulus continues. More traditional alternative sectors like CTAs and Hedge Funds have also done well, though not to the extent of long-only equity and Private Equity investments.

When we isolate CTAs, Risk Premia, and Hedge Funds, and evaluate their specific return and correlation profiles, some curious, perhaps surprising observations arise.

Risk Premia, tasked with providing lower cost, transparent, and formulaic strategies, has delivered in this context. Risk Premia investments have seemingly offered the intended factor exposures to Alternative Betas and remained liquid despite considerable locally severe market shocks (e.g. Spring 2020).

Curiously, our analysis does bring into question the efficacy of Risk Premia broadly as an investable proxy for CTAs and other alternative investments with lower correlation to equities over time.

We observe an evolutionary track of Risk Premia where investment profiles have changed, possibly without intention, in some measures considerably. We note that as the dynamics of investment allocation are challenging enough, a key tenet of successful allocating is an investment's adherence to expected attributes (i.e. minimized style drift.)
Overall, in our analysis, Risk Premia Strategies have negative skew, which may be by design (but can be severely challenging during equity market stress and other spikes in volatility). But, they also seemingly have lower diversification benefits than expected and their under-performance (recent appearing as negative absolute returns and negative Alpha) may suggest the decision to accept them as an alternative to actively managed CTAs and Hedge Funds should be pursued with heightened scrutiny. At the very least, allocations to Risk Premia investments likely require a similar level of initial and ongoing due diligence as that required of active alternative investment managers.

We have seen institutional investors globally refine their allocations between CTAs, Risk Premia investments and other active managers in a myriad of ways. Some early adapters considered a wholesale replacement of CTAs with trend-specific premia, while others combined both approaches to lower their overall portfolio expense ratio. Still others have added certain Risk Premia exposures to diversify or tilt the profile of an existing alternative investment or equity risk-mitigating plan.

If we do return to an environment where asset allocation decisions are more akin to those required prior to the period of unprecedented monetary and fiscal stimulus, a more thorough look at alternative investments, in particular Risk Premia, may be needed.

Indeed, should a reversion back to traditional market dynamics be severe, resulting in another dramatic equity downturn, it is important now to properly evaluate the expectations of your CTAs, Risk Premia, and Hedge Funds in the context of equity market stress, sustained negative equity performance, and increased volatility across markets globally.

Authors:

Dan Rizzuto, CFA, Head of Capital Introductions and Advisory, Marex

Linus Nilsson, CFA, Founder, NilssonHedge
Appendix A - Mechanics of the Analysis

Where the NilssonHedge Database is used, such analysis has been performed on close to 4,000 individual strategies. For the multi-regression analysis, we use a standardized factor set, compromised of the Fama French Five-Factor Model, plus Momentum. This gives us an understanding how much we can explain using standardized academic factors. As usual, the unexplained part is called Alpha.

This model is an extension of Fama French’s original Three Factor model (Market, Value, Size). The Five Factor model adds the Profitability and the Conservative factors to the set and was formulated in 2014. To further capture market dynamics, we have also added the Momentum factor. All factors are dollar neutral except for the market factor.

We believe the model used herein represents a reasonable tradeoff between established transparent factors and a generic structure that is designed to be able to deal with a wide variety of the different fund strategies.

Using these factors, we effectively fit the following regression with the factor names as per the market conventions, noting that we have removed the time dependency to simplify the written equation.

\[ R_{Fund} - R_f = \alpha + \beta_1(R_{Market} - R_f) + \beta_2SMB + \beta_3HML + \beta_4RMW + \beta_5CMA + \beta_6MOM + \epsilon \]

While this dataset is not specifically designed for Global Macro managers (i.e. if we were analyzing a sample of macro managers, we could have used a factor set consisting of, for instance global carry, trend, and relative value factors), the goodness of the fit is high (median R2 between 0.5 and 0.75 for most strategies) indicating that the factors are explaining the returns and is an acceptable tradeoff between specificity and sensitivity.

The model is linear and will not account for non-linearities in factor exposures. We also believe that this is an acceptable trade-off between complexity and interpretability.
Appendix B - Biographies

Dan Rizzuto, CFA
Head of Capital Introductions and Advisory, Marex

Dan Rizzuto is the Head of Capital Introductions and Advisory at Marex. Dan has been a committed advocate of the alternative asset management industry for over twenty-five years. He has held senior management, business development, analytic, and operational roles in both the asset management and banking industries throughout his career at companies including Société Générale, Graham Capital Management, DKR Capital, and Bear, Stearns. Dan is a CFA Charterholder.

Linus Nilsson
Founder, NilssonHedge

Linus Nilsson founded NilssonHedge, a public hedge fund database, as an initiative to bring transparency to the hedge fund universe. The database uses an innovative way of aggregating public performance data and offers access to hedge fund returns. Linus has spent the last twenty years in various roles relating to external allocation, systematic trading, and risk management. Linus is a CFA Charterholder.