

How to manage risk in multi assets solutions?

January 2018

As the universe of multi asset solutions continues to grow, the team behind Unigestion’s Multi Asset Navigator strategy believes that the key to delivering long-term, stable returns resides in how risk is managed. Our dynamic risk management approach is based on two core dimensions:

- ↳ Measuring the risk of assets
- ↳ Allocating this risk

This paper seeks to outline this innovative process and underline why it is important to look beyond the usual risk metrics to fully understand a portfolio’s exposure to risk.

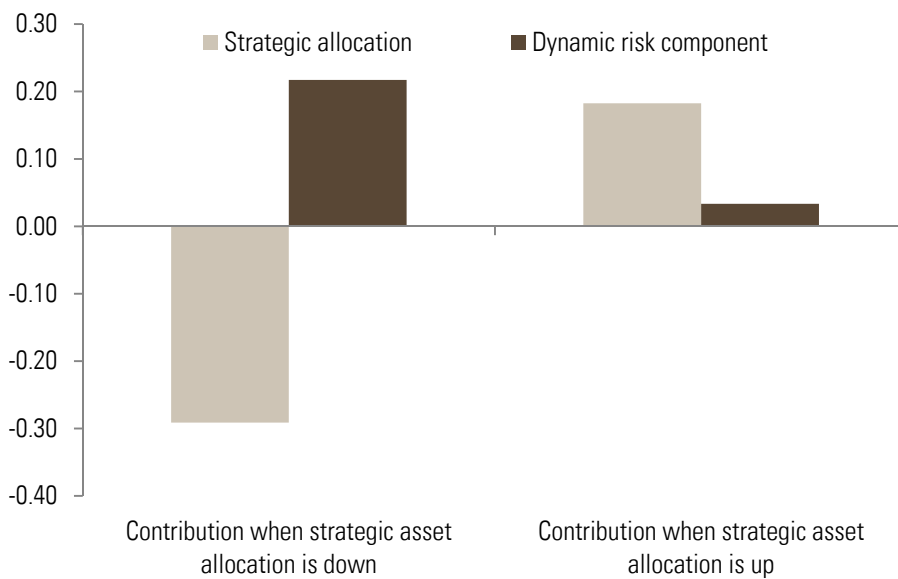
Navigating the multi asset dilemma

The term multi asset has become an area of confusion for investors. As a broad title it is factually correct – these strategies in general invest in multiple asset types. Yet beyond the opportunity set, the concept of multi asset offers little indication of what outcome the strategy is trying to generate.

In fact, when considering the varying strategies that sit under the multi asset umbrella, there is a vast difference in the way they operate and the goals they are trying to achieve.

At Unigestion, we think that investing is about managing risk and providing downside protection during periods of challenging market behaviour in order to deliver smooth returns across different market cycles. That’s why risk analysis is at the heart of our process. We believe risk-based investing, and the use of dynamic risk management alongside a strategic allocation, is the most robust way to manage multi asset portfolios seeking to deliver such an outcome, as shown in figure 1.

Figure 1: We believe dynamic risk management helps to deliver smoother returns



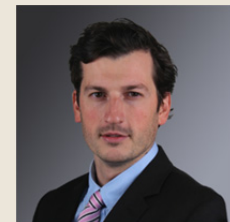
Past performance is no guide to the future, the value of investments can fall as well as rise, there is no guarantee that your initial investment will be returned.

Source: Unigestion (data from 15/12/2014 – 31/12/2017) contributions are risk-adjusted, gross of fees and are based on the Uni Global Cross Asset Navigator performance. The effect of fees and charges will reduce performance.



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Summary

1. Risk-based investing is the most robust way to manage a multi asset portfolio seeking to deliver smooth return.
2. It is key to view portfolio risk from a multi-dimensional perspective.
3. A dynamic risk management approach can determine how much risk a portfolio should take on at any time.



Our dynamic risk management approach aims to encompass two different dimensions:

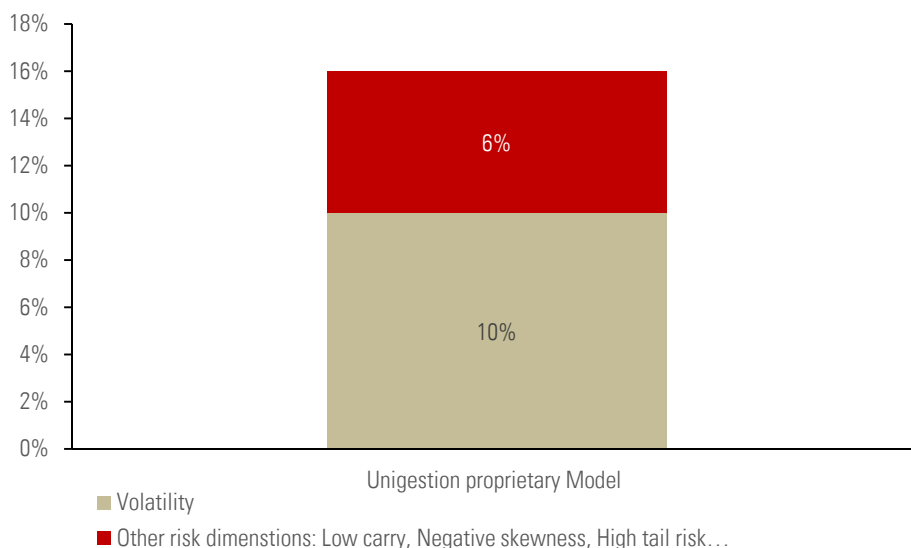
- ↳ Measuring the risk of assets
- ↳ Allocating this risk

Risk is not about volatility, but the risk of losing money

In our view, many risk-based multi asset strategies assess the risk of their portfolios using standard risk metrics, such as volatility and correlation. At Unigestion, we believe that risk should be defined in terms of the potential loss of capital rather than being proxied by an abstract measure, such as volatility. Therefore we have developed a proprietary Expected Shortfall model which helps us gain a multi-dimensional view of portfolio risk. Our model aims to encompass dimensions of risk that are ignored by volatility-based analysis, such as valuation, asymmetry, tail risk and liquidity. In practice, this framework identifies assets that exhibit poor risk qualities, such as negative skewness, high kurtosis, poor liquidity or low carry and penalises them. The benefits of our Expected Shortfall model can be illustrated by the following examples.

Firstly, let's consider the implications of the ongoing low yield environment. For some investors, the profile of future returns has deteriorated significantly. This is particularly evident among developed market government bonds, where yields are at historic lows while inflation signals are starting to rise. In our view, this means the risk of negative returns is increasing. Yields may still be declining, but duration has increased (for similar maturities) and, as yields approach the inevitable floor, the likely distribution of future returns is expected to become more and more negatively skewed. Our Expected Shortfall model indicates that this broader set of risk dimensions could lead to a higher estimation of risk, as shown in Figure 2. We have found that standard risk measures, such as volatility¹, ignore these 'hidden' risks, but they are clearly captured by our Expected Shortfall model enabling us to act accordingly.

Figure 2: Example of expected shortfall analysis for low yielding bonds



Source: Bloomberg, Unigestion – For illustrative purposes only.

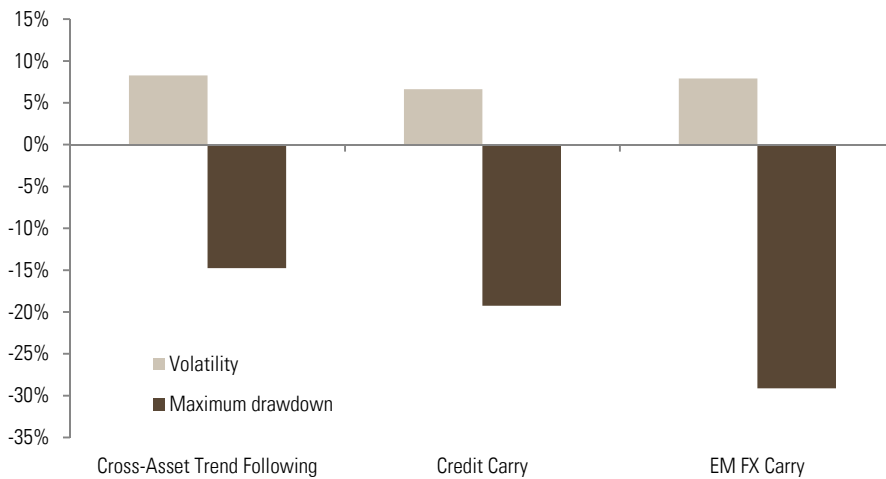
¹ See Unigestion note "The risky asymmetry of low bond yields".

"We believe risk should be defined in relation to the loss of capital rather than through abstract measures such as volatility"



For the second example, we compare three types of alternative risk premia (ARP): cross asset trend following, credit carry and emerging market FX carry. The historical volatility of these ARP is fairly similar, therefore a simple approach would be to allocate the same proportion of risk for each within a portfolio. However, we have observed that when historical maximum drawdowns are considered a very different risk picture emerges. For example, an emerging market FX strategy exhibits higher drawdown potential than the others and this additional risk needs to be taken into consideration within a risk-based portfolio. It is our view that ignoring some dimensions of risk can lead to the potential risk of loss being underestimated, as shown in figure 3.

Figure 3: Volatility versus maximum drawdown for three types of risk premia



Source: Unigestion, Bloomberg. Statistics based on back-tested series using data from October 2005 to December 2016.

In short, we believe that by focusing on different dimensions of risk we can avoid being overly dependent on individual measures, such as volatility or correlation, which can be too simplistic. We believe this approach enables us to apply a more robust risk allocation across our portfolios and, therefore, seek to achieve a smoother distribution of returns over the long term.

Asset allocation needs to consider all risk factors

Designing a broader measure of risk is the first step of our dynamic risk management process; however, this is not sufficient if the allocation of risk across multiple factors is not also balanced.

1. Nowcasting major macroeconomic risks

Our long-term strategic allocation is systematic and anchored around macroeconomic analysis which has shown that the economic cycle can be split into four macroeconomic regimes: steady growth, recessions, inflation surprises and market stress. In a bid to achieve our goal of being balanced across macroeconomic regimes, we align our risk allocation with the long-term (unconditional) probability of each of these macroeconomic regimes and this forms the basis for our long-term strategic allocation model.

Nevertheless, the frequency of these regimes can differ substantially over the long and short term and so the identification of macroeconomic sub-cycles becomes an important stage in our process. In light of this, our long-term strategic allocation is supplemented by a tactical allocation strategy that seeks to allow the portfolio to dynamically adapt to ever-changing economic and market conditions over the short and medium term. In an

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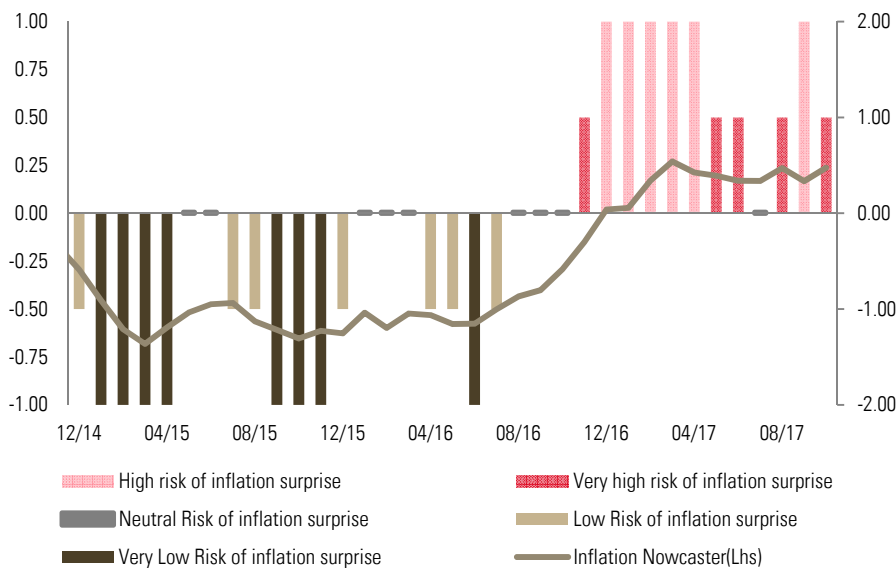
effort to monitor these macroeconomic risk factors in real time, Unigestion has developed three proprietary Nowcaster indicators:

- ↳ Growth Nowcaster aims to measure the risk of being in a recessionary environment
- ↳ Inflation Nowcaster gauges the risk of experiencing inflation surprises
- ↳ Market Stress Nowcaster assesses the level of market tension

For each of these Nowcasters, we have designed five levels of risk, ranging from very low to very high, in order to systematically measure the current environment. Our process considers both the level of risk indicated by each Nowcaster alongside a diffusion index, which tracks the inputs of our Nowcasters and monitors the proportion of positive versus negative data. The output from this real-time macro risk monitoring is that our portfolio's long-term strategic allocation is dynamically adapted to the prevailing macroeconomic context.

For example, in September 2016, our Inflation Nowcaster abruptly moved from its long-term position of an inflation surprise being low risk to being seen as a high risk; the indicator moved again in November 2016 to suggest a very high risk (see figure 4). This shift was synchronised across developed countries and driven by the improvement of labour markets and rising inflation expectations.

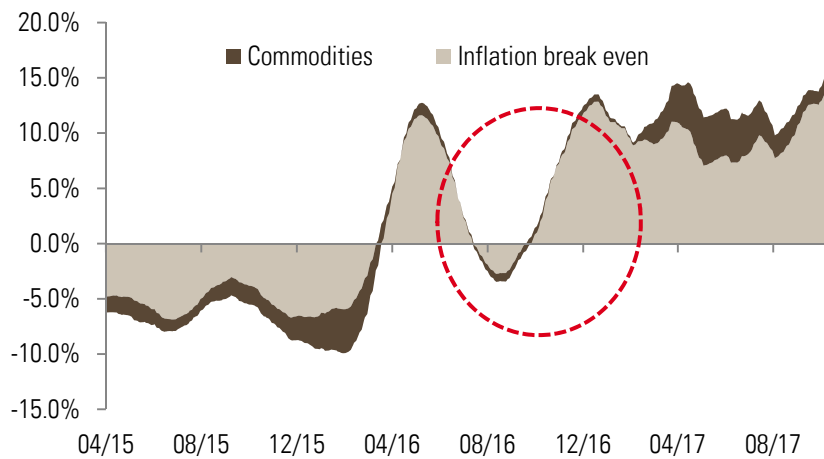
Figure 4: Inflation Nowcaster – increasingly likelihood of an inflation surprise



Source: Bloomberg, Central Banks, Unigestion

Our risk-based portfolio construction methodology then considered how this change to our inflation expectations applied to our perception of macro regime and capital allocation risks. In this example, the changes to our dynamic allocation led to a reduction in the portfolio's duration exposure, which is historically negatively correlated to rising inflation risk, and an increase in its exposure to real assets such as inflation linked break-evens and cyclical commodities (Figure 5).

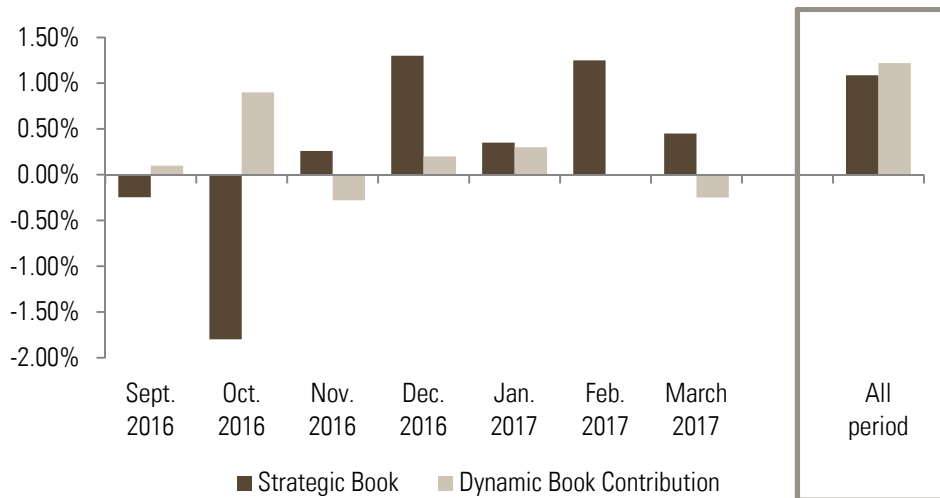
Figure 5: Dynamic changes to allocation of real assets (break even inflation, precious metal, energy and industrial metals)



Source: Unigestion, based on allocation of Uni Global Cross Asset Navigator

The reflation episode, from September 2016 to February 2017, saw US 10Y inflation break-evens rise from 1.57% to 1.97%, leading to a rise of 80bp in US nominal bonds (source: Bloomberg). Our dynamic risk management process helped us capture a positive contribution to performance during this period and deliver consistent, stable returns (see figure 6).

Figure 6: Monthly contribution of strategic and dynamic books during 2016/17 reflation period



Source: Unigestion (data from 31/08/2016 – 31/03/2017) contributions are gross of fees and are based on the Uni Global Cross Asset Navigator performance

2. Diversifying dynamic risk management with qualitative inputs

Identifying and managing market risk is at the heart of our process, therefore rather than relying on a purely quantitative system to perfectly assess forward-looking risk factors, we complement our approach with qualitative analysis to consider relative value assessment across and within asset classes. The reason for diversifying our dynamic risk management approach is the same as the one behind its initial development: our belief that multiple dimensions of risk define the investment environment at any time.

Macroeconomic risk may be crucial, but market risk also needs to be monitored closely. For example, the evaluation of current pricing helps avoid tail risk mispricing; the monitoring of current positioning can identify crowded positions; closely watching the

“ Identifying and managing market risk is at the heart of our process”



current stance of monetary policy can anticipate correlation shocks; and the tracking of cross asset correlations and rotations can help highlight any potential valuation concerns. These qualitative assessments all seek to identify factors that can significantly affect asset returns over the short and medium term and we have developed a set of tools to track these different elements, which includes:

- ↳ Carry analysis at a historical and cross sectional level for asset valuation.
- ↳ Tracking market positioning by analysing different strategies' beta and data from the Commodity Futures Trading Commission (CFTC).
- ↳ Analysing the speeches and statements from G10 central banks and building a dedicated "heartbeat monitor" for the key institutions, such as the ECB and Federal Reserve.
- ↳ Monitoring cross-asset behaviour via global asset correlations and Sharpe ratio analysis.

It is worth noting that if these elements are followed using systematic models, short-term market risks are only assessed on a fundamental basis. It is the experience of the team, their knowledge of specific market structures and interpretation of market and economic nuances that are critical in translating this information into a better understanding of asset risk and how this should be interpreted in terms of allocation changes. Table 1 represents the output of our fundamental monitoring of fixed income markets and illustrates the way we manage market risk on a regular basis. Unigestion has developed similar tools for other key risk premia, including equities, commodities and foreign exchange.

Table 1: Monitoring fixed income risk factors

Factor	Current Assessment	Weight	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Positioning	No extreme levels now	150%	-2	-2	-2	0	0.0	0.0
Market Pricing	Expectations eased globally, flattening in the US	150%	0	2	2	2	0.0	0.0
Political Risk	Broadly balanced, mid East and Asia quiet	100%	1	0	0	0	1.0	1.0
US Fed	Hiking cycle ON, growth ok, Inflation "Mystery"	200%	-4	-2	-2	-2	-2.0	-2.0
ECB	Hawkish comments from Praet	150%	0	0	0	0	-1.5	-1.5
Commo expectations	Positive price action - will impact inflation soon	100%	-1	-1	-1	-1	-1.0	-1.0
Valuation	Global yields now back to lower bound	50%	1	1	0	0	0.0	0.0
Market Stress expectations	Stabilising	50%	0	0	0	0	0.0	0.0
Macro momentum	Positive and decelerating	100%	-1	-1	0	0	0.0	0.0
Inflation expectations	US CPI slightly below expectations	150%	-2	-2	-2	-2	-1.5	-1.5
Other	Curve slope is taking center stage	150%			-3	-2	0.0	0.0
Average			-0.80	-0.55	-0.68	-0.41	-0.45	-0.45

Source: Unigestion, Central banks, Unigestion (scores represent qualitative assessment about fixed income factor). Data as at 20/10/2017

The combination of quantitative and qualitative styles is a key characteristic of our innovative dynamic risk management process. It allows us to decide whether signals should be implemented on a "momentum" or "contrarian" basis.

3. Dynamic risk targeting: defining the right level of risk at the right moment

Finally, an important part of our dynamic risk management approach is the determination of how much risk the portfolio should take on. Utilising both of our qualitative and quantitative inputs, we can choose whether to run the portfolio at full risk, to tactically delever or to implement specific hedging strategies. This last element is a crucial part of our dynamic risk management framework as, in our view, correlation shocks can create

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challenging outcomes for multi asset investing. In this situation, protecting the portfolio from downside risk is our top priority and, consequently, we favour a more defensive stance which involves increasing cash exposure at the expense of the portfolio's exposure to the market. We refer to this as "dynamic risk targeting" and seek a symmetric outcome: on one hand we are able to "de-risk" the portfolio ahead of specific events where the probability of a negative outcome is likely to be underestimated by the market; however, we are also able to quickly increase risk by releveraging the portfolio following the event to benefit from the market's reaction.

So how do we define the right moment?

In our view, there are two types of events that can affect asset returns: scheduled events, such as political elections, central bank meetings or speeches; and unscheduled events, such as geopolitical tension, acts of terrorism or corporate shocks. Ahead of key scheduled events, we analyse the risk/reward profile of our portfolio in two ways. Firstly, we stress test the portfolio based on historical events, such as the 2003/2004 period of rate hikes; the 2013 taper tantrum, the Fed's reversal of QE in 4Q 2016, etc. Secondly, we project best and worst case scenarios for upcoming events and compare the expected performance for both. Our dynamic risk targeting decision is based on this analysis - the higher the expected loss, the more we look to de-risk the portfolio. In terms of unscheduled events, we believe that diversification remains the best defensive measure. Given that we monitor a portfolio's exposure to macroeconomic and market risk factors, we have already sought to avoid concentration and mis-allocation risk. Therefore, the right moment to modify the risk level of a portfolio is always the moment where the expected risk/reward is changing significantly.

4. How do we define the best implementation?

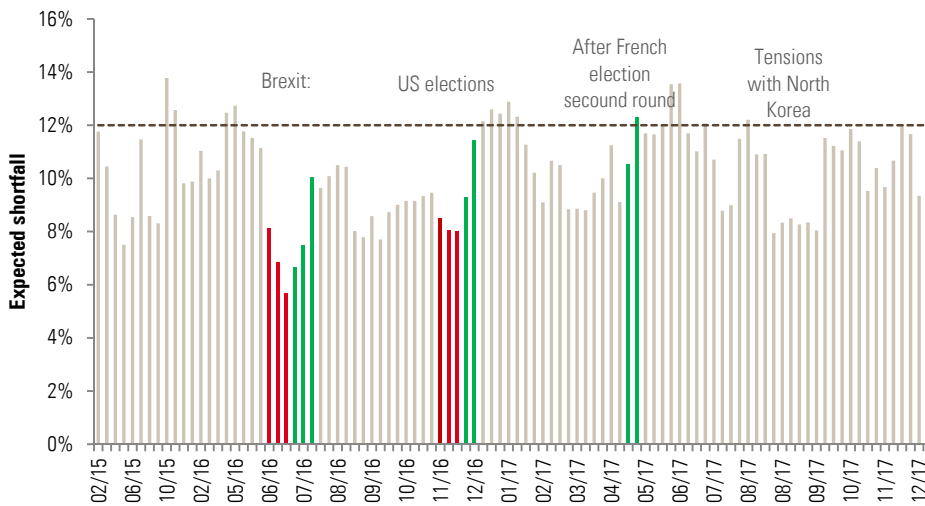
There are different ways to de-risk or re-risk a portfolio. Dynamic risk targeting can be implemented through a blanket de-risking measure, such as increasing the level of cash in a portfolio, as discussed earlier. Or it can also be used to implement more targeted de-risking measures, for example using options or FX exposure to lower exposure to a specific risk such as duration or growth assets.

Our dynamic risk targeting process can be illustrated by our approach to Brexit. We viewed Brexit as a 'scheduled event', i.e. an event that was planned, and were therefore able to actively consider the portfolio's risk exposure prior to the event. In this instance, we anticipated there would be a high likelihood of volatility around Brexit and deteriorating risk/reward for market beta exposure. We chose to reduce our risk exposure by raising our cash position ahead of the referendum (figure 7). We undertook similar, albeit not exactly the same, adjustments during other political events (U.S. elections, French elections).

"The determination of how much risk to take on is an important part of our dynamic risk management approach"



Figure 7: Historical Expected shortfall of the strategy



Source: Unigestion

However, it is important to note that using deleveraging to protect on the downside has an opportunity cost which could limit upside participation in a positive market move. Therefore, in order to reduce the opportunity cost associated with our Brexit-related de-risking decision we also purchased some call options on European indices, which would generate performance in a positive market environment.

Conclusion

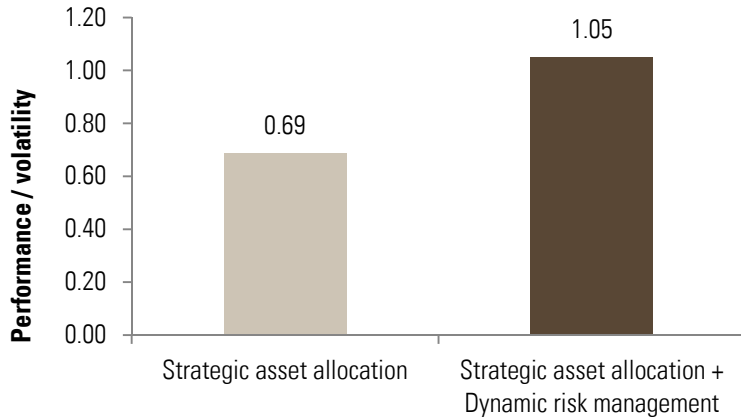
At Unigestion, we believe that dynamically managing the different risk factors that affect asset returns is key to delivering stable and consistent returns during differing macroeconomic and financial conditions. It is our view that risk should be defined in terms of the potential loss of capital rather than being proxied by an oversimplified measure, such as volatility. Our research has shown that macroeconomic regimes have a consistent and strong influence on the behaviour of assets and that applying asset allocation decisions on both a strategic and dynamic level should help address the vagaries of these regimes. We recognise the discipline provided by the use of systematic signals, but also acknowledge there can be value in incorporating more forward-looking, qualitative decisions through a risk-budgeting process. Events, such as Brexit, that have never happened before cannot purely be addressed through a quantitative process as there is no historical data on which to base its projections. Qualitative analysis and experience will always be of value at these times. Finally, we understand that in some market conditions, even the most diversified risk-based portfolio has the potential to lose money and, therefore, the ability of being able to dynamically adapt a risk budget is essential in protecting the portfolio from significant drawdowns.

Simply put, risk is multi-dimensional by nature, so we apply a multi-dimensional lens to our risk management approach. Unigestion's dynamic risk management has been proven to help increase the risk-adjusted performance of our multi assets portfolio, as shown in figure 8, particularly by improving the performance in a positive environment for growth related assets. (figure 9).

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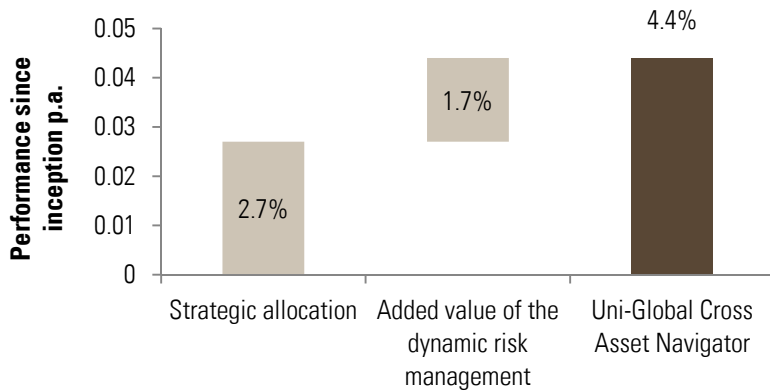


Figure 8: Performance / volatility ratio



Source: Unigestion (data from 15/12/2014 – 31/12/2017) performance is shown net of fees and is based on the Uni Global Cross Asset Navigator USD (UCANRUS LX). Past performance is no guide to the future, the value of investments can fall as well as rise, there is no guarantee that your initial investment will be returned.

Figure 9: Added value of the dynamic risk management in the portfolio



Performance	2017	2016	2015
Uni-Global – Cross Asset Navigator	10.6%	4.4%	-2.2%

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Important Information

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