4Q19

MARKET GPS

Janus Henderson
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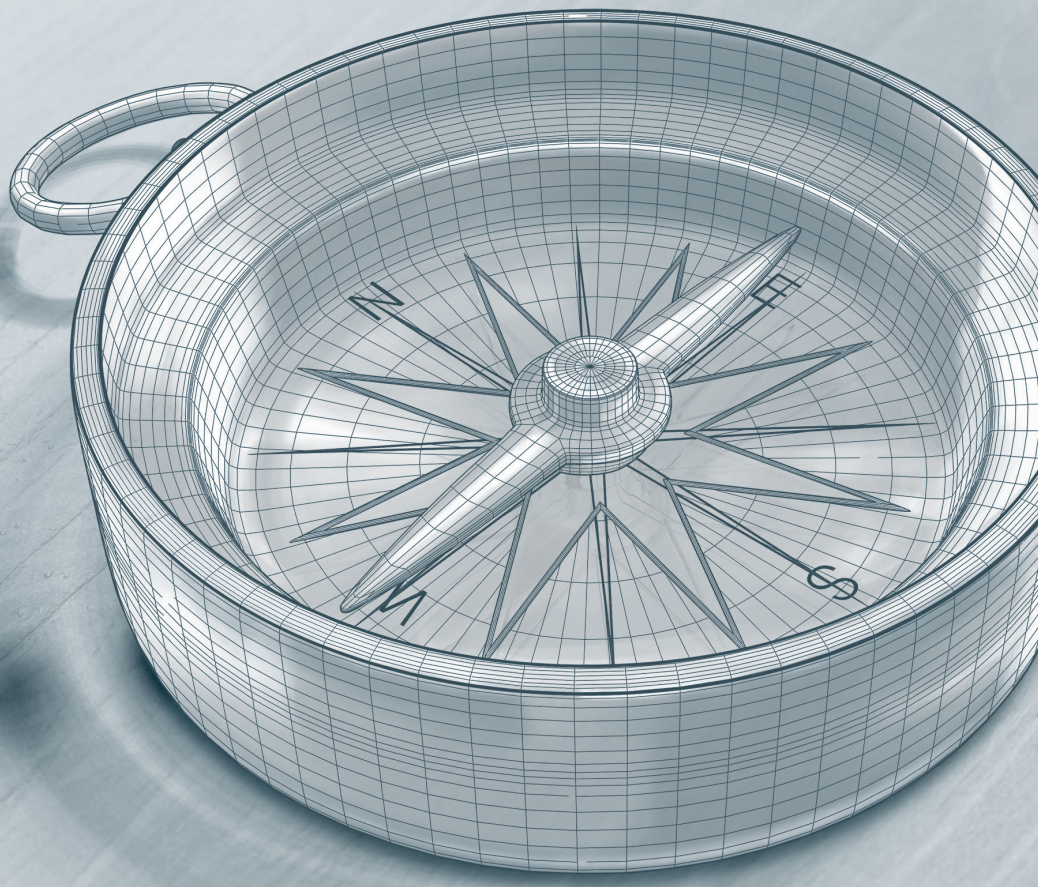
Alternative Perspectives

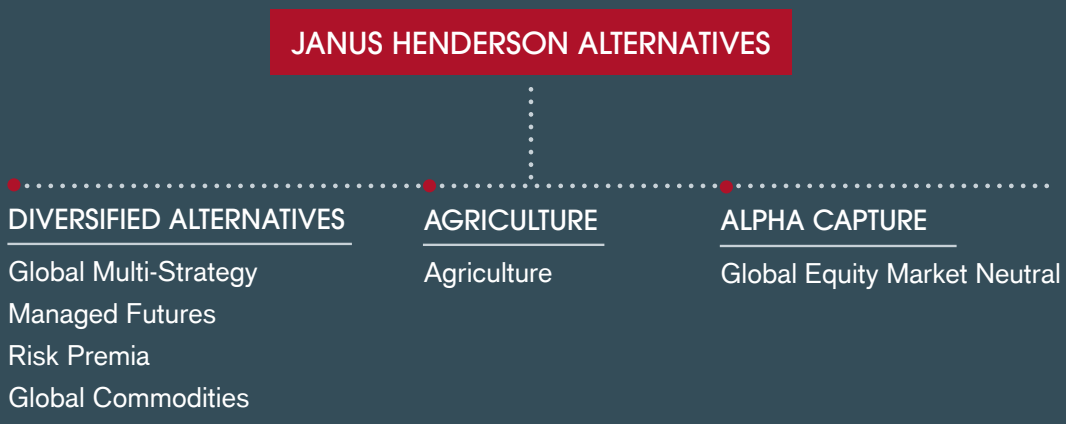
Members of Janus Henderson's Alternatives Team highlight key considerations for investors



Our Alternatives Capabilities

Janus Henderson's alternative investment strategies are designed to deliver attractive risk-adjusted returns with moderate volatility and low correlations to traditional asset classes. Solutions can be constructed to consist of multiple sources of returns with the intention of enhancing diversification and lowering overall portfolio risk.

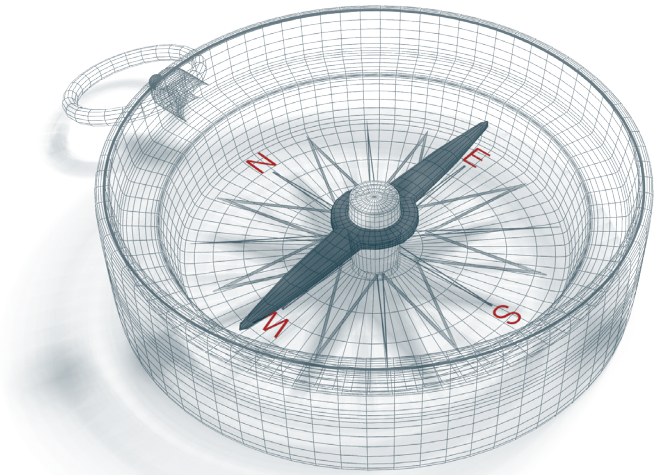
The Janus Henderson Alternatives platform is made up of 27 investment professionals situated in the UK, the US, Australia and Singapore. The team is responsible for US$12.3 billion* in client assets and manages a range of investment solutions aimed at delivering specific outcomes tailored to meet the needs and constraints of clients. The team brings together a cross-asset class combination of alpha generation, risk management and efficient beta replication strategies. Solutions include multi-strategy, alternative risk premia, alpha capture, agriculture and global commodities/managed futures as well as the ability to create customized offerings.



In this, the first edition of our Market GPS: Alternative Perspectives, some of our team members introduce their current thinking and the ideas that help shape our strategies. Aneet Chachra explains why relative momentum is a good way to assess the merits of Developed versus Emerging Market equities. Mat Kaleel shows how uncorrelated returns can be generated from bond carry strategies. Steve Cain discusses how we consider macro hedge in the context of today's market environment. Finally, Andrew Holden outlines some of our findings on the deforestation of the Amazon and the implications for Agricultural strategies. We hope you find this publication of interest, and we would be happy to discuss any of these ideas in more detail. Further, we welcome any feedback you may have.

- Michael Ho, Ph.D., Global Head of Multi-Asset and Alternatives

*As of 30 June 2019



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THEMES IN FOCUS

ALTERNATIVES INVESTING: OVER-RELIANT ON EQUITY EXPOSURE?

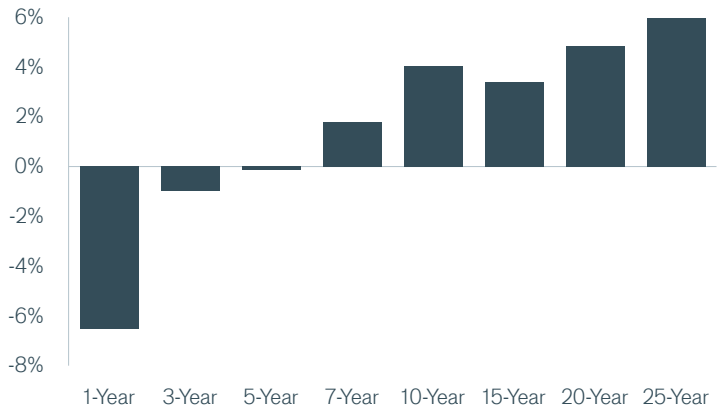
Michael Ho, Ph.D.
Global Head of Multi-Asset and Alternatives

Key Takeaways

- Hedge fund strategies, like many active managers, are struggling to outperform the market. Worryingly, the majority of hedge fund performance is driven by equity market exposure, suggesting true diversification benefits are no longer delivered.
- While hedge funds are seeing significant outflows, this should not obscure the potential benefits found in certain types of alternatives investing.
- For example, hedge funds exhibiting low equity beta have typically performed well over a five-year period.

After 10 years of quantitative easing, we find ourselves in a world very different to the one that existed pre the Global Financial Crisis. Today, it is harder for active investment managers to outperform their benchmarks. Recently, even Warren Buffett acknowledged that he had found it difficult to outperform the S&P 500® Index in the short to medium term.

Exhibit 1: Buffett's annualized alpha

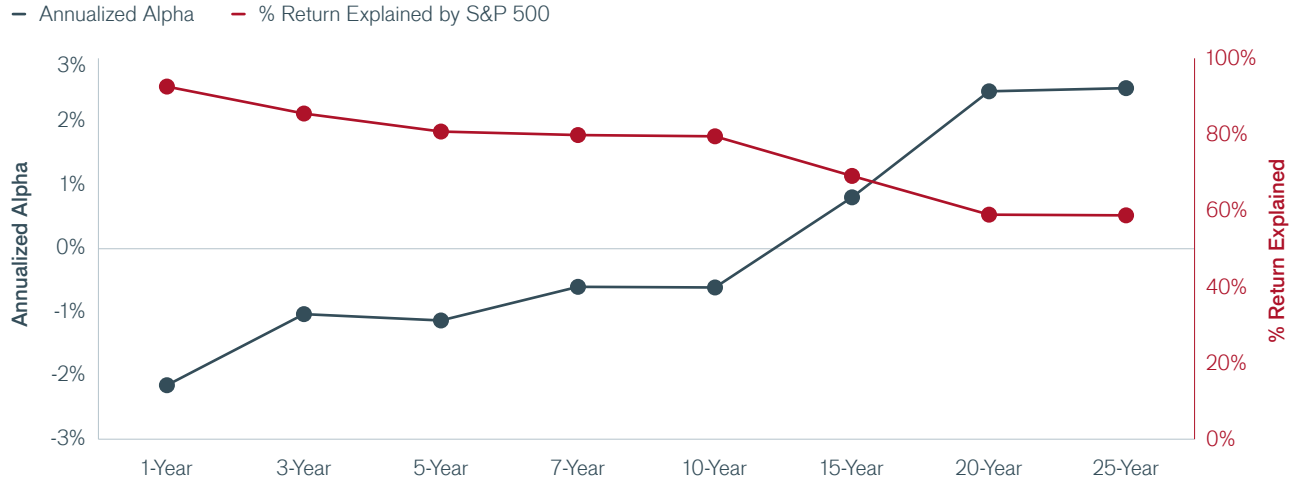


Source: Bloomberg and Datastream. Based on Berkshire Hathaway A shares to 30 August 2019
Janus Henderson makes no representation as to whether any illustration/example mentioned is now or was ever held in any portfolio. Illustrations are only for the limited purpose of analyzing general market or economic conditions and demonstrating the research process. References to specific securities should not be construed as recommendations to buy, sell or hold any security, or as an indication of holdings.

Similarly, many of the best-known hedge fund investors have significantly underperformed the market. Statistical estimates of alpha from the hedge fund industry show returns have trended down in the last 25 years. Estimated one-year alpha currently stands at -2%, as shown in Exhibit 2. A more disturbing development is that more than 90% of variation of returns (the driver of performance) is explained by exposure to the S&P 500. This illustrates that hedge funds as a whole may not be providing the diversification benefits that many investors have historically used them for.

This backdrop may account for increased outflows from the hedge fund industry. Data from eVestment shows that investors withdrew around US$56 billion from hedge funds in the first seven months of 2019, the worst start for fundraising since 2016. This was despite the

Exhibit 2: Hedge fund industry – lower alpha, reduced diversification



Source: Bloomberg and Datastream. HFRI Fund Weighted Composite Index data to 30 August 2019. **Past performance is not a guide to future performance.**

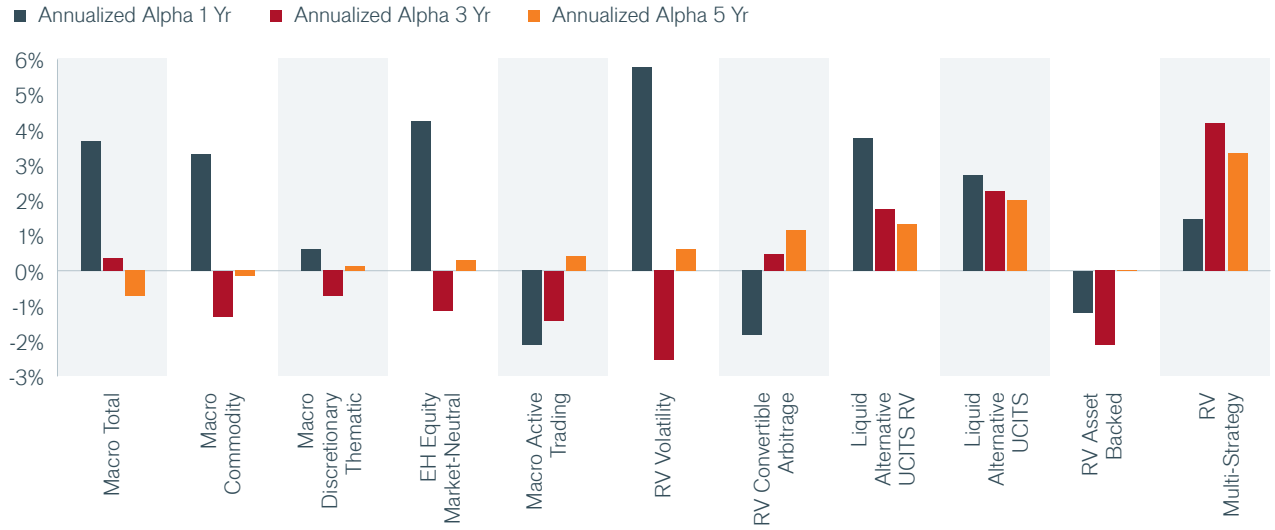
best stretch of performance in a decade, although as noted this was equity beta driven. Clearly, the hedge fund industry is undergoing consolidation and many managers are struggling to deliver alpha. But this does not mean that investors should lose sight of the benefits that alternatives investing can bring.

At Janus Henderson, we invest across a diversified suite of alternative risk premia and hedge fund strategies, rather than relying on equity beta. Over time our strategies aim to realise close to zero net exposure to traditional equity and fixed income markets.

Hedge Fund Research Indices show that an approach based on lower equity beta can prove beneficial. Exhibit 3 shows estimated alphas of hedge funds with equity exposures of less than 25%. Over a five-year period, many of these strategies have delivered reasonable alpha.

Many low beta strategies have a relative-value or macro investment style. It is reassuring that skill-based investment does still exist and, indeed, as market volatility picks up, investors may start to turn toward alpha and away from equity beta. We believe this move is timely and certain clients are right to consider managers with the potential to deliver returns as well as important diversification benefits to an overall portfolio.

Exhibit 3: Alpha generation based on low equity beta strategies



Source: Janus Henderson analysis using Bloomberg and Datastream data on Hedge Fund Research Indices, five years to 30 August 2019.
Note: EH = Equity hedge, RV = Relative value. **Past performance is not a guide to future performance.**

DIVERSIFIED ALTERNATIVES

SOLVING A HARD PROBLEM WITH A SIMPLE MODEL

Aneet Chachra, CFA
Portfolio Manager

Key Takeaways

- Deciding between the US and Emerging Markets is fraught with difficulties. US stocks look historically expensive, but Emerging Markets stocks continue to lag on lower earnings growth, sector differences and falling valuations.
- Allocating between US and Emerging Markets based on 12-month trailing relative returns has delivered a better return than a classic 50/50 blended portfolio.
- Any delay in shifting allocation can be costly – the difference in performance between early adopters and those following a trend can be dramatic.

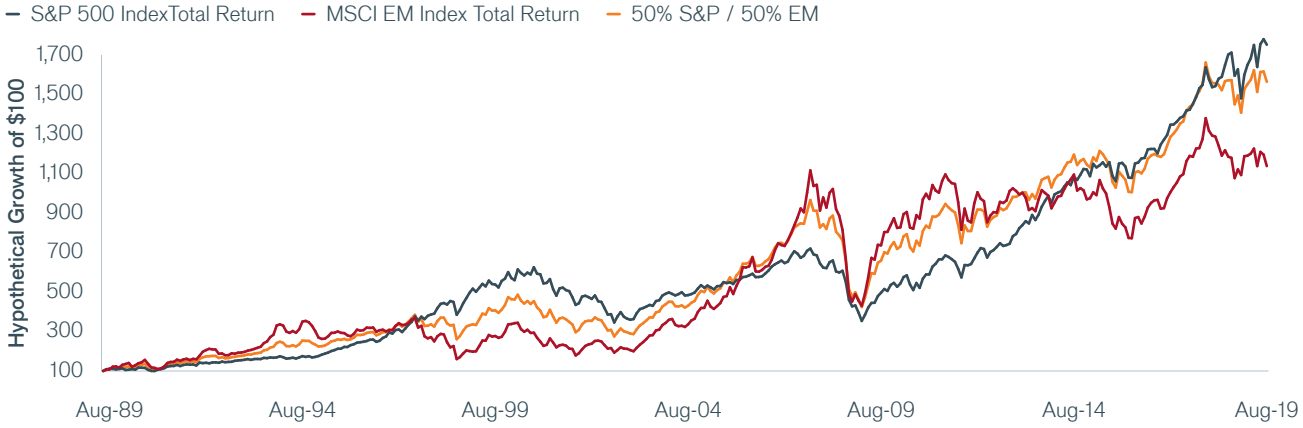
A key debate in investing today is whether to buy US stocks or Emerging Markets (EM) stocks. US stocks have looked historically expensive for several years now, but have continued to outperform on higher earnings growth, technology leadership, and rising valuations. Firms such as Research Affiliates[1] and GMO[2] forecast using their valuation models that large-cap US stocks will have near-zero real returns over the next 5 to 10 years. They favor underweighting the US and instead overweighting Emerging Markets, which they project will return 5% to 10% per year.

Emerging Markets stocks have looked historically cheap for several years now, but have lagged on lower earnings growth, sector differences, and falling valuations. China is about 30% of the MSCI EM Index, so the trade dispute has further hurt performance. Hedge fund managers such as Kyle Bass and Russell Clark argue that EM will suffer more due to currency and political instability, while innovation and a "winner-take-all" marketplace still favors the US.

Both arguments are convincing and their proponents are persuasive. This creates a hard problem – should you invest now in the US or EM?

One solution is to invest equally in both. Historically, this has been a reasonable approach as each has gone through long periods of outperformance and underperformance. Exhibit 1 compares the US, EM, and a 50/50 blend over the last 30 years.

Exhibit 1: S&P 500®, MSCI EM, 50/50 blend (total returns)



Source: Bloomberg, Janus Henderson, June 1989 to August 2019

Note: Monthly data from index series, 50/50 blend rebalanced monthly, excludes transaction costs. **Past performance is not a guide to future performance.** See disclaimers for additional information on simulated performance.

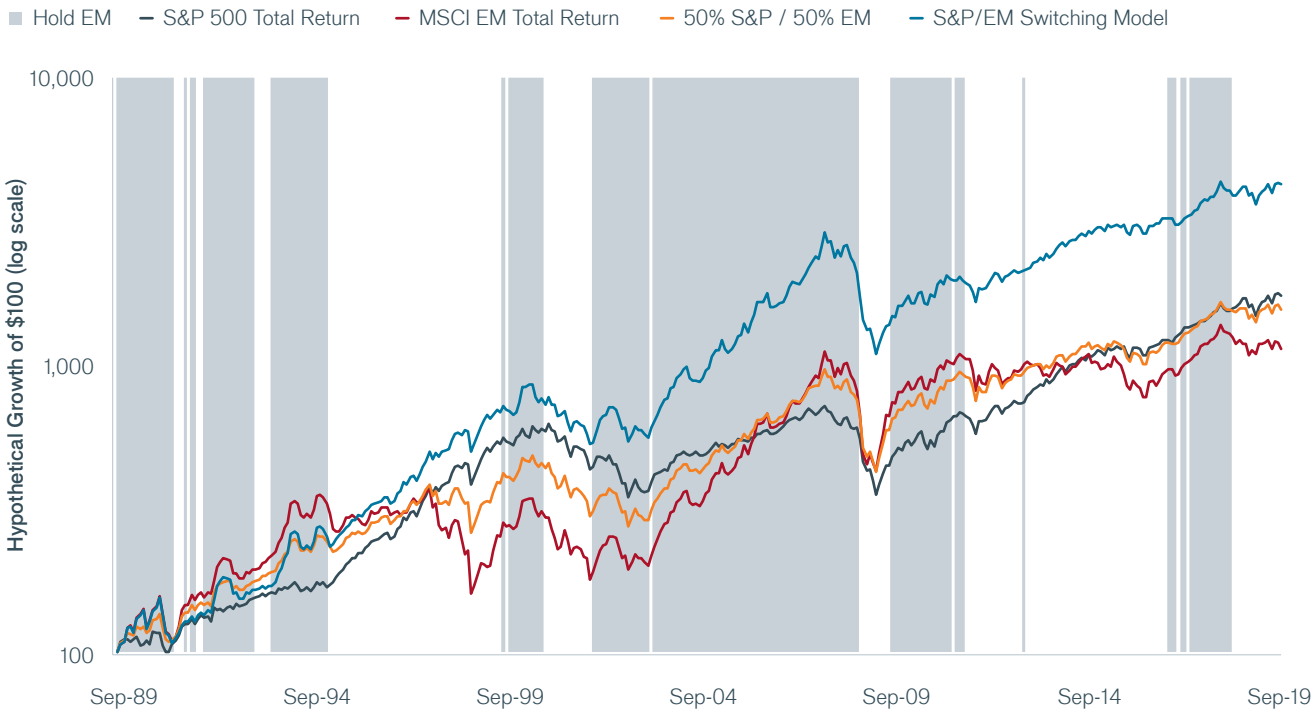
Another solution is to assess whether the US or EM is in favor and allocate accordingly. This is impossible to do perfectly, but a simple trend model can be surprisingly helpful.

Knowing that individuals and institutions frequently allocate new capital based on trailing one-year returns, we start by comparing the relative performance of US vs EM over that period. Every month, we calculate whether the US or EM has done better over the prior 12 months.

If the US has outperformed, we guess that the current environment probably favors the US, so the switching model holds US stocks for the next month. Else the opposite is true and the model holds EM stocks for the next month. Either way, we recalculate this trailing 12-month signal a month later and continue with the same position or reallocate. To be realistic, the model also deducts a 1% annual switching cost which is well above estimated market impact for any reasonably sized portfolio.

Exhibit 2 shows how this hypothetical switching model might have performed versus the S&P, the EM index and a 50/50 blend of both, with the time periods in which the model favored EM stocks highlighted in gray. Looking back at the last 30 years, this model switched positions a total of 28 times (about once per year). The switching model was also quite balanced over time – holding EM stocks in 52% of months and US stocks in the remaining 48% of months. There were some fast switches (between gray and white or vice-versa in Exhibit 2), but usually either the US or EM stayed in favor for extended periods.

Exhibit 2: S&P 500/MSCI EM Hypothetical Switching Model Results



Annualized Return (% p.a.)		
Trailing Period	**S&P/EM Switching Model**	**50% S&P / 50% EM Blend**
1-year	1.7%	-0.5%
3-year	9.6%	9.5%
5-year	7.8%	5.5%
10-year	11.2%	9.0%
20-year	9.5%	7.0%
Full (1989 to 2019)	13.2%	9.5%

Source: Bloomberg, Janus Henderson, June 1989 to August 2019

Note: Monthly data from index series, 50/50 blend rebalanced monthly, excludes transaction costs. Switching model assumes a complete portfolio turnover at time of switch and incorporates a hypothetical 1%/year cost.

Past performance is not a guide to future performance. See disclaimers for additional information on simulated performance.

Most recently, the US vs Emerging Markets switching model has favored the US every month from June 2018 onward. Since then (July 2018 to August 2019), the S&P 500 Index has returned +10.2% while the MSCI EM index has returned -4.5%.

There is nothing magic about using the 12-month trailing relative return to assess the current environment. We tested different trailing periods from 8 to 13 months and all behaved similarly and outperformed the static 50/50 blend (Exhibit 3). The 11-month model performed best but the difference was not statistically significant. We stick with the 12-month trailing model for simplicity.

We also tested the effect of delays in implementing the signal. The switching model above assumes that the environment is determined and allocation updated on the last day of each month. This is reasonable as the signal changes slowly, can be computed quickly, and both the S&P 500 and MSCI EM have deep and liquid ETF/futures markets.

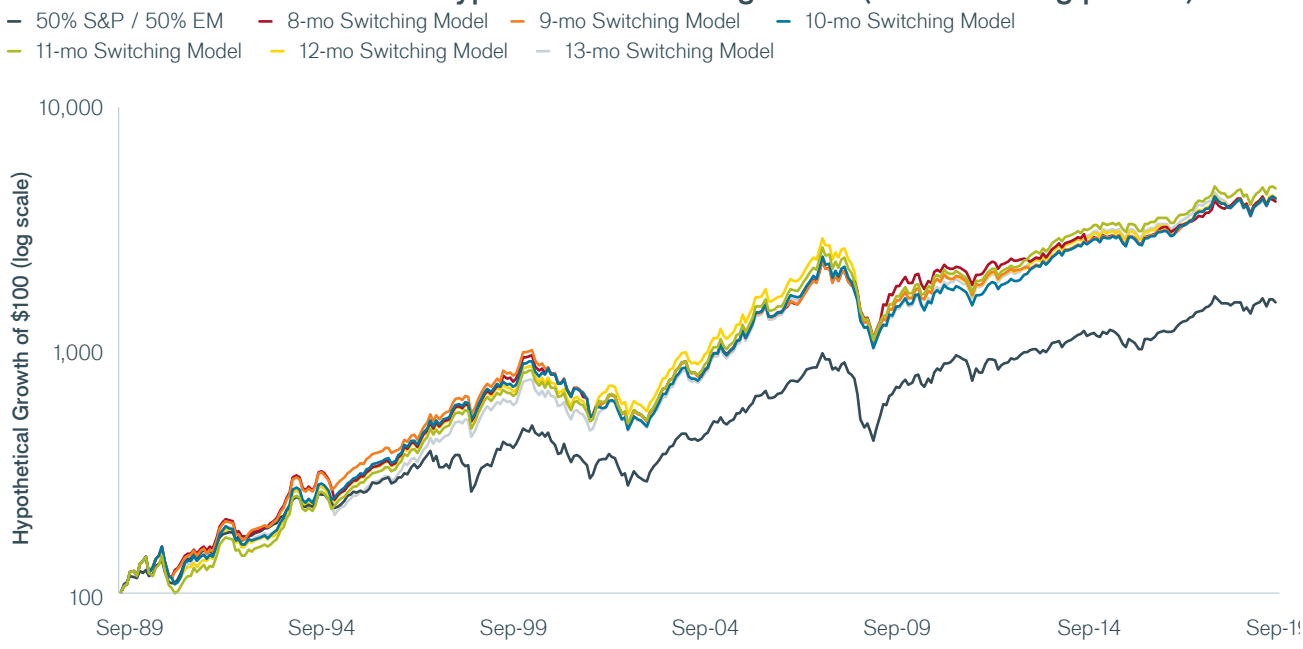
However, there is often a lag before an individual checks their monthly/quarterly statements and reacts to recent returns. Institutions also take time to notice relative outperformance, decide to adjust allocations, and deploy cash. This waiting is often costly. To show this, we built models with the adjustment done one to five months after the trend signal (indicating that the environment has changed) was triggered. Exhibit 4 compares these lagged models to the no-lag and static 50/50 blend.

Each month of lag degraded performance. After three months, returns were indistinguishable from the static 50/50 model. The excess returns of the switching model came primarily from being a fast follower, as shown in Exhibit 4 – adjusting promptly to a change in environment.

As is typical of momentum-based investment trends, subsequent participant flows help to create the excess returns captured by the early adopter. Haghani and McBride (2016)[3] have highlighted that the difference between trend following and return chasing is when and how you adjust to new conditions – early and quickly usually beats late and gradually.

There are multiple solutions to the US vs EM allocation problem. One is to maintain a constant long-term allocation like the 50/50 split. Another is to emphasize valuation like Research Affiliates/GMO suggest. Others use political and macroeconomic assessments or fundamental data to determine allocations. Finally, a trend model like the switching solution shown above uses price movement to decide positioning.

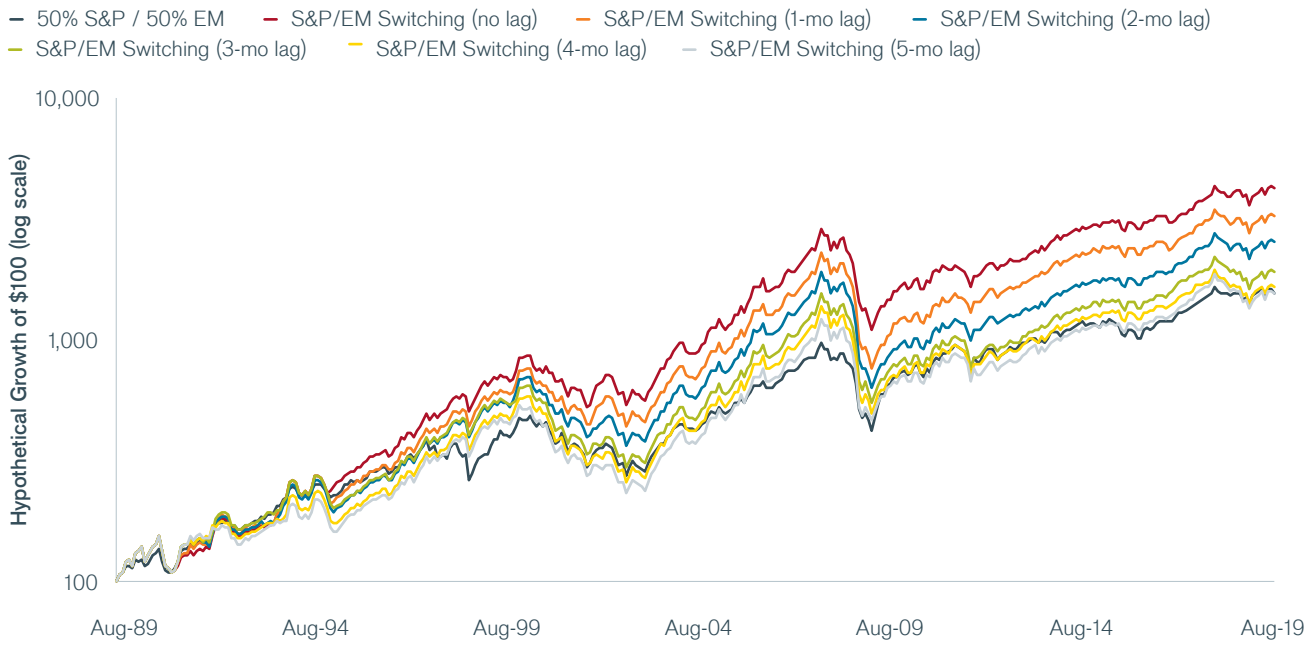
Exhibit 3: S&P 500/MSCI EM Hypothetical Switching Model (various trailing periods)



Source: Bloomberg, Janus Henderson, June 1989 to August 2019

Note: Monthly data from index series, excludes transaction costs. Switching models incorporate 1%/year cost. **Past performance is not a guide to future performance.** See disclaimers for additional information on simulated performance.

Exhibit 4: S&P 500/MSCI EM Hypothetical Switching Model (various implementation lags)



Source: Bloomberg, Janus Henderson, June 1989 to August 2019

Note: Monthly data from index series, excludes transaction costs. Switching models incorporate 1%/year cost. **Past performance is not a guide to future performance.** See disclaimers for additional information on simulated performance.

There is no perfect solution that always outperforms. A constant allocation model might continually rebalance into a highly overvalued and declining asset. Valuation models are notoriously bad as a timing signal and prices often overshoot in both directions. Market assessments are invariably subjective, while fundamental approaches generally depend on stable causal relationships. Trend models assume the current environment will persist for some time so a rapidly oscillating market can cause unnecessary position flips.

However, the trend-switching approach has three positive characteristics that make it an attractive and potentially simple solution to the US vs EM problem. First, it's unlikely to stay wrongly positioned over time as the model periodically adapts to relative price moves. Next, it's easy to calculate and doesn't require any predictions of economic conditions or political actions. Finally, it can benefit from the flows of other market participants who are slower to enter and exit an asset class due to behavioral or structural reasons.

Footnotes: Solving a Hard Problem with a Simple Model

[1] Research Affiliates, Asset Allocation Interactive Website, Long Run Expected Returns as of 31 August 2019

[2] GMO, 7-Year Asset Class Forecast, as of 31 August m 2019

[3] Haghani, Victor and McBride, Samantha, Return Chasing and Trend Following: Superficial Similarities Mask Fundamental Differences, January 2016

Note on simulated returns: The hypothetical, back-tested performance shown is for illustrative purposes only and does not represent actual performance of any client account. No accounts were managed using the portfolio composition for the periods shown and no representation is made that the hypothetical returns would be similar to actual performance had accounts actually been managed in this manner.

Hypothetical, back-tested or simulated performance has many inherent limitations only some of which are described herein. The hypothetical performance shown herein has been constructed with the benefit of hindsight and does not reflect the impact that certain economic and market factors might have had on the decision making-process. No hypothetical, back-tested or simulated performance can completely account for the impact of financial risk in actual performance. Therefore, it will invariably show better rates of return. The hypothetical performance results herein may not be realized in the actual management of accounts. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in construction the hypothetical returns have been stated or fully considered. Assumption changes may have a material impact on the returns presented. This material is not representative of any particular client's experience. Investors should not assume that they will have an investment experience similar to the hypothetical, back-tested or simulated performance shown. There are frequently material differences between hypothetical, back-tested or simulated performance results and actual results subsequently achieved by any investment strategy. Prospective investors are encouraged to contact the investment manager to discuss the methodologies and assumptions used to calculate the hypothetical performance shown herein.

DIVERSIFIED ALTERNATIVES

BENEFITS OF BOND CARRY

Mathew Kaleel
Portfolio Manager

Key Takeaways

- 'Carry' is a strategy that is well-documented across all major asset classes and exhibits a return profile that is not explained by other well-known premia.
- Returns from a bond carry strategy are not driven by a reliance on rising bond prices, but provide another lens with which to view bond markets through the analysis of yields between bonds of different countries.
- The addition of simulated bond carry to a model risk premia portfolio was shown to have a positive effect on the total return of the portfolio as well as elements of its volatility.

Government bonds have been a key part of diversified portfolios for most investors for the last generation. Bonds have been expected to provide the twin benefits of capital gains as well as a measure of capital preservation in falling stock and property markets. With US 10-year government bond yields falling back below 2% this summer to almost historic lows (as at 7 October 2019), it reduces the attractiveness of the concept of 'bonds for the long run' when the expected returns are falling seemingly with each passing month. It also raises concerns as to whether bonds can provide the historically meaningful diversification and returns characteristics that they have been known for.

This may leave investors asking the question: are there strategies that can be applied in bond markets that offer the potential to generate returns in a manner that provides a differentiated return stream and adds value to a portfolio?

Alternative risk premia and bond carry

For many years, factor-based strategies have been used to construct robust non-directional portfolios.

The use of well-known, academically verified, economically intuitive premia such as value, carry, momentum and liquidity can potentially add value to a traditional portfolio by providing exposure to an uncorrelated, diversifying absolute return stream. The table below is a summary of the risk premia and asset classes considered. In this paper, we focus on bond carry.

Exhibit 1: Selected Premia

	Value	Carry	Liquidity	Momentum
Commodity	Commodity Value	Commodity Value		Commodity Momentum
Currency		Currency Cary		Currency Momentum
Fixed Income		Bond Carry	Price Pressure	Rates Momentum
Equity	Equity Value		Equity Size Equity Emerging	Equity Momentum

What is bond carry?

Carry can be defined as the return (or premia) accruing to an investor from holding (being long) a higher yielding security over a lower yielding security, assuming prices remain constant. The carry factor is well-documented academically and has been shown to be robust across all major asset classes over meaningful time horizons. More importantly, carry exhibits a return profile that is not explained by other well-known premia including value and momentum[1].

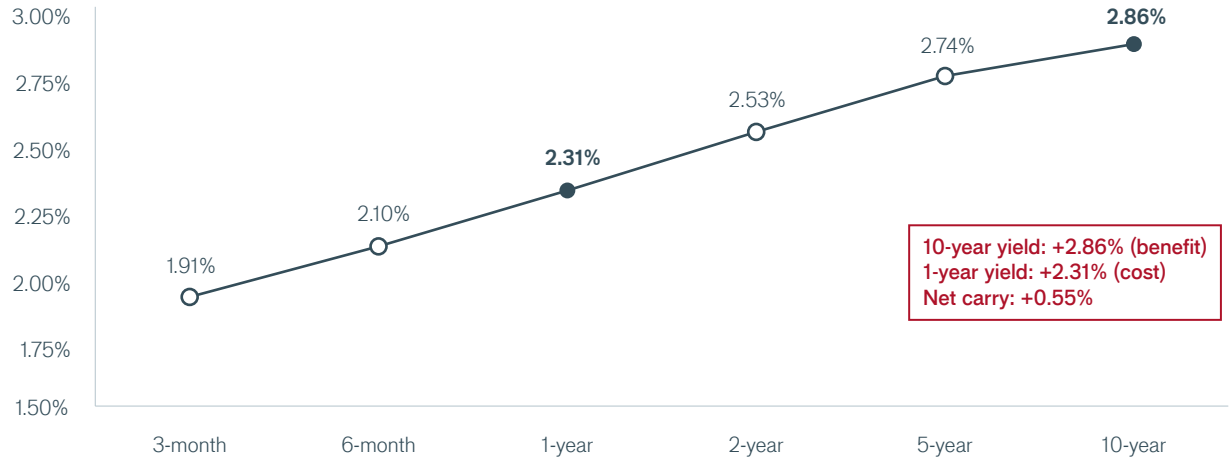
When applied through the lens of bond markets, bond carry is based on the notion that markets exhibiting steeper yield curves offer higher levels of risk premia than those markets that are less steep. A bond carry strategy seeks to harvest the yield differential between markets with steeper yield curves and those with less steep yield curves. As such, positive returns for a bond carry strategy are not driven by a reliance on rising bond prices, but provide another lens with which to view bond markets through the analysis of yields between bonds of different countries.

Exhibits 2 and 3 provide an overview of positioning for US and UK bonds based upon the yield curve and implied carry.

While small, all else being equal, there could be a benefit to being long the steeper UK yield curve versus the US yield curve, as it provided a higher carry at the time.

Exhibit 2: US yield curve (30 June 2018)

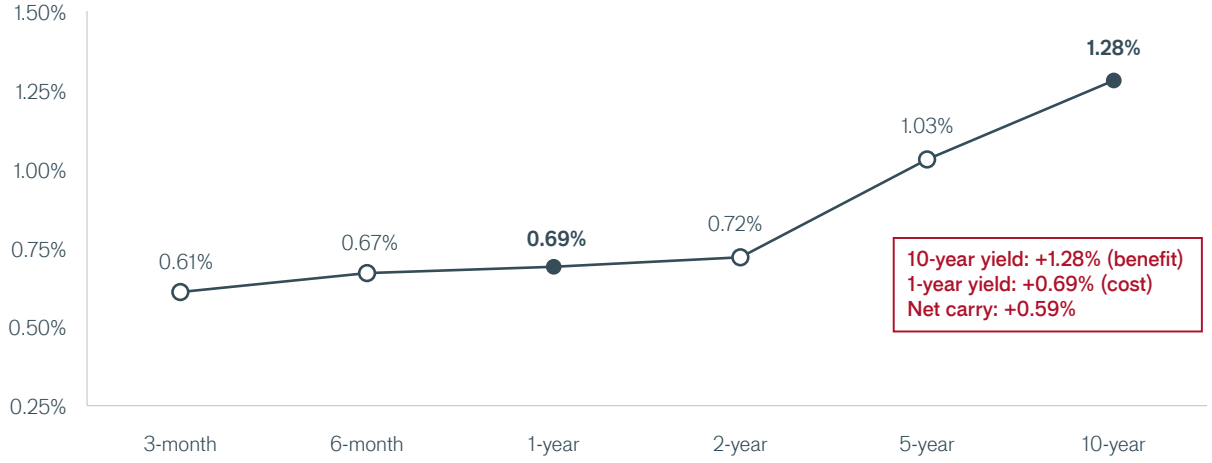
The US yield curve rose gradually and demonstrated positive carry when comparing the longer-dated 10-year yield to the shorter-dated yields.



Source: Bloomberg, as at 30 June 2018. For illustrative purposes only.

Exhibit 3: UK yield curve (30 June 2018)

The UK yield curve also demonstrated a positive carry over time, but was slightly steeper when compared to the US yield curve.



Source: Bloomberg, as at 30 June 2018. For illustrative purposes only.

Constructing a bond carry portfolio

We can construct a simulated portfolio using major listed bond futures from the US, Germany, Japan, the UK, Australia, and Canada.

Each month, the simulated bond carry strategy allocates synthetic long exposures to the futures of the two markets with the highest levels of implied carry out of the six bond markets and synthetic short exposure to the futures of the two markets with the lowest levels of implied carry. Implied carry is estimated on a daily basis for each market as the difference between a generic 10-year bond yield and the 1-year note yield (as shown in Exhibits 2 and 3 for the US and the UK, respectively). In order to mitigate drawdowns and exposure to events with tail risk, a volatility target of 8% is applied.

The results for this simulated portfolio are shown in Exhibit 4 for the period from January 1999 to August 2019.

On a standalone basis, the simulated carry strategy demonstrated consistent risk-adjusted returns over time, with reasonable volatility and drawdowns, and low to negative correlation to global stocks and bonds.

While this strategy provides a positive expectancy on a standalone basis, does it add value to a diversified portfolio of risk premia? Looking at the 10-year history of a model alternative risk premia portfolio in Exhibit 5, the answer would appear to be yes, with the addition of simulated bond carry providing a number of benefits.

Exhibit 4: Simulated bond carry strategy (gross)

Simulated bond carry strategy (gross)	Full history (Jan 1999–Aug 2019)
Annualised return	8.10%
Annualised volatility	7.90%
Annualised Sharpe ratio	1.03
Max. drawdown	-7.20%
Worst month	-3.40%
Best month	4.50%
% positive months	64%
Correlation to global equities (MSCI All Country World Index)	-0.12
Correlation to global bonds (Bloomberg Barclays Global Aggregate Bond Index)	0.17

Source: Janus Henderson, as at August 2019 in USD. This example is for illustrative purposes only.

Exhibit 5: Simulated Model Alternative Risk Premia Portfolio (gross)

September 2009–August 2019	Portfolio without bond carry	Portfolio with bond carry
Annualised return	8.80%	10.70%
Annualised volatility	8.40%	8.40%
Annualised Sharpe ratio	1.1	1.3
Max drawdown	-20.70%	-17.9%
Worst month	-6.90%	-6.20%
Best month	8.90%	9.00%
% positive months	59%	63%
Correlation to global equities (MSCI All Country World Index)	0.08	0.06
Correlation to global bonds (Bloomberg Barclays Global Aggregate Bond Index)	0.03	0.11

Past performance is not a guide to future performance.

Source: Janus Henderson Investors, Bloomberg, as at June 2019.

Note: Hypothetical back-tested performance of a model portfolio using the selected premia noted in Exhibit 1, with and without bond carry, gross of fees. Allocation within each model portfolio assumes a risk parity weighting and an 8% volatility target. See disclaimers for additional information on simulated performance.

Portfolio impact

The addition of bond carry had a positive effect on both the total return of the model portfolio as well as elements of its volatility, as shown in Exhibit 5.

The first observation is that the simulated inclusion of bond carry into the diversified portfolio increased the portfolio's Sharpe ratio from 1.1 to 1.3, a valuable improvement by the addition of only one premia. This highlights the unique characteristics of carry as a strategy with the potential to generate returns that are different to other premia.

The second observation is that bond carry demonstrated a low correlation to the constituents of the portfolio, although it had a higher correlation to the Barclays US Aggregate Bond Index during the analysis period. The inclusion of bond carry mitigated left tail returns as shown by the worst months as well as the maximum peak to trough drawdown.

While the inclusion of bond carry slightly raised the correlation of the portfolio to fixed income markets, it lowered the correlation to equities.

Conclusion

The analysis of bond carry highlights the potential benefits of including this risk premia in both traditional and liquid alternative portfolios. One of the reasons for allocating to a diversified risk premia portfolio is the potential for capital preservation and a more unique and idiosyncratic return stream. In an investment world of ever-shrinking opportunities and the search for defensive, liquid strategies that potentially protect the left tail of a portfolio, bond carry meets the basic tenets of an explainable, robust, scalable and academically verifiable risk premia.

Footnotes: Benefits of Bond Carry

[1] Ralph S.J. Koijen, Tobias J. Moskowitz, Lasse Heje Pedersen, Evert B. Vrugt, Journal of Financial Economics, 2018, vol. 127, issue 2, 197-225.

All simulated performance results shown herein were prepared by Janus Henderson and were achieved through the retroactive application of a model construed on the basis of historical data and designed with the benefit of hindsight.

HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM.

ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

DIVERSIFIED ALTERNATIVES

MANAGING RISK – IS MARKET VOLATILITY TOO CHEAP?

Steve Cain
Portfolio Manager

Key Takeaways:

- We believe the potential for large moves in the market has been underpriced, given current elevated levels of political and economic risk. The supply and demand for volatility has changed substantially in recent years which has reduced the negative risk premium associated with long volatility exposures.
- The structure of the market has changed, with high-frequency traders (HFT) increasingly acting as market makers, which leaves the market vulnerable to heightened gap risk in volatile periods.

Market backdrop

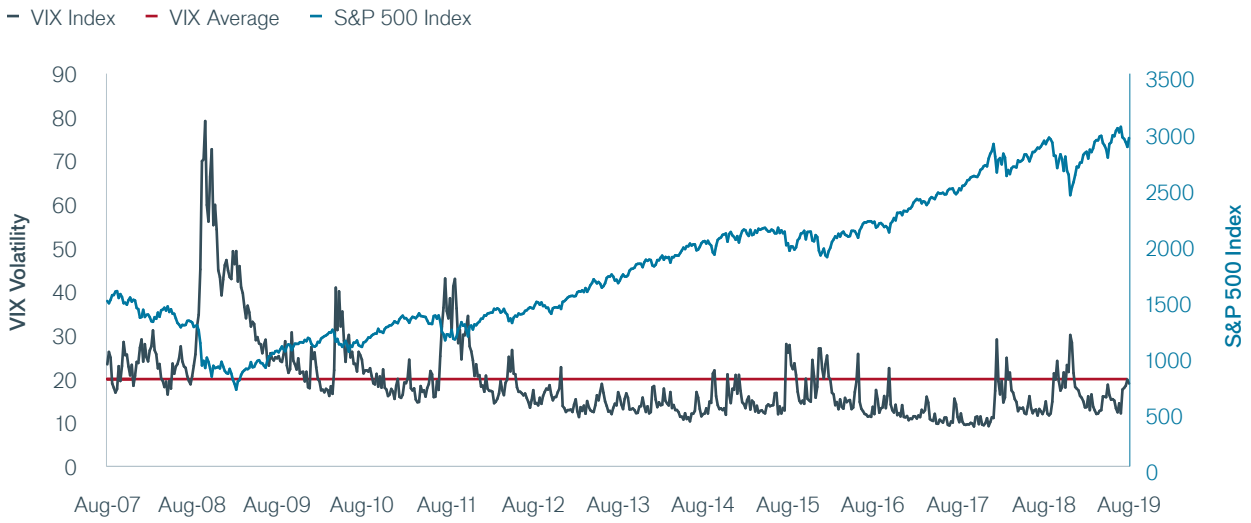
Markets right now are complicated – and bifurcated. This is the result of a bizarre combination of highly elevated political and economic risk, which at the moment is not reflected in stock pricing. In a normal world, the current level of uncertainty would naturally have led to market volatility and increased hedging costs (elevated risk premiums) but so far this has not been reflected in widely used measures of risk.

As such, we believe that the potential for large moves in the market have been underpriced. If we look at the level of implied volatility in the US market, where the Chicago Board Options Exchange Volatility Index® (VIX® Index) is a leading measure, the expectation for risk seems extremely low (see Exhibit 1). Considering its 12-year average, low yields globally, the high fiscal deficit in the US and, in our view, elevated stock market prices, we would expect this to be notably higher. We believe that the substantial short volatility exposures now common in many risk premia portfolios is partially responsible for this.

While it is likely we will see some resolutions to current risks in markets – take your pick from Brexit uncertainty, ongoing trade tensions, recession risk in Germany or the Hong Kong protests – to us, volatility still looks cheap. Based on this view, investors might consider adding protection features to their strategies, holding positions that would react positively if risk premia widen and volatility spikes, which usually coincides with sharp market falls. This would add long convexity exposure to a portfolio.

Our current worst case is that markets tread water, which is reflected in the current levels of implied volatility in the VIX Index. An environment of low volatility and small market moves would be the least positive outcome for a protection strategy, but it is not one we expect. It is worth keeping in mind the common financial market axiom that 'in times of extreme stress, all correlations go to one'. Periods of acute market stress can cause pricing for otherwise seemingly diversified assets to synchronise. In our view, purchasing explicit protection is the right thing to do in the current market environment.

Exhibit 1: VIX volatility remains persistently low



Source: Chicago Board Options Exchange (Cboe), Thomson Reuters Datastream, 31 August 2007 to 31 August 2019. The VIX is a calculation designed to provide a measure of constant 30-day expected volatility in the US stock market, derived from prices of stocks listed on the S&P 500 Index and put options.

Risks and opportunities

Recent years have seen a dramatic change in the structure of the market. High frequency traders (HFTs) are increasingly acting as market makers, and accounting for an increasing share of market volumes. In terms of risks on our radar, if markets get stressed, there is the potential that liquidity could dry up should HFTs withdraw from the market to avoid being adversely impacted by uncertainty. Liquidity constraints come with a number of potential consequences, including higher market volatility. We saw that in December 2018, when US equities saw their biggest monthly decline since the Global Financial Crisis.

So where does the opportunity lie? Currently we see potential signs for a more significant resetting in markets ahead, keeping in mind the failure of markets to accurately price in downside risk. We can see the evidence, but timing the market is virtually impossible: at a push, we would expect this narrative to play out at some point over the next 12 to 18 months. That is why we have permanent, systematic 'always on' protection, plus some discretionary convexity within our multi-strategy portfolios.

Team approach

The multi-strategy team operates as a single global unit within the Diversified Alternatives team, with a good overlap in terms of time zones. The broader team has regular meetings, supplemented with discussions with individual strategy managers to consider ideas in more detail, ensuring a more rounded exposure.

The team currently has a steady defensive bias, utilising an explicit protection strategy with the aim of providing diversification benefits for investors' portfolios, while netting gains and losses in a single outcome when protection pays off. The aim is to deliver a very low correlation to both bonds and equities, sourcing returns from very different areas. The use of in-house expertise, with a strong pipeline of research, is complemented by the flexibility to buy 'best in class' external research providers.

AGRICULTURE

AMAZON RAINFOREST: VICTIM OF THE US/CHINA TRADE WAR?

Andrew Holden
Analyst

Key Takeaways

- While attention has been rightly focused on record levels of deforestation in the Amazon, the drivers are poorly understood.
- Brazil became the main soybean supplier to China as the US-Chinese trade war escalated.
- Demand from an emerging middle-class in China is likely to remain strong, with Brazilian soybean production expanding to meet that demand.

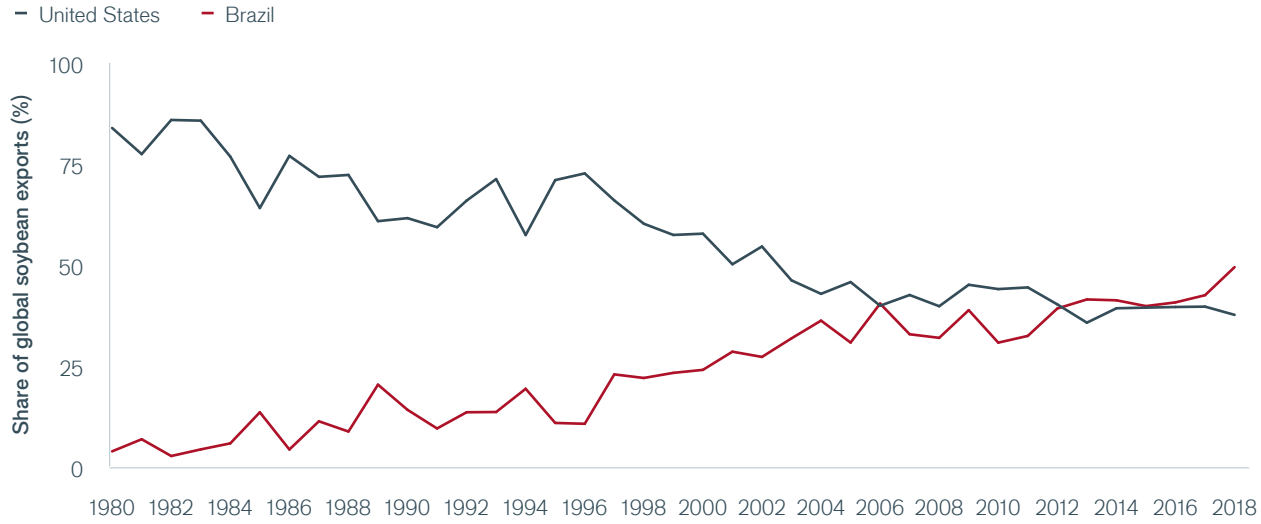
An unlikely casualty of rising US/China tensions

The Amazon rainforest has dominated headlines this year, with huge swaths of it burning as farmers and ranchers turn virgin rainforest into agricultural land. While attention has been rightly focused on record levels of deforestation in the region, the drivers are poorly understood. In truth, the US-Sino trade war, US farm policies and an emerging Chinese middle class have all indirectly driven Brazilian farmers deeper into the Amazon rainforest.

A key driver of Brazil's agricultural expansion has been the desire to capture the disposable income of the emerging middle class in China, which has fuelled demand for meat – in particular pork, fed from soybeans grown in Brazil and elsewhere. The statistics are stark: 2018 saw nearly 90 million acres of soybeans planted in Brazil, a figure that is expected to rise by another 30 million acres over the next decade. Brazil has more than tripled its soybean acreage, increasing farming at a rate of 3.9% per year since 1990, deforesting an area larger than the United Kingdom during that time. Combined with advancements in farming technology and crop genetics, Brazil's soybean production has increased six-fold to make it the world's largest exporter of soybeans (see Exhibit 1).

The relentless march of expansion for Brazil's agricultural sector began when the US agricultural sector implemented renewable fuel policies, which diverted their corn crops into fuel production, pushing prices higher. This made it lucrative for the Brazilian farmer to expand production and let them reach economies of scale comparable to the US. This expansion came at a cost to the Amazon rainforest, with vast areas cleared for agricultural purposes, much of which has been purposed for soybean production. Last year alone, Brazil planted 25 million acres of soybeans in its largest-producing state, Mato Grosso (see Exhibit 2). Since 2000, Mato Grosso has deforested 10% of its land area (19 million acres), primarily in its northern area containing the Amazon rainforest.

Exhibit 1: Brazil has overtaken the US as the world's largest exporter of soybeans



Source: Bloomberg, 31 December 1980 to 31 December 2018.

A casualty of poor US-Sino trade relations

It may seem strange, but much of the blame for the current rate of deforestation can be laid at the feet of the trade war and US farm policy. China buys 65% of the world's soybeans annually, with the vast majority coming from the US and Brazil. Soybeans became an early casualty in the US-Sino trade war, after China placed a 25% import tariffs on US-origin beans. Brazil immediately stepped in to become the main supplier to China, leading to the uptick in deforestation.

Hope for the future

Two unlikely factors may come to the aid of the Amazon rainforest. A positive resolution to the trade war would most likely reduce the incentive for Brazilian farmers to expand production. The hope here is that the US farmer is not so jaded that they refuse to plant soybeans next year and that China follows through with meaningful purchases.

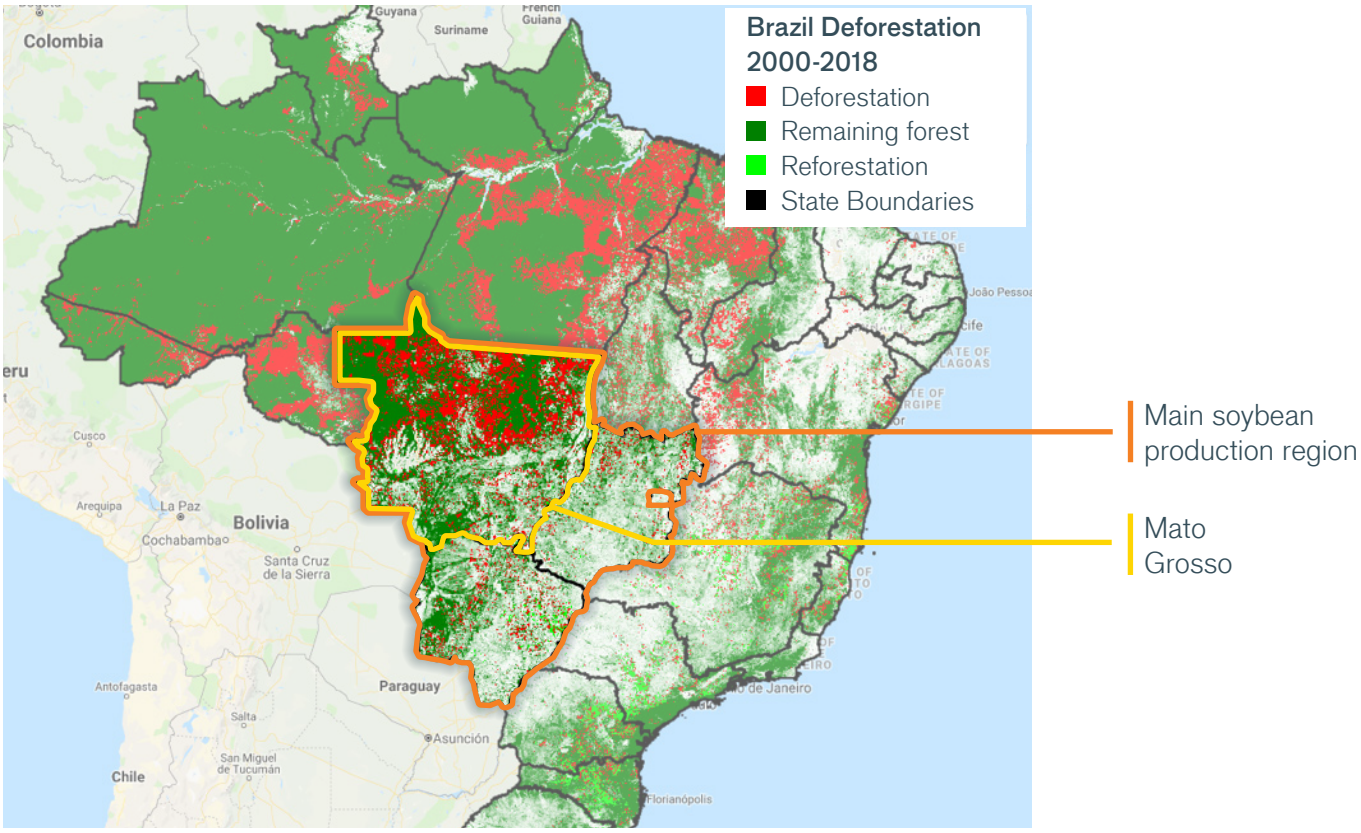
At the same time, Chinese demand for soybeans is reducing as it battles with the ravages of African swine fever, which has reduced pig populations by 30%. The disease has shown no signs of abating and is having a meaningful impact on Chinese soybean demand. At the same time, we expect a fall in pig production in China to be picked up by other parts of the world (including the US), which should bolster the demand story to a certain extent. What is clear, however, is that trade conflict is leading to a dramatic shift in supply chains.

So is all hope lost for the Amazon?

A combination of growing demand from China's emergent and increasingly affluent middle class and US trade and farm policies have placed a huge strain on a fragile, albeit valuable, ecosystem, as well as adding uncertainty to soybean markets. After a bruising experience in 2019 for the Amazon rainforest, a thawing of tensions between the US and China could see US soybeans reintegrated into Chinese demand. At the same time, African swine fever has reduced a key source of demand for Brazilian beans. Both of these factors could come together to reduce the incentive for Brazilian farmers to expand production in the short term. Longer term, however, demand from China is likely to remain strong, with Brazilian soybean production expanding to meet that demand.

As things currently stand, soybean markets remain finely balanced as we wait for more concrete details of what the Phase 1 trade deal could include. Initial promises of $50bn in agricultural purchases from the US would appear to tilt the balance of soybean production back to the US and lead to a substantial increase in prices; but details are light and China has indicated that $20bn is a much more reasonable number. This would move export markets back to where they were before the trade war. Brazil will remain a competitive part of the export markets and as such the world should remain oversupplied with soybeans, with demand lacklustre, which is likely to put downward pressure on the price for soybeans.

Exhibit 2: Mato Grosso is an important region for soybean production



Source: Gorelick, Hancher, Dixon, Ilyushchenko, Thau & Moore (2017). Google Earth Engine: Planetary-scale geospatial analysis for everyone. Remote Sensing of Environment. Data from Hansen / UMD / Google / USGS / NASA. Available online from: http://earthenginepartners.appspot.com/science-2013-global-forest

For more information, please visit **janushenderson.com.**

Janus Henderson
—KNOWLEDGE. SHARED—

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