

Liquid alternatives in multi-asset portfolios: Smoke and mirrors or a true paradigm shift?

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Executive summary

Lower expected returns and elevated uncertainties pose a challenge to investment professionals that find themselves puzzled by a search for return and diversification. In this paper, we argue that there is a viable solution to this problem: alternative investments in a multi-asset context. Enhancing portfolios with exposures to alternative investments can complement existing allocations and puts investors in the position to persist in the challenging market environment ahead.

Alternatives span a broad investment universe, ranging from traditional liquid alternative assets classes to established private market investments. This paper however focuses on

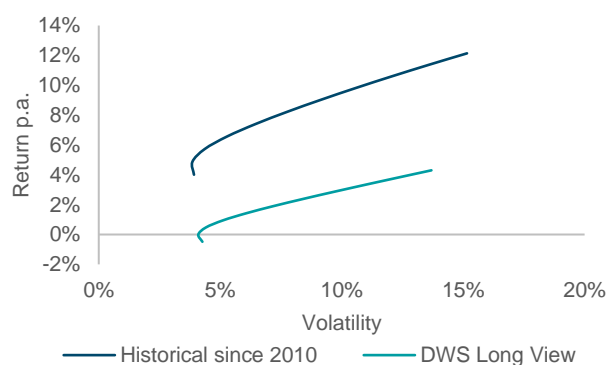
liquid alternative cross-asset strategies. We show that these strategies can have very different and unique characteristics which can complement and enhance existing asset allocations.

Selected challenges associated with these investments are highlighted that lead to one of our core principles: know your premia. Examples of the various objectives to use liquid alternative strategies are presented, from structural return enhancement to diversification to strategic downside protection. Different use cases require different liquid alternative solutions.

Search for returns and diversification in the new market regime

In the upcoming years the broad investor community is going to face the challenges of very low expected returns across equities and bonds (DWS Research Institute, 2020) and deteriorating diversification benefits associated with these investments. In particular for multi-asset investors, material consequences with respect to the risk and return characteristics of a traditional multi-asset portfolio arise from these challenges. In figure 1 we analyze that over the last years, the forward-looking efficient frontier, based on our long-term capital market assumptions, substantially shifted downwards – way below the realized frontier since the aftermaths of the financial crisis. Therefore creative solutions are required to generate sufficient return and, in addition to that, other approaches are needed to diversify tail risks properly. In the following, we elaborate in more detail about this search for returns as well as the challenge of the current correlation and risk regime.

FIGURE 1. SHIFT IN EFFICIENT FRONTIERS

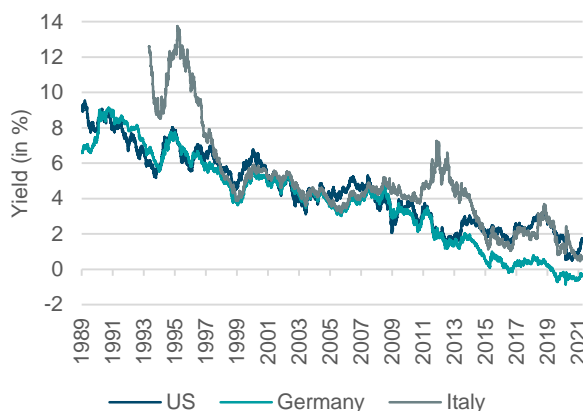


Source: DWS Investment GmbH, As of: March 2021

In 2020, global bonds continued the decades-long trend towards lower yields by plunging to unprecedented low levels (see figure 2). The accommodative forward guidance of central banks with respect to low for longer and asset

buying programs suggest that yields could remain at low levels for much longer. With 20 percent of global debt currently negative yielding, investment professionals naturally face the challenge to reconsider the role of “safe-haven” investments in their asset allocation. But also the risk-return profile of other defensive asset classes like investment grade corporate bonds is continuously deteriorating with multi-year low spread levels.

FIGURE 2. GLOBAL BOND MARKET YIELDS SINCE 1989



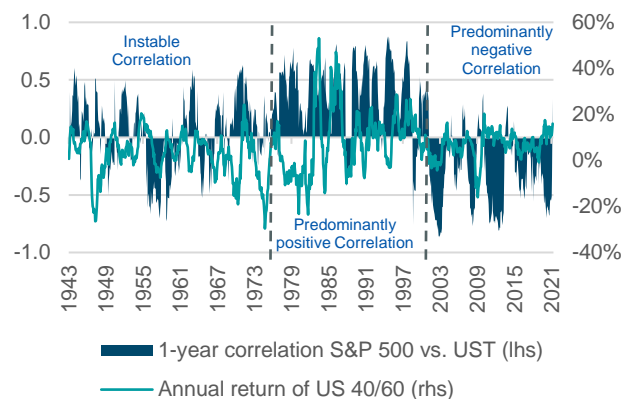
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In their search for yield, fixed income investors can take two straightforward, simple approaches to surpass the negative yield environment and to capture income: buying longer-dated bonds or increasing spread risks. But in case of German government bonds yields, even maturities of 30-years are still trading close to zero. Also within investment grade credit, in particular in Europe, shorter-dated bonds are on average negative yielding. Thus, significant duration extensions or substantial decreases of issuer quality would be needed to generate positive returns. But both options increase portfolio risks and furthermore a lower credit quality in general also worsens the liquidity profile of the portfolio. Within a strategic asset allocation the contrary is urgently required: diversifiers, that crisis-proof portfolios.

In the past decade simple strategic asset allocations benefited from a fair amount of diversification by combining equities and safe-haven sovereign bonds. In the post-2000 market environment, treasuries have proven their ability to absorb equity market shocks, thereby increasing the robustness of bond-equity portfolios. In 2 out of 3 cases, treasuries posted a positive return in case of negative weekly equity returns. But these diversification properties have already started to change: in 75 percent of these scenarios in 2020, bonds and equities weighed on the performance at the same time. Yields at the effective lower bound with only a small buffer left to stabilize in the event of equity market drawdowns, led to a deteriorating upside-downside capture ratio of treasuries relative to global equities. Does this changing relationship prelude the end of multi-asset? Simple portfolios benefited from negative bond-equity correlation since early 2000s, contributing to the success of the risk-adjusted performance. Although this

correlation was mostly negative after 2000, it is important to reconsider that it was positive for most of the preceding 100 years and that treasuries, based on this empirical evidence, might not always provide a drawdown hedge (see figure 3).

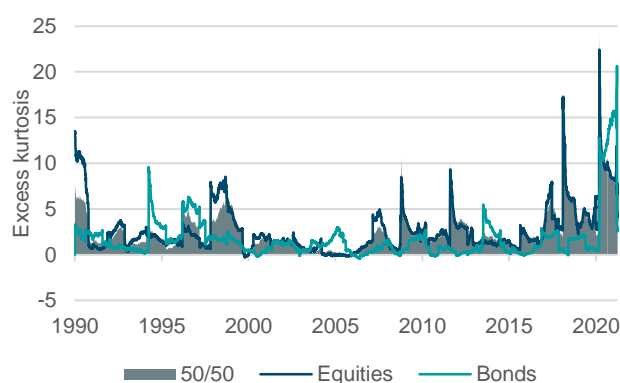
FIGURE 3. BOND-EQUITY CORRELATION



Source: DWS Investment GmbH, As of: March 2021

As already stated above, going forward, potential increases of cross-asset correlations and thus subdued diversification benefits loom a challenging investment landscape for multi-asset investors. The overall portfolio volatility has already started to rise during the last years. It is crucial to recognize that tail risk for equities and bonds, as indicated by the elevated excess kurtosis, has increased as well, which contributes to the downside risk of bond-equity portfolios (see figure 4). Even in very calm market environments like 2017 tails risks remained at relatively elevated levels and increased thereafter – across equities and bonds (Warken, Hille & Kirk, 2018).

FIGURE 4. EXCESS KURTOSIS - A TAIL RISK MEASURE



Source: DWS Investment GmbH, As of: March 2021

All in all, investment professionals find themselves puzzled by a search for return and diversification. In this paper, we argue that there is a viable solution to this problem: alternative investments in a multi-asset context. Enhancing portfolios with exposures to alternative investments, with its unique characteristics, can complement existing allocations. Private market investments, like private debt or infrastructure investments, are obvious candidates here, but portfolio

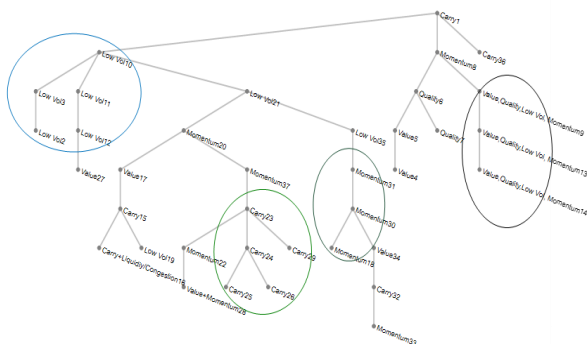
liquidity will likely be compromised. While we recognize that private market investments can play a significant role in enhancing the risk-return profile of a strategic portfolio, in this note we focus on how bond-equity portfolios could be adapted by the use of liquid alternative strategies. We first highlight the complexity involved in understanding these investments, especially in light of the vast number of strategies available. We advocate our principle “know your premia” as a precise understanding of the invested strategies is needed, as seemingly equal strategies can exhibit very different characteristics if investigated below the surface. We then turn our attention to the complementing characteristics of these strategies from a multi-asset perspective. Finally, we demonstrate that, with the right framework, the inclusion of alternative assets puts investors in the position to succeed in the challenging road ahead.

Liquid alternative strategies in a multi-asset context

As there is no universal definition for liquid alternatives, we at DWS Multi Asset & Solutions take a broad view, outlined in the following. Generally speaking, alternatives are investments that do not fall into one of the conventional investment categories of traditional stocks, bonds and cash. In case of liquid alternatives, these investments are accessible in broadly available, liquid vehicles that are in contrast to their illiquid counterparts, such as private equity and real estate, without prolonged lock-up periods. Thus, liquid alternatives comprise the areas of non-traditional investments but are also characterized through the use of complex, non-traditional investment and trading strategies (SEC, 2017). In addition to the traditional liquid alternative asset classes REITs, listed infrastructure and commodities, the labels liquid hedge fund strategies as well as cross-asset risk premia strategies are used to describe sub-categories of the broad liquid alternative investment universe. Unsurprisingly, different strategies will target different objectives, with some approaches for instance trying to monetize risk premia or others offering hedges in tail risk events. Therefore, investments in liquid alternatives provide access to different risk-return characteristics not available in traditional stock and bond investments. However, the increased complexity associated with these investments might also involve higher due diligence costs, higher operational risks and many more challenges from an investment perspective with some selected outlined in the following section.

One of the biggest challenges in incorporating liquid alternatives in multi-asset portfolios results from the sheer number of alternative investment strategies available to investors. This becomes especially apparent upon investigation of alternative risk premia strategies. Alternative risk premia strategies, that seek to deliver attractive returns by earning a “premium” through exposure to recognizable and exploitable risk factors by generally leveraging long and short positions within traditional asset classes, have received significant attention from practitioners and academics. Hundreds of different premia have been researched and published in leading journals in the last years (Harvey & Liu, 2019). The untamed growth of these supposedly different strategies has obviously led to a factor zoo. Feng, Giglio and Xiu (2020) apply a model selection framework to various, newly discovered factors with alarming results and implications: Although some of the selected factors are surely useful in a portfolio context, some are in fact useless and many more are redundant. It is therefore essential to have a conscious framework to select the right strategy for the right purpose. Figure 5 shows that clustering techniques of the various strategies might offer a starting point to put structure to the investment universe and get a first grasp of the basic characteristics (Warken & Hille, 2018).

FIGURE 5. CLUSTERING OF ALTERNATIVE RISK PREMIA STRATEGIES



Note: Minimum spanning tree based on the correlation distance matrix of 3-years of weekly returns across a selection of strategies in our database.
Source: DWS Investment GmbH, As of: March 2021

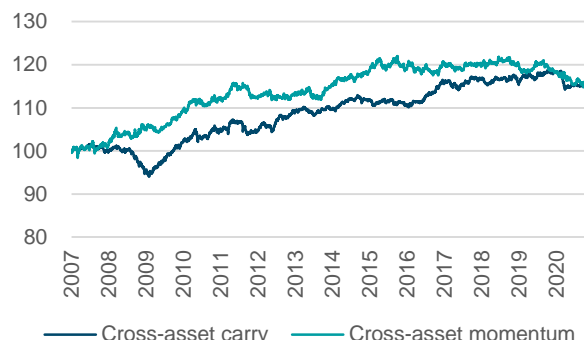
First, the results, based on the correlation distance, imply that in general strategies that are driven by the same factor are clustered together. For instance, the majority of the carry strategies are clustered in the green ellipsoid. Second, figure 5 showcases that differently labeled strategies can have very different properties, as indicated by the several sub-trees. Finally, the simple analysis also highlights that strategies with the same label do not always offer the same characteristics, e.g. although the majority of the previous mentioned carry strategies are clustered, some carry strategies are found in a totally different sub-tree. These observations underpin our core principle “Know your premia”, explained in the following.

To illustrate the different characteristics of some strategies, we contrast the behavior of carry and momentum risk premia strategies. An asset’s “carry”, loosely defined as expected return if market conditions, including its price, stays the same, is shown to predict returns both in the cross section and time series for a variety of different asset classes including global equities, global bonds, currencies and commodities (Kojien, Moskowitz, Pedersen & Vrugt, 2016). This predictability underlies the so called “carry trades” that go long high-carry and short low-carry securities, a strategy historically applied almost exclusively to currencies but shown to be a robust feature of many assets. On the other hand, trading strategies that buy past winners and sell past losers realize significant abnormal returns over the 1965 to 1989 period (Jegadeesh & Titman, 1993). Additional evidence indicates that the profitability of the strategies are not due to their systematic risk which resulted in the definition of the momentum factor, with further differentiations in time series and cross sectional factor momentum (Gupta & Kelly, 2019).

The importance of our core principle becomes clear in the following stylized analysis. We compare the excess returns of a cross-asset carry and a cross-asset momentum strategy. In both cases, the sub-components used to define the cross-asset strategies cover equities, bonds, currencies and commodities as underlying asset classes. The analysis highlights major differences: Despite an overall almost identical realized volatility of ~2 percent and a return of slightly

above 1 percent over the sample period, the return patterns are different in nature as can be seen in figure 6.

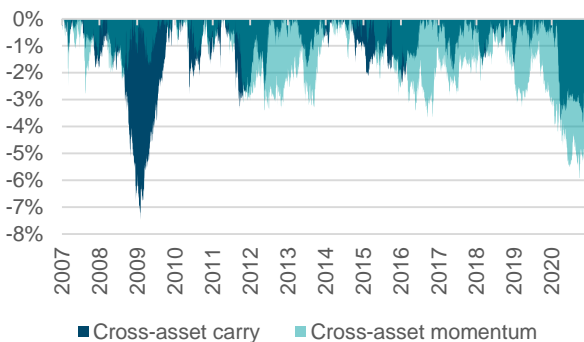
FIGURE 6. CARRY AND MOMENTUM CROSS-ASSET STRATEGY PERFORMANCE OVER TIME



Source: DWS Investment GmbH, As of: March 2021

The analysis emphasizes that there are times when carry strategies across all asset classes do poorly, global recessions, whereas the momentum basket posted positive returns during the global financial crisis. As can be seen in figure 7, although the drawdown behavior of the strategies significantly differed in the past, in the 2020 equity market setback both strategies exhibited a high degree of co-integration of the drawdowns.

FIGURE 7. CARRY AND MOMENTUM CROSS-ASSET STRATEGY DRAWDOWNS OVER TIME



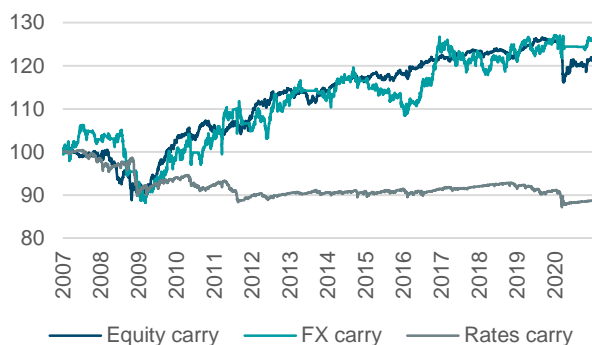
Source: DWS Investment GmbH, As of: March 2021

This simple analysis already shows that it is extremely important to get the basic understanding of the different investment strategies right, but also to have an in-depth understanding of the details and to monitor changes in the relative performance patterns in the rapidly evolving markets.

The importance to understand the precise definition of a strategy becomes apparent upon investigation of strategies with the same label but surprisingly different characteristics. This debate has in the past been heavily focused on the perhaps oldest equity factor: value, with the general idea to buy what is cheap and sell what is expensive from a valuation perspective. It has been shown that the exact definition of the value metric (among others Dividend yield or free cash flow yield) has a significant impact on the performance

of the corresponding investment strategy (Amenc, Goltz & Luyten, 2020). But also among the carry strategies used in the analysis above, we can discover large differences. It is not obvious at all, that the carry strategies, visualized in figure 8, are driven by a common factor.

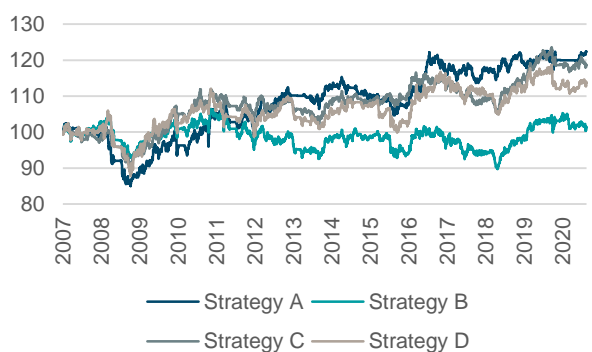
FIGURE 8. CARRY STRATEGIES ACROSS ASSET CLASSES OVER TIME



Source: DWS Investment GmbH, As of: March 2021

For example, on the one hand side the FX carry excess return ends up at 1.8 percent p.a. and on the other hand the rates carry strategy is down by more than 10 percent over the observation period resulting in a spread of 2.5 percent p.a. A significant gap, although all strategies are defined via carry. The carry strategies in the analysis correspond to different underlying asset classes, such that the question remains if these differences still occur if we compare carry strategies designed on one asset class only. And the answer is burdensome. As shown in figure 9 even if we just use currencies, different carry strategies can lead to very different risk-return profiles.

FIGURE 9. FX CARRY STRATEGIES OVER TIME



Source: DWS Investment GmbH, As of: March 2021

And this does not only hold true for FX and carry. For instance, our analysis in figure 10 of rates momentum showed even stronger dissimilarities: the Sharpe ratio of one of the three strategies is 3-6 times above the others. Although this explicit result might be puzzling, note that already the results of the clustering in figure 5 show that while some strategies with the same label are clustered together, others seemed to be correlated to a much lesser extent.

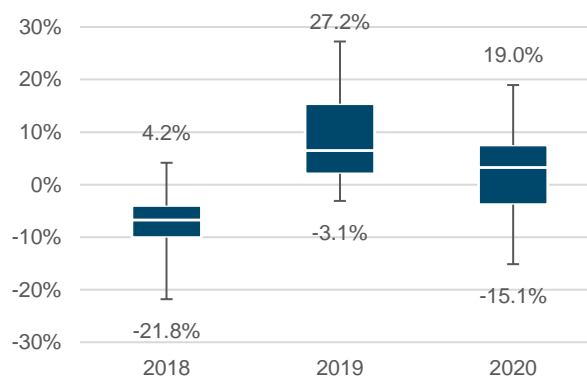
FIGURE 10. RATES MOMENTUM STRATEGIES OVER TIME



Source: DWS Investment GmbH, As of: March 2021

We have just demonstrated that knowing the premia is key. Alternative investment strategies among each other behave very differently, they do so if we compare strategies with different labels, but also if the label is fixed - independent of looking across multiple asset classes or focusing on a single underlying asset class. But the broad asset class “alternatives” consists not only of the cross-asset risk premia strategies category, it includes many more sub-asset classes that could prove to be useful in a multi-asset context, but also exhibit the observed high dispersion of returns. For example, in case of liquid hedge funds, the dispersion between best and worst managers is large for each style and for discretionary as well as systematic managers (Harvey, Rattray, Sinclair & Hemert, 2017). For selected equity hedge strategies from our own database, the boxplot in figure 11 shows the wide range of possible outcomes during the last three years. An interquartile range of close to 15 percent highlights the high dispersion. At the same time only 15 percent of the strategies rank consistently better than average over this short timeframe, such that finding sustainable outperformance is obviously a challenge. This puts another dimension to our “Know your premia” principle: the requirement of sound manager research with a precise understanding of the various investment approaches.

FIGURE 11. MANAGER DISPERSION OF SELECTED EQUITY HEDGE STRATEGIES



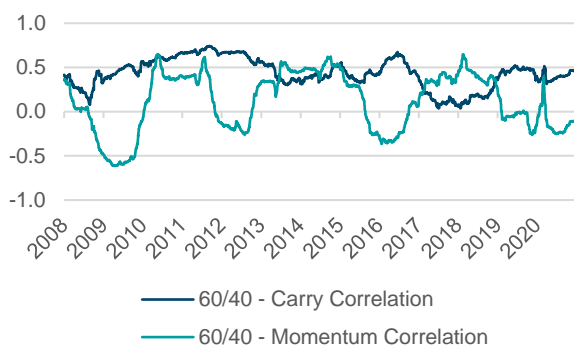
Source: DWS Investment GmbH, As of: March 2021

In the analyses above we have shown the importance of an in-depth understanding of the single strategies and their

characteristics. But, it is equally important to put these considerations of the behaviors in a multi-asset context. For example, in the initial cross-asset carry and momentum example, we have already identified that the broad baskets captured a historical excess return, i.e. risk premium, of more than one percent p.a. during the last years. Obviously, the return of a simple multi-asset portfolio, e.g. 60 percent global equities and 40 percent global fixed income, would have been enhanced if overlays were used to build exposure to these liquid alternatives. Adding an additional, unfunded 50 percent overlay exposure to carry or momentum leaves the realized portfolio volatility almost unchanged, at close to 10 percent, whereas the realized returns increase by 50-60 bps p.a. over the sample period.

In addition, we have already highlighted that the two defined baskets perform differently in different market regimes. Consequently, they also exhibit time-varying correlations vs. traditional multi-asset portfolios as shown in figure 12. These observed changes over time provide an additional opportunity set for investors to enhance the risk-return-profile of their portfolios via strategic adjustments.

FIGURE 12. ROLLING CORRELATION OVER TIME

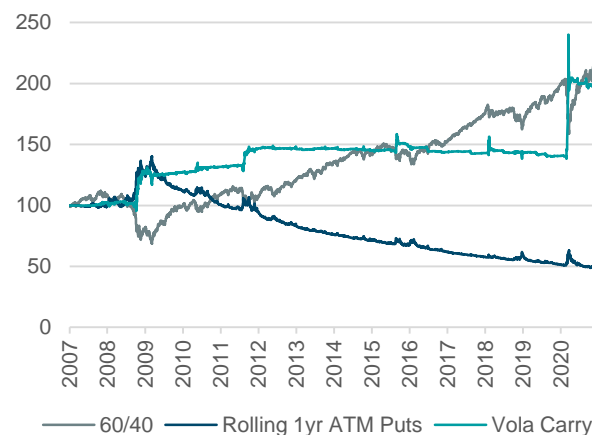


Source: DWS Investment GmbH, As of: March 2021

Although the 60/40 - momentum correlation turned deeply negative during the global financial crisis, a 50 percent momentum overlay was not able to offset the severe equity market drawdown in a meaningful fashion. The maximum drawdown of the simple multi-asset portfolios was only improved from 39 to 38 percent. Thus these approaches provide additional return however insufficient diversification which is an additional use case for liquid alternative stated at the beginning as well. Therefore to construct a portfolio with the aim to stabilize performance in the worst equity market periods, other more defensive alternative hedging strategies might be much more appropriate to hedge tail risk events. One of the simplest strategies, buying and rolling at-the-money put options, is indeed able to offset very negative equity market returns, but - as shown in figure 13 - it is a heavy drag on the performance during normal market regimes and is probably not the best choice to diversify tail risks strategically. Therefore, more advanced, complex trading strategies, i.e. liquid alternatives, are needed to improve the highly negative carry of the rolling put strategy. One possibility to improve the heavy drag is to use a combination of

equity index put options and call options on its implied volatility, i.e. Vola Carry in figure 13. However various other strategies are available offering similar characteristics.

FIGURE 13. PERFORMANCE OF STYLIZED STRATEGIC HEDGING STRATEGIES OVER TIME

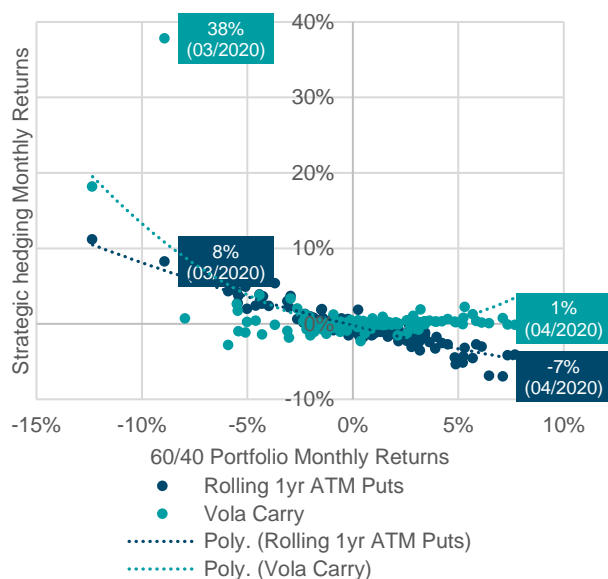


Source: DWS Investment GmbH, As of: March 2021

The two stylized strategies shown above can be used to derive the main characteristics of strategic hedging investment. In general, they are right skewed, fat-tailed (significant excess kurtosis) and show impressive draw-ups in case of equity market drawdowns due to the convex structure of options. While the multi-asset portfolio posted a maximum drawdown of 39 percent in the global financial crisis, the rolling put strategy jumped more than 40 percent. During the Corona-crisis the similar is true for the Vola Carry strategy: a drawup of 40 percent, whereas the traditional equity-bond portfolio lost more than 20 percent from peak-to-trough in early 2020.

The drag on the portfolio return of the rolling put strategy is again visualized from a different angle in figure 14. While negative portfolio returns are associated with compelling positive returns in the hedging strategy, the positive portfolio returns also come along negative returns of the hedge indicated by the regression line in figure 14 (blue dotted line). The Vola Carry strategy on the other hand exhibits a much more attractive and convex profile, by offering non-negative carry in normal market regimes and still significant drawups in the event of market drawdowns indicated by the green dotted regression line. In the case of Covid-19 virus shock in 2020, the different profiles can be worked out nicely. Whereas the 60/40 portfolio lost around 9 percent in March 2020, the Rolling 1Y ATM put buying strategy realized 8 percent performance. In the following month the 60/40 portfolio rebounded by 7 percent while the strategy lost almost all of its profits again. In comparison, the Vola Carry strategy has a drawup of 38 percent in March as well as a mildly positive return of 1 percent in April 2020. These observations are similar in several other time periods. Thereby, we can also provide a solution to enhance portfolio diversification via drawdown mitigation in tail risk events.

FIGURE 14. PORTFOLIO AND STRATEGIC HEDGING RETURNS IN COMPARISON



Source: DWS Investment GmbH, As of: March 2021

The last examples show that in addition to knowing your premia, it also crucial to have a structural view on the desired characteristics of the investment. While some alternatives investment can be used to harvest additional risk premia, others are especially designed to provide protection. An objective-based investment approach is needed.

Summary

In this paper we address the challenges for multi-asset portfolios to generate sufficient returns given the low yield environment in global bond markets, the low expected returns across asset classes and the search for portfolio diversifiers in the light of increasing tail risks in equity and bond markets. To counter this matter, we present a viable solution for portfolios: liquid alternatives.

Liquid alternatives contain a broad universe of different strategies across various asset classes. The variety of characteristics and approaches in the liquid alternative space increase the complexity in the selection process substantially. The sheer number of available alternative investment strategies requires investors to first understand the basic drivers and characteristics of the strategies. By using stylized examples of carry and momentum as alternative risk premia strategies we disclose differences in characteristics. If we compare strategies with different labels, but also if the label is fixed - independent of looking across multiple asset classes or focusing on a single underlying asset class - we observe significant differences. High dispersion of returns is a feature observed across the various sub-asset classes of liquid alternatives: in alternative risk premia, in hedge funds (we demonstrated dispersion in manager selection) and many more. Hence it is also very important to understand the differences and nuances which illustrates the importance of one of our core principles: "Know your premia".

From our perspective, liquid alternatives are useful and indispensable in multi-asset portfolios in particular given the low yield environment on the fixed income side, elevated equity valuations, increasing tail risk as well as the resulting downward shift in the efficient frontier. The spectrum of liquid alternatives is a broad and a complex one but it can offer different desired characteristics which range from attractive return profiles to diversification of tail risks depending on the strategies selected and asset classes considered.

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