Late-cycle volatility may be on the horizon, but there will still be pockets of growth. In this environment, investors will need to find ways to manage risk in their portfolios without entirely sacrificing upside potential. Low volatility strategies are one way to achieve this exposure.

Overview
• Smart beta strategies, such as low volatility, can allow investors to modify their portfolios to better reflect their ongoing return-risk appetite in their strategic allocation.
• It is possible to build defensiveness into portfolios, while maintaining a degree of upside potential, by allocating part of the core allocation into low volatility strategies.
• In this article, we use a case study to explain how low volatility impacts portfolio exposure, as well as sources of excess return and active risk.

Macroeconomic Backdrop Could Mean Bumpy Ride in the Year Ahead
Lofty company earnings, stimulated partly by generous corporate tax cuts, went largely uncompensated in 2018. Contractions in multiples1 — for instance, the price-to-earnings ratio — were among the top 10 worst across most developed markets since 1988.2 Towards the end of the year, the market paid much less for a given level of earnings, after the equity markets experienced a severe pullback, especially in the US.

Nevertheless, the US is still expected to outperform other markets in 2019.3 Although, US earnings growth is likely to normalise from a lofty rate of 24% to about 9%, which is still above the global average; as a result, the market is anticipated to deliver a positive return.4 The trajectory to achieve this return could be choppy, which is not uncommon during late economic cycles when we tend to see heightened levels of volatility.5

In anticipation of a bumpy ride ahead, investors may wish to consider attenuating the level of risk in their investments while maintaining full exposure to the equity market. One way of doing this is via an allocation into low volatility strategies.

In this article, we examine how investors can use smart beta strategies, such as low volatility, to modify the return-risk characteristics of their strategic allocation.

Blending Low Volatility Equities as Part of Strategic Allocation
Figure 1 shows the return and risk characteristics of the blended portfolios compared with the S&P 500 benchmark. Over 1-, 3- and 6-year time horizons, the blended portfolios attained a similar level of return, with the added benefit of achieving this through a moderated level of risk. For this reason, they all had higher Sharpe ratios than the benchmark (see Figure 2). The level of maximum drawdown — as well as average drawdown — was equally reduced, made possible by simply increasing the weights to lower beta stocks (see Figure 3).
Figure 1: The Risk-Reward Characteristics of Blending US Equities with US Low Volatility Equities

1 Year

<table>
<thead>
<tr>
<th>Annualised Return (%)</th>
<th>14</th>
<th>12</th>
<th>10</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
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<tbody>
<tr>
<td>Annualised Volatility (%)</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
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3 Years

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<th>Annualised Return (%)</th>
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<th>12</th>
<th>10</th>
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6 Years

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<th>8</th>
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<tbody>
<tr>
<td>Annualised Volatility (%)</td>
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<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
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Figure 2: Return and Risk Performance Statistics of the Blended Portfolios from November 2012 to November 2018

<table>
<thead>
<tr>
<th></th>
<th>30% Low Volatility-70% S&amp;P 500</th>
<th>70% Low Volatility-30% S&amp;P 500</th>
<th>S&amp;P 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Return (%)</td>
<td>13.14</td>
<td>12.70</td>
<td>13.40</td>
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<tr>
<td>Annual Volatility (%)</td>
<td>9.16</td>
<td>8.83</td>
<td>9.89</td>
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<tr>
<td>Sharpe Ratio</td>
<td>1.36</td>
<td>1.37</td>
<td>1.29</td>
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<tr>
<td>Information Ratio</td>
<td>-0.13</td>
<td>-0.15</td>
<td>—</td>
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<tr>
<td>Maximum Drawdown (%)</td>
<td>-7.5</td>
<td>-6.3</td>
<td>-8.5</td>
</tr>
</tbody>
</table>

Source: Bloomberg, State Street Global Advisors, as of November 2018. Monthly data cover the period from November 2012 to November 2018. The blended portfolios are rebalanced semi-annually. White signifies the highest number and dark green signifies the lowest number in the corresponding row. Blended returns do not represent those of indices but were achieved by mathematically combining the actual performance data of two indices. The performance assumes no transaction and rebalancing costs, so actual results will differ. Index returns reflect capital gains and losses, income, and the reinvestment of dividends. Past performance is not a guarantee of future results.

Figure 3: 12-month Drawdown of the Blended Portfolios from November 2012 to November 2018

Source: Morningstar Direct, State Street Global Advisors, as of November 2018. Returns do not represent those of an index but were achieved by mathematically combining the actual performance data of two indices. Index returns reflect capital gains and losses, income, and the reinvestment of dividends. Past performance is not a guarantee of future results.

It may be tempting to conclude that these stocks emanate exclusively from countercyclical sectors; however, the truth is that low beta stocks were chosen from across 9 out of 11 sectors, even if there is a visible tilt towards defensive sectors. Therefore, as a result of blending low volatility strategies with the core portfolio, the overall portfolio reduced its volatility simply by modifying the weights of the least volatile stocks.

The objective of allocating low volatility strategies as part of investors’ core allocation does not simply concern risk reduction. As shown in Figure 4, portfolios can be modified in such a way as to better reflect investors’ risk appetite. For instance, if investors anticipate a strong recovery in US equity markets but would like to enjoy a degree of downside protection, they may wish to maintain as much upside beta as possible, while lessening the portfolio’s downside beta.
To fully appreciate how low volatility can be utilised to adjust investment portfolio characteristics, we can analyse the 70% Low volatility-30% S&P 500 blended portfolio to understand its sources of return and risk.

**Figure 4: Stocks Grouped by their Market Beta in the Blended Portfolio and the S&P 500**

Source: State Street Global Advisors, as of 30 November 2018. The results shown do not represent those of an index but were achieved by mathematically combining the actual data of two indices.

**Figure 5: Conditional Beta and Excess Return in Up and Down Markets**

Source: State Street Global Advisors, as of 30 November 2018. The results shown do not represent those of an index but were achieved by mathematically combining the actual data of two indices.
Case Study: Sources of Return and Risk of the 70% Low Volatility-30% S&P 500 Blended Portfolio

Portfolio Exposure

To understand the drivers of return and risk, we first need to understand the fundamental characteristics of the portfolio. This can be done using a risk model, such as the Axioma US Fundamental Model MH2.0.

The results in Figure 6 show that the portfolio now has a tilt towards stocks that have higher dividend yield, lower market beta and smaller market cap, relative to the S&P 500. It is also worth noting that the strategy has neutral exposure to volatility — which represents mostly unsystematic risk — and to quality, for which profitability is a proxy.

Figure 6: Fundamental Characteristics Analysis of the Blended Portfolio Using Axioma US Medium-Term Model

Source: State Street Global Advisors, FactSet, as of November 2018. Semi-annual active exposures shown cover the period from November 2012 to November 2018. The results shown represent current results generated by Axioma US Fundamental model, MH2.0. The results do not reflect actual trading and do not reflect the impact that material economic and market factors may have had on SSAGA’s decision-making. The results shown were achieved by means of a mathematical formula, and are not indicative of actual future results which could differ substantially.

Sources of Excess Return

Attribution analysis of the excess return, on the basis of risk factors, can provide us with insight on where the excess return came from. Over the last six years, the excess return of the 70% Low Volatility-30% S&P 500 blended portfolio was negative because the US market experienced a strong bull market. It is therefore not surprising that, on a relative basis, a strategy that targets less volatile stocks did not perform as well as the benchmark.

Between November 2012 and November 2018, the annualised excess return for the blended portfolio during the period was -0.48% p.a., even though the return derived from risk factors made a positive contribution of 0.11% p.a. As would be expected, lower market sensitivity and size made a sizeable contribution to that return. It is also interesting to note that the idiosyncratic part of total risk also made an important contribution to return, even if there was an insignificant tilt away from the factor. Paradoxically, although there was a tangible tilt towards the high dividend yield factor, it had almost no positive impact on the return derived from risk factors.

Figure 7: Benchmark-Relative Return Attribution, for the Blended Portfolio, by Risk Factors Between November 2012–November 2018

Source: State Street Global Advisors, FactSet, as of November 2018. Semi-annual active exposures shown cover the period from November 2012 to November 2018.
Sources of Active Risk

Examining the sources of active risk offers us additional insight into benchmark-relative risk. In this example, as 70% of the core S&P 500 Index core allocation was replaced by the S&P 500 Low Volatility Index, much of the benchmark-relative risk (tracking error) can be attributed to both risks linked to the market sensitivity and to volatility factors.

However, while market sensitivity represented a large source of the active risk, it should be noted that more than 44.7% of the active risk was linked to sectors, of which utilities made up the largest proportion (over 21.7%) and, given that there was an average overweight of over 12% in the utilities sector, this outcome may not be unreasonable.

To learn more about SPDR ETF Smart Beta strategies, please visit [spdrs.com/smarbeta](http://spdrs.com/smarbeta)

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1 Source: State Street Global Advisors, MSCI, as of 30 December 2018.
2 Source: State Street Global Advisors, MSCI, as of December 2018.
4 Based on Thomson Reuters consensus forecasts, as of December 2018. The above estimates are based on certain assumptions and analysis. There is no guarantee that the estimates will be achieved.
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