

RESEARCH PAPER

# Alternative risk premia investing: from theory to practice

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Alternative risk premia investing has grown rapidly in popularity in recent years. But what exactly does it involve, and what should investors look for when considering which alternative risk premia strategies to invest in? In this paper we look at the theory behind alternative risk premia before discussing some of the practical considerations that should help investors get the most out of their allocation to these innovative investment strategies.

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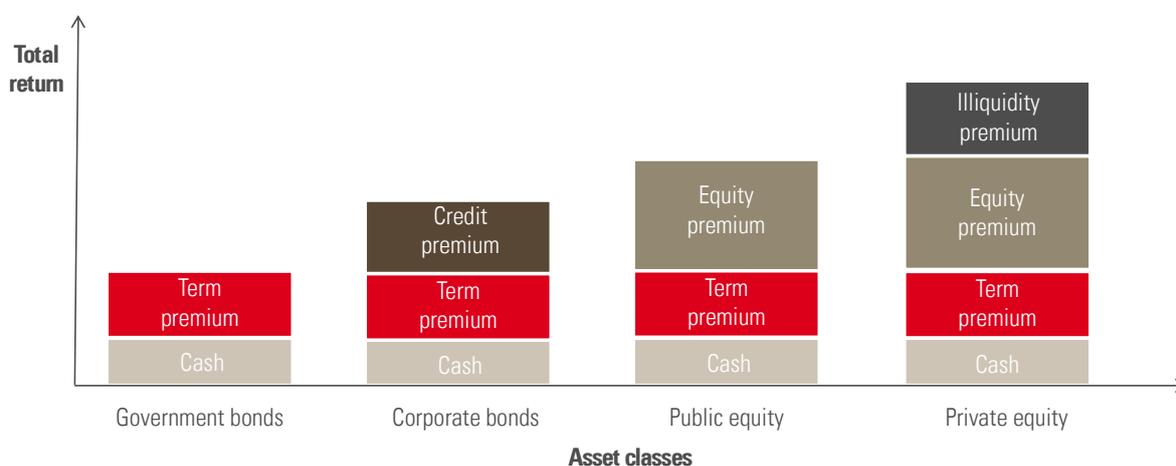
# 1. Theory and principles

## Introducing risk premia: the reward for taking risk

What exactly is a risk premium? The idea behind investing in anything is that it should reward you – through a return – for the risk involved in making that investment. In financial jargon, the systematic reward for taking on the (undiversifiable) risk associated with that investment is called the risk premium.

Traditional risk premia, such as the equity risk premium – the reward associated with investing in the equity markets – are well known by investors. The term (or duration) premium and credit premium associated with investing in government and corporate bonds respectively are also widely understood. When these risk premia are added to the risk-free return (the return provided by cash), they constitute the total return associated with holding an asset (see Exhibit 1).

**Exhibit 1: An overview of traditional risk premia**



Source: Unigestion. For illustrative purposes only.

It is important to contrast the concept of risk premium with the concept of “factor” that is frequently used in the investment industry. “Factor” is the risk that fundamentally explains the existence of the risk premium. For instance, the term premium is justified by the fact that bond investors are exposed to inflation risk, especially for longer-maturity bonds. Here, inflation is the factor and the term premium is the associated risk premium. Similarly, investors in corporate bonds receive a credit risk premium in exchange for being exposed to the default risk of the bond issuer (the factor). Most traditional risk premia are exposed, in varying degrees, to key macro and market risk factors (e.g. growth, inflation and market stress).

Over the years it has become increasingly apparent that these traditional risk premia are not the only ones that investors can exploit. This has been most obvious in the equity market, where academic research has identified a number of other sources of systematic returns that can be elicited from single stocks.



These include<sup>1</sup>:

- Value: on average, value stocks outperform growth stocks
- Size: on average, small caps outperform large caps
- Momentum: on average, stocks that have performed well in the past outperform stocks that have performed poorly.

Academics and practitioners have identified similar types of patterns across other asset classes.<sup>2</sup> For example, allocating to assets that provide high carry (the return an investment provides should its price remain the same) rather than low-carry assets has been shown to be a consistent source of long-term returns for many asset classes. Meanwhile, several studies have shown that momentum investing can be exploited in a cross-asset setting, reproducing the returns offered by trend-following strategies. These strategies are part of the family of alternative risk premia.

### **The case for alternative risk premia**

Alternative risk premia are distinct from traditional risk premia. While the latter are captured by long-only investment in one given asset class, alternative risk premia are more complex to harvest. They tend to be extracted using methodologies typically used by hedge funds, e.g. long-short and leveraged portfolio construction, applied both within and across asset classes. As a result, a distinctive characteristic is that they usually have a relatively low correlation with traditional risk premia. Finally, while they still have some degree of exposure to macro risk factors, alternative risk premia are exposed to a broader set of risk factors such as investment styles (e.g. value, carry), behavioural biases (e.g. herd behaviour) and investor constraints (e.g. leverage constraints, limits on sub-investment grade bonds exposure).

Alternative risk premia also differ from other popular investment strategies in the industry.

Firstly, they differ from smart beta, which are long-only portfolios that apply alternative weighting schemes (as opposed to the conventional market-capitalisation weights). Smart beta strategies have mixed exposure to both traditional and alternative risk premia. For instance, a value smart beta portfolio will in general be fully invested based on a selection of single stocks with the best scores in terms of some value criteria (e.g. price-to-book). As a long-only portfolio of stocks is extracted from the same universe, the correlation to the equity index will remain fairly high (0.7 or higher) and the exposure to the value risk premia will be only partial. By removing the effect of market directionality, alternative risk premia give a purer exposure to the return potential of the risk premium they exploit. Exhibit 2 summarises the relationship between traditional risk premia, alternative risk premia and smart beta strategies.

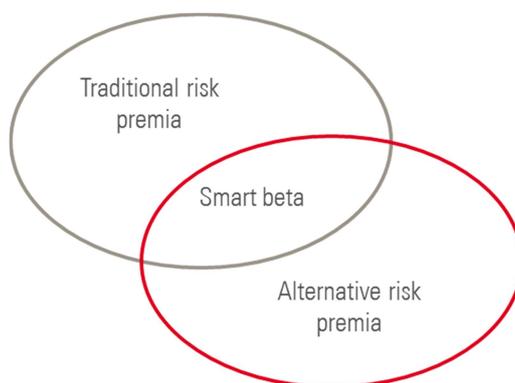
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<sup>1</sup> Pioneering research was conducted by Fama-French (1993) and Carhart (1997).

<sup>2</sup> See, amongst others, Kojien, Moskowitz, Pedersen (2012) and Moskowitz, Ooi, Pedersen (2012).



## Exhibit 2: Alternative risk premia and smart beta



Source: Unigestion. For illustrative purposes only.

Secondly, they also differ from traditional alternative managers, i.e. hedge funds, which provide exposure to some of these alternative risk premia, although not originally marketed as such – see Box 1. While a hedge fund investment comes with the promise of pure alpha (non-systematic returns), alternative risk premia investing generally offers the more certain effect of cost reduction and a significant improvement in transparency and liquidity terms. This is the trade-off for investors.

### Box 1: Disentangling hedge fund returns

Historically, net hedge fund returns have been calculated as the sum of market beta and alpha minus fees.

$$\text{Hedge Fund Net Returns} = \text{Market Beta} + \text{Alpha} - \text{Fees}$$

However, research over the past decade has challenged this idea, showing that much of what was previously thought as alpha is actually due to the existence of alternative risk premia.

$$\text{Hedge Fund Net Returns} = \text{Market Beta} + \text{Alternative Risk Premia} + \text{Alpha} - \text{Fees}$$

This has an important implication for investors. While true alpha is still part of the hedge fund return equation and has various sources (mainly security selection and/or active asset allocation), investors are now presented with the opportunity of accessing alternative investment returns much more cheaply and efficiently through alternative risk premia.



## Examples of alternative risk premia

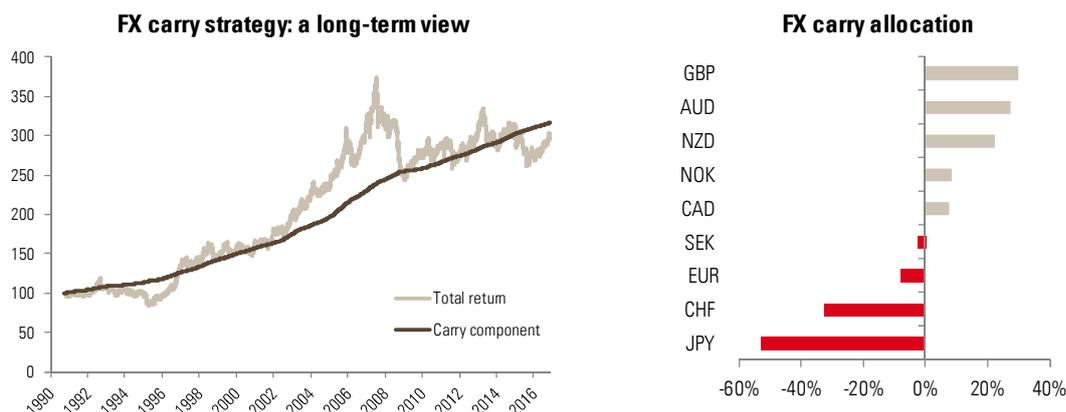
Let's consider two typical alternative risk premia: FX carry and trend following. A broad list of alternative risk premia is given in the Appendix.

### *FX (foreign-exchange) carry*

Uncovered interest rate parity theory states that, over time, high-interest-rate currencies should lose value relative to lower-interest-rate currencies, for the overall expected returns of both types of currency to be equal. However, this theory has been shown to be invalid in most cases, i.e. high-interest-rate currencies tend to appreciate, not to depreciate. A way to exploit this anomaly is to systematically go long high-yielding currencies and short low-yielding currencies. This is called the FX carry strategy, and has proven to be profitable over the long term, notably as the carry component accrues on a daily basis, as shown in Exhibit 3.

Why does the carry trade work? Various explanations have been put forward,<sup>3</sup> such as that it represents compensation for exposure to the economic (consumption) growth risk, or to the risk of economic disaster. This is because the trade typically involves going short reputedly "low-risk" economies and currencies (which investors would be expected to pay a premium to hold) as shown by the example of the yen, which represents the biggest short position in our strategy example, shown in Exhibit 3.

**Exhibit 3: Example of a hypothetical foreign-exchange carry strategy**



Source: Bloomberg, Unigestion calculations.

For illustrative purposes only. The two series are based on a developed markets (G10 currencies) carry strategy. The strategy is risk-weighted, where a long (short) position is held in a currency whose risk-free rate differential vs. the USD risk-free rate is higher (lower) than the median. The risk weights allocated to each currency with a long (short) position is based on the size of this difference as a proportion of total absolute difference in the currencies where a long (short) position is held. Backtest period: 05/10/1990 - 23/11/2016. The "carry component" curve represents the return that would be harvested by investors by investing in the carry strategy if foreign exchange rates did not move over time, hence receiving only the interest rates from different currencies. The "total return" curve represents the actual return provided by an investment in the carry strategy. The allocations are represented as at 23 November 2016.

<sup>3</sup> See, amongst others, Anzuini and Fornari (2011); Brunnermeier, Nagel and Pedersen (2008); Farhi, Gabaix, Fraiburger, Ranciere and Verdelhan (2009).



## Trend-following

On the face of it, chasing past returns – buying assets that have performed well and selling those that have performed poorly – does not seem like a smart strategy. After all, it seems counterintuitive to the value investors’ adage to buy low, sell high. However, empirical evidence shows that it is a profitable investment strategy, both when it comes to single stocks and across asset classes.

So why does following trends in this manner work? Academics mostly refer to explanations based on investor behaviour or market microstructure: (i) investors receive information at different times, (ii) investors may chase returns out of fear of missing out on trends, (iii) margin calls or risk limits might force investors to sell and trigger downward spirals.

Trend-following can be applied as a fully systematic strategy using liquid instruments, and some popular CTA managers – whose returns can mostly be explained by trend-following techniques – are now proposing alternative risk premia versions of their strategies. An important point to note is that complex signals are unlikely to be useful in this kind of strategy as there is little point chasing trends that no one else can identify. The ultimate benefit for investors is that an alternative risk premia format of trend-following would, in general, be associated with better terms – notably, lower management fees – which make a significant difference when compounded over the long run, as shown in Exhibit 4.

### Exhibit 4: Cross-asset trend-following and the compounding effect of fees

	<b>Trend-following simulation with 0.6% p.a. management fee</b>	<b>Trend-following simulation with 2% p.a. management fee + 20% perf. fee with high water mark</b>	<b>SG (ex-Newedge) CTA Trend Index</b>
Annualised performance	8.7%	5.5%	5.8%
Volatility	10.3%	10.1%	14.0%
Sharpe Ratio	0.61	0.31	0.24
Max. drawdown	16.9%	18.6%	21.7%
Calmar ratio	0.37	0.17	0.16

The Calmar ratio is a comparison of the average annual compounded rate of return and the maximum drawdown risk.

Sources: Bloomberg, Unigestion calculations. Return figures are based on hypothetical backtest simulations from 31.12.1999 to 31.12.2015 in USD, net of hypothetical transaction fees and management fees. Past performance is not indicative of future performance. Please refer to the important information on performance at the end of this document.

## Taxonomies of alternative risk premia

As alternative risk premia cover a wide range of strategies (see Appendix), finding an appropriate taxonomy for their classification is useful: it allows investors to group risk premia according to some of their common characteristics. This can be of great help at the portfolio construction stage, either in order to fit them in an existing allocation, or to ensure that the exposure to different alternative risk premia is well diversified.



Two major taxonomies can be described with the specific characteristics as detailed in Exhibit 5.

### Exhibit 5: Competing taxonomies of alternative risk premia

Type	Taxonomy	Pros	Cons
<b>Academically driven</b>	<b>Value / Momentum / Carry</b> Applied to all asset classes (equities, rates, credit, commodities, FX)	<ul style="list-style-type: none"> <li>✓ Consistent across asset classes</li> <li>✓ Academic background</li> </ul>	<ul style="list-style-type: none"> <li>✗ Too rigid: Where do “Quality” or “Low Volatility” fit?</li> <li>✗ Too theoretical: How do we define “Value” across commodities?</li> </ul>
<b>Practically driven</b>	<b>Hedge Fund Styles</b> Equity Market Neutral / Macro / CTA / Relative Value	<ul style="list-style-type: none"> <li>✓ More flexible classification (e.g. can incorporate more niche strategies such as Merger Arbitrage)</li> <li>✓ Closer to the implementation of the strategies by specialist (i.e. hedge funds)</li> </ul>	<ul style="list-style-type: none"> <li>✗ More empirical than fundamental analysis</li> <li>✗ Associated with hedge funds, which might deter some investors</li> </ul>

Each approach has its own merits and limitations. The academically driven approach has the virtue of consistency across asset classes but can be too theoretical. The practically driven approach is more flexible but its association with hedge funds may deter some investors. At Unigestion, we try to solve this trade-off by adopting an intermediary terminology, identifying three main families:

- ✓ Single-stock equity factors: covers all single-stock market-neutral strategies where stock selection is based on factors such as value, momentum, size or quality;
- ✓ Macro directional: covers strategies that elicit most of their returns by being either long or short asset classes and dynamically switching exposure. This notably incorporates trend-following or FX value;
- ✓ Yield capture: covers all market-neutral strategies that seek to harvest an ex-ante yield or income while removing market directionality. It incorporates most carry strategies or more specific strategies such as merger arbitrage, pair trading and other types of convergence strategies.

### Why invest in alternative risk premia?

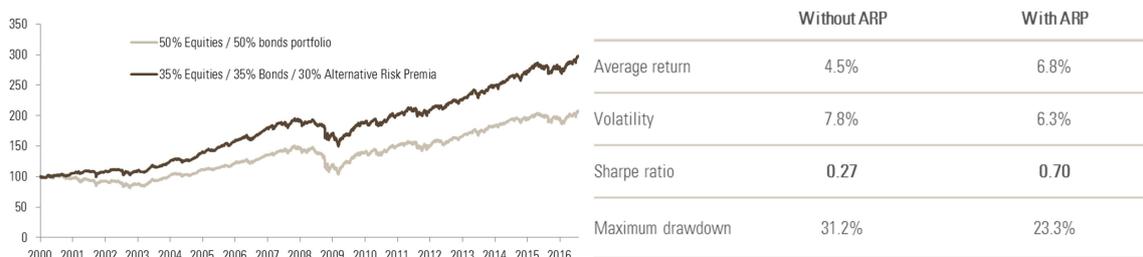
Investing in alternative risk premia can provide two main advantages.

First, an allocation to alternative risk premia can significantly improve the risk-return profile of a multi-asset portfolio (see Exhibit 6). Indeed, they should increase diversification given their low correlation with traditional risk premia, but can also act as return enhancers, notably in a low-yield environment where long-only exposure to traditional risk premia is less likely to be rewarding. This makes them a particularly attractive proposition in the current environment because traditional asset classes are providing lower expected returns and involve higher risks than in the past.



Second, they can provide investors with access to part of the return stream provided by hedge funds, but generally with better liquidity and at lower costs. That said, they cannot provide the alpha that the most talented hedge fund managers produce and thus will not post as high risk-adjusted returns.

### Exhibit 6: The effects of adding alternative risk premia (ARP) to a diversified portfolio



Source: Bloomberg, Unigestion. Monthly gross total returns measured in USD, from January 2000 to July 2016. Sharpe ratio is the ratio between the excess returns over cash returns and volatility. For illustrative purposes only. Equities are proxied by the MSCI All Country World Index in USD, and bonds by Bloomberg Barclays Global Treasury Total Return USD-hedged. Alternative risk premia are proxied by a simulation that allocates to a mix of trend-following, carry and equity factors.



## 2. Practical considerations

### How to select alternative risk premia

There are a few commonly accepted principles for selecting alternative risk premia but they can be interpreted in different ways.

First, it should actually be a risk premium. This means that:

- i) it should systematically generate positive expected returns over the long run, even if only to a modest degree, as is the case with FX value strategies;
- ii) the reason for its existence (whether that be a compensation for risk, behavioural biases among investors, or market imperfections) should also be readily understood.

Second, it must be investable in practice. From our perspective, alternative risk premia strategies should not be niche investments – they should be implementable and scalable at a reasonable execution price.

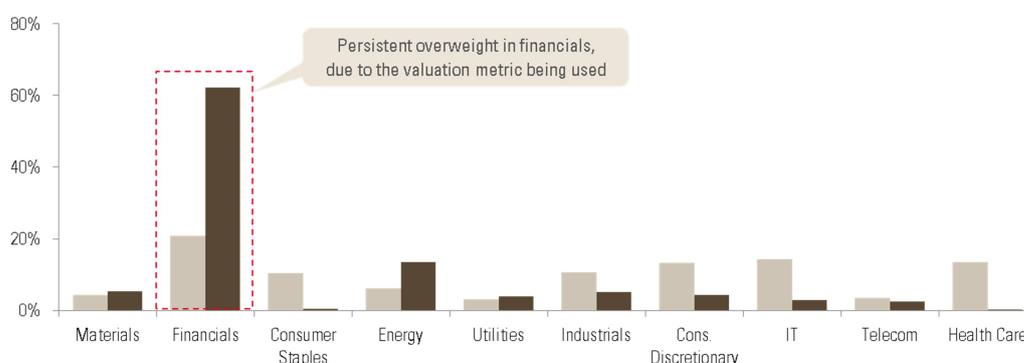
Finally, it must be economically meaningful, which, at Unigestion, means that its behaviour in relation to the major economic and market regimes must be explainable, as we discuss later.

While investors may agree with the above principles, the way in which each is interpreted and defined can differ. These differences in interpretation can lead to very different outcomes in practical implementation.

### The devil is in the details: putting alternative risk premia into practice

When it comes to individual alternative risk premia design, one of our core convictions is that the devil is in the details. We believe it is important to consider the definition of each alternative risk premium. An example is Equity Value. While everyone would agree that Value is one of the most important equity factors, a natural question to ask is: what is Value? Simplistic definitions, such as those based on the price-to-book ratio, are not applicable across all sectors, as some (e.g. financials) have inherently lower price-to-book ratios than others (e.g. IT). Consequently, using price-to-book as the sole measure of value can lead to concentrated portfolios with a persistent overweight in financials – even though this sector does not necessarily have more attractive value characteristics than others (see Exhibit 7). All in all, this can have material implications for aspects of investment portfolios, such as diversification or the robustness of results.

**Exhibit 7: Equity Value: allocation based on price-to-book ratio**



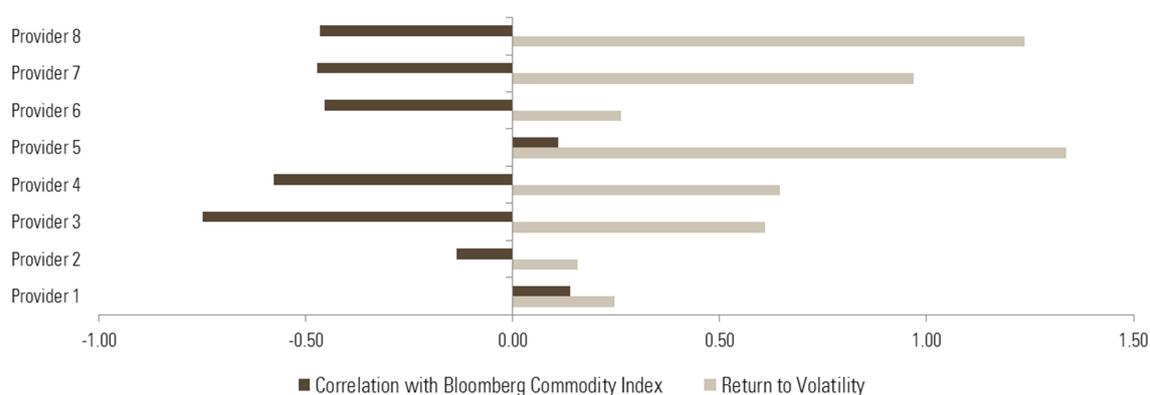
Source: Bloomberg, MSCI, Unigestion. Based on the MSCI World Index, data as at 31 December 2015, considering the first quintile of stocks with the lowest price-to-book ratios. Please refer to the important information on performance at the end of this document. Past performance is not indicative of future performance.



More globally, there is a false perception that alternative risk premia with the same terminology or name are similar. However, in practice, risk premia under the same label can be packaged very differently and thus deliver significantly disparate results.

In Exhibit 8, we illustrate this with the “commodity carry” risk premia. We collected commodity carry returns from eight major providers and compared their performance both in terms of risk-adjusted returns and their correlations with the underlying market. On both measures, the differences are significant.

### Exhibit 8: Commodity carry strategies: dispersion of performance across providers



Source: Bloomberg, Unigestion. Based on weekly returns from January 2015 to November 2016. Past performance is not indicative of future performance. Please refer to the important information on performance at the end of this document.

This illustrates that relative to passive, smart-beta and even long-only active management, the differences in performance between providers are exacerbated by the very characteristics of alternative risk premia: the specific risks of long-short and derivative strategies amplify the implications of errors in strategy design. As a result, it is important that investors give more consideration to the nuances around the definition and construction of each risk premium when selecting providers.

Another important consideration on the practical implementation of alternative risk premia strategies is the method of rebalancing. There is sometimes a perception that this has limited implications and that simple periodic rebalancing (typically end-of-month) works well. However, in our experience, enhanced rebalancing works better, as illustrated in Exhibit 9 below with the volatility carry strategy. This strategy<sup>4</sup> seeks to extract the risk premium depending on how the VIX curve is positioned. If the curve is in contango (where the VIX increases with the horizon of its future contracts), the carry of a long VIX position would be negative, and we would need to hold a short position in the VIX to extract the premium. Conversely, when the VIX curve is in backwardation (where the VIX decreases with the horizon of its future contracts), we would need to enter into a long VIX position to collect the premium.

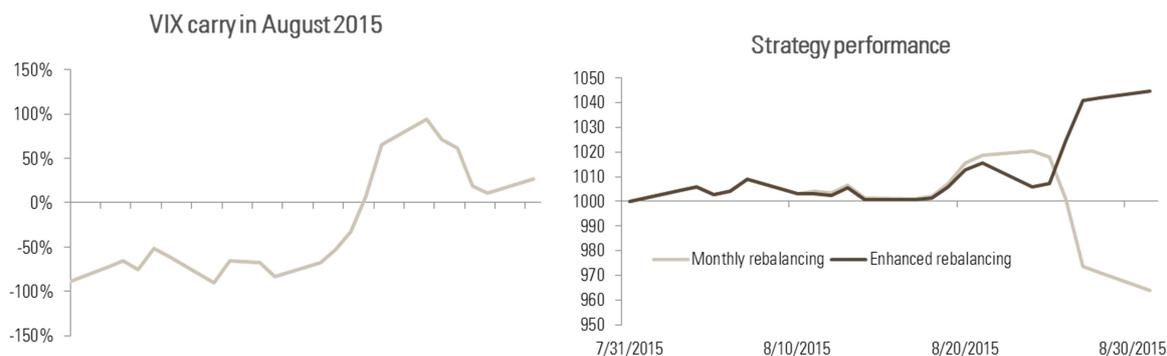
<sup>4</sup> See, e.g. Simon and Campasano (2013).



Amid the market turmoil of August 2015, the shape of the VIX curve changed rapidly, triggering a change in the signal used in a volatility carry strategy. Exhibit 9 shows that while a fixed-date rebalancing strategy would have lost money for the strategy, a more flexible approach that triggers a rebalancing as and when market conditions change significantly (e.g. based on tracking error with a model portfolio), has resulted in a gain in value.

Flexible construction methodologies are vital if alternative risk premia are to be harvested successfully in the long term. Execution should be optimised for expected performance, not for ease or perceived simplicity alone.

### Exhibit 9: The importance of rebalancing rules: an example with volatility carry



Source: Bloomberg, Unigestion. The graph compares a VIX carry strategy with the simulated performance of a volatility carry strategy with monthly and enhanced rebalancing during the month of August 2015, in USD, gross of fees and transaction costs. Please refer to the important information on performance at the end of this document. Past performance is not indicative of future performance.

### How to allocate between alternative risk premia

Once an investor has decided which alternative risk premia to invest in, the next step is to decide how to allocate between them.

Combining various alternative risk premia in a single portfolio is a sensible option because it can result in lower costs through the netting of trades as some instruments might be present in more than one risk premium. It also reduces risk through diversification as, in general, alternative risk premia tend to have a low correlation with each other over the long run (Exhibit 10). For investors, this offers the advantage of a potential significant improvement in risk-adjusted returns. Exhibit 11 highlights this improvement, comparing the average Sharpe ratio across eight individual alternative risk premia against the Sharpe ratio of a combined portfolio of alternative risk premia.

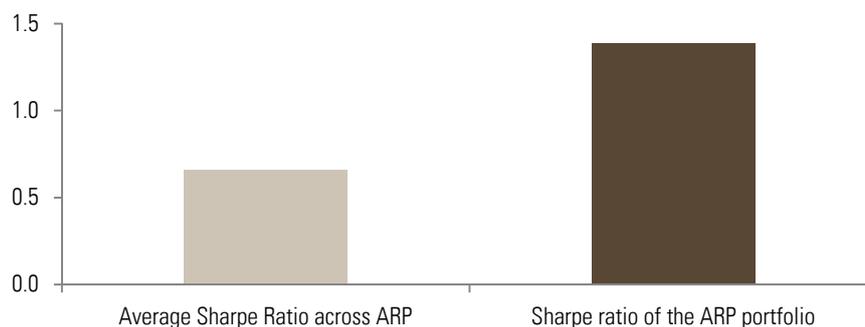
### Exhibit 10: Historical correlations of alternative risk premia strategies

	Trend Following	G10 FX Value	Bonds Carry	Credit Carry	G10 FX Carry	EM FX Carry	Dividends Carry	Volatility Carry
L/S Equity Factors	0.22	0.08	0.05	0.05	0.02	0.08	-0.01	0.02
Trend Following		-0.08	0.13	-0.02	0.09	0.07	-0.12	0.01
G10 FX Value			-0.06	-0.22	-0.18	-0.24	-0.11	0.09
Bonds Carry				-0.08	0.13	0.04	-0.01	-0.08
Credit Carry					0.30	0.25	0.31	-0.03
G10 FX Carry						0.53	0.27	-0.05
EM FX Carry							0.13	-0.07
Dividends Carry								-0.21

Source: Bloomberg, Unigestion calculations. Returns based on hypothetical backtest simulations from 15 December 2005 to 31 March 2016 in USD, net of hypothetical transaction fees and gross of management fees. Past performance is not indicative of future performance. Please refer to the important information on performance at the end of this document.



### Exhibit 11: Average Sharpe ratio across alternative risk premia (ARP) versus Sharpe ratio of a combined portfolio



Source: Bloomberg, Unigestion calculations. Returns based on hypothetical backtest simulations from 31 December 2003 to 31 December 2016 in USD, net of hypothetical transaction fees and gross of management fees. The range of alternative risk premia used in these simulations is the following: equity value, equity momentum, equity quality, equity size, cross-asset trend following, FX value, bonds carry, credit carry, G10 FX carry, EM FX carry, dividends carry, and volatility carry. The alternative risk premia portfolio represents the performance of a risk-based allocation to the risk premia listed above, where their allocation is rebalanced on a monthly basis. Past performance is not indicative of future performance. Please refer to the important information on performance at the end of this document.

As a starting point, we believe Equal Risk Contribution (ERC)<sup>5</sup> (which, broadly speaking, assigns the same volatility budget to each portfolio component) is a sound principle to benefit from this diversification in the long run. It is perceived as an agnostic (“no-view”) choice, which some investors favour as a portfolio construction principle.

Whilst we like ERC as a general principle and as a starting point, we fear it might be too naïve on a standalone basis as it can lead to false diversification in some periods. Including various strategies and purely scaling them based on their volatility does not necessarily lead to diversification in every economic and market scenario, although it might work over the very long run.

One of our core convictions is that the performance and risk characteristics of alternative risk premia are dependent on the prevailing economic regime. Exhibit 12 highlights examples of this dispersion in performance across regimes: trend-following strategies tend to do better during recession and market stress, rather than during inflation shocks; while carry strategies tend to do much better during steady growth periods and suffer during market stress episodes.<sup>6</sup>

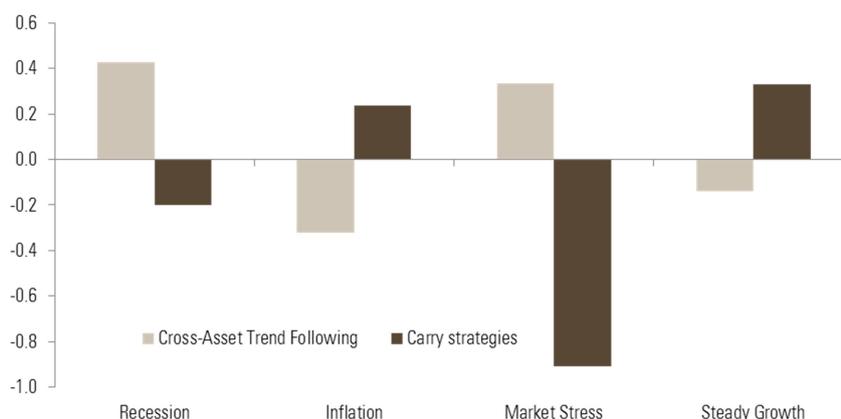
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<sup>5</sup> The Equal Risk Contribution allocation mechanism was introduced in Maillard, Roncalli, Teiletche (2010).

<sup>6</sup> For a more detailed analysis, see the forthcoming research paper by Blin, Lee and Teiletche (2017).



## Exhibit 12: Excess Sharpe ratios of ARP strategies under different regimes (relative to the long run)



Source: Unigestion. Return figures are based on hypothetical backtest simulations from 31 December 2000 to 31 October 2016 in USD, gross of fees. Past performance is not indicative of future performance. Please refer to the important information on performance at the end of this document.

Investors need to incorporate these considerations in their investment approach if they wish to achieve true diversification and optimise the risk-adjusted return potential of their alternative risk premia portfolios. In our view, they should do so at two levels.

Strategically, the risk budgets they choose within their strategic allocation should be consistent with their long-term investment policy. Concretely, if one wants to have a portfolio that performs not only in a steady growth environment, one should avoid giving too much risk budget to alternative risk premia that tend to perform better in these environments (e.g., FX carry). We would encourage investors to adopt a more “all-weather” risk-budgeting policy.

Further, we believe that investors should also actively manage the portfolio by dynamically changing their risk allocations on the basis of different factors.<sup>7</sup> While we acknowledge that “timing” markets or alternative risk premia is a difficult task, we think that nowcasting<sup>8</sup> economic regimes and adapting the risk budgeting to the current environment is a worthwhile exercise. In our dynamic process, we also consider other dimensions such as the expected carry of individual risk premia. It is difficult for us to justify significant investment into strategies when there is no or limited carry.<sup>9</sup> Our own experience is that this common-sense approach is also valuable.

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<sup>7</sup> For a more details on the methodologies, see Jurczenko and Teiletche (2014) and Blin, Lee and Teiletche (2017, forthcoming).

<sup>8</sup> Nowcasting is a technique that encounters growing interest in official organisations such as central banks. The objective is to get an almost real-time measure of the business cycle based on a large set of economic indicators, rather than relying on single indicators such as GDP or PMI that are published with delays or offer very narrow views of the economy. For an introduction to Unigestion nowcasters, see Ielpo (2017).

<sup>9</sup> It is clear for carry strategies but the argument is also relevant for other strategies. For instance, part of the historical performance of trend-following strategies comes from the fact that they have benefited from the trend in interest rates both from price performance linked to yield reduction but also thanks to the positive carry of long positions in bonds. If rates are starting to trend upwards, trend-following strategies could benefit from price performance but they might suffer from the negative carry associated with short bond futures positions.



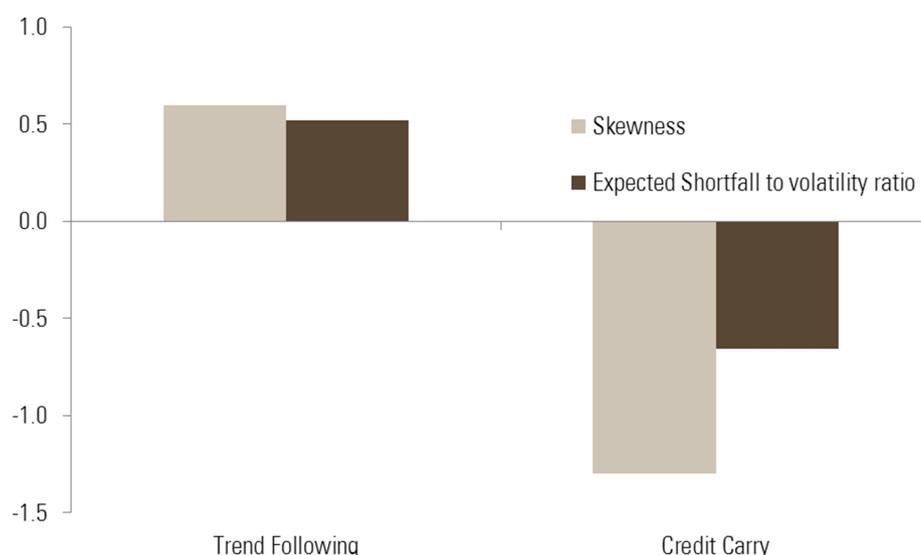
## Measuring risk in an alternative risk premia portfolio: beware of volatility

Once we have decided on the risk budget allocation, risk-based portfolio construction requires that we adopt a risk measure. Here again, the standard approach of using volatility as a measure of risk is not suitable.

Volatility is too simple a measure of risk for most of these strategies. For instance, it is unable to take into account the fact that the return distributions of some alternative risk premia can be significantly asymmetric. This is important from a risk standpoint, as strategies with a negatively skewed return distribution can expose investors to worse losses than would be expected from their volatility, especially during major downturns. Exhibit 13 illustrates how a credit carry strategy would have a worse Expected Shortfall-to-volatility ratio due to its negative skewness, when compared to a trend-following strategy which has positive skew.

We believe that Expected Shortfall is a more appropriate measure of risk. First of all, it relates to potential losses on capital, which is the true risk that investors face. Further, from a portfolio construction standpoint, it allows us to include more dimensions of risk than volatility alone. In our model, assets with low carry, high volatility, negative skewness, high tail risk and poor liquidity are penalised.<sup>10</sup>

### Exhibit 13: Risk asymmetry (relative to normal distribution) for ARP



Source: Unigestion. Backtested simulation returns are based on data from 29 February 2000 to 31 December 2015 (in USD, gross of fees).

<sup>10</sup> For more details, see Jurczenko and Teiletche (2015). One could argue that some alternative risk premia are just reward for skewness (see Lempiere et al. (2014a) or Ilmanen (2012)) and, as such, that penalising them would reduce returns. This argument is fallacious in our view, as the additional associated returns are just mirage returns.



### 3. Concluding remarks: a passing fad or a real solution for investors?

Alternative risk premia are not new. They have been known by academics and exploited by hedge funds for many years. What is new is that investors' interest in the benefits they can provide has grown rapidly over the past few years.

This is probably because the risk-return profile of traditional assets has deteriorated so much recently, most notably because of low yields, and because standard alternative solutions such as hedge funds have, on average, been unable to provide the net-of-fees returns that investors expect. This situation is unlikely to change in the near future.

Alternative risk premia are, in our view, one of the best liquid alternatives to make a strategic allocation to in a balanced portfolio. However, investors should choose which strategy to invest in with considerable care: in particular, different strategies with the same name can provide very different return streams. They should also pay attention to how the strategy is designed and implemented, as a simplistic approach may lead to unwelcome surprises.

Investors should also carefully consider how they allocate to different alternative risk premia. While a static approach might seem like the lowest-risk option, such a choice is actually an active decision in itself, as different alternative risk premia behave differently in different market or economic regimes. This means that an active approach to allocation is vital if investors wish to maximise the return potential and minimise the risk of their allocations to these strategies.



## 4. Appendix: an overview of alternative risk premia

In the table below, we give a (non-exhaustive) list of major alternative risk premia and more details on how they can be implemented.

Strategy	Investment universe	Process	Implementation
Single-stock equity factors	MSCI World	Long/short allocation to momentum, valuation, small-cap and quality equity factors Long low-volatility first quintile, short market-cap last quintile Beta neutral	Long individual stocks, short individual stocks through an equity swap Short positions might be implemented through futures
Trend following	Long-term rates, credit indices, equity indices, precious metals, FX	Long assets with positive trend, short assets with negative trend Trend = average of sign of 1y and 3m past performance Risk-weighted portfolio	Bonds futures, CDS indices, equity index futures, FX futures and FX forwards
Bonds carry	Long-term rates	Long rates with above-median carry, short rates with below-median carry Higher absolute weights for rates with largest difference from median Duration-neutral portfolio	Bond futures
Credit carry	CDS on European and North American indices	Long HY credit indices, short IG credit indices Risk-based HY vs. IG weightings	CDS indices
DM FX carry	G10 FX	Long currencies with above-median carry, short currencies with below-median carry Higher absolute weights for currencies with largest difference from median Risk-based portfolio	FX futures and forwards
EM FX carry	EM FX	Long currencies with above-median carry, short currencies with below-median carry Higher absolute weights for currencies with largest difference from median Risk-based portfolio	FX forwards
Dividends carry	EuroStoxx 50	Long a synthetic 1-year constant maturity EuroStoxx 50 dividend future, short EuroStoxx 50 futures Ratio of EuroStoxx 50 to Dividend futures based on 22-day beta	Dividends and index futures
Volatility carry	S&P 500	Short (long) VIX futures and S&P 500 futures when VIX in contango (backwardation) Risk-based ratio of S&P 500 to VIX futures	VIX futures, S&P 500 futures
G10 FX value	G10 FX	Valuation computed as the ratio between spot rates and OECD PPP rates Long most undervalued currencies, short most overvalued currencies on a cross-sectional basis (i.e. always long and short even if all currencies under or over-valued) Risk-based portfolio	FX futures



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